

DYNAMICS OF CORPORATE STRATEGY FROM A VALUE CHAIN PERSPECTIVE

A STUDY OF THE SWEDISH TELECOM AND CONSTRUCTION INDUSTRIES DURING THE 90's

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PREFACE

MANY times during the last couple of years friends and family have asked me about my research. Most of them have been interested in what I have learned and what my contribution to business research and practice is with regard to the subject matter of this thesis, corporate strategy. What I have learned and my contribution will hopefully become evident through reading this thesis. What may be less evident, however, is how these few years of research have caused great emotions of despair and joy, just like running a marathon in its different stages of “flow” and fatigue. For some of my friends and family, this thesis is what matters the most as it may be the ultimate proof of what I have learned. To me, the research process itself, the emotions it has created and the way it has changed my way of thinking and reasoning has been my true gain. I have learned more about myself and the world around me. I have come to better understand my own as well as other peoples’ thoughts and ideas. I understand more about my own understanding. I think I know more about what I do not know. I appreciate new things in life such as philosophy and art... Considering the happiness that the research process has brought to me and by the principle of utility, that is “the principle which approves or disapproves of every action whatsoever, according to the tendency which it appears to have augmented or diminished the happiness of the party whose interest is in question”¹, the research process has probably been more valuable and important to me than the actual end result. Should one also believe that because “I think, therefore I am”² it is evident to me that the research process has contributed positively to my existence. In essence, I am a happier human being and I feel more alive than ever before.

Although it may sound pretentious, during my research project, when thinking about things that I was reading or writing, I sometimes felt that I caught a glimpse of Plato’s world of ideas. During these split seconds, I could see the real world. But, as soon as I realized what I was seeing, that vision was gone. Only when I was making my first paragliding jumps, when taking that last step over the edge of the cliff, have I had a similar experience. Both experiences have been caused by focusing to such an extent that the outside world has become blurred while my inner world sharp and clear. When paragliding and hovering high above villages, woods and mountains one is able to see the whole picture and sense how things relate to each-other. Likewise, my experience researching gave me hope that through research human beings will one day be capable of seeing the world that we live in while simultaneously sensing the world of ideas and how things relate to each other. Then we might be able to develop a deeper consciousness about our world, to analyze it more sharply, and to possibly change it more dramatically. Paragliding and research have been adventurous experiences full of fear, joy, new perspectives and magnificent visions and revelations.

Without professional tutors and supportive friends and family one may not learn or dare to make that first jump (be it paragliding or jumping into research) or chances are that one may try it and crash. Looking back at how this thesis evolved, I note the pleasure I had in working with both researchers and practitioners. I would like to thank professor Staffan Brege, Ph.D. Jakob Rehme and Ph.D. Dan Andersson for their encouragement and support. In particular I would like to thank professor Staffan Brege for allowing me to work under freedom with responsibility. I would also like to thank Kennet Rådne and Kenneth Karlberg (Telia), Bo

¹ Jeremy Bentham (1748-1832); “An introduction to the Principles of Morals and Legislation” (1789).

² Renée Descartes (1596-1650); “Principles of Philosophy” (1644).

Karlsson (Vodafone), Chris Bannister (Hi3G), Jan Wäreby (Sony-Ericsson), Kurt Hellström (Ericsson), Sven-Christer Nilsson (Start-up Factory), Magnus Tannfelt (Allgon), Claes Linée (Drott), Cleas Larsson and Mats Williamson (Skanska), Jan Byfors and Stefan Holmlund (NCC) and Peter Carlsson (Södra Building Systems) for sharing their long experience and in-depth knowledge of managing organizations and shaping industries. Hopefully their combined experience and knowledge gathered in this volume can contribute towards making industries and corporations work even more effectively for the benefit (and happiness) of all in society.

Tilde, we share the same reasoning, how come that the things that I struggle to understand you knew by intuition? Kim, without your encouragement on that beautiful spring day of May 2001 in Rolambshovsparken, I would never have had this learning experience. And without your support along this journey, I might never have reached the point of writing these sentences in 2006. Thank you is not enough. Renée, here is the book that I have been promising you for so long. I am sure that during the next couple of decades or so you will find the book disappointing. Later on, however, I hope you will enjoy it and, eventually, that you also will criticize it and write your own book. One that is far better than this.

Linköping, February 2006

Andes de Paula

1 BACKGROUND AND PURPOSE



CHANGES in sectors and industries have brought new challenges to corporations as well as been important driving forces for the dynamics in strategy at the corporate level. Having the dramatic developments during the 1990's in mind, in particular within the telecommunication³ and the construction industry, this study reflects on what there is to learn from the 1990's and the early 2000's. More specifically, this study contributes to describing and understanding strategic change at the corporate level as well as changes in the division of work within value chains.

The term strategy, as used in this thesis, is closely related to establishing and reestablishing a value chain position (e.g. Porter, 1985) as a result of a continuous strategic process (Mintzberg, 1987; Pettigrew, 1987). According to Mintzberg (1987), strategy refers simply to important issues. How important an issue is depends on contextual factors, "whether as intended before acting or as realized after it" (Mintzberg, 1987, p 14). In this respect, strategy as important issues is here defined as intentions, decisions and actions that relate to bundling and unbundling (see 2.1.2) at different strategic levels (see 2.1.1) with the aim of establishing and reestablishing a value chain position. Thus, the term strategy, as used in this thesis, is influenced by Porter (1985) as it relates to a position, Pettigrew (1987) as it makes reference to content (i.e. a position), process (i.e. changing a position over time) and context (i.e. the value chain), and Mintzberg (1987) as it relates to intentions (i.e. the intended strategy) and/or decisions and actions (i.e. that may result in deliberate or emergent strategies). It should be noted that the "process of strategy" referred to here is influenced by and resembles Pettigrew's (1987) interpretation, but is however, not identical. While the process of strategy referred to here does not reflect on the political and cultural process of challenging and changing the core beliefs of the firm (Pettigrew, 1987), it does recognize the behavior of top management as a necessary, although potentially not sufficient ingredient to strategic change (Pettigrew, 1987). This is reflected in this thesis as it is top management that has been selected for the interviews. Unlike Pettigrew's (1987) interpretation, strategic change in this thesis focuses on the evolution and change over time of the content of strategy in general and the value chain position in particular. The context of strategy is primarily viewed as the (strategic) direction of the intended value chain position, i.e. vertical/horizontal and upstream/downstream.

A quick retrospective overview with respect to economic development, development of corporate strategy as well as development in strategic research and theory seems relevant in order to understand the empirical and theoretical setting during the 1990's and the beginning of the early 2000's.

1.1 Empirical setting during the 1990's

From a domestic perspective, during the 1990's through to 2002, the Swedish economy went from stagnation, particularly between 1991 and 1993, to growth, from 1994 to approximately 2001, and back to stagnation. Low interest rates, increased lending/borrowing, the deregulation of the financial markets, tax subsidies, and speculative building constructions during the end of the 1980's and the beginning of the 1990's led to the real-estate crisis, the construction crisis and the subsequent banking crisis. One of the contributing factors to the recovery of the Swedish economy in 1994 was the depreciation of the Swedish Krona as a consequence of the decision in November 1992 to allow the Swedish Krona to float.

³ In this thesis, the terms telecommunication(s) and datacommunication(s) are used synonymously with telecom(s) and datacom(s) respectively.

During this entire period, and relative the total GDP, the industrial manufacturing sector remained stable while the agriculture sector decreased and the service sector increased, particularly with regard to public services. Traditional Swedish industries such as iron-, steel- and metal works and mining and forestry showed stagnation in volumes and in added value during the period 1990-95. Industries such as the banking, textile, and construction industries also displayed stagnation or recession during this period. The manufacturing industry, however, demonstrated stable growth during this period. Two industries are particularly interesting from the mid 1990's and onwards; the telecommunication and the construction industry. The telecommunication industry is interesting due to its extraordinary growth as a result of innovations and liberalization and the privatization of markets and the construction industry due to its rebound after the "construction crisis" in the beginning of the 1990's and its growth as a result of international expansion. Despite the fact that there are obvious differences between these two industries, such as the level of maturity, i.e. emerging and mature, there are important similarities as well. Both industries are of major importance to individuals as well as to society and to the industrial and economic development of Sweden. At the individual level both industries aim to satisfy two basic needs of human kind, the need for shelter and the need to communicate with one another. From a societal perspective both industries are usually considered to be part of the country's "infrastructure" and consequently the "backbone" of industrial and economic development in Sweden. The importance of the telecommunication and the construction industry to Swedish society cannot be overestimated and this is well illustrated by the fact that the Swedish government has had major shareholder interests in both industries. From an industrial perspective, other industries are heavily dependent on both the telecommunication and the construction industries. Some of the country's increase in productivity can be explained by the developments of telecommunication and IT. From an economic perspective, it is worth noting that the construction industry and the telecommunication industry represent approximately 11% and 2% respectively of total Swedish GDP.

Probably the most important economic trends during the 1990's and the early 2000's were the establishment of far-reaching multilateral free trade agreements, the liberalization and privatization of markets, and as a result, an increased growth, competition and globalization of customer markets, capital and financial markets, and labor markets. Another important trend was the growing importance of stakeholders including customers, shareholders, employees, environmental organizations, etc. to strategy. These trends have occurred both from an international as well as from a domestic, Swedish perspective. Thus, multilateral free-trade agreements, privatization and liberalizations of markets, economic and industrial growth, increased competition and globalization, and the importance of various stakeholders have been major drivers to the content of corporate strategy and the subsequent changes.

Multilateral free-trade agreements, liberalization and privatization: At the international level, some of the most important changes in the competitive environment had to do with the General Agreement of Tariffs and Trade (GATT) in 1993 (the Uruguay-round), the establishment of World Trade Organization (WTO) in 1995 and the EEA agreement in 1994. Under the EEA agreement, products, services, capital and people were able to "move freely" within the member countries and corporations were able to incorporate subsidiaries freely within the EEA area. All such multilateral agreements on free trade had a major effect on Swedish domestic policy with regard to the liberalization and privatization of markets; Swedish domestic policy was designed in line with such multilateral agreements. Thus, at the national level, some of the most important changes in the telecommunication and the construction industries affecting the competitive environment, had to do with the regulatory

scope and the Swedish legislation in the Competition Act which came into effect in 1994, the Telecommunications Act in 1993, and the Public Procurement Act in 1994.

- The Swedish Competition Authority (SCA) was established in 1992 in order to promote effective competition in the private and the public sector. It does so primarily by supervising and enforcing the compliance of private and public organizations to the Swedish Competition Act from 1994. The Swedish Competition Authority, primarily through the Swedish Competition Act, affected corporations within the telecommunication and construction industry at a strategic level, e.g. with regard to decisions that concerned cooperative arrangements and mergers and acquisitions. Any such strategic decision needed to be designed and implemented in compliance with the Swedish Competition Act.
- The Swedish Postal and Telecommunications Regulatory Authority (PTS) was established in 1994 in order to supervise telecommunication, IT-, radio- and the postal sector and to promote and encourage competition within their area of responsibility by supervising and enforcing the compliance of private and public organizations with the Telecommunications Act from 1993. The same year (1993) Televerket was incorporated and renamed Telia AB. Telia AB (and Posten AB) became responsible for providing telecommunication (and postal) services, and hence had no regulatory authority. In 2000, the Swedish government offered the public approximately one third of Telia's shares and Telia was partly privatized.
- The Public Procurement Act and Act on Action against Improper Practice Regarding Public Procurement, both which came into effect in 1994, were of major importance to Swedish industry, primarily the construction industry where approximately 40% of the total purchase amount in the construction industry can be related to public procurements.

Growth: Both at the international and the national level, the telecommunication industry showed a tremendous growth during the 1990's, particularly between 1994 and 2002. On a global basis, the annual turn-over of fixed and cellular services and equipment almost doubled during this period. The number of cellular subscribers went from 56 million to 1.2 billion million, an average increase of 47% per year. Fixed narrow band subscribers went from 643 million to 1.1 billion, equivalent to an average increase of 7% per year. The number of cellular phones sold on a yearly basis went from 23 million to 395 million. Telecom growth in Sweden between 1994 and 2002 very much reflected the global trend. The turn-over of fixed and cellular services in Sweden increased from SEK 24 billion, the equivalent of 1.5% of GDP, to SEK 43 billion or 1.9% of GDP. The number of cellular subscriptions increased from 1.4 million to 7.2 million. The Swedish construction industry also grew between 1994 and 2002, from SEK 110 billion in turn-over on an annual basis, the equivalent of 6.6% of GDP, to SEK 265 billion, or 11.3% of GDP⁴. This growth occurred despite the fact that the

⁴ Industry turn-over as a percentage of GDP are only indicative of growth. Figures for turn-over in telecommunication and construction industries are not comparable. Figures for turn-over in telecommunication industry include only revenues in end-user segments (excluding e.g. leased lines) according to PTS, 2002 ("Svensk telemarknad 2001"). Figures for turn-over in construction industry include turn-over in buildings, roadwork, civil engineering and maintenance segments according to NCC for years 1994-1996 (NCC AR), KKV, 1999 for year 1997 ("Kommuners upphandling av bygg- och anläggningstjänster" with reference to Byggtrepreneurerna), SCB for years 1998-2002 (<http://www.scb.se/statistik/nv0801/nv0801.asp>). GDP figures according to SCB (<http://www.scb.se/statistik/nr0102/nr0102tab4.asp>). GDP for years 1994-1998 compiled according to the SNA 68 standard; years 1999-2002 compiled according to the SNA 93/ENS 95 standard.

completed construction of houses and apartments went down from approximately 20,000 in 1994 to an average of 12,000 between 1995 and 2001, rebounding to approximately 20,000 in 2002.

Competition: Both at the international and the national level, the telecommunication industry experienced increased competition during the 1990's, particularly between 1994 and 2001-02. During this period, Ericsson's world market share in cellular phones fell by roughly three quarters. In Sweden's fixed telecommunication service provisioning segment, Telia's market share in number of fixed subscribers decreased roughly by 50% and the market share in turn-over fell by one fourth. A similar development occurred in the cellular segment of the telecommunication industry. In this segment, Telia's market share, both in number of cellular subscribers and in turn-over, decreased by slightly more than 40%. The number of operators and service providers increased from 14 to 408. The increased competition resulted in prices for telecommunication services going down; the per-minute price for a national long-distance call went from SEK 0.84 to SEK 0.30. Competition in the construction industry also increased, particularly in the refurbishing segment. The number of construction companies increased (primarily smaller ones within niche segments such as land and foundation preparation, construction and civil engineering, installation, final treatment and machinery rentals) and the market share of the two largest construction companies, Skanska and NCC, dropped by roughly 40-50%.

Globalization: The dependency of the Swedish economy on international trade has increased over the last few decades. Of the total GDP, approximately one fourth went to exports during the 1950's and 1960's. In the mid 1990's, this figure had increased to 40%. Imports also totaled approximately one fourth of Swedish GDP during the 1950's and 1960's. In the mid 1990's this figure had increased to almost 35%.

The 1990's marked China's entrance, or rather its rapidly increasing presence, in the world economy. China's economic policy to encourage foreign investments in industrial manufacturing during 1990's and the early 2000's, in combination with low labor costs, attracted substantial foreign investments from around the globe, particularly from high labor cost countries such as Sweden, the United States, and Japan; the cost of labor in Sweden, including salary, social security and other benefits, has been ranked 10th among the most expensive countries in the world, the United States has been ranked 8th, and Japan 11th to mention only a few. Between 1992 and 2002 China had the world's third largest economic growth. In addition, by 2002 China had reached the world's third largest industrial and manufacturing output, after the United States and Japan.

Another important trend emerged during the 1990's which was a move towards globalization, including the globalization of customer markets, capital and financial markets, and labor markets both in the telecommunication and the construction industry. This trend was evident both in the operator and the supplier segment of both industries. Across corporations along the value chain of both industries, this development is substantiated by e.g. the increase of international sales as a percentage of total sales, the increase of international shareholder's votes or capital as a percentage of total votes or capital, the increase of the number of employees in foreign countries as a percentage of total number of employees, and the increase in the number of subsidiaries in foreign countries.

Stakeholder perspective: During the 1990's, particularly during the "IT-bubble", shareholders, relative customers and the corporation itself, seem to have increasingly attracted the attention of corporate management and corporate strategy. Probably as a response to the

short-term shareholder perspective on strategy, often including corporate managers as major shareholders, came the long-term industrial perspective on strategy, with its focus on customers and sustainable development, at least in theory, although perhaps less so in practice. During this period, the importance of delivering added value to customers through systems and total solutions increased. The increasing attention towards environmental issues and social responsibility often resulted in the fact that the environmental policy (e.g. issues on industrial development and its impact on global warming, the exploitation of natural resources and issues regarding recycling, etc.) of several corporations, were developed into policies of social responsibility, including not only environmental issues, but also issues regarding working conditions for employees and ethical business behavior, etc.

1.2 Theoretical developments during the 1990's

During the mid 1990's, some researchers began to argue that strategy at the functional or operational level, as developed during the 1980's, including continuous developments in operational effectiveness, was important although not of strategic importance to corporations (Porter, 1996). It was argued that operational effectiveness could not sustain competitive advantage due to e.g. the rapid diffusion of best practices. Operational effectiveness had to do with performing similar activities better than the competitors while strategy had to do with performing different activities or performing activities in a different way. Consequently, operational effectiveness could only generate a zero sum competition and replacing strategy with operational effectiveness would result in static or declining prices, pressures on costs and the decreasing ability of corporations to invest in their business in the long-term (Porter, 1996).

The developments during the mid 1990's and onwards, including multilateral free-trade agreements, privatization and liberalizations of markets, economic and industrial growth, increased competition and globalization, and the importance of various stakeholders, have been major drivers to the content of corporate strategy, including outsourcing as well as mergers and acquisitions. Contemporary research on strategy can be found at the corporate, SBU, and at the functional level of strategy. At the corporate level, much research has focused on understanding the 1990's and the early 2000's trend towards outsourcing and mergers. At the functional level of strategy, modularization and systems development and sales has been an important area of research.

Outsourcing and M&As: It made sense to researchers, as large integrated corporations became less profitable and needed to cut costs during the late 80's and the beginning of the 90's, to hypothesized that the transaction cost theory not only explained vertical and horizontal integration, but also its opposite, outsourcing (e.g. Walker, 1988; Ellram, Maltz, 1995; Cox, 1996; Deavers, 1997). As researchers and practitioners turned their attention to outsourcing this "new" phenomenon increasingly gained ground culminating in the late 90's. Naturally, during this period of time, the theory on outsourcing became increasingly refined, including factors such as the core competence of corporations (Prahalad, Hamel, 1990). "The core competence of corporations" (Prahalad, Hamel, 1990) was a major milestone in the theory development on strategy, at least from the attention it got from being published in Harvard Business Review. Prahalad and Hamel (1990) criticized the organization of corporations into SBUs and contributed to developing the theory of the firm, and, as a result, the strategic objective of firms. Prahalad and Hamel (1990) argued that a firm needs to identify, build and exploit, at lower cost and more speedily than its competitors, its core competencies. The rationale for a company to focus on its core competencies, according to Prahalad and Hamel (1990), is that core competencies provide access to a variety of markets, contribute to customer benefit and are difficult to imitate. In addition, core products can lead

to economies of scale and scope. Practitioners could now increasingly explain the rationale of outsourcing, as well as vertical/horizontal integration through e.g. M&As, by emphasizing the importance of focusing on the corporation's "core competence" or "core business" (e.g. Quinn, Hilmer, 1994; Long, Vickers-Koch, 1995; Javidan, 1998). Some researchers even argued that outsourcing itself might be considered a core capability (e.g. Fine, Whitney, 1995). As the advantages and disadvantages of both perspectives, i.e. transaction cost and core competence, became increasingly evident, a third group of researchers came along and tried to incorporate several other influencing factors or combine the existing two (i.e. transaction cost and core competence) in explaining the rationale for outsourcing (e.g. Fill, Visser, 2000) and vertical and horizontal integration. During the mid 1990's to the end of the 1990's the "opposite" of unbundling through outsourcing became an important and frequent strategic decision to Swedish and foreign corporations; bundling through M&As, in particular international M&As. This trend was particularly noticeable in the telecommunication and the construction industries. Not surprisingly, research in this area increased and focused on questions such as merger motives and merger outcomes or results. As mentioned, the resource based theory and the transaction cost theory were frequently used not only to explain outsourcing but to explain M&As as well.

Modularization and systems development and sales: As mentioned, during the mid 90's, some researchers began to argue that strategy at the functional or operational level, as developed during the 1980's, including continuous developments in operational effectiveness was important, although not of strategic importance to corporations (e.g. Porter, 1996). It was argued that operational effectiveness could not sustain competitive advantage due to e.g. the rapid diffusion of best practices. Operational effectiveness had to do with performing similar activities better than the competitors while strategy had to do with performing different activities or performing activities in a different way. Consequently, operational effectiveness would only generate a zero sum competition and replacing strategy with operational effectiveness would result in static or declining prices, pressures on costs and the decreasing ability of corporations to make long-term investments in their business (Porter, 1996). Strategy at the functional level, however, regained ground during the late 1990's through the development of systems, total solutions or functions. The "development" of systems involved functions such as marketing, sales, product development, etc. at the functional level. It was believed that systems, total solutions, and functions, etc. increased customer value through e.g. lowering total costs, improving quality and lead-times, increasing the level of customization, etc. Consequently, increasing the scope of offering into systems, solutions and functions allowed the corporation to go beyond competitive bidding based solely on price (e.g. Bansard, Cova, Salle, 1991).

Value chain perspective on strategy: It seems that the dynamics of strategy at the corporate level during the 1990's (growth into related and unrelated business and back to focusing on the core competence) including changes in the offering through modularization and expanding the scope of offering through system sales, needed also to consider changes in the vertical division of work through substantial outsourcing and mergers and acquisitions. Having the corporation as the unit and level of analysis often implies that strategic decision such as outsourcing and mergers and acquisitions can be studied separately. Nonetheless, in understanding corporate strategy (i.e. the unit of analysis) from a value chain perspective (i.e. the level of analysis) it seems reasonable to assume that strategic decisions such as outsourcing and mergers and acquisitions are closely related to each-other (e.g. the decision to outsource by one company down-stream may lead to an M&A decision by another company up-stream). Consequently, to better understand the dynamics of strategy at the corporate level, the unit of analysis may have to be expanded to the industry level or at least to include major

parts of the vertical value chain; e.g. growth through M&As or focus through outsourcing may be interrelated and understanding outsourcing may require an understanding of mergers and acquisitions and vice versa. In addition, corporate level strategy during the 1990's is not detached from the functional level of strategy, particularly under the assumption that the "offer" is the main carrier of value (as opposed to e.g. "relationships"). The 1990's shows that the functional level of strategy and the development of systems, total solutions, functions, etc. is intimately and reciprocally related to corporate strategy.

Linking corporate and functional level of strategy: The least common denominator, or the similarities, between outsourcing, M&As and modularization and system sales is that these strategic decisions have to do with bundling or unbundling (at different strategic levels). The difference is that outsourcing and M&As belong to a higher level of strategy (i.e. often corporate or SBU level of strategy) and modularization and system sales to a lower level of strategy (i.e. often functional level of strategy); while outsourcing and M&As can redefine the boundary of the firm and its scope, modularization and system sales can redefine the boundary of the offering and its scope.

Defining and redefining the boundaries of the corporation through a continuous process of corporate bundling (e.g. through M&As) and unbundling (e.g. through outsourcing) has been suggested in order adapt the boundaries of the firm to the industry's profit structure or "profit pool" (Gadiesh, Gilbert, 1998) or to focus on the core competence of the corporation, i.e. its main "culture" in terms of customer relationship management, product innovation or infrastructure management, and to minimize the transaction cost or "interaction cost", i.e. costs for sharing ideas and information between buyer and seller (Hagel III, Singer, 1999). Defining and redefining the boundaries of the offering through a continuous process of bundling (e.g. through moving into system) and unbundling (e.g. through moving into modularization) has been suggested in order adapt the boundaries of the offering to increase customer value through e.g. lower total costs, improve quality and lead-times, and increase level of customization, etc. (e.g. Henke, Jr., 2000). Defining and redefining the boundary of the firm and the boundary of the offering through a continuous process of bundling and unbundling is hence strategy at both a corporate and functional level. Linking the corporate level and the functional level of strategy through strategic positions (e.g. position in the value chain), and changes in such positions, as well as operational platforms (e.g. sales, purchasing, R&D, logistics, etc.), and changes in such platforms, has been suggested in order to create "dynamic effectiveness" which is a combination of strategic and operational effectiveness (Abrahamsson, Brege, 2004).

Summarizing strategic content; from operational effectiveness, through positioning, to bundling and unbundling: As discussed above, strategy, in theory and in practice, seems to have evolved during the 1990's from increasing operational effectiveness at the functional level of strategy through corporate and business unit positioning, to bundling and unbundling at various strategic levels through M&As, outsourcing, systemization and modularization.

Changing the boundaries of the corporation has to do with what is usually referred to as "bundling" and unbundling the corporation" (e.g. Hagel III, Singer, 1999) through mergers and acquisitions (i.e. corporate level bundling) and outsourcing (i.e. corporate level unbundling). At the functional level, changing the boundaries concerns the creation of systems and solutions (e.g. Henke Jr., 2000), i.e. functional level bundling, or "modularization" (e.g. Baldwin, Clark, 1997), the creation of "naked solutions" (e.g. Anderson, Narus, 2000), and "complementary" or "stand-alone" product offerings (e.g. Porter, 1985), i.e. functional level unbundling. At the industry level, e.g. from a value chain

perspective, vertical/horizontal integration/disintegration represents a strategic decision/action in two dimensions, i.e. within industries, i.e. vertical integration/disintegration (Porter, 1980, pp. 300-323) and between industries, i.e. horizontal integration/disintegration (Porter, 1985, pp. 364-382). In addition, “vertical/horizontal integration/disintegration” refers to bundling and unbundling (at corporate, business and functional levels) from a discrete organizational perspective as well as from an embedded organizational perspective. The former implies that hierarchies are separated from markets while the latter implies that hierarchies and markets are integrated. Because strategy at the corporate and functional level affects the boundaries of the corporation and its offering through bundling and unbundling, it seems reasonable to assume that strategy, at the corporate and functional level is a major component/indicator of changes in the division of work between vertical corporations (within industries), and between horizontal corporations (between industries). Consequently, strategy may also change the boundaries of an industry, either horizontally resulting in merging or diverging industries, or vertically, resulting in industry fragmentation or consolidation.

1.3 Summary

To summarize, strategy as the intention or the actual bundling/unbundling at the functional level, through SBU/corporate level, to industry level, allows for, in contrast to the 80's and 90's, more emphasis on and integration of the various levels of strategy, from the functional level through the SBU/corporate level to the industry level of strategy. Strategy, thus, guides corporate strategic planning with regard to *what* to do (and what not to do), and *how* to do (and how not to do) and the execution thereof with regard to positioning in the value chain/constellation as well as accommodating the boundaries of the corporation in order to reflect such decisions of what and how to do.

Summarizing strategic target from customer focus to limited stakeholder focus – customers, capital and competence markets: The dynamics in strategy refer to changes in the rationale for strategic decisions, and consequently, to what drives such decisions and what the purpose or expected results and outcomes for such decisions are. The dynamics in strategy refer to both the content and the process of strategy. The strategic decisions referred to here include primarily those that are related to the bundling and unbundling decision at different strategic levels and that have an impact on the boundary of the firm, i.e. mergers and acquisitions, and outsourcing, as well as the scope of offering, i.e. systemization and modularization.

Porter (1980) argues that industry competitors, suppliers, buyers and substitutes drive industry competition and determine the profit potential in an industry. In coping with the five competitive forces, Porter (1980) suggests three generic strategies; cost leadership, differentiation and focus. Value chains and value systems represent the relevant activities for understanding costs as well as the potential sources for differentiation. As such, value activities are the key source of competitive advantage. According to Porter (1985), “creating value for buyers that exceeds the cost of doing so is the goal of any generic strategy” and “value is the amount buyers are willing to pay for what a firm provides them” (Porter, 1985, p 38). Value activities include support activities such as technology development and HR management. Consequently, employees in the competence market are seen as means to create value for customers and not as an end in itself, i.e. a market that needs to be attracted by offering some sort of added value. In addition, shareholders in the capital market are not part of the value chain or system (the mean) and not a direct target of firms (the end). Thus, implicitly, according to Porter (1980), shareholders cannot create value for the firm and the firm should not target its value creating activities directly towards the shareholders (firms may however indirectly target the capital market through customers, profits and dividends). The

1990's, however, show that firms do target their value creating activities directly at customers as well as shareholders (e.g. through activities that drive the stock price) in the capital market and employees in the competence market. The expanded network horizon in value creation reflects the corporation's aim, on a global scale, of not only creating value for customers in customer markets but also for shareholders in a capital market and employees, potential employees or consulting or outsourcing partners in a competence market.

The rationale for such an expanded network horizon in value creation depends on two important factors. First and foremost, the increasing globalization of customers, capital and competencies (e.g. diffusion of know-how) due to e.g. multilateral free-trade agreements has increasingly created competitive and global customer, capital and competence markets. Secondly, as an industrial logic for value creation is complemented by a financial logic for value creation, i.e. value creation towards customers has been complemented and sometimes even substituted by value creation towards the capital market, e.g. shareholders. In this process it has become common to create value towards the competence market by turning employees (including management) into shareholders and offering them financial incentive packages.

The mid 1990's and onwards should provide further empirical evidence for describing and understanding the content of corporate level strategy (in terms of bundling through M&As and unbundling through outsourcing) and its interrelationship with the content of functional level strategy (in terms of bundling the offering through system sales and unbundling, i.e. modularization), particularly if viewed from a value chain perspective and the division of work across the value chain. Describing the link between M&As, outsourcing, system sales and modularization means describing the link on a corporate as well as a functional level of strategy. Understanding changes in the division of work in the value chain means understanding strategic change at the corporate and functional levels and the resulting changes in the boundary of the firm and the boundary of the offering. In addition, the 1990's should also provide further empirical evidence for describing and understanding how not only customer markets but also capital and competence markets have contributed to the developments in corporate strategy from a value chain perspective. Many pieces have been laid in the gigantic jig-saw of describing and understanding corporate strategy and the context surrounding it. Given the developments and contextual changes during the 1990's; what is there to learn with regard to corporate strategy?

1.4 Purpose

From a value chain perspective, the purpose of this study is to describe and understand strategic change at the corporate level in the telecom and construction industries during the 1990's. More specifically this study shall contribute to...

- ...describing and understanding the content of strategic change; i.e. the dynamics of and between mergers and acquisitions, outsourcing, modularization and system sales, and...
- ...describing and understanding industrial and financial drivers to strategic change, i.e. how an industrial and a financial logic drive strategic change.

1.5 Structure of report

When setting out to describe changes in corporate strategy from a value chain perspective and understand, and possibly explain, its driving forces it seems reasonable to start this work by defining some key concepts, in particular "strategy" and "change". In *Chapter 2*, "Frame of

reference” important *key concepts* for this study are defined in order to serve as *key components/indicators* for understanding the identified changes in corporate strategy. Moreover, the literature review in Chapter 2 makes reference to existing theory in discussing reasonable assumptions with regard to how to describe and understand changes in corporate strategy from a value chain perspective. The results could be understood as the *basic propositions* in this study. A further discussion with regard to the identified key components/indicators serve as a foundation for synthesizing such key components/indicators into the *analytical model* that is used in this study. The result could be understood as the *purpose decomposed*. The chapter is concluded by a short discussion regarding the analytical model, something that can also be viewed as a summary of the previous discussions regarding the theoretical framework.

Chapter 3, “Research methodology”, focuses on *describing the research methodology* actually applied during the research process and the research process itself, e.g. how and why certain decisions with regard to the research methodology and the research process itself have been made. In addition, a brief introduction and overview of the field of research methodology is presented in order to substantiate such choices and to explain some of the terminology within the field of research methodology that is used. For the same reason, there is a discussion on the *philosophy of science* in general, and the *systems approach* (in contrast to the analytical/positivistic and actor/hermeneutic perspective) in particular. The main purpose of this chapter, however, is to enable and help the reader to *assess the validity and reliability* of the research process and eventually the research results.

Chapter 4 is a summary of Attachment 2, “Corporate Strategy and Industry Dynamics - Empirical Cases and first level of analysis”. Chapter 4 is entirely descriptive, and its aim is to provide a *description of changes in corporate strategy in the telecommunication and construction industries, during a time period ranging from 1994 to 2001*. The empirical data collected is presented year by year and on a case by case basis, i.e. industry by industry and corporation by corporation. The *industry context*, i.e. the regulatory changes and market interventions, as well as the *strategic behavior* of Swedish corporations, i.e. how Swedish corporations have planned and/or formulated and eventually executed their corporate strategy, within the telecommunication and construction industries is presented.

As argued previously in this introduction, from a systems perspective, corporations, industries and value chains can only be understood through investigating, analyzing and understanding their environments, i.e. the dynamic interrelationship between the context outside the system and the system itself, and its components/indicators, i.e. the dynamic interrelationship among components/indicators and between components/indicators and the system itself. The *industry context, its components/indicators, and the dynamic interrelationship among those*, as well as the effects on corporate strategy and industry evolution are analyzed in Chapter 5, “Analysis”. It should be mentioned, however, that the analysis in Chapter 5 is built upon a first level of analysis included in Attachment 2.

In Chapter 6, “Corporate level conclusions”, *conclusions, from a systems perspective*, are drawn with respect to *how we could understand changes in corporate strategy from a value chain perspective* and its driving forces. Consequently, the main objective of Chapter 6 is to *answer the purpose* of this research.

During the writing of this thesis several propositions regarding strategy, primarily at the industry level, came to mind and were developed. This is not surprising since the purpose of this thesis lies in between the corporate and industry level of analysis. As these propositions

did not directly fit into the purpose of this thesis, such propositions were not theoretically elaborated. The propositions and suggestions for future research are discussed and presented in *Chapter 7*, “Industry level propositions and suggestions for future research”.

The relationship between the contents and the chapters of this report is illustrated in Figure 1:1 below.

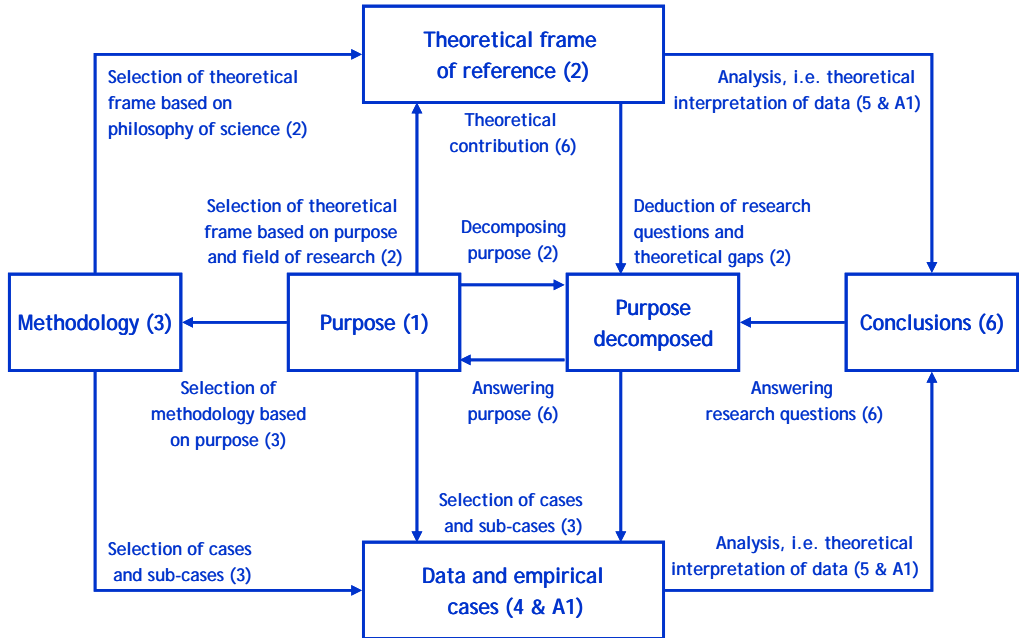


Figure 1:1 Contents of thesis

2 FRAME OF REFERENCE



WHEN setting out to describe structures and changes in industries and industrial value constellations and understand, and possibly explain its driving forces and dynamic relationship with corporate strategy it seems reasonable to start this work by defining some key concepts, in particular “industries” and “strategy”. In the literature, however, there is no common agreement on such concepts (Spender, 1993, p 12) or their purposes. Thus, this chapter begins by discussing and reviewing the literature on strategy and strategic change. The definition of strategy used in this thesis and the analytical model deducted from the discussion and review of strategy and strategic change (including bundling/unbundling at different strategic levels, i.e. industry, corporate/SBU, and functional level) is followed by a review of the literature on industry structure and change as well as corporate bundling through mergers and acquisitions, corporate unbundling through outsourcing, as well as functional level bundling/unbundling (see Figure 2:1).

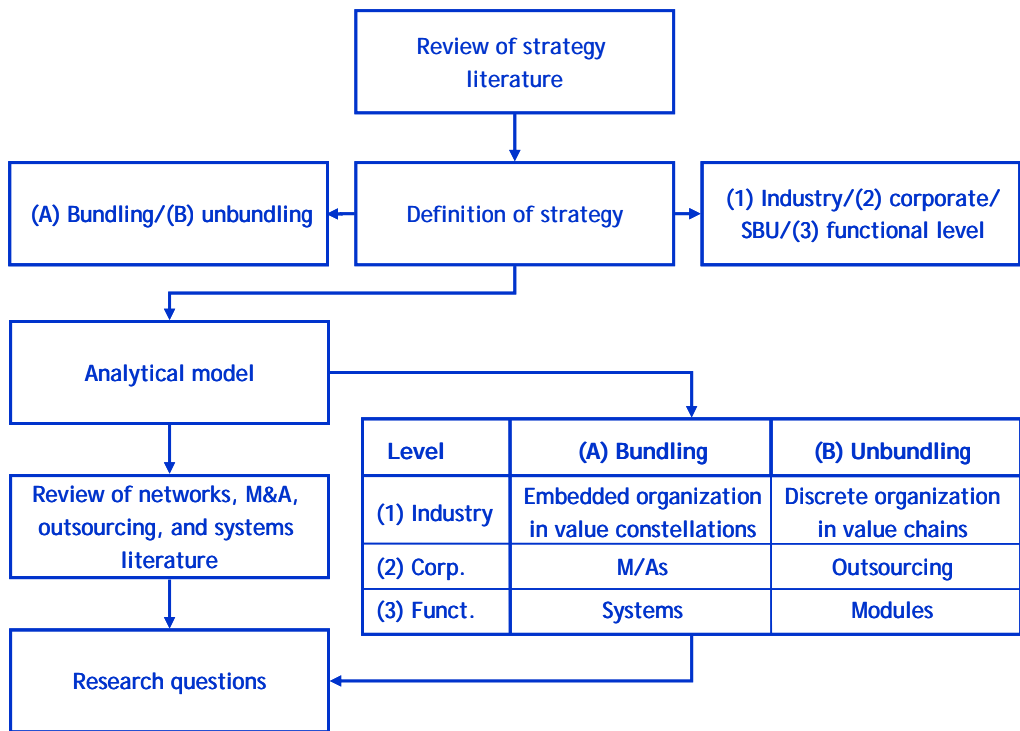


Figure 2:1 Frame of reference

2.1 On strategy and strategic change

When setting out to describe and discuss the field of research within strategic change it seems reasonable to start this work by defining some key concepts, in particular “strategy” and “change”. In the literature, however, there is no common agreement on how such concepts are defined (e.g. Spender, 1993; Mintzberg, 2001).

Pettigrew (1987) argues that “the processual analysis [of strategy] requires a motor, or theory or theories, to drive the process, part of which will require the specification of the model of human beings underlying the research.” (Pettigrew, 1987, p 656). The “specification of the model of human beings” and the specification of other units under analysis, as the case may be, are in fact what have been termed axioms, axiomatic assumptions, a priori basic

assumptions, overall hypotheses or normative propositions (Arbnor and Bjerke, 1994, p 22). Axiomatic assumptions cannot be empirically or logically tested because the collected data or the logic would at all times prove the assumption(s) to be true, no matter conflicting assumptions (Arbnor and Bjerke, 1994, p 22). As such, axiomatic assumptions are closely related to the term “paradigm” (Arbnor and Bjerke, 1994, p 28 ff.). A paradigm, just like axiomatic assumptions, cannot be tested within the confines of the paradigm itself. Evidence of an inadequate paradigm is often rejected as a failure of the scientist or simply as anomalies (Kuhn, 1996; Chalmers 1999). Axiomatic assumptions may include the purpose and nature of human transactions in economic systems, i.e. to maximize or satisfy the outcome of transactions in economic systems. It may also include explaining strategic change and strategic decisions based on causality (based on prior events) or finality (based on future expectations). The nature of humans in terms of rationality (rational vs. bounded rationality) and self interest (egocentrism vs. allocentrism) are further axiomatic assumptions. In addition, the nature of economic systems in terms of the relationship between the system and its context (context free vs. content dependent) as well as its development (static vs. dynamic as well as voluntaristic vs. deterministic) are important assumptions. Finally, the nature of economic transactions and the interaction between humans and economic systems, e.g. with regard to information (perfect information vs. asymmetric information) and cost (no cost vs. transaction cost) are implicit and important assumptions.

The purpose of this section is to identify different perspectives on strategy and change, and consequently strategic change. It is possible that different perspectives and definitions of strategy held and provided by researchers can, to some extent, be understood and explained by different axiomatic assumptions. Finding how different axiomatic assumptions provide alternative descriptions and definitions of strategy may, however, constitute a research project in itself. Such endeavor would certainly mean to try to build the established field of strategic research anew; “when the individual scientist can take a paradigm for granted, he need no longer, in his major work, attempt to build his field anew, starting from first principles and justifying the use of each concept introduced” (Kuhn, 1996, pp. 19-20). In addition, it would contribute little to answering the purpose of this thesis.

Pettigrew (1987) suggests the analysis of the content, process and context of strategy to guide research in the field of strategy. Thus, in practice and in theory, strategy can be broadly managed/perceived and analyzed/understood from a content, context and process perspective (Pettigrew, 1987). What brings strategy and change together is strategic process. Any systematic classification of existing theory on strategy and change is unable to find entirely independent categories (if such exist at all). This means that any category will share one or several basic assumptions with one or several another categories. In addition, no systematic classification will ever have the possibility to serve any and all researchers independently of the purpose of the research study he/she is conducting and the specific research questions he/she trying to answer. The different perspectives on strategy and change mentioned here follow commonly accepted classifications made by Mintzberg (1987) and Mintzberg and Lampel (1999) with regard to different “schools” of strategy (focusing on the content of strategy), Garud and Van de Ven (2000) with regard to different perspectives and patterns of change (focusing on the process of strategy), and de Wit and Meyer (2001) with regard to different strategic levels (focusing on the context of strategy). Based on such different perspectives, this section then provides a definition of strategy as used in this thesis. The definition of strategy as used in this thesis provides a foundation for the analytical model that is framed and further developed for answering the purpose of this thesis. This section is concluded with a short discussion with regard to the analytical model, something that can be viewed as a summary of the previous discussions with regard to the theoretical framework.

Perspectives on strategy: The different schools or perspectives of strategy presented here are primarily based on the classification made by Mintzberg (1987) and Mintzberg and Lampel (1999). According to Mintzberg (1987), strategy refers simply to important issues. As such, the content of strategy may include anything as everything may prove to be more or less strategic or important (Mintzberg, 1987). In addition, according to Mintzberg (1987), how important strategic things are depend on the context with regard to time and space. Consequently, Mintzberg (1987) suggests dropping the term “tactics”.

Mintzberg (1987) identifies five different perspectives of strategy; strategy as a plan, ploy, pattern, position and perspective. These perspectives are closely interrelated and complement as well as substitute each-other. Strategy as a plan or the intended strategy implies that thinking and doing are separated. Plans are made in advance of actions and developed consciously and purposefully as future intentions. Strategy as a ploy refers to the plan or threat to do something. Strategy as a ploy refers to e.g. market signals and ploys for increasing the perceived probability and severity of retaliation. According to Porter (1980) “a market signal is any action by a competitor that provides a direct or indirect indication of its intentions, motives, goals, or internal situation... Some signals are bluffs, some are warnings, and some are earnest commitments to a course of action” (Porter, 1980, p 75). In addition, “defensive tactics is an action that increases the threat of retaliation perceived by challengers” (Porter, 1985, p 494). Strategy as a pattern refers to the realization of consistent actions, often referred to a “pattern in a stream of actions” (Mintzberg, 1987, p 12). Strategy as a position means locating the organization in a competitive or market environment, or finding a niche or a match between the internal and external context. In the strategic literature this perspective often means finding a product-market domain. Strategy as a position may be the result of either an intended or an emergent strategy in a stream of actions. While strategy as a position looks out of the organization, strategy as a perspective looks inside the organization. The content of strategy as a perspective refers to how things are individually and collectively perceived and the intentions or actions shared by the members of an organization. From this perspective “strategy...is to the organization what personality is to the individual” (Mintzberg, 1987, p 16).

A more elaborated classification of strategy has been suggested by Mintzberg and Lampel (1999). Overlapping the five previous ones (strategy as a plan, ploy, pattern, position and perspective), Mintzberg and Lampel (1999) suggest ten different schools of thought with regard to the content and process of strategy; the design school as a process of conception, the planning schools as a formal process, the positioning school as an analytical process, the entrepreneurial school as a visionary process, the cognitive school as a mental process, the learning school as an emergent process, the power school as a process of negotiation, the cultural school as a social process, the environmental school as a reactive process, and the configuration school as a process of transformation.

Perspectives on change: Reviewing the literature on “change” provides at least three main categories, those concerned with describing (e.g. different patterns of change), understanding (e.g. indicators that drive strategic change), and explaining (e.g. factors that causes change) change. These main categories differ with regard to the ambition and purpose of the researcher as well his/her a priori basic assumptions and view on science and the philosophy of science. This section shall discuss five different perspectives and patterns of change (i.e. life cycle, dialectic, evolutionary, teleological, and complex non-linear) followed by four different perspectives on how change may be understood in terms of what it is that drives

change and how the change process may be managed (i.e. management of meaning, crises in perceptions, sense making, explaining change).

Patterns of change have often to do with describing the process of change, provided however change is essentially defined as a political and cultural process (see below). Describing the process of change means that the drivers for change are implicitly or explicitly assumed. Consequently, the literature concerned with describing patterns of change is closely intertwined with those concerned with understanding or explaining change. Garud and Van de Ven (2000) propose two dimensions (mode of change/unit of change) for classifying the literature on change into four basic groups, all with different patterns of change; life cycle (prescribed/single entity), dialectic (constructive/multiple entities), evolutionary (prescribed/multiple entities) and teleological (constructive/single entity). The mode of change refers to change sequences that are either constructed and emergent or prescribed a priori by either deterministic or probabilistic laws. The unit of change, on the other hand, refers to change sequences that involve the development of a single organizational entity or those that involve interaction between two or more entities. In addition to the four basic groups, Garud and Van de Ven (2000) suggest a fifth category, i.e. the complex non-linear, as a combination of two or several of the above archetypes of change. The four different patterns of change have been applied in virtually all different levels of analysis from the individual to the societal level. In addition, they all differ in their axiomatic assumptions with regard to e.g. the human nature.

Understanding change means understanding what it is that drives change and how the change process may be managed by motivating, sometimes through politics, power and negotiations, and communicating change internally and externally. In addition, it means finding the drivers for change, however accepting a relationship of finality between the drivers or indicators and the process. Through a relationship of finality several indicators may provide the same outcome (i.e. equifinality) or one indicator may provide several different outcomes (i.e. multifinality). From a process perceptive and in analogy with a decision tree and its “branches”, “any action builds upon the past and yet departs from it. Indeed, any action opens up several associated possibilities almost in the form of a complex decision tree. With such a tree, any part can be traced to an earlier path but cannot be predetermined by it. That is, it may be possible to trace existing choices to earlier choices, but it may not be possible to predict future choices based on present choices... In other words it is possible to trace ‘pattern’ but not to predict exact ‘path’...” (Garud, Van de Ven, 2000, p 32). In addition, the base of generalization in understanding change is from case to theory (Garud, Van de Ven, 2000). Often, understanding change means understanding the cognitive models and perceptions at the individual level. Terms such as “management of meaning” (Pettigrew, 1987), “crisis in perceptions” (Pettigrew, 1987), “sense making” (Gioia, Thomas, Clark, Chittipeddi, 1994), etc. are used to understand (management of) change.

Pettigrew (1987) further argues that major transformations of the firm needs to consider the content, the internal (e.g. corporate structure, culture) and external (e.g. social, economic, political and competitive environment) context and the process of change. According to Pettigrew (1987), content refers to the “what” of change, context to the “why” of change and process to the “how” of change. The process of change needs to consider the behavior of top management, a necessary, however not sufficient ingredient to change. The change process is viewed as a complex analytical, political and cultural process of challenging and changing the core beliefs, structure and strategy of the firm.

“...the transformation of the firm is seen as an iterative, multilevel process, with outcomes emerging not merely as a product of rational or bounded rational debates, but also shaped by the interest and commitments of individual and groups, the forces of bureaucratic momentum, gross changes in the environment, and the manipulation of the structural context around decisions.” (Pettigrew, 1987, p 658)

Process, content and context are intimately intertwined as processes are both constrained by structures and shape structures (Pettigrew, 1987). Consequently, corporate strategy and industry structure/dynamics should be reciprocally interrelated, i.e. corporate strategy affects industry structure/dynamics and industry structure/dynamics affects corporate strategy.

2.1.1 Levels of strategy

The different levels of strategy are important to understand not the least because it brings consequences to how one views strategy, change and strategic change. Thus, different perspectives on strategy, change and strategic change rest on how researchers believe research on such phenomena should be conducted, e.g. the systems level under which strategy can be addressed, “found” and researched (e.g. Pettigrew, 1987; de Wit, Meyer, 2001). The systems level has sometimes been termed “system boundaries” or “magnification of systems”, i.e. the external boundaries of a system, or, in other words, what is considered to be “in” or “out” of the system, and the internal boundaries of a system, i.e. to what level of detail the system is to be described (Arbnor, Bjerke, 1994, p 148). In addition, the systems level defines relevant interfaces and relationship between the “system” and the “outside-world”. Some researchers argue that strategic change cannot be researched at one systems level alone, it need to be researched at several levels and over a period of time (e.g. Pettigrew, 1987, p 655). With regard to different levels of strategy (as well as different levels of analysis), Garud and Van de Ven (2000) argue that “...it is more productive to view changes as nested sequences of events that unfold over time in the development of individuals, organizations and industries” (Garud, Van de Ven, 2000, p 3). The different levels of strategy brought forward to some detail here include the individual level, the organizational level, and the industry level. The organizational level of strategy focus on the corporate (portfolio vs. core competence), business (positioning vs. learning), and functional (e.g. product and marketing strategy) level of strategy. The industry level of strategy focus on the market/marketing perspective (i.e. value chain vs. value constellations/networks) rather than the supply/logistics perspective (i.e. supply chain vs. supply constellations/networks).

Some researchers argue that “industries” and “industry structure” are artifacts of humans, and that it exists because we say so, and we say so for a reason. The reason is simply to bring order to a complex reality that otherwise would be difficult, if not impossible, to observe and explore, investigate and measure, understand and shape. Industry structure is the mental, or cognitive, model within humans of how a group of organizations interact and is sometimes referred to as “industrial wisdom” or “industry recipe” (e.g. Porac, Thomas, Baden-Fuller, 1989; Hellgren, Melin, 1993). As a consequence, “corporate strategy” becomes a mental, cognitive process based on individual believes and assumptions and, collectively, based on the corporate culture. Because e.g. industry structure is a mental model of humans, as a researcher one should ask whether changes (e.g. industry evolution or structural changes) have occurred in the “real world” or only in our mind(s), i.e. the perception or mental model of e.g. the industry structure has changed, thereby defining and proving an evolutionary step within an industry. According to this perspective on industries, industry structures cannot be measured in any meaningful way. The subjective cognitive models of individuals need to be understood in order to understand the corporate culture of organizations and consequently the industrial wisdom/recipe that currently rules. This perspective on industries, corporations and strategy assumes subjective perceptions and is to a great extent based on a hermeneutic

perspective on research. Another group of researchers argue that “industries” and “industry structure” exists in the “real world”. It is possible for anyone to observe and explore, investigate and measure, understand and shape. According to this perspective on industries, industry structures can be measured in a meaningful way. This perspective on industries, corporations and strategy can be found within the field of industrial organization (e.g. Porter, 1985) as it assumes objective observations and is, to a great extent, based on a positivistic perspective on research.

Having said this, one begins to understand that categorizing strategy into different levels may easily be questioned assuming different perspectives on science. Thus, despite the fact that the categorization into different levels of strategy follows a commonly accepted classification made by de Wit and Meyer (2001), the complexity in doing so is recognized particularly if one should consider the a priori basic assumptions of different researchers, and different perspectives on science and the philosophy of science.

Individual level: At the individual level there are at least two different perspectives on strategy. One is the top-down strategic perspective in which mechanistic organizations and individual behavior is assumed and top management behavior matter the most. The other is the bottom-up strategic perspective in which organic organizations and individual behavior is assumed, and the collectiveness of individuals matter the most. It is fair to say that historically the literature on strategy, focusing on the content of strategy, has taken the former perspective for granted (top-down, mechanistic perspective). Such a literature has been directed at high level managers. The latter perspective (bottom-up, organic perspective), however, has more recently gained ground as the process of strategy has been recognized to be of major importance. Such a literature has high lightened the importance of all the employees in the strategic process, e.g. why employees resist strategic change (Strebel, 1996).

Corporate level: The portfolio perspective on strategy views SBUs as autonomous units (e.g. Hedley, 1977) and the corporation’s prime responsibility is to enhance the portfolio through investments, primarily through acquisitions, and divestments to/of the business portfolio (depending on the attractiveness, e.g. growth, of the business and the competitive strength of the SBU, e.g. market share) and allocate financial resources between SBUs (something markets cannot do due to “market failure” (Dundas, Richardson, 1982). The core competence perspective on strategy, on the other hand, views SBUs as interdependent units (e.g. Prahalad. Hamel, 1990) and the corporation’s prime responsibility is to enhance the portfolio through developing core competencies and synergies (e.g. through resource pooling) by e.g. allocating and replicating resources between SBUs.

Business level: The positioning school views strategizing as an analytical process aiming at creating a competitive and profitable position for the SBUs (e.g. Porter, 1980, 1985). The learning school, on the other hand, views strategizing as an emergent learning process (e.g. Lindblom, 1959; Cyert, March, 1963).

Functional level: At the functional level there are many different perspectives much dependent on the function that is in question. Product development strategies may be grouped into product or process innovations (e.g. Utterback, 1996). Product sales strategies may include bundling into systems/functional sales or unbundling into product/modular sales (e.g. Henke, Jr., 2000). Marketing strategies may be based on building relationships (e.g. Gummesson, 2000) and one-to-one marketing (Feurst, 1999) or marketing management (e.g. Kotler, 2002). Functional level strategies other than marketing and sales strategies may

include human resource strategies, purchasing and supply strategies, manufacturing strategies, IT-strategies, etc.

Industry level: At the industry or network level there are primarily two different perspectives on strategy based on a market/marketing perspective or a supply/logistics perspective. The market/marketing perspective includes both competitive value chains and cooperative value constellations or networks. The value chain perspective views organizations as discrete and engaged in a linear and competitive sequence of value creation (Porter, 1985). The value constellation or network perspective views embedded organizations engaged in a cooperative and reciprocal sequence of value creation (Normann, Ramírez, 1994; Hammarkvist, Håkansson, Mattsson, 1982; Jarillo, 1988; Håkansson, Snehota, 1989; Gadde, Huemer, Håkansson, 2003; Lorenzoni, Baden-Fuller, 1995). The supply/logistics perspective also incorporates competitive supply chains and cooperative supply constellations or networks (e.g. Lamming, 1996).

2.1.2 Strategy as bundling and unbundling

In this thesis, the term “strategy” is defined as the continuous intention to change or, as the case may be, the actual continuous change of, the boundaries of and within the corporation through vertical/horizontal integration/disintegration. Because strategy is defined by, and defines, strategic change, the content and process of strategy are dimensions of strategy that are virtually impossible to isolate from each-other (e.g. Garud, Van de Ven, 2000; Pettigrew, 1987).

The intention to change or, as the case may be, the actual change of the boundaries reflects that strategy is seen as a “pattern in a stream of decisions”, i.e. the intention to change, or, as the case may be, as a “pattern in a stream of actions”, i.e. the actual change (Mintzberg and Waters, 1985). In addition, the definition implies that strategy is viewed as a dynamic process, where market disequilibrium is the rule rather than the exception. Consequently, a static perspective in which market equilibrium is maintained through some sort of market clearance is rejected or seen as the exception to the rule. Furthermore, strategy as a continuous process implies that there is no optimal solution to strategy. In other words strategy is not a matter of maximizing, but rather, given the context in time and space, to satisfice. *The intention to change or, as the case may be, the actual change of the boundaries* reflects that humans are believed to be intended rational but limited so. Thus, bounded rationality is assumed. Nonetheless, subjective perceptions can be transformed to become objective truths as subjective perceptions are shared and thus become collective perceptions. Given those collective “truths”, rationality and objective observations, are assumed possible. Because context matters, corporations, industries and value chains are seen as “open systems” that are context dependent. Its opposite, i.e. “closed systems” in a context free environment, is, thus, rejected. The systems perspective applied also means that relationships of finality and final effects are assumed. This means that strategic decisions cannot entirely be explained by causal relationships and prior events; strategic decisions can also be explained by future expectations. The voluntaristic perspective, i.e. that humans can shape its environment to fit its purposes, and its opposite, i.e. the deterministic perspective, i.e. that humans are shaped by its environment, are both assumed. This means that the inside-out and the outside-in perspective on strategy are believed to coexist reciprocally.

The definition of strategy serves to identify what key aspects of the term that are relevant to study in order to understand the real life phenomenon and the implications that it produces, e.g. changes in the boundary of the firm and changes in the division of work within industries and value chains. In addition, the definition supports the development of an analytical model.

Strategy as a continuous process of changing boundaries through bundling and unbundling: The *boundaries of the corporation* reflect strategy at the corporate level, vertically and horizontally. The boundaries *within* the corporation reflect strategy at the business and/or functional level. Changing the boundaries *of* the corporation has to do with what is usually referred to as “bundling” and unbundling the corporation” (e.g. Hagel, Singer, 1999) through mergers and acquisitions (i.e. corporate level bundling) and outsourcing (i.e. corporate level unbundling). At business level, changing the boundaries *within* the corporation has to do with the creation of synergies between business units, i.e. business level bundling, or allowing business units to make independent decisions and act independently of each-other, i.e. business level unbundling.

At functional level, changing the boundaries within the corporation has to do with the creation of systems and solutions (e.g. Henke Jr., 2000), i.e. functional level bundling, or “modularization” (e.g. Baldwin, Clark, 1997), the creation of “naked solutions” (e.g. Anderson, Narus, 2000), and “complementary” or “stand-alone” product offerings (e.g. Porter, 1985), i.e. functional level unbundling.

Vertical/horizontal integration/disintegration represents a strategic decision/action in two dimensions, i.e. within industries, i.e. vertical integration/disintegration (Porter, 1980, pp. 300-323) and between industries, i.e. horizontal integration/disintegration (Porter, 1985, pp. 364-382). In addition, “vertical/horizontal *integration/disintegration*” refers to bundling and unbundling (at corporate, business and functional level) from a discrete organizational perspective as well as from an embedded organizational perspective. The former implies that hierarchies are separated from markets while the latter that hierarchies and markets are integrated. With regard to vertical integration, Porter (1980) argues that it “represents a decision by the firm to utilize internal or administrative transactions rather than market transactions to accomplish its economic purposes” (Porter, 1980, p 300) and that “many vertical integration decisions are framed in terms of the ‘make or buy’ decision...” (Porter, 1980, p 301) including integration through mergers and acquisitions, long-term contracts and so-called quasi-integration, i.e. integration primarily through minority equity investments (Porter, 1980).

To summarize, strategy has to do with the intention or the actual bundling/unbundling at the functional level, through SBU/corporate level, to industry level (see Figure 2:2). As corporations bundle at various strategic levels (moving from P1 to P2) their engagement in market transactions or in discrete value chains (U2) decreases. These corporations, thus, increasingly perform activities in-house, or alternatively, their embeddedness in networks or value constellations increases (B2). The definition of strategy may be illustrated according to Figure 2:2 below.

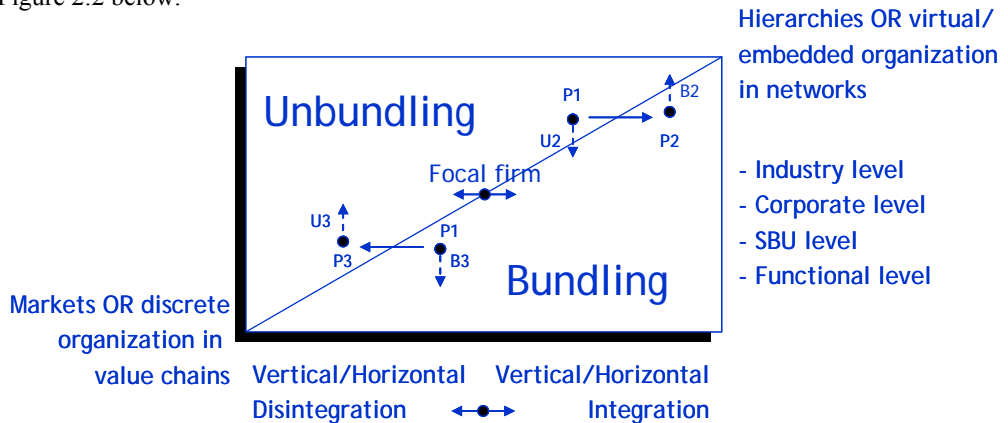


Figure 2:2 Strategy as bundling and unbundling, i.e. vertical/horizontal integration and disintegration

Detaching the vertical and horizontal dimension of integration and disintegration provides an illustration of the definition of strategy according to Figure 2:3 below.

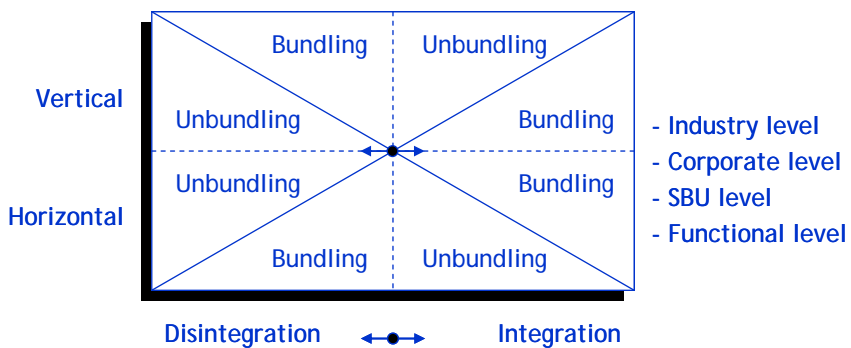


Figure 2:3 Strategy as bundling and unbundling, i.e. vertical/horizontal integration and disintegration

In general terms, strategy defined as boundaries is a qualitative issue rather than quantitative. Strategy, is here seen as the qualitative answer to the question of *what* to do (and what not to do), and *how* to do (and how not to do it) and positioning in the value chain/constellation as well as accommodating the boundaries of and within the corporation in order to reflect such decisions of what and how to do.

Corporate strategy from a value chain perspective: As the definition of strategy indicates, strategy is viewed primarily at the corporate level although it puts emphasis at the level above and below, i.e. at the level of the industry and the value chain as well as at the functional

level. Strategy at the individual level is not considered as such would be more coherent with an actor/hermeneutic perspective on research. Furthermore, at the organizational level, the corporate and functional level of strategy seems to be the most valid in discussing bundling and unbundling. With regard to the functional level of strategy, the product strategy, including the development of systems, functions and solutions in contrast to modularization and the development of stand-alone products seems to be the most relevant to study. With regard to industry level or “markets” the literature on the supply/logistics perspective, i.e. supply chain and supply constellations/networks has not been reviewed. Rather the market/marketing perspective, value chain perspective, and the value constellations/networks perspective at industry level strategy is the focus of this thesis. The value constellations/networks perspective refers to embedded organizations engaged in reciprocal relationships. Because strategy at the corporate and functional level affects the boundaries of the corporation and its offering through bundling and unbundling it seems reasonable to assume that strategy, at the corporate and functional level is a major component/indicator of changes in the division of work between vertical corporations (within industries), and between horizontal corporations (between industries). Consequently, strategy may also change the boundaries of an industry, either horizontally resulting in merging or diverging industries or vertically resulting in industry fragmentation or consolidation.

Strategy as a continuous process of bundling and unbundling at different strategic levels: Based on the definition of strategy and the discussion above strategy may be illustrated according to the analytical model suggested in Figure 2:4 below.

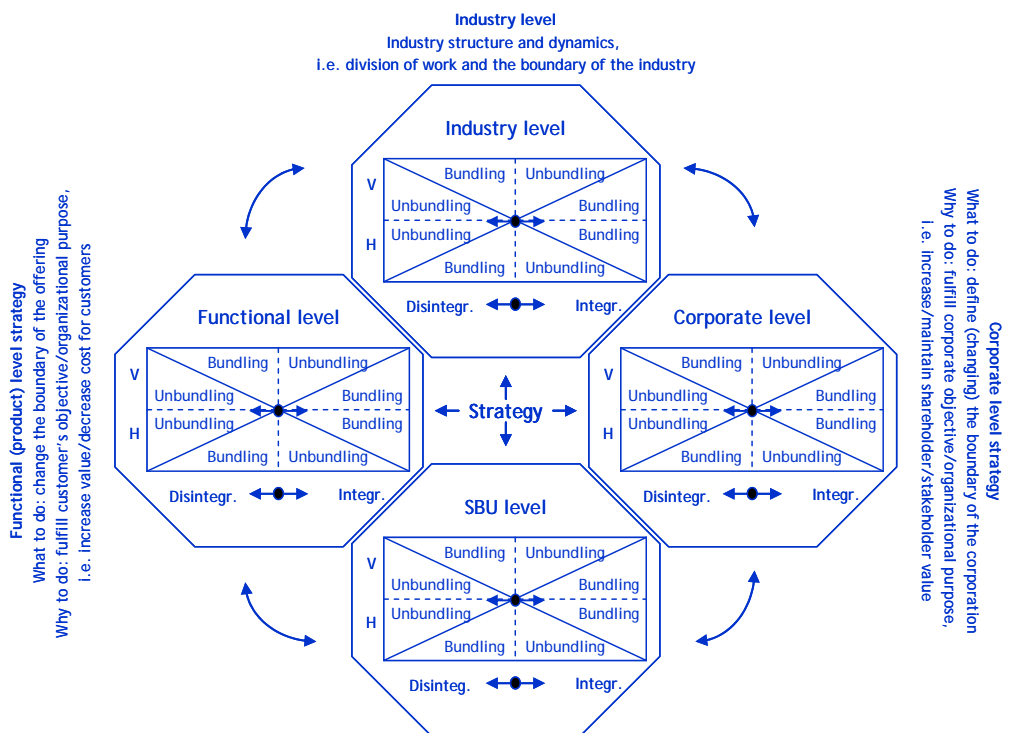


Figure 2:4 Strategy as a continuous process of bundling and unbundling at different intertwined strategic levels

In the next sections the analytical model is further detailed by deepening the discussion on strategy and its components/indicators with regard to bundling and unbundling at different strategic levels, including bundling through M&As and unbundling through outsourcing at the corporate level, bundling through systems sales and unbundling through modularization at the functional level, and bundling through the creation of embedded organizations in value constellations and unbundling through the creation of discrete organizations in value chains.

2.2 On corporate level bundling (mergers and acquisitions)

As will be discussed, corporate level integration (vertical and horizontal) has to do with moving towards long-term contracts or “hierarchies”, through M&As, organic growth, “quasi-integration” (e.g. minority equity investments), and the establishment of cooperative agreements. The rationale for corporate level integration are several, e.g. to create synergies based on shared competencies by allocating human resources, management of core competencies and/or manage/reduce risk and/or effects of market failures/asymmetries, i.e. obtain market clearance, by allocating financial resources, i.e. management of portfolio. The focus here will be on mergers and acquisitions. The reasons for this delimitation are two.

First, and as will be discussed, M&As are viewed as an intended rational strategic decisions at the corporate level to integrate vertically and/or horizontally into related and/or unrelated business for the purposes of creating value (rather than transferring value) in order to obtain net strategic benefits. Both vertical and horizontal integration can be achieved through M&As by means of an internal decision to execute such strategy. In contrast to M&As, vertical and horizontal integration may or may not be achieved through organic growth as it is not only a matter of an internal decision; it often entails market forces, e.g. customer preferences and changing such preferences and demand (e.g. Erixon, 1998). It should be noted, however, that this does not mean that M&As are more successful than organic growth nor that the net strategic benefits are greater in M&As than in organic growth.

Second, according to Porter (1980) there are four major strategic decisions that occur in an industry; capacity expansion, divestment, vertical integration and entry into new business. M&As are consequently a major strategic decision because they allow for capacity expansion, vertical integration and entry. Consequently, M&As is one way to integrate vertically and horizontally (into related/unrelated businesses) in order to gain strategic net benefits (strategic benefits-strategic costs). With this regard, vertical integration is the combination of technologically distinct production, distribution, selling, and/or other economic processes within the confines of a single firm (Porter, 1980). As such, it represents a decision by the firm to utilize internal or administrative transactions (“hierarchies”) rather than market transactions to accomplish its economic purpose. Vertical integration is possible through M&As. Entry into new business is considered a horizontal strategy (Porter, 1985) by means of e.g. M&As. On execution of M&As the division of work across the value chain is likely to change, however, without changing demand/supply. Organic growth, however, may or may not result in a change in the division of work across the value chain. In addition, it is also likely to change both demand and supply across the value chain. Thus, while M&As are interesting for examining changes in the division of work across the value chain, organic growth should be interesting for examining changes in supply, and as a consequence, also demand changes in a value (or supply) chain.

Several researchers have tried to classify the vast literature on M&As. Trautwein (1990) examines mergers motives and relates such motives to prescriptions for merger strategies. In a first categorization, mergers motives, according to Trautwein (1990), are seen as a result of a rational choice or a process. The rational choice for M&As is related to value creation. With

regard to the latter, the rationale for M&As is not a comprehensive rational choice but rather the merger motive is a political power game within and between firms, humans bounded rationality, and organizational routines, i.e. corporations resorts to routines that have proven successful in the past (i.e. “process theory”). A third explanation given by Trautwein (1990) is that M&As are a result of macroeconomic disturbances causing increased uncertainty and differences between the valuation of assets among owners and non-owners (i.e. “disturbance theory”).

Trautwein (1990), further classifies the rational choice according to whom M&As benefit, shareholders or managers. Shareholders may benefit from M&As through net gains because of synergies (i.e. “efficiency theory”), wealth transfer from customers (i.e. “monopoly theory”), wealth transfer from target’s shareholders (i.e. “raider theory”) and net gains through private information (i.e. “valuation theory”). Managers on the other hand may drive M&As because they expect to benefit from it, e.g. in terms of power, thereby maximizing their own utility rather than their shareholder’s value (i.e. “empire-building theory”).

Further, Trautwein (1990) views M&As as a “topic in competitive strategy”, primarily at the corporate level. M&As, according to Trautwein (1990), relates to the corporation’s choice of product-markets scope and how business units are coordinated. The former, i.e. the product-market scope has to do with the corporation’s choice of entry mode, e.g. M&As or internal development, and choice of acquisition mode, i.e. which company to acquire. The latter, i.e. and how business units are coordinated, has to do with the choice of integration mode.

Erixon (1998), in a large study commissioned by the Swedish government through the Ministry of Industry (“Industridepartementet”), classified mergers motives in four categories, i.e. real profitability theories, financial profitability theories, theories based on diffusion and reduction of risk, and growth maximization theories.

According to this study, the real profitability theories focus on market conditions and explain the rationale for M&As as the intention of corporations to create monopoly markets and economies of scale, decrease transaction costs and to capitalize on more efficient management resources. In addition, in some specific countries, the rationale for M&As can also be explained by legislation, in particular tax legislation.

According to Erixon (1998), the financial profitability theories focus on the stock market and macroeconomic disturbances (discussed earlier) causing increased uncertainty and differences between the valuation of assets among owners and non-owners (i.e. “disturbance theory”). A similar theory within this category, the “negotiation theory” assumes, just like the “disturbance theory”, differences between valuation of assets between owners and non-owners. The negotiation theory assumes that the stock market in general may undervalue a certain corporation in comparison to what other corporations may do. Under such circumstances, the acquiring corporation may agree with the target company on a sales price above the valuation in the stock market. A third theory within this category is that M&As are driven by investment bankers, traders, etc because of so-called “promoter profits” and/or “insider profits”. Investment bankers, traders, etc may promote M&As that are not necessarily beneficial for the acquirer or the target. They do so because of commissions paid on completion of an M&A. In addition, because the sales price often is above the share price in the stock market, “insiders” are able to acquire stocks in the target company before the actual M&A is completed, thereby capitalizing on completion of an M&A. Capital gains can also be captured because the share price of target companies often is valued at a price equal to the acquiring company on completion of an M&A. This assumes that the share price of the

acquiring corporation is higher than the target and that the lower share price of the target will not negatively affect the share price of the two combined companies.

The third group of theories in Erixon's (1998) classification of mergers motives is based on the diffusion and reduction of risk through M&As. Risk may be reduced by horizontal diversification, i.e. horizontal M&As. For such purposes, the acquiring corporation may find a suitable target in a different product market and/or in a different geographical market. This may be a particularly valid assumption provided the acquiring corporation and the target have revenue streams and profitability fluctuations that are not correlated. In addition, risk can be reduced by vertical acquisitions, e.g. in order to secure deliveries of inputs.

According to Erixon (1998), the last group of theories, growth maximization theories, assumes that the ownership and management of corporations has been separated, a phenomenon that is sometimes termed "managerial capitalism". According to this group of theories, shareholders and corporate managers have different agendas for the corporation. Corporate managers tend to focus on maximizing growth in terms of manufacturing, sales and physical assets rather than maximizing dividends to shareholders. This occurs primarily because the prestige and income of corporate managers often is related to corporate size rather than the creation of shareholder value. M&As in this category also conclude that managers often assess the cost of growth through internal development higher than through M&As, primarily because of costs related to increasing demand, e.g. marketing and expanding capacity in manufacturing. According to these theories a growth maximizing corporation is more likely to become a target for another growth maximization corporation because its assets will be valued lower by the stock market in comparison with a profit maximization corporation.

The two examples above for a systematic classification of the M&A related literature provides a fairly good overview of the motives for M&As. In summary, M&As is one important topic in corporate strategy as well as an important tool for creating competitive advantage at the corporate level. In addition, the rationale for M&As may be seen from a content perspective; e.g. to create value for different stakeholders through increased efficiency or the creation of monopolies; a process perspective, e.g. as a result of a power game or a learning process in which decision makers, based on previous experiences, learn that M&As are successful and consequently establish M&As in the organizational routines, or a context perspective; e.g. to minimize uncertainties in the environment created by market disturbances.

With reference to Pettigrew's (1987) classification of strategy in terms of its content, process, and context, and based on Trautwein (1990) and Erixon (1998) classification of the literature in the field of M&As this section shall focus on bringing forward the main typologies within the field of M&As, including the content, process and context of M&A.

It should be noted that most theories within the field of M&As take the acquirer's perspective (e.g. Chatterjee, Lubatkin, 1990; Kroll, Wright, Toombs, Leavell, 1997). Only a few study M&As from the target's perspective. Kabir, Cantrijn, and Jeunink (1997) look at M&As from the perspective of the shareholders of the target company. They conclude that corporations with diffused ownership more often take measures to defend from an acquisition, e.g. by creating a defense with preferred shares. According to Kabir, Cantrijn, and Jeunink (1997), defenses against M&As may in some circumstances create value for the shareholders of the target company, primarily because the stock market believes that management will be able to bargain for a higher premium in takeover bids. On the other hand, the stock market may react negatively because the probability that a takeover actually will take place will decrease.

M&As from the target's perspective are not included in this review for two reasons. First, defense against M&A does not create value. Either it transfers value from the acquirer to the target by increasing the bargaining power of the target, or it simply avoids that M&As take place. Second, a defense strategy, by definition, cannot be a proactive strategic choice, rather a reactive respond to the acquirer's proactive move. Defense strategies need, first and foremost, to understand the acquirer's motives and take those into account and under consideration before designing a proper defense strategy. Thus, it seems reasonable to first understand M&As from the acquirer's perspective.

2.2.1 Content of mergers and acquisitions

Despite the fact that most research on M&As focus on value creation in one way or another, theories within this category are often particularly concerned with issues related to how M&As create value and for whom value is created. Value creation is often related to revenues, costs, profits and/or risk and is often created for shareholders, managers, customers or other stakeholders, e.g. investment bankers. The literature on M&As shows however substantial differences in how "value creation" is defined, and in particular, if there is a difference between "value creation" and "value transfer". With reference to Jonsson (1995), a distinction is made in this thesis between value creation and value transfer, the focus being on value creation.

Jonsson (1995) argues that creating a potential for increased shareholder value is a prerequisite for creating a potential for societal wealth (although some parties may lose wealth in the process). Consequently shareholders and public authorities (through legislation) should allow M&As that create a potential for increased shareholder value. Jonsson (1995) defines shareholder value creation in acquisitions as the creation of wealth, and wealth is considered to have been created if there is a positive abnormal return on stocks, and likewise wealth is considered to have been wasted if there is a negative abnormal return. Creating shareholder value is different than redistributing shareholder value according to Jonsson (1995). Public authorities should discourage M&As that distribute wealth to company shareholders from other parties of society, e.g. from target shareholders, employees, consumers, or taxpayers. Jonsson (1995) concludes that shareholder value and wealth, in Swedish domestic takeovers, is created for the shareholders of the acquiring as well as the target companies, and in the foreign takeovers, for the acquiring company's shareholders.

Customers: M&As from a strategic value creation perspective analyses the positive/negative relationship between M&As and the competitive advantage of firms and is, consequently directly or indirectly related to the increase/decrease of customer value. Examples are the positive/negative effects of M&As on innovations and R&D, and consequently on revenues, costs, profits, or risk (see the discussion with references below).

Shareholders: In general studies on financial M&As targeted at shareholders focus on analyzing the positive/negative relationship between wealth increase of shareholders and M&As (e.g. Seth, 1990; Chatterjee et al., 1990, 1992; Jonsson, 1995; Kroll et al., 1997). Examples are M&A effects on share-price (of acquiring firm and/or target), M&A effects on share risk, e.g. share-price volatility, etc. In this respect, some studies differentiate between value transfer, i.e. transferring wealth from one or several stakeholders to shareholders, and value creation, i.e. creating additional wealth for stakeholders (e.g. Jonsson, 1995).

Managers: Managerial M&As or "empire-building theories" are based on theories on managerial capitalism (e.g. Trautwein, 1990). Often, not always, it is a matter of transferring

wealth (rather than creating additional wealth) from one or several stakeholders (e.g. shareholders or customers) to corporate managers.

Other stakeholders: Other stakeholders include, but are not limited to, investment bankers, stock brokers, etc. These theories are often referred to as “promotor profits theory” or “insider profits theory” (e.g. Trautwein, 1990). Often, not always, it is a matter of transferring wealth (rather than creating additional wealth) from e.g. customers or shareholders to these other stakeholders.

M&As and strategic value creation (in general): Seth (1990) defines value creation in acquisitions as the creation of synergies, i.e. value is created through an acquisition when the value of the combined corporations is higher than the sum of the two corporations. Seth (1990) argues that value is created in both related and unrelated acquisitions. Different types of acquisitions are likely to show different sources of value creation. In addition, value creation has to do with the characteristics of the two merging firms rather than the characteristics of each of the firms considered alone. In a second article, Seth (1990) argues that value creation in related acquisitions has to do with economies of scale and scope as well as market power. In unrelated acquisitions, value creation has to do with coinsurance effects, i.e. provided two corporations have less than perfectly correlated earnings there will be a reduced risk, or probability, for bankruptcy as a result of a merger. In addition under some specific circumstances, the optimal amount of debt may increase after the acquisition and this may lead to tax savings and increased value. According to Seth (1990), lowering the systematic risk (i.e. financial diversification through diversification into new product markets) is not a valid source of value creation, neither in related nor unrelated acquisitions. Corporations cannot create additional value by diversifying and lowering risk than can shareholders on their own.

M&As and strategic value creation (cost, revenues and profits): Capron (1999) focus on horizontal acquisitions. Capron (1999) concludes that horizontal acquisitions may lead to both cost- and revenue-based synergies, i.e. cost savings and revenue enhancing capabilities through increased market coverage and innovation capability. Most important and immediate is the increased market capability/coverage, followed by cost saving and innovation capabilities. Cost savings may be achieved by the divestiture of redundant assets and activities. Often assets from the target are divested. However, when assets from the target are divested this does not generate systematic cost savings. When assets from the acquirer are divested this has a strong positive impact on cost savings. The acquirer is consequently better able to rationalize its own assets than those of the target. In addition, the decision to rationalize its own assets is often based on a strong economic rationale while divesting the target's assets may also be driven by behavioral motives.

Nguyen, S  r, and Devinney (1990) are able to conclude that diversification in technologically related activities often result in economies of scope and increased profitability. According to these researchers, profitability at the corporate and industry level are reciprocally related. Industry profitability depends on the aggregated profitability of the corporations within the industry. On the other hand, corporate profitability is dependent on the economic characteristics of the industry in which the corporation operates.

As probably noted, profits are seldom discussed explicitly by researchers. However, profits seen as the difference between revenues and costs are often implicitly discussed.

M&As and strategic value creation (risk): Risk can be seen as uncertainties that are not entirely manageable. Pfeffer (1972) concludes that M&As is one possible strategy for corporations to manage the uncertainties of the environment (or at least to decrease its dependence on the environment) as well as one possible growth strategy. Mergers, according to Pfeffer (1972) are of three different types, those which (i) reduce symbiotic interdependence (through merging vertically forward or backward in the value chain), (ii) reduce commensalistic or competitive interdependence (through horizontal mergers thereby decreasing competition for similar resources or markets) and (iii) diversify and avoid previous interdependencies in terms of factor markets and (input) and customer markets (output) in a particular industry. Mergers within the same industry, i.e. (i) and (ii) above, tend to occur more frequently in comparing with mergers between industries. In industries characterized by a low level of industry concentration, mergers tend to decrease because it is simply not a particularly effective strategy for minimizing uncertainties. On the other hand, in industries characterized by a high level of industry concentration, mergers tend to be a more effective strategy for minimizing uncertainties. Nonetheless, in highly concentrated industries, legislation tend to prohibit horizontal and related mergers. Furthermore, industries that have substantial business with governments tend to diversify, the reason being that these corporations cannot minimize uncertainties through vertical mergers, i.e. with e.g. the governments. Because the number of potential merger candidates are much higher in diversification mergers (compared to vertical and horizontal mergers), the target companies in diversification mergers are often more profitable before the merger. The findings of Pfeffer (1972) were in principle confirmed by Finkelstein (1997).

According to Chatterjee and Lubatkin (1990), mergers may be value creating because mergers may reduce systematic risk in a way that shareholders cannot do. Systematic risk is defined by Chatterjee and Lubatkin (1990) as monetary and fiscal policies, cost of energy, and the demographics of the marketplace. The lower the systematic risk, the lower the required rate of return on investments and the higher the value of the corporation. By lowering the systematic risk, corporate managers can increase the wealth of shareholders. The reduction of systematic risk, according to Chatterjee and Lubatkin (1990) is valid both for related, however not competing, and unrelated mergers. In other words, mergers according to Chatterjee and Lubatkin (1990) create increased shareholder value as the systematic risk is lowered.

2.2.2 Context of mergers and acquisitions

Theories within the category “Context of M&A” are often concerned with issues related to “where” (e.g. in R&D, manufacturing, etc.) M&As create value and under which circumstance value is created. There are many different ways of illustrating the typology of M&A types. I have chosen to classify them according to the vertical and horizontal context, the domestic (including cultural aspects of corporations) and the international context (including cultural aspects of societies), and according to the different levels of strategy.

Vertical or horizontal M&As: The vertical scope include forward and backward M&As within the same industry. The horizontal scope include related M&As, i.e. M&As between competitors and unrelated M&As, i.e. M&As between adjacent industries. Researchers in this category focus on explaining the dependent variable, i.e. value creation through M&As, by controlling the independent variables vertical M&As, horizontal M&As, related M&As and unrelated M&As.

Domestic or international M&As: Researchers in this category focus on explaining the dependent variables, i.e. merger success in general or value creation through M&As in particular, by controlling the independent variables (i) domestic M&As, including factors

related to the cultural aspects of corporations (according to Malekzadeh, Nahavandi, 1998, p 111, due to the “seemingly unicultural environment [in the U.S.]” which does not demand immediate attention to [international] cultural factors” this research is primarily dominated by traditional research on M&A in the U.S. and is based on industrial organization economics models and theories), and (ii) international M&As, including factors related to the cultural aspects of societies (e.g. Cartwright, 1998; Malekzadeh, Nahavandi, 1998; Baca, 1998; Gertsen, Söderberg, 1998). In addition, and with regard to culture, some researchers focus on combining both the (iii) corporate (or domestic) and the societal (or international) level of culture (e.g. Gertsen, Söderberg, Torp, 1998; Larsson, Risberg, 1998; Very, Lubatkin, Calori, 1998; Forstmann, 1998), while other focus on the (iv) cultural phenomenon per se, no matter the domestic or international context (e.g. Kleppestø, 1998; Gertsen, Söderberg, 1998). With regard to the latter category researchers argue that culture, in itself, is created as a social construct during the merger process. Consequently, cultural differences between merging corporations may not exist before the merger actual takes place. During the merger process, however, culture is created by the participants in the merger process in order to establish a sense of identity. This particular perspective on culture is consequently intimately related to the M&A Process further described in Section 3.

Levels of strategy: The different levels of strategy include industry, corporate/SBU, functional and individual. Particularly, with regard to the lower levels of strategy, e.g. functional strategy, the field of research focuses on the post-acquisition process of M&As. Nonetheless, researchers often argue that the issues brought forward also need also to be considered during the pre-acquisition process. The functional level of strategy include R&D, manufacturing, marketing, and resource management. In addition, resource management here also includes theories on the organizational fit. The organizational fit between acquirer and target has been researched from a strategic perspective, e.g. based on product/market fit, and a cultural perceptive, e.g. based on corporate managers’ value systems, attitude towards risk and change, patterns of decision making and communication, etc. The organizational fit from a strategic perspective is discussed under vertical and horizontal M&As. The organizational fit, from a cultural perspective, is discussed under functional level of strategy/resource management. In addition, the macro context is also included in this typology, i.e. the macro economical and institutional frame, e.g. legal frame.

M&As and strategic value creation (in general and incl. manufacturing): Capron, Dussauge and Mitchell (1998) specify resources as R&D resources (i.e. technological capability, R&D capability and product development speed), manufacturing resources (i.e. production cost structure), marketing resources (i.e. brand management, distribution channels, buyer-seller relationships, user base, customer service, business reputation), managerial resources (e.g. management skills), and financial resources. Capron, Dussauge and Mitchell (1998) argue that redeployment of resources, following horizontal M&As, from/to acquirer to/from target can explain the evolutionary and unintentionally development of business strategy and how variations diffuse through an industrial system. This means that redeployment of resources expands successful businesses and preserves valuable resources in unsuccessful business. M&As contribute to the evolutionary process of efficient redeployment of resources within the boundaries of hierarchies. This may be required as “imperfect markets” fail to do so. The negative aspects are that market imperfections may be transferred to within the corporation. One of the reasons M&A occur in imperfect markets is because resources are subject to valuation difficulties. The same underlying causes for valuation difficulties of resources may lead hierarchies to a suboptimal redeployment of resources.

M&As and strategic value creation (R&D): Hitt, Hoskisson, and Ireland (1990) found that acquisitions have a negative effect on managerial commitment to innovation (measured as R&D intensity) at the corporate level. Hitt, Hoskisson, and Ireland (1990) hypothesize that acquisitions have such negative effects on innovations due to (i) increased size and, as a consequence increased formal behavioral controls, (ii) increased diversification and, as a consequence, increased financial controls (decreasing commitment to innovation) and decreased strategic controls (increasing commitment to innovation), (iii) increased debt, (iv) increased absorption of managerial energy, and (v) increased substitute for innovation, i.e. increased managerial risk aversion and increased resources allocated for acquisitions.

As corporations grow, so does its possibilities to capitalize on economies of scale, specialization, information sharing among researchers, and the ability to exploit opportunities in general. On the other hand, commitment to existing technology and formalization and bureaucratic controls tend also to increase. The latter often result in rigid and standardized managerial behavior, and organizational inertia in which radical innovations are discarded.

Decreasing strategic controls in increasingly diversified corporations is one of the consequences of separating the corporate level and operational level decision making process at the SBU level. Because corporate managers lack the product/market knowledge required for implementing strategic controls they turn to the judgments of external capital markets. As a consequence overall strategic controls decreases. Decentralized operating responsibility often leads to increased centralized financial controls. As SBU managers are measured based on short-term financial results commitment to innovation through R&D decreases.

Corporations often finance the substantial resources required for acquisitions through debt. Corporations thereby trade off payment of debt and investments in R&D. As corporations may decrease their business risk by diversifying, e.g. through acquisitions, the financial risk increase due to debt increase. In addition, it appears that corporate managers regard acquired resources as redeployable and that investments in acquisitions are less risky than investments in R&D. Consequently, increased debt increased managerial aversion to risk and commitment to innovation and investments in R&D.

According to Ahuja, Katila (2001), acquisitions may under certain circumstances provide a positive effect on innovation. In addition, acquisitions may allow corporations access to new technology from external sources. Firms with high level of relatedness as well high level of unrelatedness will provide lower innovation performance compared to acquisitions with moderate level of relatedness. In addition, Ahuja, Katila (2001) conclude that larger absolute size and smaller relative size in acquisitions are associated with superior performance.

Berggren (2001) also concludes that acquisitions impede innovation. Berggren (2001) conclusion is based on the difficulties in integrating idiosyncratic corporate technologies into common product platforms. In order to make this integration possible, Berggren (2001) argues, the efforts of product and technology units within corporations are directed towards standardization rather than innovation. According to Berggren (2001), M&As are driven by financial intermediaries.

M&As and strategic value creation (marketing): Salmi, Havila, Andersson (2001) argue that acquisitions relate to acquiring assets, both tangible and intangible, the main difference being that property rights are more or less difficult to transfer from one party to another. Relationships with customers and suppliers are intangible assets and are, consequently, more difficult to transfer from the target to the acquirer. In addition, as relationships are dependent

on the interaction between two parties, one party cannot decide to transfer such relationship all alone. Nonetheless, the efficient transfer of relationships is seen as one important factor for successful acquisitions. As a result, Salmi, Havila, Andersson (2001) argue that the target's network of customer and suppliers need to be involved during the pre-merger and post-merger process of an acquisition.

M&As and strategic value creation (resources management): Datta (1991) concludes that differences in top management styles and values, e.g. attitude towards risk and change, approach towards decision making, patterns of control and communication, e.g. mechanistic/formal/rational control and communication in contrast to organic/informal/evolutionary control and communication, reward and evaluation systems have a negative impact on post acquisition performance in terms of strategic fit or relatedness and the synergistic benefits arising out of economies of scale and scope. The conclusions, according to Datta (1991), are valid both in high and low level of post acquisition integration. In low post acquisition integration still the target is subject to close financial control and the acquirer's "arrogance", in terms of imposing its own values and systems (e.g. reward systems), may lead to conflicts and ultimately the departure of key executives.

Kroll, Wright, Toombs, and Leavell (1997), however come to the conclusion that value creation for shareholders in acquisitions is dependent on the management of the corporation, i.e. if the corporation is manager-controlled (corporations with diffused ownership), owner-controlled (corporations with a significant shareholder), or owner-manager-controlled (corporations in which management have a substantial financial investment in the corporation). Excess return for shareholders, i.e. value creation in acquisitions for shareholders, occurs only in owner-controlled or owner-manager-controlled corporations. Mergers in manager-controlled corporations seem to be motivated by corporate management rewards linked to the expansion and growth of the corporation. These acquisitions are likely to be poorly executed and are less concerned with possible negative effects on profitability. Relatedness and experience in acquisitions according to these researchers do not correlate with excess returns to shareholders.

Chatterjee, Lubatkin, Schweiger, and Weber (1992) conclude that shareholder value creation in related mergers is higher provided a higher degree of cultural fit in terms of top management culture. Shareholder value creation is measured in terms of the shareholder's support to a merger and their expectations on earnings. In addition, the researchers found that controlling the target by imposing goals and decisions on them is likely to create lower shareholder value in related mergers.

Walsh (1989) concludes that top management turn-over is sizable in target companies following M&As, particularly in the fourth year after the settlement date. Walsh (1989) also concludes that in the second year "target company top management turn-over rates are likely to vary positively with an increase in the size difference between the parent and the target companies", in the third and fourth year "a target company's top management turn-over rate is likely to be higher when that company has been subject to, rather than free from, previous mergers and acquisition interests", in the second year "a target company's top management turn-over rate is likely to be higher following a tender offer relative to a merger agreement", in the first year "a target company's top management turn-over rate is likely to be higher following hostile rather than friendly, merger or acquisition negotiations, in the second year "a target company's top management turn-over rate is likely to be lower following a merger or acquisition paid for in stock, rather than a combination of stock and cash, or cash alone, in the second and fifth year "a target company's top management turn-over rate is likely to vary

negatively with the premium paid for the target company". All in all, Walsh (1989) could not predict when and why top management turn-over is sizable in target companies following M&As.

In a research reported by Walsh and Ellwood (1991) the conclusion is that top management turn-over is much higher than normal in target companies following M&As, particularly in the first and second year after a settlement date. If the parent company has performed poorly (in comparison to the market in general) during 1-5 years prior to the M&A, managers with the best performance histories are the ones that departed early, i.e. during the first year. Managers that perform well and that do not wish to be part of this poorly performing company have often job opportunities elsewhere. If, however, the parent company had a good performance (in comparison to the market in general) during 1-5 years prior to the M&A, managers with not so good performance histories were the ones that departed early, i.e. during the second year. Parent companies may wait to form their own judgments about the managers' skills, or the parent company may be employing development programs to assist those managers. In general Walsh and Ellwood (1991) hypothesize that management fit may be more important than management's past performance records for explaining management turn-over rates, i.e. how well those managers fit into the parent's future goals and objectives. In other words future expectations may be more important than past history.

Krug and Hegarty (1997) are able to confirm Walsh's (1989) conclusion that top management turn-over is sizable in target companies following M&As, particularly in the fourth year after a settlement date. However, Krug and Hegarty (1997) also concluded that top management turn-over is significantly higher when U.S. firms are acquired by non U.S. firms, particularly during the fourth year and fifth year. Krug and Hegarty (1997) hypothesize that during the first three years following a foreign acquisition, cultural differences may not manifest. Cultural differences may, however, manifest at later stages, i.e. during the fourth and fifth year following an acquisition. Another hypothesis is that cultural differences may be offset by other factors during the first three years following an acquisition. U.S. firms may e.g. initially be managed as semi-autonomous units in order to allow the foreign parent to gain experience and comfort in operating in the U.S. market.

2.2.3 Process of mergers and acquisitions

Many times it is difficult to understand if M&As are examined in terms of the expectations, i.e. M&A motives, or the actual outcomes, M&A results. Because "results" can be measured against "expectations" M&A motives and M&A results are not easily separated, neither in practice nor in research. If results are dependent on expectations, it seems reasonable to ask: What creates expectations? It has been argued, and it is assumed, that the accumulated historical experiences at all strategic levels, i.e. from individual to industry level, are the basis for future expectations. As a result, it is difficult to relate most of the theories within M&As to either the pre-acquisition or the post-acquisition phase.

A static approach on M&As focus on e.g. the pre-acquisition and/or post-acquisition phase of the M&A process and is based on current corporate and industry structure. It pays little or no attention to previous experiences nor to future expectations, alternatively it focuses only on one of those dimensions, i.e. historical experiences OR future expectations. The dynamic perspective, on the other hand, tends to consider current industry and corporate structures and relate such structures to past experiences and future expectations. In addition, a dynamic perspective tends to consider all different phases in the M&A process, e.g. the pre-acquisition and post-acquisition phase.

The dynamic perspective has been well presented by Very, Lubatkin, and Calori (1998) in discussing acculturative stress (i.e. the perception of dissimilar cultures between the individual of the target company and the acquiring company's culture, thus creating resistance among individuals) and procedural injustice (e.g. when headquarters' procedures and values are not perceived to be fair and just, thus creating social disharmony among an organization's network of subsidiaries) in the M&A process:

"...acculturative stress (and its analogue, procedural injustice), is not based on some objective state of affairs. Rather, as social movement theory posits, it is based on three judgments: Are our present circumstances as favorable and just as someone else's circumstances; are our present circumstances as favorable and just as our past; and, will our future be as favorable and just as our present?" (Very, Lubatkin, Calori, 1998, p 92)

Looking at the M&A process, research on M&As has concentrated on different steps in the M&A process; prior to the decision (i.e. the pre-acquisitions process), the actual decision/execution, and after the execution/on completion (i.e. the post-acquisition process). Relating different questions to different steps in the M/A process does not make sense from the practitioner's perspective (e.g. Why? prior to the decision, or How? during execution, or What results to expect? after execution/on completion). Practitioners often answer the Why? based on expected results (which in turn may result from e.g. previous experiences), i.e. the What? which in turn is very much likely to depend on the How? and the context surrounding the M&A. These questions may be separated in time but cannot be separated as individual research questions in the research of M&As. Few researchers have approached the field of M&As considering all three phases and acknowledging the interdependence of all three phases. Vaara (1992) is one of those few.

M&As and strategic value creation (static perspective): The static perspective assumes that markets under "normal" conditions are in balance, i.e. in equilibrium. As a result of e.g. macroeconomic changes this equilibrium is disturbed causing uncertainty, different future expectations (e.g. on how markets will find a new equilibrium and how this new equilibrium will look like). M&As, from this perspective, contributes to "market clearance" (e.g. Capron, 1998). M&As assist markets in finding a new point of equilibrium. These theories are usually called "disturbance theories". Most theories within M&As belong to this static category. Some so-called "process theories" are in fact static. The dynamic perspective, on the other hand, assumes that markets under "normal" conditions are constantly changing in a perpetual process.

M&As and strategic value creation (dynamic perspective): Marcus and Geffen (1998) argue that acquisition of competencies, e.g. through M&As, is one way of linking the corporation's competencies and resources, e.g. human and technological resources, to the environment from a dynamic perspective. They refer to the dialectic nature of competency acquisition and evolution. The environmental logic at the macro industrial system level is driven by governments and is termed "teleologic", i.e. it leads towards an end-state through a rational process of goal formulation, implementation, evaluation and revision. The market logic, on the other hand, is evolutionary, i.e. markets are constantly evolving through a process of variation, selection and retention. The former, driven by governments, is referred to as the "teleology-thesis" on macro industrial systems. The latter, driven by markets, is referred to as the "evolution-antithesis". The results, i.e. the "synthesis", are unique and often unanticipated and unintended, and may either forward or retard social and economic progress. Consequently, there is a constant interaction between the system-wide properties at the macro level and corporate specific capabilities at the corporate level. The dialectic nature of competency acquisition and evolution unites the external context of the corporation, i.e.

political, legal and economic context, with elements internal to the corporation, i.e. competency acquisition is a combination of macro system changes and micro system developments in developing proprietary technology. In addition, the dialectic nature of competency acquisition has to do with the corporation's capabilities to search outside the corporation for talent, technology and ideas and to harmonize what is known internally. In other words, the dialectic view combines the outside-in and the inside-out perspective on strategy because it assumes reciprocity between the outside context and elements internal to the corporation.

2.2.4 Summary and final remarks

This section provides an overview of the literature review in the field of M&As and how different theories fit with the suggested typologies in terms of content, context and process of M&As. In addition, an overview is provided summarizing the strategic benefits and costs related to vertical and horizontal integration.

Strategic benefits and costs in general: Strategic benefits may arise from economies of scale, e.g. through efficient use of management resources, (Erixon, 1998), increased specialization and information sharing among researchers in R&D (Hitt, Hoskisson, Ireland, 1990), and in general through growth (Pfeffer, 1972). In addition, M&As may decrease transaction costs (Erixon, 1998), and provide access to new external technology (Ahuja, Katila, 2001). Other possible benefits from M&As are e.g. tax benefits and benefits due to the creation of monopoly markets (Erixon, 1998).

Strategic costs may arise from decreasing level of innovations due to decreasing managerial commitment to innovation and increasing commitment to existing technology and bureaucratic controls (Hitt, Hoskisson, Ireland, 1990). Strategic costs may also arise from difficulties in integrating idiosyncratic corporate technologies into common product platforms, thereby redirecting focus towards standardization rather than innovation (Berggren, 2001). In addition, M&As may create increasing financial risk due to debt increase (Hitt, Hoskisson, Ireland, 1990). Other negative effects may be found in relationships between customers and suppliers because these intangible assets are difficult to transfer from the target to the acquirer (Salmi, Havila, Andersson, 2001).

Strategic benefits and costs of vertical integration: Strategic benefits may arise from the diffusion and reduction of risk by securing deliveries of inputs (Pfeffer, 1972; Erixon, 1998) or reducing competition for output markets (Pfeffer, 1972). Other strategic benefits of vertical integration may arise from economies of integration e.g. through economies of combined operations (e.g. reducing the number of steps in the manufacturing process, handling, transportation), economies of internal control of and coordination (e.g. rapid coordination when introducing a new product, or product design), economies of information (e.g. reducing overall cost for attaining information), economies of avoiding market and transaction costs, tapping into technology, offset bargaining power and input cost distortion, enhancing the ability to differentiate, elevating entry and mobility barriers, entering a higher return business and defending against foreclosure (e.g. widespread integration by competitors that tie up many of the sources of supply or the desirable customers or retail outlets) (Porter, 1980, 1985). Specific benefits in forward integration are related to improved ability to differentiate the product, access to distribution channels, better access to market information and higher price realization (Porter, 1980, 1985). Specific benefits in backward integration are related to proprietary knowledge (e.g. the company can avoid sharing proprietary information) and differentiation (Porter, 1980, 1985).

Strategic costs may arise from cost of overcoming mobility barriers, increased operating leverage (e.g. increasing the portion of a firm's costs that are fixed and exposing it to greater cyclical swings in earning, thereby increasing the business risk), reduced flexibility to change partners, higher overall exit barriers, capital investments requirements, foreclosure of access to supplier or consumer and/or know/how (e.g. by integrating companies cut themselves from flow of technology from its suppliers or customers, and must thereby accept responsibility for developing its own technological capability), maintaining balance between excess/scarce capacity, dulled incentives to bargain for lower prices or higher quality internally, and differing managerial requirements (Porter, 1980, 1985).

Strategic benefits and costs of horizontal integration: Strategic benefits may arise from the reduction of risk through diversification, e.g. different product market and/or different geographical market, particularly if the acquiring corporation and the target have revenue streams and profitability fluctuations that are not correlated (Erixon, 1998). In particular, diversifying enables corporations to reduce business risk (Hitt, Hoskisson, Ireland, 1990). In related, however not competing, and unrelated mergers the systematic risk can be reduced, i.e. risk related to monetary and fiscal policies, cost of energy, and the demographics of the marketplace (Chatterjee, Lubatkin, 1990). Unrelated acquisitions may reduce risk through coinsurance effects, provided however two corporations have less than perfectly correlated earnings (Seth, 1990). In addition, horizontal acquisitions and diversification M&As may provide economies of scale and scope, provided related acquisitions (Seth, 1990; Nguyen, S  r  r, Devinney, 1990). Synergies, e.g. cost synergies by the divestiture of redundant assets and activities of the acquirer, and revenue-based synergies by increased market coverage and innovation capability can be achieved (Capron, 1999). Other benefits may include increased market/bargaining power (Seth, 1990) and increased levels of innovations, provided, however, moderate level of relatedness (Ahuja, Katila, 2001). At the industry level, horizontal integration may expand successful businesses and preserve valuable resources in unsuccessful business (Capron, Dussauge, Mitchell, 1998). Strategic costs may arise from market imperfections that are transferred within the corporation, e.g. suboptimal redeployment of resources (Capron, Dussauge, Mitchell, 1998).

In conclusion, M&As are viewed as an intended rational strategic decisions at corporate level to integrate vertically and/or horizontally into related and/or unrelated business for the purposes of creating value (rather than transferring value) in order to obtain net strategic benefits.

2.3 On corporate level unbundling (outsourcing)

Corporate level disintegration has to do with the corporation moving towards short-term contracts, i.e. often "competitive market arrangements", or long-term contracts, i.e. often "cooperative market agreements" through e.g. outsourcing (e.g. sale-leaseback agreements). Divestment of subsidiaries and/or minority interests, and spin-offs, i.e. the creation of subsidiaries for internal transactions or possible future divestment, are not discussed here as they imply a business exit or simply a rearrangement of the internal coordination. Consequently, divestments and spin-offs do not change the boundary of the firm considering businesses in which the firm competes. In the "early" literature outsourcing and the make or buy decision was often linked to operational effectiveness and less so to corporate strategy (Jauch, Wilson, 1979) or as operational decisions that "influence the strategic thrust of the organization" (Jauch, Wilson, 1979, p 56) and, thus, needed to be linked to the strategic planning (in particular the SWOT-analysis) and execution process (Jauch, Wilson, 1979). Today, however, outsourcing is at large considered a strategic decision (e.g. Jauch, Wilson,

1979; Reve, 1990; Quinn, Hilmer, 1994; Fill, Visser, 1990) that changes the boundary of the firm (e.g. Cox, 1995).

Current literature on outsourcing focus on describing and explaining the content of outsourcing (why and what firms outsource) and the process of outsourcing (how firms outsource and who is to participate in the decision making process). The context of outsourcing is seldom researched in it self (one may argue that e.g. Fine, Whitney, 1999 examines the inner context of outsourcing in answering the question if the make or buy decision is a core competence), however often assumed as a given factor or a delimitation to the theories that are brought forward with regard to the content and process of outsourcing.

Thus, because outsourcing is one important topic in corporate strategy as well as an important tool for creating competitive advantage at the corporate level, and with reference to Pettigrew's (1987) classification of strategy in terms of its content, process, and context, this section shall focus on bringing forward the main typologies within the field of outsourcing in terms of the content, process and context of outsourcing.

2.3.1 Content of outsourcing

The answer to why (and what) firms engage in outsourcing depends very much on the theory of the firm (e.g. internal and external contracts for transactions associated with costs in contrast to portfolio of competencies). A mix between these two perspectives also exists in current literature. Lonsdale and Cox (1998), to name two researchers, suggest a more complex set of factors that contribute to the outsourcing decision. They suggest that firms outsource in order to focus resources on core activities, to reduce costs, to convert fixed costs to variable costs, to benefit from a supplier's investment and innovation and to improve time to market. Nonetheless, as argued by Kakabadse, Korac-Kakabadse (2001), most researchers have found that the outsourcing decision often relies on either a core competence perspective or a cost perspective (transaction cost and management costs). Thus, a company may outsource some of its activities in order to cut cost or to enhance its core competencies. These two perspectives will be discussed to some detail. In addition, it also seems that the answer to why (and what) firms engage in outsourcing also depends on the level of analysis assumed (e.g. the industry level or the organizational level). Researchers adopting a higher level perspective, i.e. industry or sector level perspective, tend to answer the question why firms engage in outsourcing, in terms of "necessity" rather than "choice" and "evolution" rather than "decision". Independently of the theory of the firm and the level of analysis, and as in any strategic decision facing uncertainty with regard to future outcomes, risk is an important factor when considering outsourcing (e.g. Walker, 1988; Quinn, Hilmer, 1994; Ellram, Maltz, 1995 with reference to Williamson, 1981 and 1985). Thus, the level of analysis and the risk associated with outsourcing will also be discussed to some detail.

WHY FIRMS OUTSOURCE: As discussed in the introduction of this section, the reasons for why firms outsource are essentially related to costs, core competencies, necessity or risks.

Outsourcing and costs: The cost perspective on outsourcing is mostly adopted by researchers applying a contract theory on the firm and defining an organization as a set of internal and external contracts (i.e. minimize the cost of internal and external contracts, i.e. management and transaction costs). Among the advocates of the transaction cost perspective on outsourcing we find e.g. Deavers (2001), Cox (1995), Williamson (1993) and Reve (1990).

According to Deavers (2001), outsourcing is a consequence of the IT development. Reflecting on Coase's (1973) theories on the rationale of firms, Deavers (2001), argues that firms tend to

outsource because IT lowers the transaction costs in general, and the costs associated with finding information in particular. According to Deavers (2001), IT enables globalization of production and consumption markets. Thus, manufacturing may be outsourced to one part of the world while marketing and sales is kept close to local customers. The evidence to this, according to Deavers (2001), is that the average size of American firms has shrunk by roughly 20% since 1970 measured by number of employees or sales and that firms that have invested most in information technology also tend to be smaller than others.

According to Cox (1995), strategy and outsourcing may be used to “ascertain what the efficient boundaries of the firm are so that they can be created to reduce transaction costs and improve quality and value” (Cox, 1995, p 69). Changing the boundary of the organization, according to Cox (1995), is a continuous process in order to adapt to a continuously changing environment. The rationale is to keep or increase the relative level of value creation and to keep or decrease the costs for such value creation in order to make profits, i.e. the main purpose of any business organization.

“...we must focus consistently on the underlying *raison d'être* of the firm. I take this to be the creation of profit (or a margin) within a particular market structure.” (Cox, 1995, p 58) ... the goal of SPM [Strategic Procurement Management] is about making money, nothing else. Achieving this, however, is more difficult than it seems because many companies simply do not understand, or have lost sight of the fact, that they are in business to make money.” (Cox, 1995, p 66)

Despite the fact that Cox's (1995) point of departure for understanding outsourcing is cost in general and transactions costs in particular it is surprising that switching costs for changing the boundary of the firm through outsourcing (i.e. moving towards external contracts) or M&As (i.e. moving towards internal contracts) or for switching between external suppliers are not considered.

“Thus, since firms must seek to economize (or reduce costs) at all times, successful strategies for firms must be those that constantly address the issue of which type of internal or external relationships are most useful to achieve a particular purpose. Since the answer to this question will vary under specific business circumstances and contexts, the specific internal and external relationships (or contracts) that a firm implicitly or explicitly creates will also be subject to change and adaptation... In this view the firm is conceptualized as nothing more than a 'governance structure' in which the key strategic decision must be to assess the relative efficacy of alternative means of contracting amongst potential suppliers of goods and services - both internal and external.” (Cox, 1995, p 60)

Efficient boundaries, however, may also be determined by the properties of transactions, e.g. with regard to asset specificity, uncertainty and risk (e.g. Reve, 1990; Williamson, 1993). Thus, the advocates of the cost perspective tend to suggest that firms outsource in order to lower costs, decrease or manage risk and/or increase flexibility. E.g. Williamson (1993) tend to stress the importance of bargaining power, opportunistic behavior, bounded rationality and asset specificity all of which can translate into costs, risks and flexibility, i.e. factors that are critical to assess in strategic decisions such as the make or buy decision, outsourcing or vertical integration.

Outsourcing and core competencies: The core competence perspective on outsourcing is mostly adopted by researchers applying a theory on the firm based on a set of competencies, both individual competencies but most important competencies embedded in the organization's “trunk and major limbs... [the] core products, the smaller branches... [the] business units; the leaves, flowers, and fruit...the end products” (Prahalad, Hamel, 1990, p 81). According to Prahalad and Hamel (1990), the root system that provides nourishment to core products and end-products is the core competence. The advocates of the core competence

perspective tend to suggest that firms outsource in order to focus on core competencies and to access external competencies e.g. external innovations, etc.

Nonetheless, because core competencies need to be difficult to imitate, in addition to provide access to a wide variety of markets and make a significant contribution to the perceived customer benefits of the end products (the three tests suggested by Prahalad, Hamel, 1990 to identify core competencies) core competencies cannot simply be outsourced.

"In the long run, competitiveness derives from an ability to build, at lower cost and more speedily than competitors, the core competencies that spawn unanticipated products... At least three tests can be applied to identify core competencies in a company. First, a core competence provides access to a wide variety of markets... Second, a core competence should make a significant contribution to the perceived customer benefits of the end product... Finally a core competence should be difficult for competitors to imitate... The embedded skills that give rise to the next generation of competitive products cannot be "rented in" by outsourcing and OEM-supply relationships. In our view, too many companies have unwittingly surrendered core competencies when they cut internal investment in what they mistakenly thought were just "cost centers" in favor of outside suppliers... The tangible link between identified core competencies and end products is what we call the core products – the physical embodiments of one or more core competencies... Core products are the components or subassemblies that actually contribute to the value of the end products." (Prahalad, Hamel, 1990, p 81-85)

Among the advocates of the core competence perspective on outsourcing, in addition to Prahalad, Hamel (1990), we find e.g. Quinn, Hilmer (1994), and Long, Vickers-Koch (1995). According to Quinn and Hilmer (1994), corporations should focus its resources on a set of core competencies that can provide unique value for customers. Other activities, according to Quinn and Hilmer (1994), should be outsourced. The reasons for corporations to focus on core competencies are to maximize return on internal resources by focusing on what the firm does best, to increase entry barriers, to make use of the external suppliers' investments and innovations, and to lower risk, shorten cycle times, lower investments, and increase responsiveness to changing customer needs. According to Quinn and Hilmer (1994), core competencies are sets of skills and knowledge, not products or functions. In addition, core competencies are unique sources of value. Unique value can be delivered in segments of the value chain where there are market imperfections or knowledge gaps. To be considered a core competence, the corporation needs to be able to dominate such competence and it also need to be important for customers in the long-term. Finally, core competencies are embedded in the organization's systems, i.e. values, structure and management systems.

Long and Vickers-Koch (1995) suggest that firms are able to create competitive advantage and value for stakeholders by linking strategic positioning with operational synergies. Strategic positioning is related to the position in the value chain where the firm is able to produce the most value relative the costs of doing so. This is dependent on corporation's core competencies or the core competencies that it is able to develop. Operational synergies relates to creating synergies among complementary businesses in order to increase the amount of value created for stakeholders and customers in particular while lowering the costs of doing so.

"Strategy, when viewed as a portfolio planning, often puts management into the role of bankers or traders, expected to buy and sell or manipulate financial resource allocation between SBUs to inflate stock prices, all in the name of increasing shareholder value... To become capability based, organizations need to explore their value chain in two ways. First, they must search for the specific points along the value chain where the margins are greatest between the value stakeholders' place on what is added and the cost of adding it. Through the search, a company learns what special skills, knowledge, or technology processes that give it an advantage at these points of its value chain. Second, they need to learn how to fashion a series of business processes into feedback loops that begin and end with the needs of the customer and

other stakeholders, thereby determining what special capabilities are critical to meeting the needs of their key stakeholder groups... Viewing the two sets of information as complementary allows businesses to make operating decisions that create greater synergy. Creating value at specific points by applying core competencies, and creating value throughout the value chain by linking it together with more effective processes, greatly leverages the total amount of value that can be created.” (Long, Vickers-Koch, 1995)

Outsourcing and risk: Walker (1988) introduces risk as an important factor in the outsourcing decision. According to Walker (1988), strategic risk associated with sourcing relationships determines whether to make (i.e. vertically integrate) or buy (i.e. vertically disintegrate). Qualification of the internal and external sources entails their capabilities to meet specific operational and strategic performance criteria. At the operational level this means e.g. price based on costs, quality, etc. The strategic criteria are e.g. technological leadership, ability to link to other suppliers, and the compatibility between the seller’s and the buyer’s long-range strategic plan. Walker (1998) further identifies three types of strategic risks, appropriation risk, diffusion and degradation risk. Appropriation risk refers to when internal costs are lower than transaction costs or suppliers assets are strategic (often because assets are specialized which often leads to high switching costs) and supplier’s behavior is opportunistic (often because switching costs are high). Risk of diffusion relates to product and process innovations that can be replicated by competitors and that should be protected from imitation. Finally, degradation risk is related to controlling the product interface with end-users for the purpose of effective emphasis on valuable product attributes and in order not to allow specialized competitors to enter specific niche product and end-user segments.

Outsourcing and the level of analysis: With regard to the level of analysis it determines the inner and outer context of the phenomenon being observed. It also seems to determine the strategic change process assumed. E.g. if the analysis is conducted at the industry level, strategy and outsourcing is often viewed as a necessity (deterministic) and strategy and outsourcing one way of adapting to such context (outside-in perspective on strategy). At the organizational level, however, strategy and outsourcing is often viewed as a choice (voluntaristic) and strategy and outsourcing one way of creating or shaping the external context (inside-out perspective on strategy). As previously discussed, Prahalad and Hamel (1990) suggest that core competencies may not be outsourced. One of the reasons is that core competencies are able to create new customer needs as well as new markets.

“The critical task for management is to create an organization capable of infusing products with irresistible functionality or, better yet, creating products that customers need but have not yet even imagined... They [core competencies] are also the engine for new business development. Patterns of diversification and market entry may be guided by them, not just by the attractiveness of markets” (Prahalad, Hamel, 1990, p 80-82)

WHAT FIRMS OUTSOURCE: A supply chain approach tend to answer the question of what firms outsource (or source) in terms of products or manufacturing systems, e.g. “systems”, “sub-systems”, “products”, “components”, etc. (e.g. Lamming, 1996; Knight, Harland, 2001). A value chain perspective, on the other hand, tend to focus on value creating activities, e.g. primary activities, value activities, core activities, etc. (e.g. Porter, 1985; Quinn, Hilmer, 1994). Finally, an organizational perspective tends to focus on organizational units and functions (e.g. Kakabadse, Korac- Kakabadse, 2001), e.g. manufacturing unit, IT department, R&D (e.g. Howells, 1999), etc. Naturally, one may find exceptions to the above. Fine and Whitney (1999) have a supply chain perspective and conclude that firms may outsource anyone of the sub-processes within the product realization process, in other words the chain of value creation activities. According to Fine and Whitney (1999) the Product Realization Process consists of determining customer needs, converting needs to engineering

specifications, converting engineering specification to process specification, converting process specification to processes, and finally verifying that item meets specification. Each of these sub-processes is a potential exit point for a firm, and may consequently be outsourced. Quinn and Hilmer (1994) are researchers that may represent the value chain approach to outsourcing by suggesting that core competencies should be retained in-house because they provide a unique source of leverage for customers in the value chain and that other activities should be outsourced. With reference to how one should define core competencies, Quinn and Hilmer (1994) suggest that these are “skills or knowledge sets, not products or functions” (Quinn, Hilmer, 1994, p 45) that involve activities such as product or service design, technology creation, customer service, or logistics that tend to be based on knowledge rather than ownership of assets.

2.3.2 Context of outsourcing

As mentioned in the beginning of this section the context of outsourcing is seldom researched in it self (one may argue that e.g. Fine, Whitney, 1999 examines the inner context of outsourcing in answering the question if the make or buy decision is a core competence), however often assumed as a given factor or delimitation to the suggested theories regarding the content and process of outsourcing. This section shall, thus, with reference to the literature review above and below, only provide a few examples of how the context of outsourcing is viewed in current research. Typically the context refers to an industry context, a value chain context, or a country/international context.

INDUSTRY CONTEXT: Some theories have been theoretically developed or included various industries and, thus, are assumed to be valid for most other industries, examples are Cox (1996), Reve (1990), Quinn and Hilmer (1994), Javidan (1998), Deavers (1997), McIvor (2000), and Jauch and Wilson (1979). Other theories seem implicitly to be valid for any industry despite such theories being developed within a specific industry context, e.g. manufacturer of medical equipment including both consumer and industrial goods (Ellram, Maltz, 1995), automotive industry, e.g. car manufacturing (Fine, Whitney, 1999) and components manufacturing division of automobile companies (Walker, 1988), Contract Research and Technology (Howells, 1999), and machinery and components manufacturing in general (Brück, 1995), electrical industry, i.e. energy products and services including production and distribution (Fill, Visser, 2000), and logistics and transportation services (Andersson, 1995). Unlike other theories related to strategy, e.g. strategic marketing, the outsourcing literature seem not differentiate between the outsourcing of physical products and services, nor between consumer and industrial products. In addition, it seems that the outsourcing decision, according to existing theory at large, is similar no matter the industry context.

VALUE CHAIN CONTEXT: The value chain context refers to the vertical organizational scope or positioning, e.g. Walker (1998), Reve (1990), and possibly also Long and Vickers-Koch (1995), McIvor (1999) as well as Fine and Whitney (1999). None seem to have an explicit ambition, however, to describe or to understand outsourcing and changes in the division of work across the value chain over time.

COUNTRY OR INTERNATIONAL CONTEXT: Explicitly, or by looking at the companies referred to, most theories seem to have been developed in an American context, e.g. Walker (1998), Deavers (1997), Fine and Whitney (1999), Jauch and Wilson (1979), although other contextual frames exist, e.g. a European context (Fill, Visser, 2000; Andersson, 1995), a British (Howells, 1999) or German context (Brück, 1995). Other theories are based on a more multinational approach, e.g. Quinn and Hilmer (1994). A third group, e.g. Javidan (1998),

make no reference to the international context. What they all have in common is that their theories are assumed to be general in their descriptive, explanatory or predictive ambitions. In addition, it seems that few studies look at cross border or international outsourcing, e.g. if comparing with a research area such as M&As. Two exceptions are, however, Deavers (1997) and Howells (1999).

An important conclusion with regard to existing research on outsourcing is that it seems that no study has focused on outsourcing from a value chain perspective, including the telecom and construction industries in Sweden. In addition, few and possibly no research has been done on outsourcing and relating such strategic decision to other strategic decisions that impact the boundary of the firm and the scope of the offering, i.e. bundling/unbundling on different strategic levels, including M&As, systemization and modularization.

2.3.3 Process of outsourcing

The process of outsourcing tends to focus on the process of evaluating alternative outsourcing options, the actual implementation of the outsourcing decision and/or supplier relationship management, and the evaluation of the obtained results (e.g. McIvor, 2000). In addition, the process of outsourcing sometimes deals with who is to manage or to be involved in such processes. The process of outsourcing is intimately related to the content of outsourcing as the question of how firms outsource is closely related to the question of what and why firms outsource. Assuming a cost perspective on outsourcing, the evaluation process is related to detecting cost drivers in different processes (e.g. Ellram, Maltz, 1995) and if the perspective is based on a core competence perspective, the evaluation process is, naturally, related to detecting the core competencies of the firm (e.g. Javidan, 1998).

HOW FIRMS OUTSOURCE: With this regard, most literature on outsourcing tends to focus on the initial phase of the process, i.e. the evaluation of alternative outsourcing options (e.g. Fill, Visser, 2000). A supplier relationship perspective, on the other hand, tends to focus on how to create, maintain and/or develop alternative supplier relations. A supplier relationship management approach tends to answer the question of how firms outsource in terms of “arms lengths relationship”, “preferred supplier relationship”, “alliances”, etc. (e.g. Cox, 1996; Quinn, Hilmer, 1994). Few researchers deal with how to implement and evaluate the outsourcing decision. Some researchers argue that the evaluation is a continuous process (e.g. Cox, 1996). This is mostly suggested by researchers holding a cost perspective on outsourcing (i.e. to continuously monitor costs). However, others argue, implicitly that there is no use of evaluating the decision to outsource (for the purpose of reverting the process) since once made you can not revert the process (e.g. Quinn, Hilmer, 1994). The latter is mostly made by researchers with a core competence perspective on outsourcing.

WHO IS TO PARTICIPATE IN THE DECISION MAKING PROCESS: Another discussion among researchers is related to who is to participate in the decision making process. Most researchers agree that this is an issue for top management or top corporate executives to deal with (e.g. Jauch, Wilson, 1979). However, some researchers argue that this is a question to be handled in collaboration between top managers, Strategic Business Unit (SBU) managers, project managers, etc. (e.g. Javidan, 1998)

2.3.4 Summary and final remarks

Any firm's strategy and strategic decisions should result in long-term profits. Creating value for buyers that exceeds the cost of doing so is the goal of any generic strategy, and the profit margin is the difference between the total value and the collective cost of performing such value activities (e.g. Porter, 1985; Cox, 1995). Consequently, firms should outsource if costs

are reduced or value for buyers increased. Thus, the outsourcing decision should be evaluated in strategic terms, just like any other strategic decision, i.e. if it supports the overall strategy of cost leadership or differentiation adopted by a firm, or if it does not. A firm should determine its boundaries based on the overall strategy of the firm. Any strategic decision, including outsourcing, should reflect and support its strategic choice. Neither view on outsourcing (i.e. core competence perspective or cost perspective) is then right or wrong or superior to the other, it will depend on the strategy of the firm. However, the core competence perspective on outsourcing seem to better suit firms adopting a differentiation strategy and the cost perspective those other firm's adopting a cost leadership strategy.

DEFINING OUTSOURCING AND MAKE/BUY DECISION: The discussion above suggests that the definition of the term "outsourcing" varies among researchers. Ellram and Maltz (1995) defines "outsourcing" simply as "moving functions or activities out of an organization" and Hiemstra, van Tilburg (1993) as "subcontracting custom-made articles and constructions, such as components, sub-assemblies, final products, adaptations and/or services to another company." With reference to the Gartner Group, Kakabadse, Korac-Kakabadse (2001) projected a 16% growth rate world wide, estimating a BSUD120 in IT outsourcing markets by 2002. Does this mean that 16% of all hardware, software and services previously manufactured and rendered in-house by corporations world-wide will be "moved out of the organization" or does this simply mean that organizations world-wide are purchasing an additional 16% of *custom made* hardware, software and services from third party suppliers? A supplier of hardware, software and services may view the above figure as a great growth opportunity, or, a major challenge in coping with the redistribution of work across the value chain.

Outsourcing decision: It is suggested that a company is engaged in outsourcing if any of the following two criteria hold true:

- For primary activities (Porter, 1980) i.e. purchased products and services (or any other input of "primary" nature) to be directly included in the company's final offering to its customers: A company is engaged in outsourcing if it engages in the marketing and sales of products, services or any primary activity, in part or in whole, "manufactured" or provided by a third party.
- For support activities (Porter, 1980) i.e. purchased products and services (or any other input of "supporting" nature) not to be directly included in the company's final offering to its customers i.e. purchased for the purpose of own use or consumption: A company is engaged in outsourcing if it historically used to engage in an (support) activity and discontinue to do so in favor of sourcing through a third party supplier.

In summary, it is suggested to define the outsourcing decision as the decision to purchase primary activities or the decision to purchase supporting activities, provided, however, the company used to engage, historically, in the execution of such supporting activities. In addition, this definition suggests that, although closely related, the outsourcing decision is not the same as the make/buy decision.

Make/buy decision: If a company decides to enter a market it will need to consider the make/buy decision for all value adding activities, in particular the primary activities that are to be included in the final offer to the customers. The market entry decision is concerned with the four combinations of entering an existing/new market with an existing/new product. The make/buy decision is suggested to be defined as the decision to make, or not to make, value

adding activities, in particular primary activities, in order to enter a new product/market segment.

2.4 On functional level bundling (systemization) and unbundling (modularization)

As will be discussed, functional level integration/disintegration (vertical and horizontal), from a product perspective, has to do with bundling/unbundling the offering. The focus here will, hence, be on the offering, i.e. product development and product marketing rather than other functions within the SBU/corporation. The reason for this delimitation is discussed in detail below as the literature is reviewed. Functional level integration and disintegration can be viewed from a vertical and horizontal dimension. Functional level integration (vertical) entails bundling the offering and moving towards systems sales. The opposite, that is to say functional level disintegration (vertical), often means unbundling the offering, e.g. moving towards modular sales (modularization), component sales, etc. While functional level integration (horizontal) entails bundling the offering and moving towards functional sales, solutions sales, etc. (e.g. by only offering complementary products together), functional level disintegration (horizontal) often means unbundling the offering (e.g. by only offering complementary products separately).

It has been argued that the reasons for moving towards system sales are manifold, e.g. it increases the potential for enhancing customer value in terms of lowering total costs for customers (e.g. in manufacturing due to lower labor cost in installing one pre-assembled system compared to many individual components, but also in logistics, inventory, etc.), improving quality, space savings in packaging, and reducing weight. In addition, moving towards system sales increases the potential for system vendors to enhance capabilities in innovations and R&D, design, manufacturing, and installation, by e.g. shortening lead-times (Henke, Jr., 2000). Often, however, researchers within the field of systems and system sales are unable to explain how additional value is created rather than transferred from the system supplier to the customer or vice versa (e.g. Henke, Jr., 2000). An example of value creation is e.g. when the total costs of supplier and customer are reduced by means of creating synergies, economies of scale or scope, etc. If, however, customer's costs are reduced by means of transferring such costs to the supplier, value has been transferred rather than created. In transferring costs from the customer to the supplier (and consequently transferring value in the opposite direction), the system supplier is really "buying the customer", or "buying market share". In such a case it is reasonable to ask why the supplier would do such a thing. Provided that Henke, Jr. (2000) and others suggest transferring value from the system supplier to the customer or vice versa (rather than creating additional value) the logic behind it, e.g. that market share is correlated with profitability in the long-term, is not explicated. In addition, Henke, Jr. (2000) is not able to suggest why moving into system sales would be preferred over other alternatives. Rather than "buying the customer" by means of moving into system sales the supplier could simply cut the price. Why is it that Henke, Jr. (2000) and others suggest suppliers to go through the troublesome effort to move into system sales? If, however, the supplier through system sales is able to lower total costs, e.g. based on economies of scope and/or scale, in a way that the customer is unable to do, additional value is created.

It seems reasonable to assume that strategy at the corporate and functional level affects the boundaries of the corporation through bundling and unbundling. In addition, it seems reasonable to assume that strategy at the corporate and functional level is a major driver for changes in the division of work between vertical corporations (within industries), and between horizontal corporations (within industries among competitors and between adjacent

industries). The division of work may over time evolve, and such structural change may be of a bundling nature, i.e. a consolidation within industries and merger between industries, or an unbundling nature, i.e. fragmentation within industries and divergence between industries. Examples of structural changes both in terms of bundling and unbundling can be found in various industries, e.g. the telecommunication industry, IT industry, consumer electronics industry, construction industry, furniture industry, etc. At the functional level and with regard to system sales, the third generation cellular systems bundles the telecommunication and IT industry, blue-tooth technology bundles telecommunication and consumer electronics industry, on a conceptual basis, the “Bo-Klok” concept bundles the construction and the furniture industry. At the corporate level M&As and outsourcing contribute to the bundling and unbundling of corporations and industries.

If these assumptions are correct, i.e. that strategy, at the corporate and functional level, is a major driver with regard to changes in the division of work, over time one should be able to observe empirically how strategy and the division of work within and between industries relate to each-other. To the contrary to what Porter (1985) argues, one should also be able to generalize about whether bundling/unbundling at the corporate and functional level becomes more or less attractive as an industry evolves.

“There is no valid generalization possible about whether bundling becomes more or less attractive as an industry evolves...” (Porter, 1985, p 432)

This section focuses on the theoretical foundations of the functional level of strategy. In particular this section discusses strategic system sales. The theoretical foundation of strategic system sales intends to focus on the rationale for initiating system sales in terms of value creation (in contrast to value transferring) and the consequences it contributes to produce in terms of corporate and industry dynamics, i.e. changes in the division of work.

In contemporary research on system sales, several related terms are used, e.g. modules, projects, augmented offerings through e.g. services, etc. A definition of “system sales” should thus serve to develop an analytical framework, or analytical model, that enables to identify and study its key components relevant for understanding the real life phenomenon and the effects that it contributes to produces (e.g. industry dynamics in terms of changes in the division of work). No systematic classification of a theoretical field will ever have the possibility to serve any and all researchers independently of the purpose of the research study he/she is conducting and the specific research questions he/she trying to answer. As this section deals with “strategic system sales” the literature review will start by looking into how “system” has been defined, followed by how systems have been studied from a strategic perspective. The literature review entails a discussion on different perspectives on “systems”, i.e. various definitions of systems (a definition of the term “system” is also provided followed by a brief discussion on the interpretation of such definition) and how system companies interact with its internal as well as external environment, e.g. how the external (e.g. the “systemic environment”) and internal environment affects “system companies” and vice versa.

Reviewing the strategic perspective of system sales, however, needs some sort of point of departure. In practice and in theory, strategy can be broadly managed/perceived and analyzed/understood from a content, context and process perspective (Pettigrew, 1987). Applying this categorization to the field of “systems” means considering the *content* of product/systems development strategy, e.g. in terms of designing modules and interfaces, the system’s marketing and sales strategy, e.g. in terms of “solutions” or mass customization, and

in terms of value added services and/or complementary services, buy-back contracting, barter, build operate and transfer (BOT) projects, build operate owned and transfer (BOOT) projects, etc. With regard to the *process* it often means analyzing and understanding the different phases of the marketing and sales process, e.g. project screening, development, offering, negotiation, and contracting. While the *external context* often entails e.g. an international context or the network or industry level of strategy, the *internal context* has often to do with the corporate, strategic business unit, functional, project, or KAM level of strategy.

Thus, on the discussion on different perspectives and definitions of “systems” follows a discussion on the content, process, and context of functional level bundling and unbundling. This literature review shall focus on the strategy of system companies and systemic industries; the content of system sales and the process of developing systems and system sales given the functional level of strategy, i.e. viewing strategy primarily on a product and marketing level, within the context of KAM and project organizations and systemic industries.

Definitions of components, modules, products and systems: When setting out to describe the field of system sales it seems reasonable to start this work by defining some key concepts, in particular “systems” and other similar terms. In the literature, however, there is no common agreement on how such concept is defined (Henke, Jr., 2000; Bonaccorsi, Pammolli, Tani, 1996). For illustrative purposes, and in order to suggest a definition of the term “systems”, some examples of different definitions of system sales, systems marketing, systems development are provided here, including modular sales, modular marketing, modular development, functional sales, functional marketing, consultative sales, consultative marketing, solutions sales, solutions marketing, solutions development, etc.

According to Henke, Jr. (2000) the key to understanding systems is the interoperability of components; “standardized module [is]...components that are assembled together and systems [are] components that operate together...” (Henke, Jr., 2000, pp. 272-273). At a first glance this definition seems appealing, however, interoperability remains to be defined in order to be able to understand systems. A more confusing definition is provided by Baldwin and Clark (1997). Modularity, according to Baldwin and Clark (1997), is “a complex product or process from smaller subsystems that can be designed independently yet function together as a whole...” (Baldwin, Clark, 1997, p 84). They also state that products may be broken down “into subsystems, or modules...” (Baldwin, Clark, 1997, p 85). Consequently, according to Baldwin and Clark (1997), modules and products consist of subsystems, and products consist of subsystems and modules. Baldwin and Clark (1997) also suggest that a modular system, is “composed of units (or modules) that are designed independently but still function together as an integrated whole. Designers achieve modularity by partitioning information into visible design rules and hidden design parameters...” (Baldwin, Clark, 1997, p 86). The visible design rules fall into three categories; architecture, i.e. a specification of which modules that will be part of the system and what their functions will be; interfaces, i.e. a specification of how the different modules will interact in terms of fitting, connection and communication; and standards, i.e. a specification of how the different modules will be tested with regard to the above and how performance between substituting modules will be measured. The hidden design parameters, also referred to as hidden information, are decisions that do not affect the design beyond the local module. At a first glance this definition also seems appealing, however it does not answer the question of what differs systems, modules, products, and components from each other. Wilson, Weiss, John (1990) suggest that a system “is described by individual components attributes and by its ‘integration’ and ‘modularity’...” (Wilson, Weiss, John, 1990, p 123). The possibilities to integrate modules from multiple vendors

depend heavily on open standards for the interfaces. In addition, according to Wilson, Weiss, and John (1990) systems can be divided into distinct components that can be sold separately. Like Bonaccorsi, Pammolli, and Tani (1996), Wilson, Weiss, and John (1990) suggest that customers “have heterogeneous preferences” with regard to systems (Wilson, Weiss, John, 1990, p 123).

In providing apparently identical definitions to project marketing and system sales, Cova and Hoskins (1997) suggest that systems are projects (and vice versa) and that marketing is sales (and vice versa); “...project marketing and system selling mainly consist in the management of a firm’s relationships to a local network of business and non-business actors, named milieu...” (Cova, Hoskins, 1997, p 546). In addition, Cova and Hoskins (1997) suggest that system sales have certain peculiar characteristics; system sales has to do with unique customer demands or “segments of one”, complex project organizations, factors associated with time and frequency of transactions (i.e. discontinuity), and an increased risk associated with all of the above;

“The corresponding ‘uniqueness’ of each transaction is...a principal characteristic associated with project business... Bringing together the necessary skills and resources from within both the customer’s and the contractor’s network of external partners and functional specialist inevitably adds to the ‘complexity’ and risk associated with each transaction...a commitment spanning several years and an exposure to certain economic and political risks which may not have been readily apparent at the time an agreement was signed... the high level of ‘discontinuity’ in the economic relations between customers and their contractors... Given the unique characteristics, each project might be regarded as an isolated market for goods and services [segments of one]” (Cova, Hoskins, 1997, pp. 546-547)

With reference to Backhaus (1995), Cova and Hoskins (1997) characterize systems selling and project marketing by its customized production (implying high variability of scope and content of contracts), long-term character (implying the creation of coalitions between seller and buyer), high value of single orders (implying an increasing share of e.g. services). In addition, system sales and project marketing according to Cova and Hoskins (1997) is characterized by the discontinuity of incoming orders, reveals know-how differences between seller and buyer, has often an international character, and often involves finding solutions to complex issues related to financing (i.e. “financing engineering”).

A similar definition of systems is provided by Bonaccorsi, Pammolli, and Tani (1996) including unique customer demands, or at the market level, market heterogeneity, and a high degree of system customization in order to satisfy such demand:

“...it is possible to draw a distinction between products and systems based on two differential characteristics: nature of market demand and nature of technology. On the market demand side, systems exhibit a high degree of customization, reflecting the huge heterogeneity of user’s requirements....On the technology side, systems exhibit high levels of interdependence between the functions of individual components. This makes the design and manufacturing of each components heavily independent on the definition of characteristics of other components...Therefore, by complex product systems we mean those products that result from a variety of components and subsystems with high technology content, are realized in small series or as single models, present high levels of customization, and are normally realized through a project-based organization and wide range of inter-organizational relations...” (Bonaccorsi, Pammolli, Tani, 1996, pp. 540-540)

With reference to Cova and Holstius (1990), Bansard, Cova, and Salle (1991) define systems as “a complex transaction covering a direct package of products, services and other actions designed specifically to create capital assets that produce benefits for the buyer over an extended period of time...” (Bansard, Cova, Salle, 1991, p 125). This definition is also somewhat problematic. First, it assumes that systems can only be sold in industrial markets,

or in a business-to-business context, because consumers seldom purchase a system in order to “create capital assets”. Secondly, it assumes that any package of products, services and other actions are to be considered as systems (provided the transaction is complex and create capital assets over an extended period of time) regardless of their interoperability. Bansard, Cova, and Salle (1991) further contrast project marketing to general business-to-business marketing in that project marketing usually has a multi-organizational dispersal of the buying and selling centers (i.e. a multitude of organizations and functions are involved in the selling as well as the buying process) and by its long and complex relationships between organizations (i.e. long sequences of interaction before the transaction takes place and weak links between buyer and seller due to the low frequency of purchase). The multi-organizational dispersal of the buying and selling centers, and in part also the complex relationships between organizations, is due to technical (e.g. technically complex and, to some extent, novel systems because of customer specific requirements), financial (i.e. complexity in arranging and evaluating financial solutions), as well as communicational factors (e.g. cultural gaps in large international projects).

Other definitions of systems make reference to “total solutions”, “functions” and “consultative sales”. According to Millman (1996), systems selling involves “offering and delivering a comprehensive ‘package’ or ‘bundle’ of product/service attributes and benefits to selected customers. The package may comprise both standardized and customized components: including hardware, software, installation, product/process know-how, maintenance, consulting, training, etc. normally promoted to customers as a ‘total solution’ from a single source...” (Millman, 1996, p 632). Hammarkvist, Håkansson and Mattsson (1982) define a system as a “combination of products, solutions and services, which all together cover an entire function or subsystem of a customer...” (Hammarkvist, Håkansson, Mattsson, 1982, p 90, author’s translation). Azimont, Cova and Salle (1998) argue that consultative selling is the combinations of solutions sales and system sales. In addition, consultative sales include concepts such as industrial marketing, project marketing, and service marketing.

In conclusion, it seems that systems have to do with interoperability (Henke, Jr., 2000), interfunctionality (Baldwin, Clark, 1997), and integration (Wilson, Weiss, John, 1990) of components and modules in order to meet heterogeneous customer preferences (Bonaccorsi, Pammolli, Tani, 1996; Wilson, Weiss, John, 1990; Cova and Hoskins, 1997; Bansard, Cova, Salle, 1991) and to increase customer benefits and added value (Bansard, Cova, Salle, 1991; Millman, 1996). Unlike assembly, interoperability, interfunctionality, or integration is enabled by (visible) design rules and (hidden) parameters (Baldwin, Clark, 1997) as well as through open interfaces (Wilson, Weiss, John, 1990). Systems are often developed, purchased and sold in multi-organizational dispersal buying and selling centers (Bansard, Cova, Salle, 1991) such as project- (Cova, Hoskins, 1997) or KAM-organizations. Systems often entail expanding the scope of offering, e.g. by increasing functionality or service components, e.g. financial engineering services (Cova, Hoskins, 1997; Bansard, Cova, Salle, 1991; Millman, 1996; Hammarkvist, Håkansson, Mattsson, 1982). System may be viewed from a functional level, dyadic level, or industry or market level. At the dyadic level the creation of coalitions or the creation of long-term contracts between seller and buyer as well as the time and frequency of transactions (i.e. discontinuity) enables greater understanding of systems (Cova, Hoskins, 1997; Bansard, Cova, Salle, 1991). At industry or market level, market heterogeneity enables further understanding of systems (Bonaccorsi, Pammolli, Tani, 1996).

It is worth noting that the “price carrier” changes as products and systems, in terms of a combination of hardware and software supported by some services, is defined as functional

sales. In the former definition of system sales, focus is on hardware and/or software. Usually the performance of such hardware and/or software is warranted. The price carriers are hardware, software and services. Functional sales, on the other hand, has to do with sales of a combination of services supported by some hardware and software. Focus is on services and the performance of such services is warranted (i.e. "service performance warranties"). Price-carriers are services and performance. Thus, the difference between system sales and functional sales seems to be the degree to which hardware and software in contrast to services and functions carry price and the degree to which the performances of hardware and software rather than the performances of services and functions are warranted.

Content, process and context of functional level bundling and unbundling: Major contributions in the research of systems were made in Sweden during the 80's (e.g. Hammarkvist, Mattsson, 1982; Mattsson, 1986; Lindberg, 1989). This early research on systems focused on system sales and marketing in business-to-business markets and contrasted such sales and marketing with traditional product sales, or marketing management, in business-to-consumer markets. Recent research on systems, however, looks into systems from various contextual perspectives, not only from a business-to-business or industrial marketing and sales perspective in systemic industries.

From a strategic perspective, it has been argued that system sales may generate higher profits, however require companies to repositioning in the value chain into segments where profit levels are the highest. The highest profit levels may, however, be a moving target and require a continuous process of adaptation through e.g. bundling/unbundling of the offering and the corporation in order to fit the boundaries of the industry's highest profit pool and the customers' requirements of product aggregation in such a pool (Gadiesh, Gilbert, 1998). Others argue that often the highest profits in an industry are found down-stream in the value chain, requiring companies to integrate forward in the value chain by means of bundling products and services (Wise, Baumgartner, 1999). These are two interesting examples of a contextual approach to strategic system sales, i.e. to bundling and unbundle according to the profit pool in an industry.

To unbundle the corporation is suggested by Hagel and Singer (1999). As a consequence industries become more and more specialized. Why is it that corporations increasingly unbundle, and should unbundle, their business and offerings? According to Hagel and Singer (1999), any company consists of three kinds of businesses; customer relationship business, product innovation business and infrastructure business. These businesses rarely fit into one organizational structure as they differ in their economic, cultural and competitive imperatives. As such imperatives conflict with each-other, bundling them within one corporation forces top management to compromise the performance of the three businesses. Unbundling these three businesses allows corporations to focus and to avoid trade-offs between such businesses as a result of conflicting imperatives. In practice, this means that corporations need to choose one of the three businesses and divest, or outsource, the other two. In addition, once its focus has been established, corporations need to strengthen its competitiveness by means of economies of scope and scale through horizontal bundling, e.g. through acquisitions, within its own industry and eventually into related/adjacent industries. Consequently, bundling, unbundling and re-bundling, at the corporate level, as well as at the product level, is essential for creating a competitive advantage. An enabler in this respect is the growth of information technology that lowers transaction costs, or "interaction costs" (as referred to by Hagel and Singer, 1999). The above is an interesting example of a content approach to strategic system sales, i.e. to focus on one business (i.e. customer relationship business, product innovation business or

infrastructure business) through unbundling and to expand the scope of offering within the selected business through bundling.

All three examples above (i.e. Gadiesh, Gilbert, 1998; Wise, Baumgartner, 1999; Hagel, Singer, 1999) are interesting examples of strategic system sales as a continuously process of bundling and unbundling.

Clearly, research is not conclusive with regard to whether bundling or unbundling, at corporate and functional or product level, creates competitive advantage. Implicitly, however, there seem to be an agreement that corporate bundling and unbundling, i.e. the content of a systems strategy, is a continuous strategic process and that the description or prescription of such content and process is very much dependent on contextual indicators. The literature on strategic system sales in terms of its content, process and context is reviewed and discussed next.

2.4.1 Content of functional level bundling and unbundling

Content, from a strategic system sales perspective, has to do with what or if to bundle or unbundle and for whom and why to bundle or unbundle. The content at the functional level of strategy with regard to systems often focus on the bundling or unbundling decision of products/modules/systems (the “product/module perspective”) and services/functions/systems (the “service/functional perspective”). Often in order to satisfy a heterogeneous market demand products/systems are bundled or unbundled. From a market perspective, the systems literature has traditionally focused on industrial systems, i.e. business to business (the “industrial market perspective”). Recently, however, research on how to satisfy a heterogeneous market demand in end-user or consumer markets has evolved (the “consumer market perspective”). Thus, the discussion here shall focus on the product/module content, service/functional content, industrial market content, and consumer market content of strategic system sales.

Systems – A product/module perspective: Baldwin and Clark (1997) brings forward several interesting conclusions, explicitly and implicitly. One interpretation, at the functional level, of Baldwin and Clark (1997) is that system sales, or rather managing modularity and systems which includes the sale of systems and/or modules, has to do with a continuous process of bundling and unbundling; products are unbundled into modules, and modules are bundled into systems. Modularity, according to Baldwin and Clark (1997), is “a complex product or process from smaller subsystems that can be designed independently yet function together as a whole...” (Baldwin, Clark, 1997, p 84).

A second interesting conclusion, at the industry level, is that in the process of managing modularity, industries will evolve, and the evolution as such will increase the requirements for corporations to develop their capabilities in terms of “managing modularity”. At the industry level, modularity will e.g. enable greater specialization and lower entry barriers for niche players, e.g. those focusing on specific modules. This will boost competition, quality and rate of innovations. In addition, revenues and profits will be far more dispersed than they would be in traditional industries. Assemblers (e.g. Mercedes-Benz, and Volkswagen) in order to increase flexibility and cut cost, rather than controlling a network of maybe hundreds of suppliers, increasingly try to manage and control the supply chain by structuring it into “a smaller set of large production modules” (Baldwin, Clark, 1997, p 87). Consequently modularization affects industry structure. On the other hand, “in some industries, such as telecommunication and electric utilities, deregulation is freeing companies to divide the market along modular lines” (Baldwin, Clark, 1997, p 87). Consequently industry evolution

and regulations affect modularization. Implicitly, Baldwin and Clark (1997) seem to suggest that there is a reciprocal relationship between managing modularity at the functional level (including product development, marketing and sales, etc.) and the industry structure. According to Baldwin and Clark (1997), services, just like products, may be modularized.

In order to manage modularity as well as to be able to adapt to the new industry environment, modular designers, according to Baldwin and Clark (1997), need to be able to manage and to quickly move in and out of a variety of different inter- and intra-organizational relationships (e.g. joint ventures, technology alliances, subcontracts, employment agreements, new types of financial relationships, etc.). In addition, corporations need to choose from two main strategies; to compete as an architect, creating visible information, i.e. design rules, or to compete as a designer of modules that conform to the architecture, interfaces, and test protocols of others. The great challenge of architects is to attract module designers to its design rules by convincing them that their architecture is the one that will prevail. In other words, architects need to create a “dominant design” (e.g. Utterback, 1996) or a perception among other industry players that they are in possession of what is, or will become, a dominant design. The challenge for designers of modules is to master the hidden information and bringing such “information” to the market better than any other designer of modules.

According to Wilson, Weiss, and John (1990) every incumbent system company has a strategic decisions to make; to maintain its position as a system vendor and to develop its competitive advantage based on more integrated system benefits (from the customer’s perspective system benefits have to do with the system company’s ability to optimize the performance among the components through e.g. proprietary interfaces and allowing the customer to single source) or to unbundle the system and to sell individual components. In the latter case the system vendor may outsource or divest some of its components. The best components in terms of performance, quality, cost etc. may be sourced from a third party supplier by the system company or directly by the system company’s customer. Like Bonaccorsi, Pammolli, and Tani (1996), Wilson, Weiss, and John (1990) come to the conclusion that the strategy of system companies (i.e. either to continue to sell systems or to unbundle and focus on the components) and the structure of systemic industries are reciprocally related to each other; “the growth in the size of the market resulting from unbundling is a crucial determinant of the attractiveness of the strategy... unbundling becomes more likely because of the interfirm diffusion of technology and the evolution of [open] standards...” (Wilson, Weiss, John, 1990, p 124). In addition, firms that make the strategic choice to retain a bundled system are likely to lose volume, and firms that make the strategic choice to unbundle are likely to participate in a larger, however, more volatile market. Provided at least one component in the system offers a better value compared to other components in the market, unbundling systems results in market growth because customers that were unwilling to purchase the bundled system increasingly purchase the superior component that it can match with other components from third parties. However, retaining the bundled system is preferable provided no component in the system offers a better value compared to other components in the market. In addition, the bundled solution should be kept even as the system company has one component in the system that offers a better value compared to other components in the market, provided, however, the system adheres closely to open standards and it is in a no-growth environment. Unbundling in this case could result in that system sales (with relatively higher margin) are traded for components sales (with relatively lower margin), hence lowering margins, turn-over, and profits.

Systems – A services/functions perspective: Anderson and Narus (1995) views systems as a package of products and services. Their focus is to evaluate services that should be bundled

into systems, unbundled from systems or discontinued irrespectively of whether such services were provided bundled/unbundled. According to Anderson and Narus (1995) many companies fail to differentiate between services that should be bundled into a package of e.g. hardware, software and services, and services that should be sold unbundled, i.e. stand-alone as a separate service product. As a consequence, companies often increase their costs without increasing customer value (e.g. by providing bundled services, at no extra charge, to customers that do not appreciate such services), or decrease customer value (by charging a premium for bundled services that customers do not appreciate). Anderson and Narus (1995) suggest that companies should offer “naked solutions” or “naked systems”, i.e. to minimize the bundled services to those, and only those, services that are highly and uniformly valued by all customers in a given segment (“standard services”). Such services should be sold at the lowest price, however above cost and with a profit margin. Services that are valued differently among the different customers in a particular segment should be sold as optional (“optional services”). Services for which the cost exceeds what customers are willing to pay for, should be discontinued.

A system from a “functional” perspective is intimately related to the strategic as well as the industry perspective on systems. Because profits are higher downstream in the value chain, Wise and Baumgartner (1999) argue, that is where companies should move. Implicitly, this assumption is valid for mature industries. The reason, according to Wise and Baumgartner (1999), is that most industries are faced with a saturated demand and an installed base of products that continuously need to be operated and maintained. In addition, downstream service markets tend to have higher margins and lower capital costs because such markets require less investment in fixed assets. Product manufacturers, in order to capture the benefits of downstream markets, need to rethink their products; product sales is important mainly because it opens the door for the provisioning of services. Some companies could even benefit from rethinking their business model by giving away products and capitalizing on services targeted at the installed base or giving away products and capitalizing on the solution offered to customers (e.g. giving away computers/cellular phones in return for long-term internet service/cellular service contracts). Hence, such a business model, e.g. to provide solutions, aims at offering maximum value at the lowest cost to customers throughout the entire lifecycle of a product. In general terms, in order to integrate vertically down the value chain, companies need to focus on logistics/distribution and branding. More specifically, a company may adopt one of four different business models; embedded services, i.e. new technologies enables services to be built into a “smart” product; comprehensive services, i.e. to handle most aspects of ownership and operations in addition to the provision of financing; integrated solutions, i.e. to provide a wide range of services along with the products/systems, however with no ownership or operational commitment; and distribution control, i.e. the equivalent to traditional forward integration thereby entering the customer’s business by taking control over e.g. distribution channels and activities. The decision to move downstream in the value chain needs to consider the ratio of installed units and annual new sales, the end-users usage costs and the product’s price, the service margins (down stream) and product margins (upstream) as well as the competitive environment in terms of distribution and branding.

Systems – An industrial market perspective: In order to classify the strategic choices for system companies, Bansard, Cova, and Salle (1991) suggest two dimensions; internal as opposed to external reserves, and anticipation as opposed to flexibility and adaptation. The strategic choices are either proactive or reactive, and oriented inward or outward. The internal, reactive strategy means developing internal reserves for flexibility and adaptation including technical overcapacities and financial backup. Because the “cost of [internal] flexible capacities is fairly high” improving anticipation is essential, i.e. moving towards an

internal proactive strategy. Improving anticipation can be done by increasing standardization, specializing and focusing on technical (e.g. enabling the system company to be part of the specification process by e.g. developing “pseudo projects” or pre-designed commercial offers in order to “guide” the customer), financial (e.g. by developing pre-designed commercial offers in order to influence customer’s perception of financial conditions or to offer flexible financing e.g. in terms of BOOT projects, as well as communicational capabilities (e.g. through visits to working plants, pilot projects, etc.). These capabilities also serve to differentiate the system company from its competitors. A second option is to develop external reserves for flexibility/adaptation e.g. through the management of networks (e.g. ‘networking’ and lobbying), i.e. moving towards an external and reactive strategy. The fourth and final option to system companies is to develop an external and proactive strategy, e.g. by using third party suppliers. Using third party suppliers means that the system company, proactively and before actually making a bid, need to have at least a general idea with regard to which third party suppliers to approach. In addition, the system company needs to choose the mode of entry into a project and its position in the “project pyramid”.

As previously mentioned, Azimont, Cova and Salle (1998) argue that consultative selling is the combinations of solutions sales and system sales. In addition, consultative sales include such concepts as industrial marketing, project marketing, and service marketing. The depth and breadth of seller and buyer interaction determines the type of marketing and sales approach, e.g. consultative selling has to do with maximum depth and breadth of interaction, i.e. “customer intimacy”. In addition, system companies have a strategic choice to make; to sell unbundled systems as products (as in industrial marketing), to sell bundled systems as services (as in service marketing) or to sell bundled systems as solutions (as in project marketing).

Systems - A consumer market perspective: Research on how to satisfy a heterogeneous market demand in end-user or consumer markets by means of developing and marketing “systems” has recently evolved. The consumer market perspective on systems is often referred to as “mass customization”. The general idea behind mass customization is that “customers do not want choice; they want what they want” (Hart, 1995 with reference to Pine, 1994). Mass customization has been defined as e.g. “the use of flexible processes and organizational structures to produce varied and often individually customized products and services at the low cost of a standardized, mass production system.” (Hart, 1995, p 36) or “the capacity...to offer individually tailored products or services on a large scale...” (Zipkin, 2001, p 81).

Before deciding to pursue mass customization, corporation’s need to evaluate customers customization sensitivity (i.e. how much customers value customization), process amenability (i.e. the enabling technology and organizational structure/process/incentives etc. required for customization, e.g. marketing information systems such as IT-based systems and “one-to-one marketing”, design in terms of the ability to transform individual customer needs into actual product specifications, and production/distribution in terms of the ability to transform product specifications into products and the ability to distribute each and every customized product to each and every customer), the competitive environment and the ability to capture “customer share” and the organizational readiness in terms of culture and resources. Thus, mass customization entails functions across the entire corporation.

From a marketing perspective, e.g. Pilkington and Chong (2000) argue that mass customization relates to the finer and finer market segmentation and targeting down to “segments of one”. From a product development, manufacturing, and logistics perspective

(“operational perspective”), the ability to modularize and integrate components into customized products is viewed as a critical success factor in addition to the ability to manufacture and deliver “batches-of-one”. At corporate and industry level, or at the strategic level according to Pilkington and Chong (2000), it has been argued that industries could evolve from mass production through continuous improvements (in mass production) to mass customization and from “supply chains” to “demand chains” (Pilkington, Chong, 2000 with reference to Pine, 1993 and Gillmore, Pine, 1997).

Zipkin (2001) argues that there are certain limits to mass customization and that there are alternative strategies to satisfy demand for variety. Mass customization and mass production need to balance economies of scale, primarily found in production, and inventory advantages, primarily found in logistics. Mass customization affects cost and service quality in production (e.g. higher costs due to lower economies of scale) and logistics (e.g. higher costs due to lower economies of scale in deliveries, however, lower costs and longer delivery lead times due to the elimination of inventories). Mass customization consists of three elements which reflect the required capabilities; elicitation, i.e. the capability of interacting and obtaining customer information; process flexibility, i.e. the capability of producing products according to the information received, from customers; and logistics, i.e. the capability of delivering the product to the right customer. Alternative strategies to satisfy demand for variety exist, e.g. traditional mass production including a limited number of variants to a product and flexible product configurations. Considering costs, delivery lead-times and the capabilities that a company needs to develop in combinations with the existing alternative strategies to satisfy demand for variety, there are a limited number of products with the potential for mass customization (Zipkin, 2001).

The above should serve to illustrate that it seems reasonable to assume that strategy at different levels, with regard to mass customization, may affect industry structure (e.g. from supply to demand chains through various stages of development), or that industry structure affects strategy at different strategic levels. Although mass customization involves various strategic levels and functions such as marketing, product development, production, logistics, etc. a number of key concepts relate to strategy at the functional level, in particular marketing strategy, examples are concepts such as “segments of one”, “one-to-one marketing”, “customer share”, etc.

All in all, it seems that strategic system selling from a “content” perspective, in particular with reference to strategic marketing, has been well researched. The dynamic and reciprocal relationship, i.e. a process perspective, between industry structure and organizational strategy may however need further research. “Process” and “context” are the other two strategic dimensions in strategic system sales that are discussed next.

2.4.2 Process of functional level bundling and unbundling

Process, from a strategic system sales perspective, has to do with how to bundle or unbundle. The process at the functional level of strategy with regard to systems often focuses on the marketing/sales process of products/systems (“marketing and sales perspective”) as well as how to best organize such process (“marketing and sales management or organizational perspective”). The latter, is intimately related to the internal context, discussed later in this literature review.

Systems – A marketing perspective: Cova and Hoskins (1997) suggest that the marketing and sales process of projects and systems should focus on anticipating and/or defining the demand conditions in the pre-tender stage, and on the compliance or redefinition of the

demand conditions in the tender stage. Anticipating the demand conditions requires companies to be able to conduct project identification through the marketing intelligence system and pre-tender project screening. The purpose of project screening is to prioritize among potential projects, and to identify and allocate internal and external resources. Project screening usually requires evaluating the attractiveness of the projects as well as the internal competitive strengths. Defining the demand conditions, or creating the project, refers to a rather constructivist approach in which the seller “induces a demand by recognizing a project idea corresponding to a problem which remains to be clearly defined...or which might represent an opportunity for an, as yet, unknown customer...” (Cova, Hoskins, 1997, p 552). In both cases (i.e. anticipating and defining demand conditions), companies need to be able to conduct customer risk analysis as well as to bridge the gap between buyer’s and seller’s perception of risk. Because different perceptions of risk may arise from information asymmetries, the selling party usually needs to bridge such gap by providing and presenting information, e.g. a business case on the system. As mentioned, companies may choose to comply or to redefine the demand conditions during the tender stage. Companies are usually required to submit, e.g. in a formal proposal, a commercial, technical and “socio-political” (e.g. environmental compliance) statement of compliance. Redefining the demand conditions depends primarily on the customers willingness, or otherwise, to enter into a constructive dialog. This willingness can however be acted upon (at least in the long-term) through e.g. the creation of personal relationships and through the creation of a positive reputation e.g. by developing innovative solutions. In selecting an appropriate approach to the tender stage companies need to analyze its network position as well as its relationship with the potential buyer. According to Cova and Hoskins (1997), regardless of the two specific phases of a system sales and marketing process, discussed above, system vendors need to develop a strategy for creating a strong network position, or rather to build new business network constellations, and relationships with business and non-business actors. In developing new business network constellations, through e.g. alliances, consortia or other joint ventures, system companies may push for standards and specifications that are well aligned with its core competencies.

Other similar perspectives on strategic system selling from a process perspective have been presented by e.g. Hammarkvist, Håkansson and Mattsson (1982). According to Hammarkvist, Håkansson and Mattsson (1982) “system sales” is a strategic marketing decision in order to cope with a specific marketing issue, e.g. changing a company’s network position. Nonetheless, the driving forces to initiate system sales may originate from the buyer and/or the seller. The buyer may lack know-how (e.g. in systems integration) or need to minimize uncertainty (e.g. in managing the purchasing process). Seller motives may include or relate to effectiveness (e.g. coordination of relationships among component sellers etc.), growth potential, avoiding competition from component sellers and avoiding to become a sub-supplier, utilizing know-how (e.g. technical or commercial know-how), securing customer presence, creating or controlling new organizations, and defend market position

The purchase and sales of components and the integration of systems can be coordinated in three different ways according to Hammarkvist, Håkansson and Mattsson (1982); component sales, i.e. the buyer purchases the required system components from different sellers and takes responsibility for systems integration; independent system sales, i.e. the buyer purchases the integrated system from one seller, e.g. the system vendor, and the system vendor takes responsibility for manufacturing (all) components and systems integration; and cooperative system sales through a consortium or by one seller taking the lead. In a consortium the buyer purchases the integrated system from the consortium e.g. the system vendor. Each seller takes responsibility for manufacturing its own components, and one seller, within the consortium,

takes responsibility for systems integration. When one seller takes the lead, buyer purchases the integrated system from one single seller, i.e. the vendor. Each seller takes responsibility for manufacturing its own components and the system vendor for systems integration.

Implicitly suggested by Hammarkvist, Håkansson and Mattsson (1982), one can conclude that initiating strategic system sales entails two main processes; strategy analysis and strategy implementation. Although these two main processes may be quite self evident when strategic system sales is initiated, their contribution lies in detailing these two processes.

The strategy analysis process aims at analyzing the prerequisites for initiating system sales and the company's ability to fulfill such prerequisites, e.g. at the corporate level to understand its strengths and weaknesses. In addition, the strategy analysis process should include the analysis and selection of a marketing strategy that enables the company to reposition within its network in order to exploit its opportunities and/or manage its threats. (i) Analyzing corporate ability to fulfill prerequisites: Firstly, a company needs to analyze the scope of the system and its undertaking, e.g. the required components (products and services) and its ability to supply such components, e.g. in-house manufacturing or through a third party. Secondly, if the required components are not currently available in-house, the company then needs to analyze the required investments in order to develop such missing components or to create relationships with sub-suppliers and third party manufacturers. Either case, the company needs to analyze its current and future risk exposure and the possibility to share such risk within the business network. Other issues may arise during the process that need to be analyzed, i.e. requirements for additional resources and know-how, international dispersion of company's and customer's organization, etc. The process should end on a toll-gate decision, if to initiate system sales or to continue selling components. (ii) Analyzing possible marketing strategies and selecting a strategy: Firstly, a company needs to analyze the driving forces, e.g. seller and buyer motives, to initiate system sales. Secondly, the company needs to evaluate and select a marketing strategy e.g. in terms of "problem solving" and "solutions delivery" capabilities. Other issues that need to be analyzed and that may arise during the process are e.g. (once again) the scope of the system and its undertakings.

The strategy implementation process aims at evaluating and selecting individual projects as well as creating a profitable project/systems portfolio. (i) Evaluating individual projects: A company needs to assess the business risk of each individual project and decide whether it is capable of managing the risk or not. The risk assessment should include the complete lifecycle of a project, e.g. feasibility study, proposal preparation, proposal evaluation, contract negotiations and signing, detailed project planning, manufacturing/delivery, installation/commissioning/test, cut-over, operations and further development of the system. There are several risk factors that need to be considered, i.e. technological factors, buyer's purchasing system, vendor's delivery system, competitor's systems etc. (ii) Evaluating and selecting a project/systems portfolio: A company needs to assess the business risk of alternative project/systems portfolios based on e.g. its capabilities of managing risk. The risk assessment should consider the total number of projects, the similarity and interdependency between individual projects, and their distribution over time.

It should be noted that Hammarkvist, Håkansson and Mattsson (1982) do not suggest how the process of system sales should be coordinated nor how business risk is managed, rather their discussion focus on the different roles different companies play in this process and the risk components to be evaluated. Sales coordination is discussed next.

Systems – A marketing and sales management or organizational perspective: Bonaccorsi, Pammolli, and Tani (1996) argue that because of demand heterogeneity and technical interdependence between the functions of individual components, companies that design, produce and market systems are often organized on a project basis. However, system sales entails more than just project management. In moving towards systems, suppliers need to select those systems which include components for which it has a particularly strong engineering and manufacturing capability and for which most of the design, engineering, and manufacturing can be done in-house (Henke, Jr., 2000). The reason, according to Henke, Jr. (2000) is to minimize the management burden and because the markups on system components from third party suppliers will, eventually, be scrutinized by the customer. In addition, the supplier moving towards system sales need to ensure (i) module and system capabilities in terms of management and resources in functions associated with design, manufacturing, and delivery of systems, (ii) supplier-supplier coordination including lower tiers of suppliers, (iii) module and system design capabilities, including serviceability (e.g. ensuring that the system is easily serviced/maintained by end-users) and logistics (e.g. by locating close to the customer and consequently lowering transportation costs), (iv) markup practices so that the system and its components represent the added value delivered by the system supplier rather than an arbitrary fixed percentage, (v) supply chain management capabilities. Again Henke, Jr. (2000) is unable to explain the logic (or the empirical data) behind his finding and a solid theory to explain such findings. The buyer-supplier relationship suggested by Henke, Jr. (2000) lacks a solid theoretical ground, e.g. a theoretical ground based on e.g. transaction cost theory, resource dependency, neo-institutional framework, and/or embeddedness, i.e. a framework based on social structure or economic sociology (e.g. Högberg, 1999).

As a concluding remark, the process of initiating system sales in general, and the implementation of such strategic decisions in particular, is very much concerned with a company's ability to assess and manage risk from a business network perspective, e.g. when one seller takes the lead and the responsibility for systems integration including components from a variety of different sellers. This is a very difficult issue no matter the coordination and division of responsibility between system vendor/integrator and different component sellers. Thus, system sales coordination and risk assessment and management are suggested areas for further research. System sales coordination and risk management are issues discussed next.

2.4.3 Context of functional level bundling and unbundling

Context, from a strategic system sales perspective, has to do with how the external and/or internal environment effects the strategic decision to bundle or to unbundle or how the strategic decision to bundle or unbundle affects the external and/or internal environment. The context of a functional level strategy with regard to systems often focuses on external circumstances under which companies tend to (descriptive ambition of researcher) or should (normative ambition of researcher) bundle or unbundle. Generally the context can be viewed internally (within "hierarchies") or externally (within "markets") to the organization. In addition, the context can be viewed in terms of "networks", i.e. a combination of markets and hierarchies with no clear boundaries between the both. The external context has often to do with an "international perspective", a "national perspective" at the societal level (sometimes also referred to as a "neo-institutionalistic perspective", i.e. the institutional setting in terms of legislation, economic and political system and e.g. risk associated with such "systems"), or an "industry perspective" at the sector level, often focusing on e.g. industry structure. Because the concept of risk, just like revenues and costs, has a central role in business, risk will be discussed separately at different contextual levels (e.g. country risk with regard to political and economic systems, industry risk, product development project risk, etc). Thus, the

discussion here shall focus on the international and societal context, industry context, organizational context, and risk management at different contextual levels.

Systems – the international and societal context: Lemaire (1998) approaches system sales from neo-institutionalistic perspective by analyzing how system companies change their internal procedures implemented to support international project marketing as they are confronted with a quickly evolving external macro environment including political regulatory changes (e.g. liberalization, deregulation and privatization), socio-economic changes (e.g. different technological maturity among providers and users of technology, saturation of western markets and increased demand in emerging countries), and technological changes (e.g. technology transfer and standardization of technologies). Such external macro environmental changes causes changes in the industry environment (e.g. increasing competition, shift in geographical markets and new partnerships and alliances), and ultimately in the internal organizational environment, including structures, procedures and innovations. Lemaire (1998) concludes that system companies, particularly in large international projects, tend to associate, or integrate, more closely sales and sourcing as well as their internal and external relationships through the entire process of (i) project screening/identification and selection of potential partners or suppliers, (ii) tender preparation and feasibility study/evaluation of partners or suppliers and (iii) contract negotiations with customer and selected partners or suppliers.

In addition, Günter and Bonaccorsi (1996) argue that several contextual factors can help to understand why system sales is becoming a more important and a more frequently observed phenomenon, as well as how contextual factors have changed the way in which system sales is conducted. Those factors are economic growth in East Asia (meaning increasing demand for energy, water, transport and telecommunication infrastructure, i.e. infrastructure that is often sold as systems or projects), liberalization, privatization and internationalization of procurement in public utilities (meaning that public utility companies in sectors such as electricity, natural gas, water, transports, telecommunication, etc. must increasingly reduce cost while still delivering high quality services/systems and that privatized public companies are becoming more cost sensitive and looking for international alternatives to ‘national champions’), centralization of procurement in multinational corporations (meaning that equipment, installation, training, after sales service are purchased at one location, however delivered various world-wide locations), shortening of procurement cycle (meaning that the lead time from need recognition through to delivery has shortened, thus increasing demand and requirements for/on system sales), and financial shortage (meaning that system companies are required to arrange financing through e.g. BOT arrangements). These factors have contributed not only to the increasing frequency of which the phenomenon system sales is observed, they have also changed the way in which system sales is conducted and contributed to the increase of other business phenomena such as internationalization, mergers and acquisitions, and the formation of strategic alliances. All in all, these factors are driven by the efforts to rationalize operations and to reduce costs at the corporate level. At the industry level, the result is that industry concentration increases.

Systems – the industry context: Bonaccorsi, Pammolli, and Tani (1996) argue that in “systemic industries”, the key to strategic superiority, among system companies, is the ability to manage systems integration and the increasing pace of technological innovations. Bonaccorsi, Pammolli, and Tani (1996) further argue that the definition of system is inherently dynamic and related to the boundary of the system company itself; “The boundaries of the final products and of companies producing them could change quite

dramatically...” (Bonaccorsi, Pammolli, Tani, 1996, p 541). Pace of change, risk and system sales are hence related to each other.

The nature of customer requirements in systemic industries is described as discontinuous and heterogeneous. In addition, in such industries buyer’s decision making process (e.g. many actors are involved from different departments within an organization and from different organizations) and buyer’s specification capabilities (e.g. some are very active and detailed in the specification process while others are not) has some peculiarities in comparison with other industries. Finally, such industries are characterized by its network externalities (e.g. costs of adoption of a system may decrease as a function of the number of customers that have already adopted the system). System companies need to have specific capabilities in order to be able to compete successfully; e.g. system companies need to be able to deal with a rapid pace of change and systemic uncertainty (i.e. uncertainty that has to do with technological uncertainty specific to systems, e.g. uncertainty with regard to how systems are integrated) to operate under incomplete planning (i.e. the design of systems can never incorporate the required level of detail in order to reach the desired level of resolution at the systems level, the detailed design will evolve as a stream of decisions), to think backward (top-down design starting at the system level and then broken down into subsystems and components) and to manage conflicts as a result of the large number of actors involved from different departments within an organization and from different organizations.

The changing boundaries of systems is described in terms of architectural innovation (i.e. changes in the way in which components are linked to each other through reshaping the system, leaving the use and core concepts of the general product unaltered), modular innovation (i.e. improving single modules without redesigning other components or the entire system), system innovation (i.e. an innovation at the system level that destroys the compatibility among components, e.g. by changing the interfaces), functional extension (i.e. an innovation at the system level without destroying the compatibility among components, e.g. by developing enhanced software features), and implosion of systemic functions in single components (i.e. when functions at the system level are moved to the component level).

Changing the boundaries of system companies is done “by means of acquisitions, mergers, alliances, and non-equity agreements” (Bonaccorsi, Pammolli, Tani, 1996, p 544). This is a result of the strategic agenda of system companies that include e.g. the monitoring of the changes in the allocation of the functions between the system and the components (e.g. change in architecture of the products, the modularization of the product, the standardization of the interfaces, the extension of functions of the system, the implosion in components of functions previously carried-out in the system), the emergence of economies of scale and the strategic management of the technology supply chain. Managing the supply chain is vital for system companies since “the system company cannot limit itself to analyzing this dynamics [changing boundaries between system/components] at its own level, but must try to include the implications for the other main actors as well (components, suppliers, and final clients) along the value chain...This deals in particular with the planning the interorganizational relations along the technology supply chain in function of the system-component dynamics...” (Bonaccorsi, Pammolli, Tani, 1996, p 556).

Gadiesh and Gilbert (1998) suggest that companies need to position themselves in the value chain where the “profit structure” or the “profit pool” of the industry is the highest. Profits should be measured as the company’s earnings, return on investments (ROI) measured in economic value added (EVA), i.e. after tax profits minus the cost of invested capital, or cash-flow contribution measured in EBITDA, i.e. earning before tax, depreciation and

amortization. Targeting the profit pool requires to define the pool's boundaries by breaking the value chain into discrete value activities and deciding the proper level of aggregation for such activities, e.g. based on how customer's define the life cycle of a product. The profit pool is, however, a moving target; its location in the value chain and its boundaries are constantly changing. Thus, Gadiesh and Gilbert (1998) implicitly suggest that, because the profit pool's location and boundaries are constantly changing, companies need to apply a dynamic approach to mapping the profit pool and its changes, as well as a dynamic approach to changing the boundaries of the company and the offering, i.e. the systems' scope. Changing the boundary of the company and the offering, i.e. the boundary of the system, is required in order to fit the location and the boundary of the profit pool, including the customer's expectations in terms of the level of aggregation. The latter can be done through bundling/unbundling the product/system. Thus, implicitly Gadiesh and Gilbert (1998) suggest that industry structure and dynamics affects the strategy of companies at the corporate/SBU level, e.g. in terms of industry positioning, as well as at the functional level, e.g. at the level of product aggregation.

Systems - the organizational context: At the organizational level context and in terms of organizational structure, Baldwin and Clark (1997) suggest system companies to organize in independent, decentralized teams pursuing different modules. This will allow for experimentation and innovation and quick development cycles of modules. The challenge for managers in those organizations is to tightly integrate the output of such teams. At the dyadic level, it has been argued that Key Account Management (KAM) and Global Key Account Management (GAM) play an important role for system companies (corporate level) conducting system sales (functional level) (e.g. Millman, 1996; Lemaire, 1996):

“...global key account management is under-researched and its efficacy, therefore, only partially understood. Such matters have long preoccupied executives in multi-national companies operating in industries where ‘systems selling’ is a way of life and where practice is ahead of both theoretical development and empirical research.” (Millman, 1996, p 631)

Key Account Management has been defined as an approach aimed at building a portfolio of loyal key accounts of strategic importance by offering products and services packages tailored to their specific needs (e.g. Millman, 1996). Customers of strategic importance are those e.g. that have future growth potential, have an important reference value, provide access to new markets and/or technologies or simply those 20% of the company's customer base that purchase 80% of the company's total sales.

According to Millman (1996) once system sales has become the standard mode of operations (often due to customer's requirements to serve their needs in an integrated and global basis) companies need to organize accordingly. However, centralized, hierarchical, mechanistic organizations with a top-down chain of command nor decentralized, flat, organic organizations with a bottom-up approach to management are able to handle the specifics of system companies, including the heterogeneous requirements among customers and the specifics with regard to what system companies sell, complex and tailor-made systems. The reason for establishing KAM organizations is that such organizations offer an intermediary organizational structure that is able to handle such specifics of system companies. KAM organizations facilitate inter- and intra-organizational integration including staff from different organizations (e.g. customer, suppliers, etc.), from different business units, and/or from different functions. The Key Account Manager should consequently be able to coordinate and manage (including to conduct successful negotiations) internal as well as external resources and relationships from various cultures (often including different

functional, corporate, country cultures), conduct key account planning (rather than “market planning”), and take sales and profit responsibility at the customer/account level.

Lemaire (1996) focus on investigating how changes in external context, at the international level, affects the internal level context, in particular project features and KAM organizations. The international environment has simultaneously created (e.g. through globalization and IT) as well as restricted (e.g. in terms of country risk) new business opportunities. External changes has led companies to shift their focus from “international projects” to “international customers” and “international project management” (e.g. focused on identifying new projects, and oriented towards the environment, e.g. focused towards the understanding of national cultures and the development of external networks) to “global key account management” (e.g. focused on identifying new customer needs, and oriented towards the customer, e.g. focused towards the understanding of corporate cultures and the development of internal networks within supplier and customer).

Systems – the risk perspective on different contextual levels: As mentioned, the concept of risk, just like revenues and costs, has a central role in business. Because its central role in business and because risk has been approached at all the different contextual levels discussed above (country risk with regard to political system, e.g. risk due to changes in the legislative frame, including antitrust laws, privatization, country risk with regard to the economic system, e.g. liberalization of markets, industry risk, product development project risk, etc.), risk is discussed separately herein. Risk in the business literature has been an area for research from several different perspectives (not only at different contextual levels). The reader should therefore note that the definition of risk varies among researchers, e.g. risk as uncertainty about possible future changes in e.g. the environment, risk as major changes in e.g. the environment that have actually occurred, etc. Risk is, however, seldom given a precise definition.

- International and societal level risk:** According to Hadjikhani (1998), Miller (1993) analyzes risk from a country perspective, including political risk (e.g. risk associated with war, revolution or other political turmoil) and policy risk (e.g. risk associated with instability and changes in governmental policy). Hadjikhani (1998) analyses the political risk for project selling firms, in particular the organizational behavior when interacting with governments as business organizations become challenged with drastic political change. Hadjikhani (1998) concludes that business organizations need to select from four alternative actions; to enter into a sleeping mode (i.e. actors in between projects continue to have a relationship despite there being no activities or exchanges taking place); exit and quick reentry; exit and late reentry; and complete exit. There are at least two questions that are left unanswered by Hadjikhani (1998) and that should be reasonable to ask if risk and alternative actions are being investigated. First, how is risk defined and is it reasonable to implicitly relate risk to something that already has occurred? Second, how may firms continue doing business while mitigating risk (the only alternatives provided by Hadjikhani (1998) is to enter into sleeping mode or exit and quick/slow/no reentry)? Lemaire (1996, 1998) also considers risk, in particular country risk as the level of political stability and the level of economic stability, an important factor to study if system companies and systemic industries are to be understood. Because of increasing economic risk and due to the increasing restrictive attitude of financial institutions and private banks, traditional project financing, loans and guarantees have been limited, giving rise to financial engineering or financial innovation, including arrangements such as BOOT arrangements. The problem with this reasoning is that risk is not mitigated, rather it is

transferred, by force or through an explicit or implicit purchase/sale agreement, from one party to another.

- **Industry level risk:** Porter (1980) views business risk primarily from an industry perspective, e.g. the generic risk in fragmented industries, emerging industries, mature industries, declining industries as well as in global industries. Risk also relates to specific strategic decisions, i.e. risk of vertical integration, capacity expansion, and entry into new business. In addition, risk according to Porter (1985) has to do with properly evaluating the competitive forces and selecting and implementing a sustainable strategy, e.g. the “risk of cost leadership” has to do with “competitors imitate, technology changes, other bases for cost leadership erode, or cost focusers achieve even lower cost in segments”; the “risk of differentiation” has to do with “competitors imitate, bases for differentiation become less important to buyers or differentiation focusers achieve greater differentiation in segments”, and the “risk of focus” has to do with “target segment becomes structurally unattractive, broadly-targeted competitors overwhelm the segment or new focusers sub-segment the industry” (Porter, 1985, p 21). The concept of risk according to Porter (1980, 1985) is not easy to grasp. It seems that risk has to do with things going wrong for whatever reason that could not be anticipated, e.g. chance, or that risk in fact has to do with the bounded rationality of humans. Either case would presumably be unacceptable from an analytical strategic planning perspective like Porter (1980, 1985) clearly represents. Consequently, the concept of risk needs further research, in particular how it can be described, understood, explained and ultimately managed, not the least when it comes to the strategic decision of bundling/unbundling at different strategic levels.
- **Organizational and dyadic level (between buyer and seller) risk:** Cova and Hoskins (1997) view risk, and its implications, as the gap between the buyer’s and the seller’s perception of risk due to information asymmetries. Lemaire (1996) views risk, at the organizational or the dyadic level, as the potential “client insolvency”. Consequently, risk evaluation and search for contracts with an acceptable risk level is critical before entering into sales and purchase agreements. In addition, sellers may hedge risk, e.g. by entering into joint ventures with other suppliers. This has given rise to financial engineering or financial innovation, including arrangements such as BOOT arrangements.

2.4.4 Summary and final remarks

At the functional level of strategy in general, and strategic marketing in particular, it seems that system sales has the potential to create value and contribute to increasing the customer’s capabilities, by developing the customer’s strengths, resolve/manage the customer’s weaknesses, capture the customer’s opportunities or avoid/manage the customer’s threats.

It also seems like developing systems capabilities, and system sales, is not an isolated decision; it may have great implications at the functional level of strategy, e.g. in terms of product strategy, marketing strategy, supply and manufacturing strategy, as well as at the corporate level of strategy. Changes in these functional strategies seem to affect each other and, all together, affect the overall corporate strategy, and vice versa. In other words, there seem to be reciprocity between functional level strategies as well as between functional level and corporate level strategies. In addition, it seems that the strategy of system companies and structure of systemic industries are reciprocally related to each other. One should be able to detect and understand the patterns of “evolution” or change in strategy and in the division of work within systemic industries. With this regard, it may be that system companies and systemic industries can be found (or be developed) in other industries than the high-tech industries (e.g. Bonaccorsi, Pammolli, Tani, 1996) e.g. in mature industries such as the

construction industry. This may be of major importance, not only for the sake of generalization, but also because systemic industries may only be a transitional phase in a larger evolutionary or pattern of change.

Risk in systemic industries in general, and system sales in value constellations, i.e. “systemic uncertainty” may need further investigation, in particular how systemic uncertainty is a result of the many different actors involved (from various functions and various companies), and possibly how all these actors in joint cooperation may reduce such risk. In other words, how actors in value constellations create as well as diffuse systemic uncertainty and risk. It seems that research on system sales is lacking a risk perspective at the network level (i.e. between industry/markets and organizations/hierarchies) including several suppliers and possible several buyers. Hence, at times it is very difficult for the vendor and its sub-suppliers to agree on how to manage and share risk, not even through the price mechanism. In addition, it may be very difficult for the vendor to assess and manage such “external” risk.

Finally, it seems that bundling the product offering into systems usually requires unbundling the traditional line organization (top-down) into decentralized units such as in the KAM and project marketing organizations. It seems that few or no organizations are able to develop a functional level strategy in which products are developed, marketed and sold as systems while retaining a centralized, line organization. Generally in such cases, it seems that structure essentially follows strategy. In this respect, strategy refers to the functional level of strategy and incorporates the product and marketing scope. Structure, refers to the organizational structure and human resource management. Typical for the centralized traditional line organization is that BUs incorporate critical functions, and support functions are at the corporate level. In the decentralized project marketing organization (e.g. KAM, and project marketing organizations), the project organization incorporates critical functions, and the support functions are at the BU/corporate level. It seems from the literature review (e.g. Hagel, Singer, 1999) that as a corporation moves into strategic system sales the corporate structure tends to change in terms of depth and width, becoming more shallow and broad.

2.5 On industry level bundling (networks and value constellations) and unbundling (value chains)

As will be discussed, industry level integration/disintegration has to do with a change process in the division of work resulting in vertical consolidation/fragmentation or horizontal merger/forkation of industries. Industry level integration and disintegration can be viewed from a vertical, intra-industry perspective and horizontal, inter-industry perspective. Intra-industry level integration (vertical) entails a process towards consolidated industries. Its opposite, intra-industry level disintegration (vertical) often means a process towards fragmented industries. While inter-industry level integration (horizontal) entails process towards merging, embedded industries, i.e. “fuzzy” boundaries between horizontal/adjacent industries, inter-industry level disintegration (horizontal) often means a process towards forking, discrete industries, i.e. “sharp” and “clear” boundaries between horizontal/adjacent industries.

Interactions, relationships and networks are increasingly important for understanding how business is conducted and industries are integrated. This is due to major changes with regard to growth of information technology, increased globalization, changes in industry structure and increased customer expectations (Leek, Naudé, Turnbull, 2003). According to the environmental school of strategy, strategy may be viewed as the link between “hierarchies” and the environment in general, or “markets” in particular (e.g. Spender, 1989; Porac,

Thomas, Baden-Fuller, 1989). In addition, some researchers argue that network theory contributes to “the theory of markets” as well as “the theory of hierarchies”.

Provided corporate and/or business strategy is viewed as the link between “markets” and “hierarchies” and provided it is assumed that network theory contributes to “the theory of markets” as well as “the theory of hierarchies”, it seems reasonable to argue that the process and content of corporate and/or business strategy, from a network perspective (or in a network context), need to be elaborated. In other words, the content and process of corporate and/or business strategy in a network context need to be elaborated based on a careful discussion of such context, i.e. based on a careful analysis of the concept of networks. More specific, this section shall discuss how networks, or value constellations, as well as value chains contribute to “the theory of markets”, “the theory of hierarchies” as well as “strategic value creation”. First, however, a brief discussion is conducted on the similarities and differences of the two perspectives on value creation systems, i.e. networks or value constellations and value chains.

There are at least two perspectives on value creation systems; a business and a sociological perspective. Value creation systems may be seen as an economic perspective on sociology (as in value chains) or a sociological perspective on economics and business (as in “traditional” network theory). Consequently, there are two main approaches to value creation systems; the economic/business approach (from now on termed “business approach”) and the sociological approach.

Business approach to networks: The business approach views the economy and businesses in a “layer above” the lower layer of sociology, networks and social relations. Social structures are viewed as markets or corporations and markets and corporations are viewed as institutions on its own rights. This approach considers networks and social relations as well as social behavior a special case of how economics/businesses in general function, i.e. economic behavior. Often, the business perspective sees networks and social relationships and behavior as a disturbing force to economic behavior, i.e. a force that inhibits markets to function perfectly (Granovetter, 1985). Economic behavior based on economic rationality (i.e. the “economic man”) defines rationality. Other types of rational behavior do not exist or are rather perceived as irrational behavior. E.g. in the literature on “managerial capitalism” or in theories on “corporate governance” it is recognized that managers may act irrationally in order to increase their status (i.e. a social construct) rather than increasing the wealth of the company or its shareholders. In addition, because the price reflects the value of a particular product or service, and because value is inherent to such product or service, each product and service has a natural price. Market prices that differ from the natural price reflect disturbances in the economy, e.g. disturbances in demand and supply, often caused by social structures. Complaints on this perspective are based on an undersocialized conception of human action (Granovetter, 1985).

Sociological approach to networks: The sociological approach, on the other hand, views networks and social relations in a “layer above” the lower layer of economics and business. Markets and corporations are viewed as social structures. This approach views how economics/businesses in general function, as well as economic behavior, as a special case of networks and social relations, i.e. social behavior. Often, the sociological perspective sees social and economic behavior as interrelated and often strongly influenced by contextual factors such as legislative institutions, etc. Because value depends on the sociological context, i.e. value is created and appreciated by humans, and consequently price is not inherent to the product or service itself, price does not necessarily reflect the value in an objective way, i.e. there is no natural price. One could argue that market prices is the natural price as it reflects

(and it not disturbed by) social structures. Complaints on this perspective are based on an oversocialized conception of human action (Granovetter, 1985).

The two different perspectives on value creation systems and strategic value creation can be illustrated by how e.g. Gadde, Huemer and Håkansson (2003) describe the differences between network strategy and mainstream strategic research as well as how Smelser and Swedberg (1994) describe the differences between economic sociology and mainstream economics (see Table 2:1 and Table 2:2). It seems that networks and “network strategy” are primarily based on a sociological approach while value chains and “mainstream strategy” on a business approach.

Table 2:1 Mainstream strategy and network strategy (based on Gadde, Huemer and Håkansson, 2003)

Issues	Mainstream Strategy	Network Strategy
Value	Value as static, i.e. a resource has a value attached to it (independently on what features that are exploited and how).	Value as dynamic, i.e. a result from economic process (depending on what features that are exploited and how).
Hierarchies and resources	Resources reside only within the firm.	Resources reside within the firm (firm - specific resources) and in other organizations (firm-addressable resources). The firm's network can be seen as an inimitable resource itself and the means to access other's inimitable resources and capabilities.
Markets	Markets and hierarchies.	Networks are a form of organization (“hybrid governance”), markets and hierarchies are extremes.
Human behavior	Opportunism, bounded rationality and uncertainty are exogenous determinants of economic behavior (the human nature).	Opportunism, bounded rationality and uncertainty (just like cooperation, trust, etc.) may occur and develop as a result of an exchange process.
Information and communication	Information is based on research base (“objective”). Communication is based on explicit verbal/written communication.	Information and communication is based on relationships.

Table 2:2 Mainstream economics and economic sociology (based on Smelser, Swedberg, 1994)

Issues	Mainstream Economics	Economic Sociology
Concept of actor	Actor is uninfluenced by other actors (“methodological individualism”)	Actor is influenced by other actors and is part of groups and society
Economic action	Economic actions are rational; rationality as assumption	Different types of economic action are used, including rational ones; rationality as variable
Constraints on the action	Economic actions are constrained by tastes and by the scarcity of resources including technology	Economic actions are constrained by the scarcity of resources, by social structures, and by meaning structures
The economy in relation to society	The market and the economy are the basic references; society is a “given”	The economy is seen as an integral part of society; society is always the basic reference
Goal of the analysis and methods used	Prediction and explanation; rarely description, methods are formal, especially mathematical model building; no data or official data are often used (“clean models”)	Description and explanation; rarely prediction, many different methods are used, including historical and comparative ones; the data are often produced by the analysts (“dirty hands”)

Having understood the main differences between “network strategy” and “mainstream strategy” it should be reasonable to somehow understand the concept of “networks”. Several researchers have tried to classify the vast literature on “networks” and “network theory” (e.g. Borgatti, Foster, 2003; Turnbull, Ford, Cunningham, 1996; Hedaa, Törnroos, 1997; Brito, 1999; Nassimbeni, 1998; New, Mitropoulos, 1995; Alajoutsijärvi, Eriksson, Tikkanen, 2001; Hill, 2002). Such classifications often differ with regard to the level and the unit of analysis. Hill (2002) identifies four levels of analysis, i.e. community, network, organization, and individual. Some examples of the different perspectives on the unit of analysis (further discussed in the following sections) are e.g. relationships (Turnbull, Ford, Cunningham, 1996), events (Hedaa, Törnroos, 1997), or issues (Brito, 1999). Borgatti and Foster (2003) define networks as “a set of actors connected by a set of ties”. They identify eight different typologies of network research and levels of analysis; on social capital, e.g. the value of connections, on embeddedness, e.g. the embeddedness of economic transactions in social networks, on network organizations and organizational networks, e.g. on the semi-autonomous organizational form between markets and hierarchies, on board interlocks, e.g. on how organizations reduce uncertainty and share information through shared board members, on joint ventures and alliances, e.g. why and how organizations enter into joint ventures, on knowledge management, e.g. how organizations create, share and store knowledge, on social cognition, e.g. how networks are perceived, and on group processes, e.g. how factors such as physical proximity, beliefs and attitudes, amount of interaction and the effectiveness of ties are interrelated (e.g. “homophily theory”).

Now, would it be possible to combine the sociological and the business approach to value creation systems and, consequently, to combine networks and value chains? One interesting attempt has been done by Normann and Ramírez (1994) in what they term value constellations. As previously discussed concepts such as industries, corporations, strategies, value creation, etc. are often defined differently depending on a business or a sociological approach to value creation systems. These two approaches are often represented by the supporters of the Harvard School (e.g. Porter, 1980, 1985) with regard to value chains and the supporters of the Uppsala School (e.g. Hammarkvist et al. 1982; Mattsson, 1998; Jarillo, 1990) with regard to networks. The concept of value constellations is probably best described by contrasting it with the concept of value chains, particularly with regard to related concepts such as industries, corporations, strategies, value creation.

Porter’s theories presented in *Competitive Advantage* (1980) and *Competitive Strategy* (1985) have had a great impact on the academic world and in the world of business. Ever since Porter’s first presented his theories, they have endured severe criticism in several aspects. However, most of such criticism has been concentrated on very specific and limited parts of his work. Norman & Ramírez, on the other hand, presents a holistic perspective on industries in “*Designing Interactive Strategy – from value chain to value constellation*” (1994). Several key concepts and theories presented by Porter (1980, 1985) are questioned by Norman & Ramírez (1994). Among those concepts and theories that Norman & Ramírez (1994) question, are (as mentioned earlier) the definition and boundary of industries, the theory of the firm, the purpose of organizations, the output of industries and firms, the characteristics of organizational links, the strategies available to firms, the concept of customer orientation, the management of organizational links, the source of revenues, among others.

According to Norman and Ramírez (1994) the term “industry” or “sector” is increasingly becoming less relevant, primarily because business organizations need to constantly and dynamically, i.e. in cooperation with other industry actors, rethink and redefine the division of work within the industry in order to be able to produce competitive offerings. In order to

reflect this new business reality, Norman and Ramírez (1994) suggest that industries are defined by value constellations rather than by value chains.

“This provides a link with the introductory part of this book: quantum leaps in value-creation systems are often related to infrastructure and/or technological changes. Revolutions such as these leave companies who do not question the definition of interfaces, who do not rethink the optimal division of work with other actors, far behind in the competitive race... Viewing customer/supplier interfaces as co-productive relationships, manifested as offerings, in a wider and theoretically unlimited value constellation is a useful way to enable firms dynamically and continually to question, redefine, and reconfigure interfaces.” (Norman, Ramírez, 1994, p 77)

In the following sections, the content, context, and process of industry level strategy, from a network, value chain as well as a value constellation perspective is discussed. With this regard, content is related to the unit of analysis, e.g. relationships or value. Context on the other hand is related to the level of analysis, e.g. networks or organizations, which in turn is much dependent on the underlying theory of markets and hierarchies. Finally, process is related to the inter-organizational links and how such evolve over time, e.g. sequential or reciprocal, in cooperation or in competition.

2.5.1 Content of industry level bundling and unbundling

The content of industry level strategy is related to the unit of analysis, i.e. the ties that are able to keep value creation systems together, i.e. events, issues and value. Such ties contribute to vertical consolidation (bundling) or fragmentation (unbundling) or horizontal merger (bundling) or forkation (unbundling) of industries. Other factors, however, contribute to the bundling or unbundling of industries. Examples of such factors and how they contribute to the bundling or unbundling of industries are how firms are viewed, i.e. discrete or embedded, and the output of industries and firms, i.e. products developed in discrete intra-firm linear processes across a value chain or offerings developed in inter-firm reciprocal processes within value constellations. Additional factors are related to the strategies that available to firms and how to measure corporate performance. With regard to the former one can find two different perspectives, i.e. generic (competitive) strategies or reconfiguration (cooperative) strategies which in turn is related to the meaning of customer orientation, i.e. satisfying customer needs (i.e. supplier creates value) or complementing customer competence and activities (i.e. supplier and customer jointly creates value). With regard to measuring corporate performance in terms of the value it produces one can also find two different perspectives, i.e. price or shared profits (reflecting the value differential created by all members of a value constellation) or a price that is able to reflect the value differential created by both the supplier and the customer.

Relationships, events, issues and value as the unit of analysis: Turnbull, Ford and Cunningham (1996) argue that the development of relationships and networks, the “interaction approach”, has to do with risk reduction and high switching costs. The interaction approach focus on the relationship rather than the transaction as the unit of analysis and it aims at understanding the patterns of dependencies between companies, the evolution of their dealing over time, the adaptations required to meet the requirements of the other party, and the inter-organizational person contact. Companies interact with each other in order to exploit and develop their resources. In order to do so, they seek those companies that have matching resources in terms of financial resources, network positions and skills in terms of product, process and marketing technologies. Relationship strategy has to do with the task of managing individual relationships as well as the portfolio of relationships. In addition, it has to do with maintaining or altering the company’s network position. Through effective management of the portfolio of relationships and the network position companies are able to acquire (directly

or indirectly through interactions) technologies and exploit such technologies so that the return on technological investments are maximized. Turnbull, Ford and Cunningham (1996) find six different approaches to competitive strategy based on the interaction approach; competitiveness through interaction strategies in general, including technical innovations, supply security, low price, product adaptation, total conformity (as a second supplier), competitiveness through interaction with customers, i.e. being able to develop interaction skills in order to meet customer's needs, competitiveness through organizational evolution, i.e. being able to create formal and informal structures that enhance the reputation, competitiveness through inter-organizational personal contacts, i.e. being able to exchange information, negotiate and agree on adaptations, overcome crises, etc. at a personal level, and competitiveness through mobilizing the network.

Hedaa and Törnroos (1997) argue that "event based business networks" have emerged as a consequence macro level developments, e.g. free trade development, capital markets, the development of multinational corporations, global sourcing and production, micro level developments, e.g. new management systems such as just-in-time, key account management, vertical disintegration of firms, stiffer competition, outsourcing and orientation towards relationships as well as changes in technology. The source of these changes is "man". In addition, there are changes that stems from "nature". Hence, events are caused by human acts or by nature. Event networks appear as streams on interconnected events, the smallest unit of analysis being the event dyad, i.e. two interrelated events. Events are characterized by following some prior events. This means that event networks have no beginning and no ending. In addition, events differ in three distinct ways, their position in time, i.e. they differ in terms of "pace" (e.g. quick and revolutionary changes as opposed to slow and evolutionary changes, or cyclical changes), space as well as their loadedness, i.e. the past, future and/or by the source or the effected object (e.g. actor loaded). Event networks are consequently embedded in actor networks. Given a relevant context, e.g. in space, the study of event networks are required to understand the evolution of actor networks based on their previous and present experiences of events, as well as future expectations on events.

Brito (1999) suggests the term "issue based nets" for "relationships among actors who are concerned with a particular issue through mutual or conflicting interests". A "net" is to be seen as a subset of all actors in an overall industrial network. The sampling unit should not be the relationships or the overall network. Rather the issue in questions and the actors who aim to cope with a collectively recognized issue by influencing the structure and evolution of the system through controlling activities, resources and/or other actors.

In conclusion, relationships, resource dependency (Turnbull, Ford, Cunningham, 1996), events from a dynamic perspective (Hedaa, Törnroos, 1997) and common issues among actors (Brito, 1999) are critical for understanding networks. Nevertheless, any systematic classification of any existing theory is unable to find entirely independent categories (if such exists at all). No systematic classification will ever have the possibility to serve any and all researchers independently of the purpose of the research study he/she is conducting and the specific research questions he/she trying to answer. Consequently, when reviewing the literature on networks and network theory, this section shall focus on such theories that are relevant to strategic research, i.e. strategic value as the unit of analysis (e.g. Normann, Ramírez, 1994) at the industry/network, business, functional, individual level of strategy (de Wit, Meyer, 1998).

The concept of value creation, and value as the unit of analysis, has traditionally been researched in a value chain context rather than in a network context (e.g. Porter, 1980, 1985).

There are, however, a few examples of research of value creation, and value as the unit of analysis, also within a network context (e.g. Normann, Ramírez, 1994). The concept of value creation, either from a value chain and a network perspective, is strategic because it provides a link between “hierarchies” and the environment in general, or “markets” in particular. There are, however, important differences with regard to the concept of value creation from a value chain and a network perspective. Such differences consist mainly in how and for whom value is created. Value creation is often related to revenues, costs, profits and/or risk and is often created for corporations (i.e. shareholders) or group of corporations, i.e. value constellations or networks, customers or other stakeholders. The literature on value constellations, in comparison with the value chain perspective, shows substantial differences in how “value” and “value creation” is defined in general and with regard to “value creation” and “value transfer” in particular. Value chains focus on transferring value between competing corporations, i.e. vertically between the focal firm and its customers and suppliers and/or horizontally between existing and potential competitors and substitutes (e.g. Porter, 1980, 1985). Value constellations, on the other hand, focus on value creation in cooperation within focal nets, vertically and potentially also horizontally (e.g. Normann, Ramírez, 1994).

Specific differences in the view of value creation systems refer to the theory of the firm, the purpose of organizations, the output of industries and firms, the characteristics of organizational links, the strategies available to firms, the concept of customer orientation, the management of organizational links, the source of revenues, among others. This is discussed below.

Firms as activities or knowledge, resources and activities: It is essential to understand how different researchers define a business organization in order to understand how and for whom value is created. In addition, a theory of the firm is essential because it defines what in an organization that is manageable. E.g. it makes sense to discuss the outsourcing of activities should one define a business organization as a collection of activities. However, defining business organizations as a set of functions, e.g. human resources, IT, etc. often means discussing outsourcing in terms of such functions. In other words, depending on how one defines a business organization, outsourcing refers to activities or functions.

According to Porter (1985), the value chain disaggregates a firm into its strategically relevant activities in order to understand the behavior of costs and the existing and potential sources of differentiation. Every firm is a collection of activities that are performed to design, produce, market, deliver, and support its product. Norman and Ramírez (1994) implicitly argues that it is the firm’s knowledge, resources and set of activities that a seller is able to transfer and a buyer to gain access to, through its products or “offering”, that defines the business organization.

“We have suggested earlier that value can be measured by the ‘density’ of options, as manifested in the knowledge, resources and activities made available to the user in time and space. Note that, for our purposes, the three concepts of ‘knowledge’, ‘resources’ and ‘activities’ are equivalent, although they are manifested in a variety of ways in time and space for each user... As we saw earlier, the production, or rather co-production, of value in the emerging service economy is manifested in offerings, to which several actors contribute by performing specific activities.” (Norman and Ramírez, 1994, p 49)

According to Norman and Ramírez (1994) the three concepts of knowledge, resources and activities are equivalent. Thus, in essence, according to Norman and Ramírez (1994) value activities define the business organization. Consequently, there seems to be a common view between Norman and Ramírez (1994) and Porter (1985) with regard to a theory of the firm. Business organizations are a collection of knowledge, resources and activities manifested in

the value of an offering (Norman and Ramírez, 1994) or simply a collection of value activities manifested in the value of a product or a service (Porter, 1985).

Creating profits through valuable products or through dense and liquid offerings: Porter (1985) argues that value is the amount buyers are willing to pay for what a firm provides them. Creating value for buyers that exceeds the cost of doing so is the goal of firms and any generic strategy. Margin is the difference between total value and the collective cost of performing value activities. Value activities, according to Porter (1985), can be divided into two broad types, primary activities and support activities. Primary activities are the activities involved in the physical creation of the product, and its sale and transfer to the buyer as well as after sale assistance. Support activities support the primary activities and each other by providing purchased inputs, technology, human resources and various firm-wide functions.

Norman and Ramírez (1994) also recognize the importance of a business being profitable by creating value that exceeds the cost of doing so. However, rather primary and support activities, Norman and Ramírez (1994) suggest two concepts that are of key importance in order to understand the creation and the value of offerings, the “density” and “liquidity” of offerings. “Density” seems to be a quite straight forward concept. “Density” has to do with the multi-functionality of an “offering” and the offering’s ability to compress time and space, i.e. allowing the end-user greater flexibility and effectiveness in its own value creation process. Flexibility enables end-users greater effectiveness through time saving, which frees time for other activities, and time enrichment, which enables several activities to be performed simultaneously. The concept of “liquidity” is hard to grasp because the “building blocks” of the concept are not well defined; Norman and Ramírez (1994) only provide an example of what it is. Both “density” and “liquidity” seem to be features of “offerings” and “assets”. Both “offerings” and “assets” are terms used by Norman and Ramírez (1994) in trying to explain the concepts of “density” and “liquidity”. However, it is difficult to understand if, according to Norman and Ramírez (1994) “density” is a feature of an “offering” and “liquidity” a feature of an “asset”, or otherwise how these terms are interrelated. Nevertheless, it seems that “liquidity” has to do with the accessibility and the transferability of an “offering” or “asset”, i.e. how easily a buyer can gain access, and a seller to transfer, the knowledge, resources and set of activities that are manifested in an “offering” or “asset”.

Having understood the concepts of “density” and “liquidity” it is reasonable to ask why these concepts are regarded as key to Norman and Ramírez (1994). In the beginning of this section it was mentioned that Norman and Ramírez (1994) argue that “density” and “liquidity” are key to understanding the value of an “offering” or “asset”. The “density” of an offering measures the value of such offering, according to Norman and Ramírez (1994).

“We have suggested earlier that value can be measured by the ‘density’ of options, as manifested in the knowledge, resources and activities made available to the user in time and space.” (Norman and Ramírez, 1994, p 49)

If one should interpret this statement literally (“density measures value”), the question why “density”, as a new concept, is key remains unanswered unless one should answer the question in terms of “the importance of being able to measure value” (by measuring “density”). However, Norman and Ramírez (1994) are not really concerned with how to measure value, but rather how to create value. Thus, the statement (“density measures value”) should not be interpreted literally, rather it is reasonable to assume that Norman and Ramírez (1994) argue that value is provided by enabling the customer greater flexibility and effectiveness in its own value creation process i.e. by providing the feature of “density” in the

“offering”. In other words *“density” is value* and hence *the value of an offering is defined by its “density”* and, consequently, one is able to measure value by measuring density.

Now let us turn to the question if and how “liquidity” provides value. These two questions are not explicitly answered by Norman and Ramírez (1994). However, a reasonable interpretation of Norman and Ramírez (1994) is that “liquidity” does not provide value in itself. However, “liquidity” indirectly contributes to the perceived value of an offering. It provides indirect or relative value by making the “density-carrying-offering” accessible to the customer, i.e. the “liquidity” feature of the “offering”. In evaluating the total cost for obtaining a certain value, i.e. the flexibility and effectiveness offered to a customer, one should also include the transaction cost. In other words, in addition to the cost for creating value, i.e. “density” or the offered flexibility and effectiveness, one should include the cost for making such value accessible, i.e. the cost for transferring such value. In its essence, “liquidity” is an important cost component, and consequently an important component of what a customer needs to pay, as a minimum, in order to obtain a certain value. In its essence, a reasonable interpretation of Norman and Ramírez (1994) is that in absolute terms, “liquidity” does not provide value, however in relative terms (total cost for obtaining a certain value or benefit) “liquidity” becomes an important component of value.

Referring to Norman and Ramírez (1994) example above, it is reasonable to assume that “density” and “liquidity” are features that contribute to the absolute and relative value of the personal computer and the microprocessing capability of the computer. However, it would be misleading, or rather erroneous, to believe that value is only created by the “density” and/or “liquidity” in any and all kinds of offerings, otherwise an ice-cream would have no value and consequently impossible to sell. In any case, it is reasonable to say that “density” and “liquidity” may be crucial characteristics of offerings and assets. However, as discussed, these two concepts create many questions and do not really assist the researcher or the practitioner in understanding value.

Porter (1985) simply defines value as the amount buyers are willing to pay for what a firm provides them. Consequently, value is defined by the buyer. Value may be the “density” of a product or offering. However, as in the example of the ice-cream, value may be defined by customers as something completely different. Norman and Ramírez (1994) definition of value, and the theoretical contribution that they are aiming at, is puzzling. In addition, the validity of their definition can be questioned. Theoretically, value, as defined by Porter (1985) is, at least, as straight-forward as the definition provided by Norman and Ramírez (1994). In addition, the (face) validity seem to be higher, e.g. in measuring value one should ask oneself whether measuring the density of an offering or measuring what customer are willing to pay for an offering that is the most appropriate methodology for measuring value.

Another key concept, created by Norman and Ramírez (1994) is the concept of “leverage”. Leveraging can take the form of relieving and/or enabling the customer. Relieving means that resources within the customer’s organization are freed and, hence resources can be concentrated in areas that are of key importance to their business. Relieving, in its essence, enables customers greater effectiveness through time saving and frees time for other strategic activities, i.e. activities that contribute to “comparative advantage”. Enabling offerings, on the other hand, are targeted at supporting the activities customers actually performs. One could argue that enabling offerings offer customers greater effectiveness through time enrichment.

As mentioned earlier in this section, it is reasonable to assume that “density” has to do with the multi-functionality of an “offering” and the offerings ability to compress time and space,

i.e. allowing the end-user greater flexibility and effectiveness in its own value creation process. Flexibility enables end-users greater effectiveness through time saving, which frees time for other activities, and time enrichment, which enables several activities to be performed simultaneously. Although the concept of leverage value is interesting it has been concluded in the earlier discussions that the value of an offering is defined by its “density”, or possibly the leverage value of an offering is defined by its “density”. It has also been concluded that “density” is value. One could possibly define “density” as leverage value.

It is reasonable to assume that “leverage” and “relieving” and/or “enabling” function may be crucial characteristics of offerings and assets. Porter (1985) simply defines value as the amount buyers are willing to pay for what a firm provides them. Consequently, value is defined by the buyer. Norman and Ramírez (1994), on the other hand, argue that value may be the “density” of a product or offering, alternatively “leverage”. In conclusion, the difference between “density” and “leverage value” is unclear. However, it is reasonable to assume that these two concepts are the same, i.e. value.

Output of industries and firms as products or offerings: According to Porter (1980), individual firms, in the value chain, create value for their down-stream customers, adding value to the final end-user product, service or a combination of both. Porter (1985) defines products as physical products, services or a combination of both. According with Porter’s definition, the term “product” represents physical products, intangible services and/or a combination of both. Hence, the industry as a whole creates value for the end-user and such values are packaged and offered to the end-user in terms of products. Norman and Ramírez (1994) suggest a similar argument. Although individual actors within an industry are said to produce value, according to Norman and Ramírez (1994) the Value Constellation of an industry is said to co-produce offerings to the end-user.

“Our view of the division of work in value-creating processes clearly differs from the prevailing models which, as we saw earlier, take the ‘value chain’ as their referent. Instead, our view of the offering as the boundary where actors come together to co-produce value leads us to consider actors coming together in ‘value constellations’. From this more relevant value constellation perspective, value is co-produced by actors who interface with each other... An effective offering is thus designed in such a way so that partners end up performing the ‘right’ activities for them, engendering value creation on both, or rather all, sides.” (Norman, Ramírez, 1994, p 54)

In its essence, one may think that the two theories differs in what the output of an industry is (i.e. products in contrast to offerings) and in how such output is created (i.e. value adding rather than co-production of value and end-user offerings). Later the difference between the two concepts of *value adding* and *co-producing value and end-user offerings* will be discussed. First we shall continue examining the difference between a product and an offering. A quick glance of Norman and Ramírez (1994) definition of offering reveals that there is no difference at all compared to Porter’s (1985) definition of products, since products according to Norman and Ramírez (1994) are physical products and services.

“What is a product? Since the same logics apply to both product and services, we will henceforward use the term ‘offering’ to refer to any output of a value-creation system (the ‘producer’ or ‘supplier’) that is an input to another (the ‘customer’).” (Norman, Ramírez, 1994, p 27)

By definition then, products are the output of a value chain and offerings the output of a value constellation. Since products and offerings are the same, value chains and value constellations produce the same results. Consequently one is not able to understand the difference between value chains and value constellations by looking at the different outputs that they produce.

However, although value chains and value constellations produce the same output, they seem to do it conceptually in different ways. Later it will be discussed how products and offerings are created through a value adding process and through a process of co-producing value and end-user offerings.

“It is in this sense that offerings create and define social systems. Offering designers must address the question of how different actors' activities are to be configured for optimum value creation: who does what, when, where, and with whom?” (Norman, Ramírez, 1994, p 53)

Strategies available to firms as generic (competitive) strategies or reconfiguration (cooperative) strategies: Porter (1980) suggests that a company may pursue one of three generic strategies; differentiation, overall cost leadership or focus. Although sometimes possible, a company is rarely successful if pursuing more than one strategy simultaneously. Norman and Ramírez (1994), on the other hand, argue that offerings, not firms, compete for customers. In addition, offerings are created in cooperation between different actors within an industry. Thus, strategy has to do with managing the division of responsibilities among these different actors, and consequently the boundary of the individual firms that constitutes the industry, so that the industry is able to develop competitive offerings. “Managing” the division of responsibilities among the different actors within an industry is optimized if done in cooperation.

“Our analysis has led us to conclude that it is offerings, and not firms, that compete in the marketplace for customers. It is offerings, not firms, which fit into customers' value creation and compete with each other for their money... The logical link between (1) strategic decision, (2) organizational structure and process and (3) offering design is weak in many business institutions.” (Norman, Ramírez, 1994, p 74)

“Those firms who manage to integrate the new business logics by linking (1) and (3) through effective (2) structures and processes are those that achieve the winning reconfigurations... New offering designs and organizational possibilities envisioned through our reconfiguration framework at this level mean that there are no 'mature' businesses. There are only 'mature' frames of reference.” (Norman, Ramírez, 1994, p 75)

“Not only are the different actors 'helping' each other to accomplish their respective tasks, but in co-productive relationships, the very architecture of tasks can itself also be co-produced, reassigning activities to different actors. With this holistic view, enhancing the effectiveness of a given way of dividing labour is 'a significant optimization problem' (Van der Heijden, 1993).” (Norman, Ramírez, 1994, p 39)

Since the offerings and division of responsibilities are to be created and agreed upon in cooperation, successful strategies are those that successfully integrate a firm's structure and processes to the overall creation of offerings within an industry. Norman and Ramírez (1994) uses the term “reconfiguration” for managing, or rather participating in the managerial process (since this is done in cooperation with other actors within the industry), of developing offerings and defining the division of responsibilities among different actors within an industry. In conclusion, rather than defining what strategy is, i.e. its content, by defining different generic strategies, Norman and Ramírez (1994) defines the strategic process. The strategic process is the process of “reconfiguration” and as any other process or strategy for that matter it needs to be constantly improved and redefined (Norman and Ramírez, 1994).

We understand that, according to Norman and Ramírez (1994), actors within an industry need to cooperate in order to agree on the division of responsibilities and the boundary of individual actors constituting the industry. In this respect, “customers” also play an important role. Customers are an active an important actor themselves in the value creation process and the creation of the final offering produced by the industry. According to Norman and Ramírez

(1994), both suppliers and customers are suppliers and customers of each-other, and money only values the perceived value differential between them.

Customer orientation as satisfying customer needs or complementing customer competence and activities: Norman and Ramírez (1994), like many other researchers and practitioners, stress that customer orientation is important. Basically leverage value is a results from customer orientation, that is, by being customer oriented companies will be able to create (leverage) value (remember that there is no difference between value, density and leverage value). According to Norman and Ramírez (1994), leverage value is co-produced by buyer and seller through a joint problem solving process. It is difficult to argue that Norman and Ramírez (1994) idea that customer oriented companies are better in creating (leverage) value is new. In line with their previous reasoning around leverage value (i.e. relieving and/or enabling the customer), Norman and Ramírez (1994) suggest to replace customer needs with complementing customers competencies and activities.

If Norman and Ramírez (1994) are suggesting that complementing customer competencies and activities is what customers need, i.e. *customer needs* is the same as *complementing customers competencies and activities*, then their reasoning is more like a game of words. On the other hand if there is a difference, it is reasonable to suggest that *complementing customer competencies and activities* could be just what customers need, however, the customer may have other needs as well. It is reasonable to argue that complementing customer competencies and activities is a subset of (potential) customer needs. As discussed, it is difficult to understand Norman and Ramírez (1994) contribution in their definition of “value”. However, as will be discussed in the next section, it is reasonable to say that Norman and Ramírez (1994) do make a valuable contribution in their discussion regarding the interactive and cooperative process of creating value. Relationship marketing and the evaluation process of customer relations are the next two issues discussed.

Source of revenues as price or profit sharing: Since Norman and Ramírez (1994) suggests that revenues are manifested in the customer’s value creation rather than one’s own factory, an interesting synthesis could be made combining Norman and Ramírez (1994) description of (i) the value creation process as a cooperative relationship between the selling and the buying part and one of the dimensions of a customer relationship, namely “the risk formula” (e.g. risk management, risk sharing, etc.) and (ii) the evaluation process of customer relationships including customer’s success as a condition of the supplying firm’s success.

Implicitly, according to Norman and Ramírez (1994) “price” should or could be replaced by “profit sharing” between seller and buyer. Practically, however, the “the risk formula” in the value creation process or the cost of a customer relationship becomes even more complicated to calculate. The “risk formula” or “cost” has been mentioned because these are essentially the same. A corporation may transfer risk and increase their costs, alternatively a corporation may decrease their costs, thereby increasing the corporation’s business risk.

2.5.2 Context of industry level bundling and unbundling

The context is related to the level of analysis, e.g. networks or organizations, which in turn is much dependent on the underlying theory of markets and hierarchies. As an example, the network construct relates to markets, i.e. markets consists of interrelated actors in networks of exchange, as well as hierarchies, i.e. the boundary of the firm extends beyond its legal boundaries, it is embedded in a network of actors and competencies. In other words, what is considered the context of business organizations depends on if business organizations are viewed as discrete units in an industry or market context (i.e. the value chain perspective) or if

organizations are viewed as embedded units in a societal context (i.e. the network perspective). Because the former is much harder to grasp, this section shall focus on reviewing the literature on networks by focusing on different networks at different levels of analysis, as well as networks and the theory of markets and hierarchies.

Network types and different levels of analysis: There are many ways of classifying different types of networks. The classification presented here is done according to de Wit and Meyer (1998) classification of strategy, i.e. the international and the domestic context as well as according to the different levels of strategy, i.e. industry/network, business, functional, and individual level of strategy. Almost by definition, the vertical and horizontal dimensions of networks are irrelevant for any meaningful classification of network types. The different levels of analysis are important to understand because it concerns issues related to “where” (e.g. in cooperation between industry actors, or between functions, or people within functions) and under which circumstances networks are able to create value.

With regard to networks from an international perspective research has mainly focused on the internationalization of corporations (e.g. Coviello, Munro, 1997; Johanson, 2002; Chen, Chen, 1998; Swaminathan, Mitchell, 1998; Ellis, 2000; Oviatt, McDougall, 1994). Networks from the perspective of different strategic levels (domestic context) include corporate/SBU, functional and individual level. Networks have been researched at the corporate/SBU level of strategy in general, and in particular network positioning (e.g. Håkansson, Snehota, 1989; Gadde, Huemer, Håkansson, 2003; Holmen, Pedersen, 2003; Jüttner, Schlange, 1996; Low, 1997). In addition, network research, at the Corporate/SBU level of strategy, has focused and made reference to cooperation and alliances, e.g. alliance motives and results (e.g. Whipple, Gentry 2000; Bengtsson, Kock, 1999) as well as organizational learning, e.g. competence development, knowledge management, etc. (e.g. Awuah, 2001; Lorenzoni, Lipparini, 1999; Palmer, Richards, 1999; Kogut, 2000). Networks have been researched at the functional level of strategy in general, and with reference to marketing and/or purchasing in particular, e.g. project marketing (e.g. Achrol, Kotler, 1999; Welch, Welch, Wilkinson, Young, 1996; Skaates, Tikkanen, Lindblom, 2000; Buckles, Ronchetto Jr., 1996; Woodside, 1994; Tikkanen, 1998). In addition, network research, at the functional level of strategy, has focused and made reference to R&D, management of innovations (e.g. Robertson, Swan, Newell, 2000), as well as quality management (e.g. Holmlund, Kock, 1995; Svensson, 2002). At the individual level of strategy, network research has particularly made reference to commitment, trust, etc. (e.g. Morgan, Hunt, 1994; Wray, Palmer, Bejou, 1994; Anderson, Weitz, 1992).

Networks and the theory of markets: Despite some few researchers having attempted to develop a theory of markets (e.g. Granovetter, 1985; Jones, Hesterly, Borgatti, 1997; Grabher, 1993), we still seem to lack a solid theory of markets (White, 1990). The theory of markets has evolved from being a tangible and empirically based theory, e.g. a physical place or a geographical area for conducting exchange to an intangible and theoretically based theory, e.g. a price-making mechanism controlled by demand and supply which is essential for allocating resources effectively. In this theoretical context, the term “perfect market” emerges, meaning an abstract market that functions under perfect competition and information. However, in perfect markets, “no producer or consumer noticeably influences aggregate supply or demand, or, therefore, prices or other terms of trade” (Granovetter, 1985, pp. 483-484). Markets are often assumed to be more or less competitive depending on the number of competing actors. In addition, the degree of product differentiation is often ignored (Swedberg, 1994, pp. 255-282), i.e. it is often ignored that markets may be more or less competitive depending on the degree of differentiation among products, meaning that in fact it may only take two actors to compete fiercely as long as their products are identical to each-

other. In this evolving process of defining “markets”, “marketplaces” became “market economies” or simply “markets”. Today the term “market” is widely used; however, there seem to be no common understanding with regard to the meaning of this term. Theoretically, markets are implied rather than explicitly discussed (Baker, 1981, p 211). Empirically, organizations seem to struggle harder than ever before for their survival in markets they do not understand, and possibly do not even exist. Chamberlin (1933) argued that the market of each seller is in some measure isolated from its rivals so that the whole is not one single market of many sellers. Rather, sellers form a network of related markets, one for each seller. In this respect Chamberlin (1933) touches on the contemporary concept of “segments of one”. Swedberg (1994) argues that “exchange” and “competition” are in the core of the market phenomenon.

“The social structure of a market is characterized by a special type of interaction that begins as competition between a number of actors (buyers and/or sellers) and that ends up with an exchange for a few actors.” (Swedberg, 1994, p 271)

In addition (Swedberg, 1994, pp. 255-282) identifies four different structures of modern capitalist markets; the labor market, the capital market, the consumer market, and the industrial market.

What still need to be investigated, however, is how these different markets are related to each other and the “logic” behind their functioning. From an economic perspective it seems that all four markets are increasingly irrational; it seems that actors (e.g. buyers) increasingly try to anticipate what other actors will appreciate in order to make a decision to transact (or purchase). The purchase decision is increasingly based on such anticipations rather than on the buyer’s own needs and estimates of the value being offered by the seller. In other words, it seems that value is not only related to a specific product or service (as often argued in “traditional” business research), nor is value solely related to the exchange relationship (as in network theory), but rather value is also created by how a set of actors influence each other reciprocally, e.g. how customers, shareholders, or even employees estimate other customers’, shareholders’ or employees’ perception of value. The capital market is probably one of the four markets, as suggested by Swedberg (1994), which shows the most compelling evidence with this regard:

“In stock markets most efforts are directed towards anticipating what average opinion expects average opinion to be...” (Keynes, 1936, p 156)

There are numerous examples of the same phenomenon in consumer and industrial markets. With regard to the consumer market, e.g. brand and image are important for value creating. Value in terms of brand and image is not necessarily based on the value inherent to the product or service nor the interaction between buyer and seller. This kind of value is often based on social relationships. With regard to the industrial markets, the FUD-strategy (Fear, Uncertainty and Doubt) for industrial products and services should probably serve as an example.

Networks and the theory of hierarchies: In contrast to developing a solid theory on markets, much effort has been devoted to develop a theory on hierarchies (e.g. Coase, 1937; Williamson, 1993; Joskow, 1993; Demsetz, 1993; Klein, 1993). E.g. the “imaginary organization” or embedded organization stems from a network perspective on hierarchies. The imaginary organization is defined as a system where the firm’s values, processes and actors exists and are managed outside the firm’s legal, accounting and organizational boundary (Gummeson, 2000, p 265 with reference to Hedberg et al, 1994, p 16). The imaginary

organization is often viewed against the transaction cost theory of the firm. According to the transaction cost theory organizations exist because some activities are performed more cost effectively in-house, other activities, however, are performed more cost effectively outside the boundary of the firm and should, hence, be sourced through market transactions. Consequently, the transaction cost theory explains the reason for firms to exist and how the boundary of the firm should be defined based on the principle of minimizing costs. The imaginary organization, however, offers an alternative explanation for making in-house or sourcing through market transactions. A firm may define its boundary and manage its transaction costs through a close cooperation with other firms (Gummesson, 2000, p 270-271). The imaginary organization may be viewed as sophisticated project organization (Gummesson, 2000, p 280) in which customers, and other firms, as the case may be, participate in the value creation process.

2.5.3 Process of industry level bundling and unbundling

The process is related to the characteristics of the inter-organizational links and how such links evolve over time, e.g. sequential or reciprocal, in cooperation or in competition. Other important issue with regard to the process is if and how such links and processes can be managed by individual firms. This is a particularly interesting and difficult topic considering a network approach. In traditional business research marketing management and business monitoring enables the management of external links as well as internal performance. From a network perspective relationship marketing and business monitoring of customer's profitability seems far more complex and difficult.

Often it is difficult to understand if networks are examined in terms of the expectations, i.e. network motives, or the actual outcomes, network results. Because "results" can be measured against "expectations" network motives and network results are not easily separated, neither in practice nor in research. If results are dependent on expectations, it seems reasonable to ask: What creates expectations? One answer is the accumulated historical experiences. From a dynamic and process perspective (e.g. Hedaa, Törnroos, 1997), our past, present and future are intimately related. Consequently, accumulated historical experiences and future expectations at all strategic levels, i.e. from individual to industry level, are the basis for present strategic decisions and actions. A static approach on networks focuses on e.g. the pre-integration and/or post-integration phase of networks and is based on current corporate and industry structure. It pays little, or no attention, to previous experiences nor to future expectations, alternatively it focuses only on one of those dimensions, i.e. historical experiences OR future expectations. The dynamic perspective on the other hand examines current industry and corporate structures and relates such structures to past experiences and future expectations. In addition, a dynamic perspective tends to consider different phases in the evolution process of networks, e.g. the pre-integration and post-integration phase. Thus dynamic, and change, can often be described through a process. In addition, while some may argue that value chains and strategic value creation entail a static approach, there is nothing in the network approach in itself that is able to guarantee a dynamic approach to e.g. strategic value creation.

Characteristics of organizational links as sequential or reciprocal relationships: One major critique against Porter's (1985) description of industries has to do with the value creation process described within industries as being sequential, i.e. upstream companies create and deliver value to downstream companies vertically. Although Porter (1985) discusses the horizontal dimension of industries as well, some researchers argue that this "two-dimensional" way of illustrating industries is a far too simplistic way of describing business reality within industries. In essence, the critique against Porter (1985) has to do

with the sequential description of the value creation process in an industry as well as the over simplistic, two-dimensional, description of industries. With reference to Thompson (1967), Norman and Ramírez (1994) argue that reciprocal relationships (in contrast to sequential or linear relationships) within industries is a better description of the business reality within industries.

“In 1967 Thompson described three types of relationships between parts of an organization. The most simple one is what he termed a 'pooled' relationship, in which the different parts each contribute to form a whole. The second type of relationship is what he called 'sequential': sections of the organization produce parts which are then inputted into another part. The dynamics of this type of organizational interrelationship are very similar to the value chain process as described by Porter. Finally, Thompson described the 'reciprocal' relationship, the most complex of the three. In this case, the outputs of each section of the organization become inputs to the sections from which they get their own inputs...Co-production is the term we use to describe the 'reciprocal' relationships between actors which characterize the service economy.” (Norman, Ramírez, 1994, p 30)

One could argue that, provided Thompson (1967) is correct about there being three, and only three, types of relationships between organizations, Porter (1985) has limited himself to analyze industries in which the sequential relationships are the predominant ones. However, if one should use this line of argument, one could also argue that Norman and Ramírez (1994) have limited themselves to analyze industries in which the reciprocal relationships are the predominant ones. And in fact, they might just be doing that by limiting their theories to the service economy; “co-production is the term we use to describe the 'reciprocal' relationships between actors which characterize the service economy...” (Norman and Ramírez, 1994, p 30). However, this does not go well with their discussion regarding “offerings”. “Offerings”, as discussed previously, not only include services but also products. Unless one argues that the sequential relationship is a subset and simplified version of the reciprocal (this is not done Norman and Ramírez), one could conclude that Porter’s (1985) and Norman and Ramírez (1994) description of the relationship between organizations are complementary and neither one exclude the other. In its essence, value, according to Porter (1985), is created throughout the value chain in a sequential, and two-dimensional process (vertical and horizontal relationships), whereas value, according to Norman and Ramírez (1994), is created in a reciprocal and multi-dimensional process.

Characteristics of organizational links as competitive or cooperative: Porter (1985) argues that the relationship between seller and buyer is one of several competitive forces through the bargaining power of customers. In the previous discussion we have seen that cooperation is important since no single firm is able to develop a complete offering. All those actors that cooperate in developing and manufacturing an offering are defined as an industry. One may ask, is it possible for one single company to create its own industry, thereby developing and manufacturing the entire offering? The answer, although not explicitly stated by Norman and Ramírez (1994), should be “theoretically yes”. However, there are several reasons for companies not to adopt this kind of strategy. The primary reason is that companies need to share costs and risks. In this respect Norman and Ramírez (1994) find support in previous research. Cooperation driven by risk and cost sharing and its implications to the boundary of the firm has been extensively discussed by several researchers (e.g. Coase, 1973; Williamson, 1993; Deavers, 2001). As will be discussed, and as already discussed by e.g. Hammarkvist, Håkansson, and Mattsson (1982), among others, risk sharing is also a major driving force for cooperation.

However, one should note that there are other researchers that argue that cooperation is driven by other factors than cost and risk sharing. Some researchers argue that firms that focus on

their “core competence” tend to seek cooperation in order to gain access to external competencies and external innovation (e.g. Prahalad, Hamel, 1990). This idea is also, somehow supported by Norman and Ramírez (1994). A company needs to develop and enhance its reconfiguration competence. One could argue that such meta-competence is or should be the core competence of corporations. According to Norman and Ramírez (1994), firms are able to develop their core competence by interacting and cooperating with their customers.

It is worth noting that Norman and Ramírez (1994) explicitly argue that a firm’s competence on how to develop and enhance its reconfiguration competence is a meta-competence. They reason that core competence has to do with know-how, know-what and know-who. However, the meta-competence has to do with the business philosophy, in other words the know-why. This distinction is difficult to grasp. The concepts of the meta-competence surely answer the know-how, know-what and know-who questions. The know-how (i.e. the process) is answered by “reconfiguration”, the know-what is answered by “offerings” and “organizations” and “mental images” (in answering the question what is reconfiguration Norman and Ramírez (1994) argue that it takes place in three levels; offerings, organizations and mental images), and finally the know-who is answered by organizations in interaction and cooperation with their customers.

Managing perceptions through marketing management or code management: According to Norman and Ramírez (1994) an offering’s value can be attributed to what they call the offering’s “code”. They argue that a customer will not be able to interpret the potential of stored activities, packed in the offering without an appropriate code. Such code may be manifested in different forms, e.g. the pricing formula, warranties, in the physical design of the good, in the layout of the service environment, in the individual education of customers, in mass communications (e.g. advertisements), in instruction leaflets, in packaging, etc. The concept of a “code” is rather interesting, primarily because it allows us to think that anything related to a product, service or offering will tell its potential buyer something about such product, service or offering. As a consequence we should understand that even without a marketing communication strategy, the product, service or offering will, in a sense, “speak” for itself. However, this was probably understood long time ago when the first marketers understood the importance of managing the perception of products and consequently not allowing the products “talk” for themselves. So, without going into details on how the term marketing is defined, and its associated terms, e.g. strategic marketing, marketing management, marketing communications, etc. if we would accept “code” as an important concept, where does that leave “marketing”? These concepts are very similar, not to say identical.

Management of organizational links through marketing or relationship marketing: As mentioned earlier Norman and Ramírez (1994) argue that offerings are co-produced in cooperation with customers. This brings them to discussing dimensions in the cooperative relationship between the selling and the buying part. Norman and Ramírez (1994) argue that offerings include “dimensions” such as range, time span and the relative amount of activity options the offerings allow.

It is reasonable, however, to question if these dimensions are adhered to offerings alone. One could suggest that these dimensions are also adhered to the relationship between the selling and the buying part. This might be a delicate discussion since, according to Norman and Ramírez (1994), value, packaged in an offering, is created in the cooperative relationship between the selling and the buying part. Nevertheless, let us examine the three dimensions of

offerings in order to understand why these dimensions could be important attributes of the relationship between the selling and the buying part. A problem here is that Norman and Ramírez (1994) does not provide a proper definition of such dimensions. In terms of “range” Norman and Ramírez (1994) conclude that offerings whose range is relatively narrow cover fewer aspects of the customer's value creation than broader offerings. With regard to the “time span”, Norman and Ramírez (1994) suggest that this dimension refers to the intended duration of the co-productive relationship with the customer; “transactional” at one extreme and “relationship” at the other. And finally, the third dimension, referred to as the “relative amount of activity options the offering allows” is described as “bundled” or “unbundled” offerings. In addition to the three dimensions above, Norman and Ramírez (1994) suggest that there is a fourth dimension of offerings, the “risk formula”, i.e. how risk is to be shared, managed and/or absorbed between the parties.

It is reasonable to argue that “range”, “time span”, “the relative amount of activity options the offerings allow”, and “the risk formula” are key elements or dimensions of a relationship with a customer, and consequently in how a beneficial relationship, to both parties, is created and maintained.

Management of organizational links through business monitoring or monitoring customer profitability and relationships: The four dimensioned discussed in previous section leads us right into the next discussion regarding the evaluation process of customer relationships. This primarily because the four dimensions of the value creation process or the process of establishing and maintaining a good relationship with customers and potential customers contribute to costs. Let us analyze how Norman and Ramírez (1994) suggest customer relations should be evaluated; first customer are assets, that compared to other assets are becoming larger and more volatile, second firms need to monitors customer profitability and third customer's success as a condition of the supplying firm's success.

Customers are assumed by Norman and Ramírez (1994) to be more volatile as well as active, educated and sophisticated. These “new” characteristics of customers are reflected in more complex relationships between seller and buyer. Consequently, the seller needs to increasingly invest in customer relationships and in their own organization, e.g. in “personal bankers”, “key account managers”, etc. These investments, although assumed to generate future profits, generate costs in the short-term.

According to Norman and Ramírez (1994), firms need to monitor the profitability of their customers just like they monitor profitability of any other important asset. Monitoring profitability means monitoring both the buyer's and the seller's profitability. Revenues at the customer level are easily calculated. However, the cost side of the relationship is generally much more difficult to calculate. Once again the cost aspect of the relationship is emphasized, including product related costs as well as costs related to e.g. number and size of orders. In its essence Norman and Ramírez (1994), argue that the business success of the buyer will determine the business success of the seller.

2.5.4 Summary and final remarks

The literature on value chains, networks and value constellations provides a greater understanding on strategy at industry level. The literature review revealed at least two perspectives on value creation systems; a business and a sociological perspective; value creation systems may be seen as an economic perspective on sociology (as in value chains) or a sociological perspective on economics and business (as in “traditional” network theory). These two approaches are often represented by the supporters of the Harvard School (e.g.

Porter, 1980, 1985) with regard to value chains and the supporters of the Uppsala School (e.g. Hammarkvist et al. 1982; Mattsson, 1998; Jarillo, 1990) with regard to networks. An effort to combine both such perspectives has been done by Normann and Ramírez (1994) in what they term value constellations. The concept of value constellations is probably best described by contrasting it with the concept of value chains, particularly with regard to related concepts such as industries, corporations, strategies, value creation.

The content of industry level strategy is related to the unit of analysis, i.e. the ties that are able to keep value creation systems together, i.e. events, issues and value. Such ties contribute to vertical consolidation (bundling) or fragmentation (unbundling) or horizontal merger (bundling) or forkation (unbundling) of industries. Other factors, however, contribute to the bundling or unbundling of industries. Examples of such factors and how they contribute to the bundling or unbundling of industries are how firms are viewed, i.e. discrete or embedded, and the output of industries and firms, i.e. products developed in discrete intra-firm linear processes across a value chain or offerings developed in inter-firm reciprocal processes within value constellations. Additional factors are related to the strategies that available to firms and how to measure corporate performance. With regard to the former one can find two different perspectives, i.e. generic (competitive) strategies or reconfiguration (cooperative) strategies which in turn is related to the meaning of customer orientation, i.e. satisfying customer needs (i.e. supplier creates value) or complementing customer competence and activities (i.e. supplier and customer jointly creates value). With regard to measuring corporate performance in terms of the value it produces one can also find two different perspectives, i.e. price or shared profits (reflecting the value differential created by all members of a value constellation) or a price that is able to reflect the value differential created by both the supplier and the customer.

The context is related to the level of analysis, e.g. networks or organizations, which in turn is much dependent on the underlying theory of markets and hierarchies. As an example, the network construct relates to markets, i.e. markets consists of interrelated actors in networks of exchange, as well as hierarchies, i.e. the boundary of the firm extends beyond its legal boundaries, it is embedded in a network of actors and competencies. In other words, what is considered the context of business organizations depends on if business organizations are viewed as discrete units in an industry or market context (i.e. the value chain perspective) or if organizations are viewed as embedded units in a societal context (i.e. the network perspective). Because the former is much harder to grasp, this section shall focus on reviewing the literature on networks by focusing on different networks at different levels of analysis, as well as networks and the theory of markets and hierarchies.

The process is related to the characteristics of the inter-organizational links and how such links evolve over time, e.g. sequential or reciprocal, in cooperation or in competition. Other important issue with regard to the process is if and how such links and processes can be managed by individual firms. This is a particularly interesting and difficult topic considering a network approach. In traditional business research marketing management and business monitoring enables the management of external links as well as internal performance. From a network perspective relationship marketing and business monitoring of customer's profitability seems far more complex and difficult.

At the industry level, mainstream researchers view value chains as the unit of analysis. Taking a value constellation approach rather than a value chain approach is more than just expanding the scope of research and the unit of analysis at the industry level. Value chains may however be seen as an important, or sometimes even the most important, part of an entire constellation.

The analysis of value chains from a systems perspective means accepting networks as a “true” description of business reality, however limiting the scope of research into a specific “focal net”, in other words limiting the “network horizon”. The analysis of value chains from a systems perspective means that a very specific focal net, i.e. the value chain, is defined and investigated by the researcher. A focal net may also be termed a value constellation (Norman & Ramírez (1994). Consequently, value chains may be researched from a network perspective once aspects such as e.g. dynamic processes, relationships, reciprocity, etc. are applied.

Network theory contributes to the theory of hierarchies as well as markets. The “theory of the firm” has to do with why organizations are established (and what an organization if fact is) and consequently the boundary of the firm. The boundary of the firm is closely related to strategic decisions such as the make or buy decision, outsourcing and mergers and acquisitions (M&As). The “theory of markets” has to do with why markets are established (and what a market if fact is) and consequently the boundary of markets or industries. The boundary of markets and industries is closely related to strategic decisions such as in what business a corporation or business unit competes, how a relevant segmentation is done, how competitive forces are defined (e.g. what constitutes a “substitute” product or service), etc. Network theory has important contributions to the theory of hierarchies and markets primarily in terms of the strategic context, content and process.

As mentioned, much research has been focused on networks as an intermediary organization structure between markets and hierarchies, i.e. network organizations. In order to conceptualize network organizations a solid theory of the firm and a solid theory of markets need to be developed. Great emphasis has been devoted to develop the former, i.e. a theory of the firm. However, the latter, i.e. the theory of markets may lack some fundamental insights. Developing a theory of markets will not only serve to understand how markets function but also to strengthen the theory of networks and network organizations as an intermediate organizational structure. In general, it seems reasonable to ask what similarities and differences there are between “markets” and “industries”? In particular how a “market” may be defined? What kind of “markets” exists? How may an “industry” be defined? What kind of “industries” exists?

One perspective of corporate strategy has to do with establishing a corporate position in the “right” industry, e.g. a growing industry (e.g. Porter, 1980, 1985). Often, but not always, corporations have an outside-in/industry adaptation perspective on strategy. Establishing a corporate position in the “right” industry can be done through e.g. M&As. It is common for such corporations to define their business as “being in the business of making money”. These corporations are constantly looking for business opportunities in a wide range of different industries in which to invest. In this case, corporate strategy has to do with portfolio management and the development of the corporation’s business portfolio (e.g. Hedley, 1977; Dundas, Richardsson, 1982). Nevertheless, establishing a corporate position in the “right” industry can be done through internal development of core capabilities, and not only through M&As. It is common for corporations to define their business in terms of its core competence. These corporations are constantly looking for business opportunities in a wide range of different industries in which its core capabilities can create additional value. In this case, corporate strategy has to do with core competence and developing its portfolio of core competencies (e.g. Prahalad, Hamel, 1990). In the most extreme cases, such corporations develop entirely new core competencies, as when a rubber boot company became one of the world leading suppliers of telecommunication equipment and services. An entirely different perspective to “finding the right industry” for investments or for “deployment” of core capabilities is to create the right industry, e.g. to create growth in a particular industry. Often,

but not always, corporations have an inside-out/industry creation perspective on strategy. Often these industries are created by corporations developing internal core competencies.

Either perspective (industry adaptation and industry creation perspective) need to know (i) What are the main indicators that a competitive industry is being created? This question seems relevant in finding the right industry to create a position in, either through M&As or through internal development of core capabilities. Hence the question refers to the outside-in/industry adaptation perspective. (ii) How can corporate strategy, at industry level, create competitive industries? The question refers to the outside-in/industry creation perspective.

The main differences between the general perspective on industries as value constellations and the special case of a value chain are illustrated in Table 2:3 below. It should, however, be emphasized that the value concept of value chains is not only to be seen as a special case of value constellations; value chains rest on the assumption of competition and cooperation while value constellations assumes cooperation and competition.

Table 2:3 Summary of Porter (1980, 1985) value chain vs. Norman and Ramírez (1994) value constellation

Indicator	Value creation systems as value chains	Value creation systems as value constellations or networks
Definition and boundary of industries	Value chain. See “Characteristics of organizational links 1”.	Value constellations reflects the increasing need of business organizations to constantly and dynamically, i.e. in cooperation with other industry actors, rethink and redefine the division of work within the industry in order to be able to co-produce competitive offerings.
Theory of the firm	Collection of value activities.	Collection of knowledge, resources and activities. However, since knowledge, resources and activities are equivalent, the theory of the firm becomes very similar to Porter’s.
Organizational purpose	To create profit margin, i.e. to create value for buyers that exceeds the cost of doing so.	To create profit margin through dense and liquid offerings, i.e. value. Very similar to Porter.
Output of industries and firms	Value manifested in products (i.e. products and services).	“Dense” (e.g. value) and “liquid” features manifested in offerings (i.e. products and services). Very similar to Porter.
Characteristics of organizational links 1	Sequential and two-dimensional (e.g. vertical and horizontal) relationships.	Reciprocal and multi-dimensional relationships.
Strategies available to firms	Generic (competitive) strategies defined in terms of content.	Reconfiguration (cooperative) strategies defined in terms of process.
Characteristics of organizational links 2	Relationships are characterized by competition (e.g. bargaining power). However, cooperation may exist, and is driven by cost and differentiation.	Relationships are characterized by cooperation. Cooperation is driven by cost and risk sharing as well as the development of the core competence i.e. competence on how to develop and enhance its reconfiguration competence.
Managing perceptions	Marketing management.	Code management. However, code is very similar to marketing.
Customer orientation	Customer needs.	Complementing customer’s competence and activities. However, complementing customer’s competence and activities is fulfilling customer needs.
Management of organizational links 1	Marketing.	Relationship marketing.
Management of organizational links 2	Business monitoring, e.g. profitability per product line, per factory, etc.	Monitoring customer profitability and relationships (customer satisfaction).
Source of revenues	Price.	Price and profit sharing.

Norman & Ramírez (1994) view of an industry, and consequently an industry analysis, differs in some important ways compared to Porter’s (1980, 1985). Some of the theories presented by

Norman & Ramírez (1994) contribute to theory building around organizations, industries and strategies, e.g. the benefits of cooperation between seller and buyer including profit and risk sharing agreements. Some concepts, however, do not differ substantially to other similar concepts already presented by Porter (1980, 1985).

2.6 Analytical model detailed

The literature review showed that strategy as defined in this thesis should include outsourcing, mergers and acquisitions, modularization and systemization. The reason for including such strategic decisions is that these decisions affect the boundary of the firm at various levels as well as the division of work within industries and value chains. In addition, based on the literature review, it is reasonable to assume that the division of work within industries and value chains affects how corporations think, plan and act upon strategy, particularly in terms of changing the boundary of the firm at various levels. In other words, strategy at various levels affects the division of work within industries and value chains and vice versa. Consequently, the inside-out, industry creation perspective and the outside-in, industry adaptation perspective, should be reciprocally interrelated. Based on the literature review in the fields of corporate level bundling through mergers and acquisitions and unbundling through outsourcing, functional level bundling through systems and solutions and unbundling through modularization, as well as industry level bundling through the establishment of value constellations and unbundling through the establishment of value chains, the analytical model has been detailed as illustrated in Figure 2:5 below.

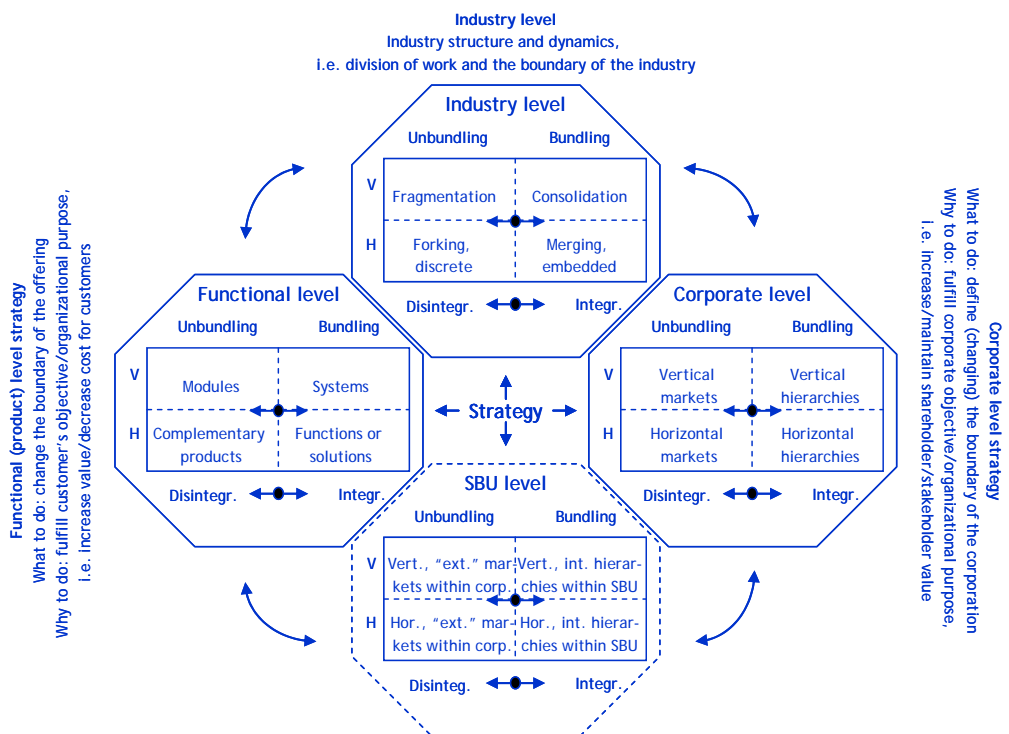


Figure 2:5 Strategy as bundling and unbundling at different intertwined levels

3 RESEARCH METHODOLOGY



RESearch methodology is in itself an academic field which is subject to substantial research. However, unless the research study aims at conducting research on research methodology itself, it has become common academic practice not to burden the research report with too lengthy a discussion of different academic perspectives on research methodology. Consequently this chapter focuses on describing the research methodology actually applied during the research process and the research process itself, that is to say how and why certain decisions with regard to the research methodology and the research process have been made. Nevertheless, it is useful to present a brief introduction and overview of the field of research methodology in order to substantiate these choices made and in addition, to explaining some of the terminology within the field of research methodology used in this thesis. For the same purpose, there is a discussion on the philosophy of science. The main purpose of this chapter, however, is to assist the reader to assess the validity and reliability of the research process and the research results.

THE SYSTEMS PERSPECTIVE: This study applies a systems perspective. In its essence this means that value chains are seen as industrial systems, corporations as its components, changes in corporate strategy as its indicators, and government interventions, the legal, societal environment etc. as its context. Thus, changes within value chains with regard to the division of work are described and understood by means of analyzing the dynamic interrelationship between the industrial system, its components/indicators, and the context outside and the system itself. The division of work refers to how value adding activities and their execution are distributed across a value chain. Given that there are some contextual peculiarities in every industry, it is assumed that the collective groups of corporations in different value chains, intentionally or not, implement certain strategic patterns that result in a certain predictable division of work within the value chain. The industrial context is, thus, dealt with not as if “chance” or an “invisible hand” was interfering with the system under analysis but rather as an important component/indicator itself. Understanding the industrial context enables the generalization of this study to go beyond the systems under analysis, i.e. beyond the value chains of the telecommunication and the construction industry.

A systems perspective for finding synergies among components and indicators: Many pieces have been laid in the gigantic jig-saw of explaining the relationship between corporate strategy and industry dynamics and the relationship between markets and hierarchies. This study focuses on how changes in corporate strategy in terms of changes in the boundary of the firm and its subcomponents/subindicators, in other words at the functional level of strategy the boundary of a corporation’s product(s), affects the division of work in a value chain. In addition, it focuses on how changes in the division of work affect corporate strategy and the boundary of the firm, as well as the boundary of a corporation’s products. To answer these and other similar questions, it is not uncommon for researchers and practitioners to apply an entirely analytical and positivistic perspective. Such a perspective often looks for explanations, i.e. cause-effect relationships, to various identified phenomena, such as the impact on mergers and acquisitions or outsourcing to the division of work. The greater whole, how markets and hierarchies relate to each-other, is explained by adding those explanations together, by applying a summative perspective. Applying a summative perspective in order to explain, as part of the analytical/positivistic perspective, may overlook the possibility of interaction between independent components/indicators and it diminishes the chances of obtaining a greater understanding of the overall phenomenon in question. The systems perspective thinks of components/indicators as interdependent (Churchman, 2002). Thus, it is important to understand the synergies between the components/indicators to be able to understand the performance of the overall system (Churchman, 2002). The aim and ambition of the systems perspective stands in stark contrast to the analytical/positivistic perspective as

the former strives to understand while the latter strives to explain. These two perspectives also differ in how one can provide and obtain understanding or explanation, i.e. through components/indicators (systems perspective) rather than variables (analytical perspective) and through a synergetic (systems perspective) rather than a summative (analytical perspective) methodology and analysis (Arbnor and Bjerke, 1994). The analytical perspective may include any and all variables which give any form of explanation; however, its methodology often overlooks possible synergies among those variables and the interdependency or reciprocity between so-called dependent and independent variables. The systems perspective, on the other hand, will often consider possible synergies among components/indicators in order to understand the whole, e.g. the division of work within industrial value chains. The *explanatory* ambition of the analytical perspective means that the interaction between *variables* is excluded and that a summative approach can be applied. In applying the systems perspective, the aim is that of *understanding*. It means also not excluding the fact that components and *indicators* may interact and create *synergies*. By not accepting the summative proposition, research may provide a better although more complex understanding of real life business phenomena.

Systems perspective for finding relationship of finality (equifinality and multifinality):

As mentioned earlier, the analytical perspective aims at finding the *cause-effect* relationship between independent and dependent variables for explanatory purposes. The systems perspective, however, aims at finding the *relationship of finality* (Sw. “finalitetssamband”) between components/indicators for increasing our understanding of the phenomenon in question (Arbnor and Bjerke, 1994). This means accepting that many different components/indicators can provide the very same effect, i.e. equifinality, (Sw. “ekvifinalitet”) or the idea that one component/indicator can actually provide a variety of different alternative effects, i.e. multifinality (Sw. “multifinalitet”) (Arbnor and Bjerke, 1994). What matters here is the collectiveness of components/indicators rather than specific variables. A relationship of finality is valid provided one is able to show that the components/indicators in question are able to have a certain effect on a certain system, and at a certain time, i.e. given time and space, the components/indicators provide an understanding of the system or subsystem (Arbnor and Bjerke, 1994). This study aims at finding the relationship of finality between so-called dependent and independent variables.

THE RESEARCH PROCESS: Lekvall and Wahlbin (1987) suggest that the research process is a chain of activities including the detailing of the research questions, the selection of the research strategy and the methodology (qualitative or quantitative study, case study, broad study or longitudinal study including primary or secondary data), the collection of data, data processing, data analysis and interpretation and, finally, reporting. According to Lekvall and Wahlbin (1987), the researcher will work at different logical levels during the research process. Lekvall and Wahlbin (1987) make a major contribution to the research literature by illustrating the “logical links” between the different steps and logical levels in the research process in their, nowadays classic, U-shaped model. The research process during design and execution of this research study followed the U-shaped model as described by Lekvall and Wahlbin (1987), including processes and procedures for establishing the research designing, operationalization, data collection, data analysis, etc.

This chapter provides an understanding of the research execution process and focuses on those research activities that can not be found, or are difficult to identify, elsewhere in this research report, primarily how and why certain decisions about the research methodology and the research process have been taken. These decisions include the method and reason for the choice of certain data, data sources, data collection method and form, and methodology of

data analysis. Other research activities that can be found throughout this research report, such as formulating the purpose, detailing the frame of reference, and discussing the conclusions will not be discussed here. The “logical links” within the research process can be found implicitly in any research report, including this one. Because the concept of “logical links” is intimately related to “validity” and is thus, highly important to the “scientificness” of this research report, this concept of “logical links” as validity is discussed in the last section of this chapter.

In general, researchers in social sciences and researchers into the research methodology of social sciences, group different research methodologies into three different dimensions (Lekvall, Wahlbin, 1987). The first dimension refers to the main interest of the analysis; case studies, broad studies or longitudinal studies (discussed in the previous section). The second dimension refers to the nature of data and data analysis. This includes the decision to use qualitative and/or quantitative data and data analysis. Data analysis concerns the methodology used to transform collected data into comprehensive and useful information. The third dimension refers to the data source; data may be collected from a primary and/or a secondary source. One of the limitations in categorizing different research methodologies as done by Lekvall and Wahlbin (1987) is the assumption that the *nature of data* defines the *methodology of analysis* to be applied. Implicitly, the authors assume that a researcher may only use a qualitative analysis if the data to be analyzed is of a qualitative nature or a quantitative analysis if the data to be analyzed is of a quantitative nature. Neuendorf (2002) examines how the nature of data and the methodology of analysis are separated through a research methodology usually referred to as “content analysis”. Consequently, the nature of the data does not necessarily define the methodology of analysis to be applied. In this research study, the nature of the data is both qualitative and quantitative although the emphasis is on qualitative data. However, the nature of the data analysis is only qualitative.

3.1 Research design

The pertinent question here is how to secure “scientificness” throughout the entire research process in general, and in the selection process of a research methodology in particular. In other words, the question is how to select the best research methodology available based on an a priori assessment of the final validity and reliability of the study. Validity and reliability are scientific criteria that are not easily defined without prior definition of a methodological context. In essence, it is virtually impossible for a researcher to assess validity and reliability prior to having defined or selected a research methodology. This has some troublesome implications for researchers. A researcher looking for the best research methodology in terms of generating valid and reliable questions and answers needs to evaluate each specific research methodology, before actually selecting one, in terms of an a priori assessment of its final reliability and validity. This is generally not feasible due to time constraints. As guidance for selecting the proper research methodology, the vast majority of literature on methodology explains the different research methodologies and their possible implications on validity and reliability. Few specify detailed criteria for selecting a research methodology. However, most specify such criteria in very general terms by describing its “use” (e.g. Churchill, 1991) or the “relevant situations” under which the methodology may be used (e.g. Yin, 1994). One could argue that should a researcher not be able to select a research methodology based on an a priori assessment of the final validity and reliability it is reasonable to question the entire research process. Selecting a research methodology without assessing its validity and reliability is clearly not an entirely rational and scientific decision. However, it may be that on completion of the research process, when assessing reliability and validity, the selected research methodology turns-out to be (or not to be) a quite good choice. One could assume that the process of selecting a research methodology is basically a trial and

error process. This is, however, not true. Usually the apparently ad-hoc process of selecting a research methodology is quite successful although the researcher is not able to prove, *a priori*, that his/her choice was the best or that no another methodology could have been better. The apparently ad-hoc process of selecting a research methodology is quite successful because of the support provided by the scientific community in the selection process of a research methodology, i.e. the accumulated experience of other researcher's trial-and-error when generating and answering similar research questions.

The *a priori* selection process of a research methodology for the research presented in this report was three-step. During this process it became obvious which methodology would reasonably provide the most valid and reliable results. First, a tentative selection as to the qualitative case study research methodology was made after discussions with representatives from the scientific community, primarily from the University of Linköping, and after an evaluation of their accumulated experience in selecting a research methodology. Such accumulated experience is generally based on individual trial-and-error experiences when generating and answering similar research questions in research similar to the one described here. Second, once the tentative qualitative case study research methodology had been selected, it was tested against the "general criteria" as specified by researchers on qualitative case study research methodology. In addition to the tentative choice with regard to the nature of data and data analysis, qualitative case study research, other choices connected to the research methodology needed to be considered. These considerations are discussed later in this chapter. Third, the final "toll-gate" in selecting a research methodology was to approve or disapprove the tentatively selected research methodology. The most important steps in the *a priori* research selection process, i.e. the first and second steps in the process, are described below.

As mentioned, the tentative qualitative case study methodology was tested against the "general criteria" as specified by researchers on qualitative and quantitative research methodology. Yin (1994) suggests that there are "situations" relevant for a researcher to consider before selecting any specific research methodology. Such situations have to do with the form of the research questions, the control the researcher has over actual behavioral events and whether the focus is on contemporary as opposed to historical phenomena. To summarize, a survey is applicable for research questions such as "who", "what", "where", "how many" and "how much" while the situations under which the qualitative case study research is applicable is when "a 'how' or 'why' question is being asked about a contemporary set of events over which the investigator has little or no control" (Yin, 1994, p 9).

The purpose of this research focuses primarily on the latter type of question, i.e. "how" (e.g. how to describe and how to understand certain phenomena). With regard to the control the researcher has over actual behavioral events, and as opposed to "experiments", it goes without saying that I have had no control over the events being researched. In addition, contextual, and uncontrollable, conditions have been deliberately considered as such conditions are of importance to the phenomenon being studied. Finally however, according to Yin (1994), case study research focuses on contemporary events (as opposed to historical research). This last condition is somewhat problematic because of the difficulty of defining "contemporary". Yin (1994) argues that one "dominant mode of analysis" in case studies is the "program logic model", i.e. a combination of "pattern-matching" and "time-series analysis". In summary, the program logic model of analysis "deliberately stipulates a complex chain of events (pattern) over time (time series), covering these independent and dependent variables" (Yin, 1994, p 118). Unless the research is based on studying "live" events, such as in participant-observer studies, it is difficult, however, to conceive a "program logic model of analysis" including a

“time-series analysis” without relaxing the “contemporary” restriction, allowing the collection of historical data over time. As in most of today’s qualitative case study research, the “contemporary” restriction in selecting such a research methodology has been somewhat relaxed for several reasons. First, an interesting phenomenon is often observed after it has manifested itself. An example of this would be changes in the division of work across value chains during the 1990’s and the early 2000’s. Second, participant-observer studies are often limited by time constraints. Research covering the events during the 1990’s and the early 2000’s would have to last for at least as many years as the events being researched. Third, because a researcher cannot physically be present in several locations simultaneously in order to make observations the unit of analysis must be limited and consequently a research cannot cover an entire value chain.

In conclusion, the a priori assessment of the selected research methodology, the choice of a qualitative case study research, showed that such a methodological approach served the purpose of this research well and would, most probably, generate valid and reliable results. Consequently, a final decision was made to proceed with the qualitative case study research approach.

3.2 Data collection

This section discusses the nature and source of data, data collection methods and forms, and the procedures for sampling industries, corporations and respondents.

THE NATURE AND SOURCE OF DATA: Although quantitative case study research methodology is briefly discussed in Yin (1994), the focus of the work is on qualitative case study research methodology, i.e. case study research based on qualitative data and data analysis. With regard to the source of data, Yin (1994) is particularly interested in primary data.

This research is based primarily on qualitative primary data. Nonetheless, quantitative and qualitative secondary data was also collected. Such data is included in the cases and consequently is analyzed together with the primary data. The reason for including such data was to maximize the effectiveness and efficiency of the data collection method and form. This included not to spend valuable time during the interviews by asking questions that have been publicly answered or to spend time discussing issues that have been publicly discussed in media, or to otherwise engage in issues that were available or known to the public. Quantitative data is used for illustrative and/or validation purposes, to illustrate and/or validate a qualitative statement, and for the purpose of generating propositions on the effects of certain strategic decisions to organizations. Thus, the quantitative data is not analyzed in itself.

Primary data (qualitative): The primary data has been collected through interviews. The data and information in the annual reports are considered to be highly reliable because such data and information is examined and verified by external auditors.

Secondary data (qualitative and quantitative): Secondary data has been carefully selected in order to maximize the reliability of data. I have selected industry reports carried out or commissioned by organizations that do not represent special private interests, such as government agencies, e.g. the Ministry of Finance (“Finansdepartementet”), Ministry of Industry, Employment and Communications (“Näringsdepartementet”), The Swedish Competition Authority (“Konkurrensverket”), Swedish Postal and Telecommunications Regulatory Authority (“Post- och Telestyrelsen” or “PTS”), National Board of Trade (“Kommerskollegium”), NUTEK (“Närings- och teknikutvecklingsverket”) and the Swedish

Agency for Innovations Systems ("Verket för innovationssystem - Vinnova"). Thus, I have deliberately avoided reports which result from research studies conducted by individuals or organizations that may represent special private interests, e.g. industry reports as a result from research studies conducted by consulting companies commissioned by privately held companies within the industries investigated in this research, that is to say the telecommunication and construction industry. One exception has been made with regard to published annual reports which have been reviewed by external auditors.

DATA COLLECTION METHODS AND FORMS: This study is based on data mainly collected through interviews and from published printed materials ("methods"). The interviews were based on an interview-guide ("forms").

About the interviews: In order to support an open although focused discussion, an interview-guide was prepared. Prior to the interview, the respondents were all informed about the purpose of this research and that their answers would not be published prior to their consent. The interview-guide, as well as all of the information regarding this study, was handed-out in print to the respondents prior to the interview. All the respondents were asked to allow the interview to be recorded. The interviews were performed as a two to four hour semi-structured discussion about (i) changes in the division of work across the value chain between 1994 and 2002, (ii) driving forces to such changes, and (iii) the dynamic relationship between corporate strategy and the division of work. The interviews were all recorded. The respondents were asked to answer the all questions (except for Q3) based on their perception of the business reality in his/her industry "as it is" and not to answer the questions based on their belief of how business ought to be carried-out in their industry. The interviews were all translated and transcribed. The translated and transcribed interviews were sent to the respondents allowing them to correct errors of interpretation. Only two respondents returned with some minor comments; Mr. Magnus Tannfelt (President, Allgon Mobile Communications AB), and Mr. Claes Larsson (President, Skanska Projektutveckling Sverige AB). It should be noted that except for the interview with Mr. Chris Bannister (President and CEO, Hi3G) all the interviews were conducted in Swedish. Secondary data and printed material referred to in this research report (e.g. annual reports) were written both in Swedish and English. However, in order to increase the possibility for external review, this research report was originally written in English. Translations have been made by the author himself with on one occasion, the process of translating the letter of invitation sent to the respondents, the support of an external company, The Whole World Company Ltd (WWC). WWC is a translation company based in Cambridge, often engaged by both researchers and practitioners in the academic and business community. Translations are indicated throughout this research report, including the name of the translator.

About interview-guide: A draft for an interview-guide was prepared and discussed during two sessions with Professor Staffan Brege, Dr. Jacob Rehme and Dr. Dan Andersson from the University of Linköping. Based on their comments and suggestions, a final draft was prepared. Afterwards, test interviews were conducted with Mr. Ove Bergengren, former President of Scandinavian Airlines (SAS) in the Americas, Mr. Klas Lundgren, Managing Director of Alcatel in Sweden, and Mr. Lennart Apleberger, former President of NCC Teknik in Sweden. The rationale for inviting Mr. Bergengren, Mr. Lundgren and Mr. Apleberger to participate in an interview session was based on their individual as well as collective merits. Individually, all three represented top management positions, in other words positions corresponding to those held by the actual respondents in this study. Collectively, these gentlemen represented the telecommunication and construction industry as well as a third industry. The general idea was to enable replication of this study by developing an interview-

guide that was not industry specific and that could be understood by respondents from other industries. Eventually, the interview-guide may be used in order to increase the generalization of the results in this study beyond the telecom and construction industries. Thus, individually and collectively, Mr. Bergengren, Mr. Lundgren and Mr. Apleberger were considered to be reliable sources for testing and increasing the validity and reliability of the final draft of the interview-guide. The final interview-guide was prepared based on the test interviews and actual experience gained during such interview sessions, as to the duration of the interview, the general understanding of the questions as well as Mr. Bergengren's, Mr. Lundgren's and Mr. Apleberger's comments and suggestions.

The interview-guide contained a number of specific questions, structured and based on the theories presented in the "frame of reference" and a tentative analytical model. The questions in the interview-guide are divided into three (1-3) different levels of analysis (focus is on industry and organizational level), and in 13 areas (C-G), totaling 40 questions (see Table 3:1).

Table 3:1 Contents and structure of interview-guide

(1) INDUSTRY LEVEL	(2) ORGANIZATIONAL LEVEL
F1: Boundary of the industry	C1: Strategy content
F2: Industry division of work	D1: Boundary of the organization
E1: Product logic	D2: Organizational division of work
E2: Business logic	D3: Organizational success
E3: Process logic	C2: Strategy process & organizational culture
F3: Role of channel captain	(3) SOCIETAL LEVEL
F4: Industry Success	G: External driving forces

Each area (C-G) contains 3-4 questions (although the order of questions may vary). For example, (Q1) Descriptive – Phenomena, where the respondent was asked to describe or define a certain phenomenon, (Q2) Descriptive – Actor, where the respondent was asked to identify who was driving the phenomenon in question, (Q3) Normative – Time, where the respondent was asked to provide his/her opinion on a time limit to change the phenomenon or when the phenomenon occurred, (Q4) Causal – Force/Phenomena, in which the respondent was asked to identify driving forces (or barriers to change) to the phenomenon and how such driving forces may have affected/created such phenomenon.

SAMPLE OF INDUSTRIES, CORPORATIONS AND RESPONDENTS: Personal interviewing has been the primary data collection method for the qualitative primary data. Mail or telephone interviews conducted by sending the interview-guide to the respondents, were not considered feasible options to the personal interview technique. Top level managers would probably not have been able to devote the time required to filling such a questionnaire. In addition, in a personal interview situation the researcher is able to encourage the respondent to develop and explore new ideas or thoughts. As the duration of each interview was estimated to approximately two hours, it was reasonable to assume that the personal interview is more convenient for the respondent. There are three to four basic forms of interview techniques; open/unstructured, (directed), half structured/semi-structured and structured/standardized (Lantz, 1993; Merriam, 1998). The selection of one of the basic interview forms should be based on (i) the frame of reference, (ii) the research questions, (ii) how the context is to be defined and (iv) how the analysis is to be executed. This research study is based on a semi-

structured, personal interview technique, the rationale being that its description in terms of (i), (ii) and (iii) fits well into the framework of this research study.

The term “sampling” is usually referred to in quantitative research studies. Here, however, I use the terms sampling simply to illustrate how I have made my selection/choices of industries, corporations/companies and respondents so that I am able to generalize the results beyond the industries, corporations/organizations included in this research. Nevertheless, in an embedded case study research, selecting the embedded units can be made through sampling or cluster techniques (Yin 1994 with reference to McClintock, 1985). The second part of this chapter will focus on the data collection methods and forms, including the “sampling” issue.

SAMPLE OF INDUSTRIES: Two industries, the telecommunication industry and the construction industry, were selected and from these, the “sample” of companies was drawn. As briefly discussed in the background to this report, the reasons for selecting these two industries were based on their similarities and complementary differences.

Similarities: Both industries are of major importance to the well-being of individuals and to the societal, industrial and economic development of Sweden. At the individual level, both industries aim to satisfy two basic human needs, the need for shelter and the need to communicate with one another. From a societal perspective, both industries are usually considered to be part of the country’s “infrastructure” and consequently the “backbone” of industrial and economic development in Sweden. The importance of the telecommunication and the construction industries to Swedish society cannot be overestimated and this is clearly illustrated by the fact that the Swedish government has had major shareholder interests in both industries. From an industrial perspective, other industries are heavily dependent on both the telecommunication industry and the construction industry. From an economic perspective, it is worth noting that the construction industry and the telecommunication industry represent approximately 11% and 2% respectively of total Swedish GNP.

Complementary differences: The reason for selecting these two industries is that they complement each-other, primarily in that the telecommunication and the construction industry have reached different levels of maturity. These two industries are often referred to as an emerging and a mature industry, respectively. This was important in order to potentially be able to draw the generalization of this study, beyond the telecom and construction industries, across other industries.

SAMPLE OF CORPORATIONS/COMPANIES: The corporations selected for this research are assumed to collectively have made an important contribution to structural changes within their respective industry with regard to the division of work within the value chain. In order to secure their “important contribution”, three criteria were set in selecting the corporations: (i) “measurable” (i.e. documented) strategic decisions, (ii) importance to the value chain and (iii) selling/purchasing relationship between the corporations. In the original design it was planned to only include six (i.e. three from each industry) companies in the research study. Together and individually, such companies fulfilled the requirements of points (i), (ii) and (iii). With regard to (i) the individual companies were selected based on (i) strategic decisions made by these companies known prior to this research. Such strategic decisions were assumed to have had a major impact on structural changes in their respective industry. Collectively the companies need to be important for the division of work within the value chain (ii) and consequently constitute a major part of a value chain, i.e. the selected companies need to have a selling and/or purchasing relationship with at least one of the other selected companies and

the total value of such purchases/sales need to equal or surpass 50% of the total purchase/sale within the industry. In terms of sales, in 2001, Telia alone, as a fixed operator, had above 75% of the market share. In the cellular segment, in 2001, Telia and Europolitan/Vodafone had a combined market share in terms of sales of above 60%. With regard to the construction industry, Skanska's and NCC's combined sales totaled slightly more than 50% of total industry sales. Needless to say, the other companies included in this study contributed to even higher figures in terms of industry sales. Examples are Ericsson, that is by far the largest system supplier in Sweden, and Drott that is the largest private real-estate company listed in Sweden. As the cases illustrate, the selected companies have or have had a selling/purchasing relationship with each-other (iii).

However, in order to secure the data collection process, additional companies were invited to substitute the original ones in case the original ones should have declined to participate in this study. The interest among the companies invited to participate in the research study exceeded expectations, resulting in the confirmed participation of nine companies, five within the telecommunication industry and four within the construction industry; telecommunication industry (operators) Vodafone Europolitan, Telia, Hi3G, (turn-key suppliers) Ericsson, (suppliers) Allgon; and construction industry (operator) Drott, (turn-key supplier) Skanska, NCC, (supplier) Södra. These companies, individually and collectively, fulfill the selection criteria as further discussed in the different "cases".

SAMPLE OF RESPONDENTS: A total of 21 people were interviewed. 16 people were initially interviewed in accordance with the interview-guide, eight within the telecommunication industry and six within the construction industry, plus three test interviews with Mr. Ove Bergengren (President, SAS Americas), Mr. Klas Lundgren (Managing Director, Alcatel Sweden) and Mr. Lennart Apleberger (former President NCC Teknik). The principle for "sampling" the respondents who were interviewed is best described as a top-down, referral approach. Initially, only CEOs and Chairmen were sent a letter of invitation asking them to participate in an interview. The reason is that these high level representatives, CEOs and Chairmen, "match" the unit of analysis in this study, which is the corporation (and industries to some degree). During the analysis of this study, however, minor gaps in the empirical data were detected with regard to bundled solutions. One issue related to bundled solutions incorporating telecom and datacom products and services and the merger between the telecom and datacom industries. The second issue related to risks related to sales of bundled solutions. Thus, to complement the initial data collection, using the interview-guide, two additional interviews were conducted in order to target these two specific issues; one was with Mr. Mikael Ekman (Country Manager, Alcatel Telecom Sweden) responsible for telecom/datacom solutions and the other with Mr. Richard Fleetwood (Vice President, Ericsson), responsible financing and insurance policy at corporate level, including issues related to risks arising from delivering total solutions such as BOT-solutions. These two final interviews also enabled testing the validity of some of the conclusions of the analysis (see internal validity).

Top-down, referral sampling approach: The CEO or Chairman was considered to be the best single person to provide a good overview of the corporation and industry under analysis. However, when the CEO or the Chairman was not able to participate, he/she was asked to refer to another person within the organization that could represent him/her in discussing the subject matter. In such a case, the CEO or the Chairman provided his/her best estimate of who the most suitable person in fact was. This means that the person referred to by the CEO or the Chairman was probably in fact the best person to participate in this research (and not the second best as one may think). Nonetheless, on some occasions the CEO or Chairman was not able to refer to another person within the organization. As a "last resort" the Presidents of the

different Business Units (BUs) within the corporation were invited (irrespective of whether such BUs were incorporated or not). Consequently, on some occasions the Presidents of the different BUs within the corporation received a letter of invitation to be interviewed. Below, follows an illustration of how the top-down, referral approach turned-out, i.e. a description of the people invited to participate in this research, the “chain of referral” and the people who were actually interviewed. Note that names in bold are people actually interviewed. Other people have been included in order to illustrate the “chain of referral”, i.e. “A → B” means that “person A referred to person B”, “• → A” means that “person A received a letter of invitation to participate in this research”.

Respondents within the telecommunication industry: Within the telecommunication industry the following high level managers have been interviewed for the purposes of this research only: • → Marianne Nivert (former President and CEO, Telia), • → Anders Igel (President and CEO, Telia), • → **Kenneth Carlberg** (President, Telia Mobile), • → **Kennet Rådne** (President, Telia Networks), • → Jon Risfelt (President and CEO Vodafone Europolitan) → **Bo Karlsson** (Director Head Office, Vodafone Europolitan), • → **Chris Bannister** (President and CEO, Hi3G), • → **Kurt Hellström** (President and CEO, Ericsson), • → **Sven-Christer Nilsson** (former President and CEO, Ericsson), • → **Jan Wäreby** (Vice President, Sony Ericsson), • → Jeff Bork (President and CEO, Allgon), • → **Magnus Tennfelt** (President, Allgon Mobile Communications).

Respondents within the construction industry: Within the construction industry the following high level managers have been interviewed for the purposes of this research only: • → Mats Mared (President and CEO, Drott) → **Claes Linné** (Vice President, Drott), • → Stuart Graham (President and CEO, Skanska) → **Mats Williamsson** (President, BU Construction Related Services, Skanska), • → Stuart Graham (President and CEO, Skanska) → **Claes Larsson** (President, BU Project Development and BOT, Skanska), • → Alf Göransson (President and CEO, NCC) → Magnus Mannesson (President, BU Property Development, NCC) → **Stefan Holmlund** (Senior Vice President, BU Property Development, NCC), • → Alf Göransson (President and CEO, NCC) → Olle Ehrlén (President, NCC Construction Sweden) → Svante Hagman (Market and Business Development, BU Construction Sweden, NCC) → **Jan Byfors** (Senior Vice President, BU Construction Sweden, NCC), • → **Peter Carlsson** (President, Södra Building Systems).

It should be noted that the longitudinal approach and the “sampling” of respondents generated some issues of concern during the research design. It is not unusual in industries undergoing rapid, revolutionary changes, like the telecommunication industry between 1994 and 2002, that top managers and CEOs sometimes need to step aside. In fact, this is sometimes considered to be a driving force in some corporations, BUs and companies and consequently in industries. Nevertheless, the issue referred to here is about who to interview if a corporation had more than one CEO between 1994 and 2002. Does this require all the CEOs be interviewed or is it possible to collect highly reliable data through a “sample” of present and former CEOs. How then should the “sampling” of respondents be conducted, i.e. who should be interviewed? This research study has adopted the principle of interviewing the present CEO and whenever reasonable, possibly invite and even interview other previous CEOs of the corporation. Although one could argue that all the CEOs need to be interviewed, for reliability purposes, this would have been virtually impossible for several reasons. First and foremost, there is a legal and ethical dimension to this issue. CEOs that are required to step-aside are usually put in “quarantine” during a substantial period. During such period of time, top managers and CEOs are not allowed to discuss matters concerning his/her former employer. This issue may become more important if the company that now employs the CEO and his

former employer have an important business relation with each-other. Second, there is a personal dimension to this issue. The former CEO is often not particularly interested in discussing his/her former employer in public. A third dimension has to do with the feasibility of conducting a broad research study across several industries, including a rapidly changing industry like the telecommunication industry and also aiming at interviewing any and all the CEOs during the period of time under analysis. Resolving all these legal, ethical and personal issues is a delicate process for researchers. During this particular research, personal relationships and trust has been a prerequisite for accessing information provided by top executives. It was agreed not to disclose more information than required for the research purpose without violating restrictions with regard to the aforementioned legal, ethical and personal issues. The transcriptions of all interviews were sent to the interviewees in order to verify the "interpretation" as well as to obtain their approval to disclose the provided information. The post rationalization that may have occurred through this procedure may have resulted in lower reliability. This was however resolved by using cross references when analyzing the interviews.

3.3 Data analysis

The indicators, the relationship between indicators, and the relationship of finality between indicators and the changes in the division of work within the value chain is mapped in two different systems, the telecommunication industry and construction industry for further analysis at the generic industry/systems level. This fulfills the *descriptive* purpose of this thesis. The analysis at the industry/systems level reveals similarities and differences between these two industrial systems.

Similarities between the telecom and construction industries are interpreted as potential indicators and drivers to changes in the division of work within value chains in general (a generic industry). This means that similarities may possibly allow generalizing the conclusions to other industries. Differences between the telecom and the construction industry are interpreted as potential indicators and drivers to changes in the division of work within value chains that are context specific. How this context may affect the potential indicators and drivers to changes in the division of work within value chains is analyzed. This fulfills the purpose of *understanding* in this thesis.

THE UNIT AND LEVEL OF ANALYSIS: According to Yin (1994) there are four basic types of case study design along two dimensions; single or multiple and holistic (single unit of analysis) or embedded (multiple units of analysis) case design. As discussed in "About the unit and level of analysis" this research study is based on a multiple and embedded case study design, as nine companies within two industries made up the cases. The rationale for a multiple case study is because, compared to a single case study, multiple case studies are often considered more compelling, and more robust (Yin, 1994). The rationale for selecting the embedded design is simply because it is not possible to make direct observations of the two cases (i.e. the two value chains of the telecom and the construction industry) by collecting qualitative primary data through interviews (see "The nature of data" and "Data collection methods and forms"). In other words interviewing the "industry" is not possible.

According to Yin (1994) there are two general strategies for analyzing the case study evidence; one is relying on theoretical propositions and the other is developing case description(s). This research study relies on theoretical propositions (second level of analysis) and is based on developing case descriptions (first level of analysis). The two general strategies underlie one of the four specific analytical procedures available to a researcher; pattern-matching, explanation-building, time-series analysis and program logic model, i.e. a

combination of pattern-matching and time-series analysis (Yin, 1994). This research study relies on the program logic at both levels of analysis as it combines the analysis of a complex chain of events (patterns) over time (time series) and, thus, fits the longitudinal approach.

The collected empirical data is presented in the cases at the corporate and/or company/BU level, i.e. the first-level unit of analysis (C_1 - C_{11}). The first level of analysis is the analysis of such cases/empirical data and results in two industry level cases, the telecommunication industry case (C_T) and the construction industry (C_C) case, i.e. the second-level unit of analysis. The second level of analysis is the theoretical analysis of such two industry level cases and the results are presented as the final conclusions of this research, i.e. generic industry level conclusions (C_i). Each analytical level increases the level of abstraction (see Figure 3:1).

Level of abstraction

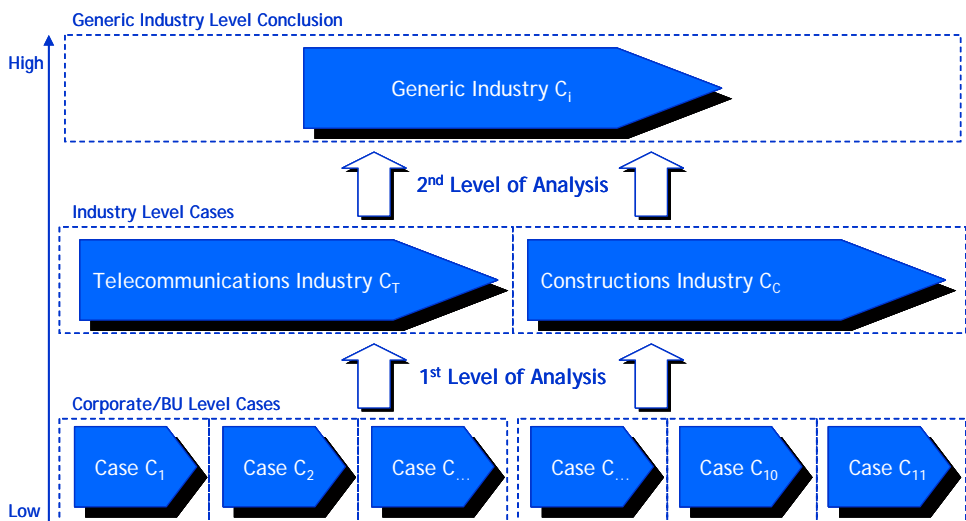


Figure 3:1 Unit and level of analysis

The cases: Nine cases have been prepared, five within the telecommunication industry and four within the construction industry. Each case is a description of a company and its contribution to establishing or changing the division of work within the value chain through strategic decisions between 1994 and 2002 (as applicable).

THE LONGITUDINAL DIMENSION: The longitudinal dimension refers to the time perspective adopted in the research study in question. In this particular research study the longitudinal dimension is reflected in that it focuses on changes in the unit of analysis during a period of time ranging from 1994 through to 2001. Consequently, primary and secondary data has been collected so that it reflects the developments during such period of time in the best possible way. As far as possible, questions during the interviews have been specific as to when a phenomenon developed or an event or change occurred, published annual reports have been collected ranging from 1994 through to 2001, etc. In addition, secondary data that reflects the period of time from 1994 through to 2001 has been collected and used. It should be noted, however, that in a few “cases” certain corporations, BUs or companies have not existed during the entire period of time under analysis, i.e. 1994-2002. In such “cases” there is really

nothing to do other than have the “case” beginning the year of the “birth” of the corporation, BU or company and to end in 2002. This is no problem, on the contrary, such cases are very important because, in part, they illustrate how the division of work within an industry changes. Thus, it is important to include new entrants in the research study in order to be able to describe and explain structural changes in industries. Very much dependent on how an industry is defined, the same issue may be discussed from an industry perspective. The answer will, however, be the same, with regard to corporations, BUs and companies.

The reason for adopting a time perspective ranging from 1994 and onwards is the dramatic change in the “name of the game” within the Swedish telecommunication and construction industries, primarily through legislative changes (see Figure 3:2 below). Such changes have had a direct effect on the division of work within the value chain, both within the construction industry and the telecommunication industry, and the way these have evolved until today. Nevertheless, it should be noted that the development of the legislative frame has evolved continuously during the entire period of analysis (1994 through to 2001). Such legislative changes are further discussed in the different cases. A couple of illustrative examples, at both national and international level, with regard to the legislative changes just prior to or during 1994 are worth mentioning.

At the national level, probably the two most important changes in the telecommunication and the construction industries affecting the competitive environment have to do with regulatory scope and the Swedish legislation in the Competition Act of January 1, 1994 and the Telecommunications Act of July 10, 1993.

The Swedish Competition Authority and the Competition Act of January 1, 1994: The Swedish Competition Authority – SCA (“Konkurrensverket”) was established on July 1, 1992 (SCA AR). Its main objective is to promote effective competition in the private and the public sector for the benefit of consumers (SCA AR). It does so primarily by (i) supervising and enforcing the compliance of private and public organizations to the Swedish Competition Act (“Konkurrenslagen”), (ii) suggesting measures to the Swedish government on how to increase competition in the private and public sectors, (iii) diffusing know-how in the area of competition as well as in (i) and (ii), and (iv) promoting research within the area of competition (SCA AR). In line with the European Community’s (EC) regulations on free competition, the Swedish Competition Act came into effect on July 1, 1993 and established two prohibitions against anti-competitive cooperation and abuse of a dominant market position (SCA AR). Nevertheless, organizations both in the private and the public sector enjoyed a six month transition period to adapt to the new Swedish Competition Act, allowing them to terminate cooperative agreements that were in breach with the Act. Thus, in reality the new Swedish Competition Act came into force on January 1, 1994 (SCA AR). The Swedish Competition Authority, primarily through the Swedish Competition Act, affects corporations within the telecommunication and construction industries on a strategic level. For example, it affects decisions with regard to cooperation, as in principle, cooperation between two or several organizations executing a common undertaking exceeding SEK 200 million or resulting in a combined market share of 10% or above, is subject to prohibition. In addition, it affects decisions related to mergers and acquisitions, as the parties in a merger or acquisition need to, provided the aggregate turnover is above SEK 4 billion, notify SCA for their approval. Finally, it also effects strategic decisions of companies with a dominant market position, as any abuse on the part of an organization with a dominant position is prohibited (SCA AR). Any such strategic decision, such as to enter into a cooperative agreement, merge or acquire other business organizations, needs to be designed and implemented in compliance with the Swedish Competition Act. The application of SCA to the telecommunication and

construction industries and its impact on a strategic level to organizations within such industries is well illustrated by Telia, Ericsson and Skanska. In the telecommunication industry, the SCA requested Telia to unbundle its NMT and GSM operations so that Telia could not subsidize the deployment of its GSM network through its dominant NMT operations thereby distorting free competition (SCA AR). In a report to the Swedish government, "Marknader och avreglering", SCA requested Telia to make available its NMT customer database and backbone network to its competitors (SCA AR). In addition, a long-term and exclusive agreement between Telia and Ericsson was brought to an end by the new Act (SCA AR). Within the construction industry SCA prohibited and Skanska to cooperate with SIAB by entering into a consortium to joint build a new hospital in Luleå (SCA AR).

The Swedish Postal and Telecommunications Regulatory Authority and the Telecommunications Act of July 10, 1993: The Swedish Postal and Telecommunications Regulatory Authority ("Post- och Telestyrelsen" or "PTS") was established on July 1, 1992 (PTS AR). Telestyrelsen was founded as a merger between the frequency regulation authority within Televerket and Statens Telenämnd. At that time, Telestyrelsen had authority only over the telecommunication sector. Televerket was incorporated and renamed Telia AB on July 1, 1993 (Telia AR). Telestyrelsen was given its current name, Post- och Telestyrelsen, in January 1994 when the Swedish government decided on a Postal Act and made PTS responsible for supervising and enforcing the compliance with such an Act in addition to the Telecommunications Act. Posten AB and Telia AB became organizations only responsible for providing postal and telecommunication services, and hence with no regulatory authority (PTS AR). PTS main objective is to supervise telecommunication, IT-, radio- and the postal sector so that Swedish consumers have access to effective, price-worthy communications within such areas. It does so primarily by (i) promoting and encouraging competition, (ii) promoting and encouraging effective exploitation of resources and resource allocation, (iii) protecting the consumers' interests by securing availability of safe and quality products and services within their area of responsibility (PTS AR). The Telecommunications Act ("Telelagen") became effective on July 10, 1993.

The Public Procurement Act of January 1, 1994 and the Act on Action against Improper Practice Regarding Public Procurement of July 1, 1994: As a consequence of the EEA Agreement of January 1, 1994, the Public Procurement Act ("Lagen om Offentlig Upphandling" or "LOU") and the Act on Action against Improper Practice Regarding Public Procurement became effective on January 1, 1994 and on July 1, 1994, respectively (SCA AR). These two Acts are of major importance, primarily to the construction industry where approximately 40% of the total purchase in the construction industry can be related to public procurements (Konkurrensverket, Konkurrensen i Sverige under 90-talet, p 193).

Other legislative changes: Other important legislative changes worth mentioning which became effective just prior to or during 1994 and which affected the competitive environment within the telecommunication and the construction industry on a national level, are "Lagen om byggförsäkring", "Boverkets Byggregler – BBR 94", "Boverkets Konstruktionsregler – BKR 94", and the current legislation on real estate financing the so-called "Danellsystemet", all of which came into effect on January 1, 1993 and July 1, 1993 ("Lagen om byggförsäkring").

On an international level, probably the two most important changes in the telecommunication and the construction industry affecting the competitive environment have to do with the EEA agreement of January 1, 1994 and the GATT agreement from December 1993 (the Uruguay-round).

The EEA agreement of January 1, 1994: The main objective of the EEA Agreement was to stimulate effective competition in the private and the public sectors for the benefit of consumers. It does so primarily by allowing products, services, capital and people “to move freely” within the member countries (SCA AR). E.g. organizations were able to compete on equal terms during public tenders and to incorporate subsidiaries freely within the EEA area. The EEA Agreement became effective on January 1, 1994. The EEA agreement was designed in line with the European Community’s (EC) regulations on free competition. Consequently, both the Swedish Competition Act (“Konkurrenslagen”) and the EEA agreement were designed in line with the European Community’s (EC) regulations on free competition and trade. As a consequence of the EEA Agreement, the Public Procurement Act came into force on January 1, 1994.

The General Agreement of Tariffs and Trade (GATT) Agreement of December, 1993 – The Uruguay Round and World Trade Organization (WTO): Although the new GATT agreement (the Uruguay Round) was completed in December 1993, it was not until April 1994 that it was signed by 123 countries. The GATT agreement became effective on January 1, 1995. According to the agreement, a new organization was established to come into effect on January 1, 1995. This became known as the World Trade Organization – WTO (www.wto.org, February 1, 2003). The GATT Agreement of April 1994 and the WTO have had major effects on EC/EU, EEA, SCA and PTS. Neither the GATT Agreement nor the WTO will be discussed further here. However, it is important to mention these agreements and organizations in order to understand some of the developments in both the telecommunication and the construction industry in Sweden (SCA AR).

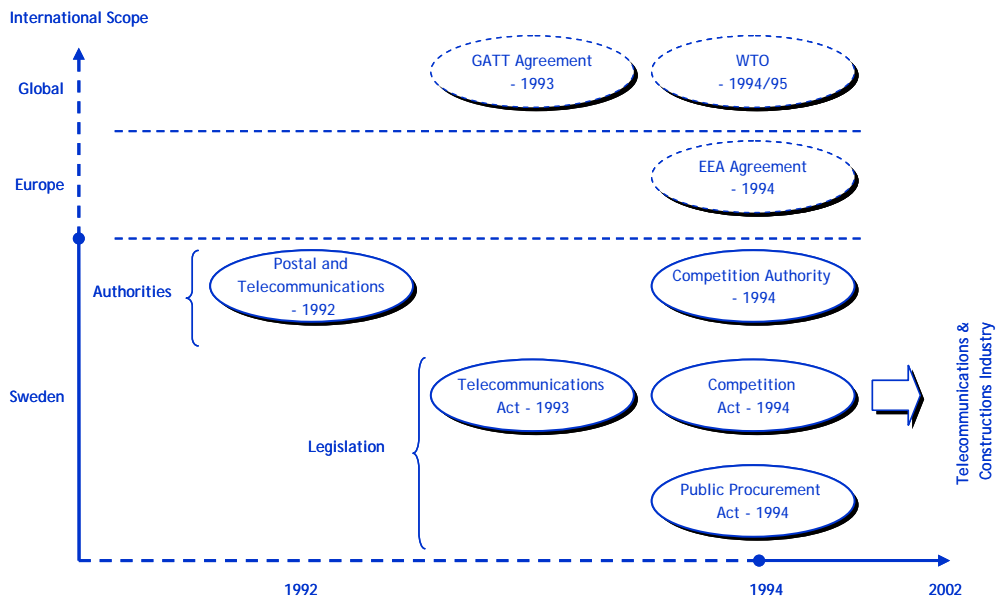


Figure 3:2 Longitudinal dimension (1994-2002) and geographical scope (Sweden)

As previously discussed, the data and systems analysis is based on a systems perspective. This means that indicators, synergies among those and the indicator effect(s) are central to analyze in order to be able to describe and understand the system.

DATA ANALYSIS: In the data analysis, I have interpreted the empirical data according to the analytical model in the frame of reference. This is done by interpreting the empirical data in terms of “bundling” and “unbundling” in three different strategic levels (industry, corporate and functional). Consequently, the analysis was conducted in a way similar to what is termed cluster analysis in quantitative research methodology. Thus, the analysis is the bridge-head between the empirical data and the theoretical frame of reference.

Reference to empirical data: The bridge-head to the empirical data was originally found as references in the “Analysis of the telecom industry” and the “Analysis of the construction industry”. Such references were marked [reference] and indicated where, in the raw data, the reader was able to find the empirical evidence that substantiated my analysis and interpretation. E.g. [2:01/001] in the analysis indicated that the empirical evidence was found in primary, qualitative data [2], as opposed to secondary, quantitative data [1], provided by the interviewee given the reference [2:01] and found in the lines of the transcribed interview market [2:01/001]. While this facilitated the verification of my interpretation, it made it virtually impossible for the reader to grasp the full meaning of the analysis. Consequently, the raw data (e.g. the transcribed interviews) and the precise references in the analysis to the raw data were excluded from this report. These can, however, be obtained through EKI at Linköpings Institute of Technology.

Reference to analytical model: The bridge-head to the theoretical frame is found as references to the frame of reference found both in the “Analysis of the telecom industry” and the “Analysis of the construction industry” (see Attachment 2).

Relationship of finality between indicators and drivers, and outcomes and results: Each interpretation identifies reciprocity between corporate strategy and industry dynamics in general, and the relationship of finality (RoF) between indicators and drivers (i&d), e.g. the content and process of corporate strategy, and the outcomes and results (o&r) e.g. industry dynamics, in particular. Here (see Attachment 2) is a description of the strategy, i.e. the intention (i.e. plan) to change or the actual change of (i.e. action) the boundaries of (corporate boundaries) and within (functional boundaries) the corporation. The “drivers” summarize the rationale for the indicator occurring, i.e. the rationale for the strategy (intended or implemented). In addition, here is a description of the effects of the indicators on the division of work as well as changes in the boundary of corporations and the industry through bundling/unbundling, vertical/horizontal integration/disintegration.

Previous interaction with the research object as a source of better understanding: With regard to the analysis and the interpretation of the empirical data, I believe it is worth mentioning my experience of working within the Information Communication Technology industry (ICT). Based in Stockholm (Sweden), São Paulo (Brazil) and Ft. Lauderdale (USA) I worked between 1994 and 2001 in different management positions in marketing/sales within Ericsson, Netcom Consultants and EDGE Mobility. My responsibilities while I was working with Ericsson included taking overall responsibility for preparing the proposal and negotiating the contract between Ericsson in Brazil and TESS (at the time Telia’s subsidiary in Brazil) for the cellular network that covered the state of São Paulo; while I was working with Netcom I had overall responsibility for preparing various proposals and negotiating various contracts between Netcom in Brazil and Ericsson as well as TESS; and while I was working with EDGE I was responsible for preparing the proposal and negotiating the contract between EDGE and Ericsson in Mexico including consulting and software for mobile internet applications. While all three companies (Ericsson, Netcom and EDGE) were within the ICT

industry, they also differed in many important ways, such as with regard to size and product areas. In a Swedish context, EDGE is considered a small company, Netcom a medium sized and Ericsson is a large company. At the time, Ericsson was primarily involved in the business of hardware, EDGE in software and Netcom in services. Conducting research on an object (both industry wise, such as the ICT industry, and corporate wise, such as Ericsson and Telia) that one has been part of (as with the ICT industry in general and Ericsson in particular) or has interacted with (like Telia) may have some positive as well as negative implications. While one may argue that it enables a greater understanding of the developments during the 1990's one may also argue that it represents a risk of being biased in the interpretation of the data. I believe that my understanding of the developments during the 1990's covers some important aspects of this thesis such as the importance of globalization, standardization, liberalization, privatization as well as technology developments in hardware and software, the dyadic relationship between smaller sub suppliers (e.g. EDGE and Netcom) and larger turn-key suppliers (e.g. Ericsson) as well as between larger turn-key suppliers (e.g. Ericsson) and operators (e.g. Telia). Another aspect concerns the importance of the developments towards bundled solutions including a greater portion of services to complement hardware and software offerings (e.g. the service offering from Netcom were sometimes bundled into the hardware and software offering from Ericsson to TESS). All these developments are likely to be important to the developments of corporate strategy from a value chain perspective. I do believe that my efforts to secure the validity and reliability of this study eliminate, to a great extent, any biased conclusions. Although I believe that the reader should judge by means of evaluating the efforts put into securing the validity and reliability of this study, it also seems to me that the positive implications are greater than any possible negative implications which might result from my previous work experience. With regard to this, I could probably agree with Immanuel Kant's (1724-1804) reflection on the importance of combining experience and abstract thinking: "Experience without thinking is blind, and thinking without experience is empty" (Wandén, 1981, p 46 with reference to Immanuel Kant, author's translation).

3.4 Validity and reliability

VALIDITY: Scientists have suggested various different terms and definitions of validity. Some differences have to do with different definitions used for the same term while others have to do with different terms used for the same definition of validity. Such differences have often to do with the methodological context, i.e. how scientists define validity is dependent on the specific research methodology that is being referred to. Churchill (1991), Lekvall and Wahlbin (1987), mostly referring to quantitative research studies, suggest content validity, construct validity and pragmatic validity. Yin (1994), on the other hand, referring to qualitative research studies, suggests construct, internal and external validity.

Content validity: Content validity focuses on the 'adequacy' with which the domain of the characteristic is captured by the 'measure' (Churchill, 1991; Lekvall, Wahlbin, 1987). Content validity can be assessed by finding relevant literature on the subject that can assist the researcher in defining the domain (e.g. in the frame of reference), detailing the definition of domain (i.e. what it is and what it is not), detailing the logical links between the frame of reference and the definition of the domain, and detailing the procedures used in detailing the domain (Churchill, 1991; Lekvall, Wahlbin, 1987). As previously discussed, this was done by developing a tentative analytical model based on the theories presented and discussed in the frame of reference as well as by developing a draft for an interview-guide based on the tentative analytical model. The extended analytical model suggested in the frame of reference has proven to be valid and useful for analyzing and understanding the change process of the content of strategy (on industry, corporate and functional level) both in the telecom and in the construction industry. For practitioners, the extended analytical model seems to be a useful

tool in the process of defining the content of strategy (i.e. strategic planning). In the chapter "conclusions" this understanding is materialized in a set of conclusions that aim at supporting the development of corporate strategy from a value chain perspective.

Content validity can be assessed through the face validity test, i.e. the perceived degree of content validity is assessed usually by asking experts in the subject matter about their perception of the adequacy with which the domain of the characteristic is captured by the measure (Churchill, 1991; Lekvall, Wahlbin, 1987). The face validity test here for this study was made by allowing researchers and practitioners to make comments and suggestions on the draft for an interview-guide. This draft discussed during two sessions with Professor Brege, Dr. Rehme and Dr. Andersson from the University of Linköping. A final draft was prepared based on their comments and suggestions. Thereafter, test interviews were conducted with Mr. Ove Bergengren, President of Scandinavian Airlines (SAS) in the Americas, Mr. Klas Lundgren, Managing Director of Alcatel in Sweden, and Mr. Lennart Apleberger, former President of NCC Teknik. Based on the test interviews and hands-on experience during such interview sessions as to the duration of the interview and the general understanding of the questions, as well as Mr. Bergengren's, Mr. Lundgren's, and Mr. Apleberger's comments and suggestions, the final interview-guide was prepared.

Construct validity: Construct validity is most directly concerned with the question of what the instrument is, in fact, measuring (Churchill, 1991; Lekvall, Wahlbin, 1987) and the establishment of correct operational measures for the concepts being studied (Yin, 1994). High or low construct validity is due to real or illusive correlation between predictor variable and the criterion variable. What makes construct validity specifically difficult to assess is that the failure of the hypothesized relationship may be due to lack of construct or incorrect theory. There are really no means of securing construct validity during the research process and hence this is the most difficult element to assess during the research process. Construct validity can be assessed on completion of the research process by several tests: the nomological validity test, convergent validity test, discriminant validity test and method variance test (Churchill, 1991; Lekvall, Wahlbin, 1987). These tests, however, are very time consuming since in essence they imply doing a second (or third) piece of research on the original research in order to assess the construct validity. Due to time constraints, none of the mentioned tests for securing construct validity were made. Another way of securing construct validity, however, is often referred to as triangulation, i.e. to use multiple source of evidence in order to encourage convergent lines of inquiry (Yin, 1994). Triangulation and the use of multiple measures of the same phenomenon has been made by using secondary data to confirm primary data, using quantitative data to confirm qualitative data, and by interviewing top managers from different industries, different corporations within the same industry as well as CEOs from same corporation but from different time periods.

Pragmatic validity: Pragmatic validity is concerned with the relationship between the predictor variable and the criterion variable when both are assessed (Churchill, 1991; Lekvall, Wahlbin, 1987). Both concurrent validity and predictive validity are different types of pragmatic validity. Predictive validity is ascertained by how well the measure predicts the criterion, be it another characteristic or a specific behavior. The only difference between concurrent validity and predictive validity is the time elapsed between the assessment of the predictor variable and the criterion variable. Concurrent validity assesses the predictor variable and the criterion variable at the same point in time whereas in predictive validity the predictor variable is assessed before the criterion variable. Pragmatic validity is relatively easy to assess. It is strictly determined by the correlation between the two measures. The researcher only needs to establish some kind of correlation coefficient between the two scores

on the measuring instrument and the criterion variable. Due to qualitative nature of this study, none of the above mentioned tests for securing pragmatic validity were made.

Internal validity: Internal validity is concerned with determining that one event led to another resulting event and being sure that some third event may not actually have caused such a result (Yin, 1994). Different ways of securing internal validity are pattern-matching, explanations-building and time-series analysis (Yin, 1994). The use of triangulation and multiple sources of evidence in this study has been one way of securing internal validity through pattern-matching. One way of securing internal validity through explanation-building is the way explanations in this study have been built on some theoretically significant propositions. It should be noted that explanation-building has been an iterative process through which case study evidence has led to the review of theoretical propositions and the re-examination of case study evidence from a new theoretical perspective. The use of a chronological study has been one way of securing internal validity through time-series analysis. In addition, to complement the initial data collection and analysis, two additional interviews were conducted in order to target specific issues related to bundled solutions as well as to verify the validity of some of the conclusions from the analysis (see sample of respondents).

External validity: External validity is concerned with the issue of determining the degree of generalization beyond the case study (Yin, 1994). In its essence, external validity can be assessed by explicating the replication logic. External validity, however, can only be proven to exist by replicating the research in a second or a third study (Yin, 1994). The replication logic in this study has been explicated primarily by describing the system under analysis and the context under which the case studies has been researched. Due to time constraints, however, no replication of this study has actually been carried out.

Probably the most important similarity in both industry cases is related to the strategic process. Both industry cases show that several different indicators provide the same very specific effect and that one indicator often provides a variety of different alternative effects. This allows for two important conclusions; one relates to the explicit subject matter of this thesis (corporate strategy from a value chain perspective) and the other to the methodological approach applied in this study. The first issue enables generalization about the change processes in general, and the strategic change process in particular. The second issue highlights the importance of using a systems approach in a longitudinal study that aims at finding the relationships of finality between indicators. Finding the relationships of finality between indicators means accepting contradictions as true descriptions of reality rather than rejecting such relationships simply because they are contradicting. Strategic research needs to accept that many different indicators can provide the same very specific effect and that one indicator can provide a variety of different alternative effects. Consequently, it is not surprisingly that it has been argued that “there is no valid generalization possible about whether bundling becomes more or less attractive as an industry evolves...” (Porter, 1985, p 432). In fact, as shown by the discussion on the functional level of strategy, as an industry evolves there is not one but several alternative generalizations with regard to bundling. Expanding time (a longitudinal study over several years) and space (expanding the scope of the system under analysis) allows for a more “objective and true” description of reality. However it also means accepting what may seem to be contradicting relationships of equifinality and multifinality. On the other hand, reducing time (by looking at a phenomenon outside its historical context and excluding the process of interrelated chain of events) and space (reducing the scope of the system under analysis or by using a few variables to explain a certain phenomenon, e.g. by analyzing corporate strategy and excluding the industry and

functional level) allows for a less “objective and true” description of reality. However this also allows finding easy to grasp explanations of reality. In general terms, however, it seems that the validity of the research methodology applied in this study is fairly high in terms of providing valid conclusions.

RELIABILITY: Reliability has to do with making it possible for another researcher to repeat the investigation and obtain the same results (Yin, 1994). Thus, two issues are of interest; how the procedures used in this study have been the documented and how any errors and biases have been eliminated. Yin (1994) suggests establishing a so-called “case study protocol”, i.e. a description of the procedures for data collection, data analysis, etc. The discussion in this chapter may be viewed as the “case study protocol”.

3.5 On the philosophy of science

I argue that scientists need to understand how science relates to the philosophy of science and how it is ruled by our contemporary paradigm of science. In other words, a scientist needs to understand how our contemporary paradigm stipulates the esoteric work of science. Thus, scientists need to have an understanding of the philosophy of science in order to be able to carry-out scientific work effectively and efficiently.

UNDERSTANDING THE PHILOSOPHY OF SCIENCE FOR EFFECTIVE AND EFFICIENT SCIENTIFIC WORK: In its essence, our contemporary paradigm of science stipulates that the esoteric work of science need to be effective (to do the right things) and efficient (to do things right). Effective scientific work is to ask legitimate questions and provide legitimate answers. Efficient scientific work is to use legitimate instruments and methodologies. A scientist that does not understand how science relates to the philosophy of science will not be able to work effectively and efficiently. Allow me to illustrate the above with two examples.

Effective scientific work: If during his/her research a scientist gets caught-up in a discussion of how one should define “science” he/she will not be able to focus on the actual scientific work, that is to say to focus on answering his/her research questions. The scientist needs to understand where to draw the line between science and the philosophy of science in order to proceed with his/her work effectively. As a consequence, a scientist also needs to understand that not everything he/she says or writes needs to be “scientifically” proved as long as it is within certain (legitimate) limits. In writing “the purpose of this study *is*...” a scientist needs to understand that there is no need to engage in a discussion on the true meaning of “is” or “to be”. This is a philosophical question and our paradigm allows us to assume that this question has been answered or does not require an answer for us to be able to proceed with our scientific work. In conclusion, in order to work effectively, a scientist needs to understand where to draw the line between science and the philosophy of science and to understand how our contemporary paradigm may assist us to do so. Accepting our contemporary scientific paradigm will assist the scientist to draw the line between science and the philosophy of science and consequently to work effectively. However, a scientist who rejects our contemporary scientific paradigm will not be able to rely on and find support in such a rejected paradigm on how to draw the line between science and the philosophy of science. Hence, a scientist rejecting our contemporary scientific paradigm will not be able to work effectively, simply because there will be no limits to what he/she needs to prove and consequently, he/she will need to engage deeply in the philosophy of science.

Efficient scientific work: Scientists need to work efficiently in order to avoid serious flaws in the scientific process. If science and the philosophy of science are confused, a researcher may not chose the most appropriate research methodology according the research questions to

be answered. It would for example be a major flaw in the research process should a scientist base his choice of research methodology/strategy (e.g. qualitative/quantitative) on his/her view of the philosophy of science (e.g. hermeneutic/positivist). To adhere, as a researcher, to any specific school within the philosophy of science does not grant the privilege to choose a research methodology independently of the research questions to be answered. The scientist needs to understand where to draw the line between science and the philosophy of science in order to work efficiently.

The philosophy of science as the “meta-language” of science: Understanding science means understanding how science relates to the philosophy of science and how it is ruled by our contemporary paradigm of science. I argue that the philosophy of science should be defined similarly to “meta-science” i.e. the science of science. Allow me to clarify that I am not particularly fond of the term “meta-science” because it implies that science is being judged on its own merits (i.e. by science). This, to contemporary scientists is absurd. I have used the term “meta-science” for illustrative purposes only. As I am about to explain, the term “meta-science” should be replaced by the “meta-language of science”. Let me provide an example of why the term “meta-science” and its absurd implication that science is to be judged by its own merits is not appropriate for defining the philosophy of science, and hence should be replaced by “meta-language of science”. A key idea, according to Chalmers (1999) of Tarski’s correspondence theory is that if we are to talk about truth for the sentences of a particular language, then we need a more general language, the “meta-language”, in which we can refer both to the sentences of the object language and to the facts to which those object language sentences are intended to correspond. One difficulty with the notion of truth is the ease with which it can lead to paradoxes. The so-called liar paradox (“If I say, I never tell the truth, then if what I have said is true then what I have said is false”, Chalmers, 1999, p 228) provides a good example of why the philosophy of science can be understood as the “meta-language” of science and used for understanding science.

Consequently, our language is not adequate for enabling us to evaluate the meaning of our language. To evaluate and understand the true meaning of the sentence “I never tell the truth”, we need a “meta-language”. The philosophy of science is the “meta-language of science”.

UNDERSTANDING SCIENCE: Science can be understood by its context, its process and its content. As discussed in greater detail below, the context of science, and its process and content are closely interrelated; the context of science is related to the paradigm surrounding scientific work; the process of science relates to instrumentation and instrumental tools and techniques, methodological prescriptions, etc. as well as the openness of scientific work; the content of science refers to the specific questions and answers science generates. The context of science can be tested against the history of science, the process can be tested through peer reviews, and the content of science tested against validity and reliability. In its essence, it seems to me that understanding the scientific context, process and content, and how these dimensions are interrelated, are a necessary and sufficient condition for understanding science.

The context of science: Let us start by grasping the idea of explaining science from a contextual perspective. Several philosophers of science believe that any theory of science should make sense of the history of science. That is, a theory on the philosophy of science needs to be tested against the historical context of science. In other words, our scientific history is the empirical data for the philosophy of science. It is claimed that scientific realism is the best explanation of the success of science and that it can be tested against the history of science and contemporary science in much the same way as scientific theories are tested

against the world. I support this idea. The precise way in which “the explanation of the success of science and that it can be tested against the history of science and contemporary science” needs to be carefully spelt out according to scientists. This is however to engage in contemporary science, applied to the philosophy of science, which leads us back to the circular line of reasoning, similar to the “liar paradox” discussed above. Although the importance of the philosophy of science is acknowledged by contemporary scientists, one needs to acknowledge the problems in discussing the philosophy of science from a scientific perspective. It is simply not relevant to apply science to the philosophy of science, or, in scientific terms, there is no validity in such discussions. It follows that the scientist cannot engage in any scientific research on the philosophy of science. Scientists simply lack the appropriate tools for conducting research on science itself.

In order to understand our contemporary view of science, one needs to understand its context in terms of the contemporary paradigm surrounding contemporary scientific work. The general concept of a paradigm originates from the Greek word “paradeigma”, which means paragon, example or model. Kuhn uses the term paradigm to describe the pattern of scientific thinking, how the research object is to be understood, which theories, methods and observations are relevant as well as how it defines the criteria for “good” science (NE). Chalmers (1999) recognizes that it is against the nature of a paradigm to be defined with precision. If one tries to give a precise and explicit characterization of some paradigm in the history of science or in contemporary science, it always turns out that some work within the paradigm violates the definition. In addition, no paradigm can be scientifically proven to be perfect, superior over another or the best available. Proponents of rival paradigms will support different sets of standards and principles within the philosophy of science. Judged by its own standards, one paradigm may be judged superior to another. The conclusion of an argument is accepted only if its premises are accepted too. Nevertheless, with reference to Kuhn (1970a), Chalmers (1999) rather than actually defining the term paradigm explains the relationship between a paradigm and the science it embraces.

“A mature science is governed by a single paradigm. The paradigm sets the standards for legitimate work within the science it governs... Instrumentation and instrumental techniques necessary for bringing the laws of the paradigm to bear on the real world will also be included in the paradigm... A further component of paradigms consists of some very general, metaphysical principles that guide work within a paradigm... All paradigms will contain some very general methodological prescriptions... Normal scientists must presuppose that a paradigm provides the means for the solution of the puzzles posed within it. A failure to solve a puzzle is seen as a failure of the scientist rather than as an inadequacy of the paradigm. Puzzles that resist solution are seen as anomalies rather than as falsifications of paradigm... Normal scientists must be uncritical of the paradigm in which they work. It is only by being so that they are able to concentrate their efforts on the detailed articulation of the paradigm and to perform the esoteric work necessary to probe nature in depth. It is the lack of disagreement over fundamentals that distinguish mature, normal science from the relatively disorganised activity of immature pre-science... the latter is characterised by total disagreement and constant debate over fundamentals, so much so that it is impossible to get down to detailed, esoteric work... By solving standard problems, performing standard experiments and eventually by doing a piece of research under a supervisor who is already a skilled practitioner within the paradigm, an aspiring scientist becomes acquainted with the methods, the techniques and the standards of that paradigm... Normal scientists work confidently within a well-defined area dictated by a paradigm. The paradigm presents them with a set of definite problems together with methods that they are confident will be adequate for the solution of the problems. If they blame the paradigm for any failure to solve a problem, they will be open to the same charges as the carpenter who blames his tools.” (Chalmers, 1999, pp. 108-112)

In conclusion, understanding the scientific context is a necessary condition, although it is not sufficient for understanding science.

The content of science: Defining science in terms of its content requires a precise definition of such content. However, since scientists cannot measure or calculate the validity of any scientific research in any absolute or relative terms, a scientist is not able to precisely define the scientific requirements of science in terms of its content. Nevertheless, I support idea that scientific content (i.e. validity and reliability) is important for defining science. Consequently, defining science in terms of its context or content may be a possible starting point even though it is not entirely unproblematic. Defining science in terms of its context or content are perspectives that a contemporary scientists cannot control. Science, I believe, can not be scientifically proven to be science if science is to be defined solely in terms of its context or content. Thus, understanding the scientific context and its content is a necessary condition, although not sufficient in itself.

The process of science: Understanding science in terms of its process, as opposed to its context and content, is appealing because of the simple fact that a scientific process can be controlled, assessed and measured, e.g. simply by agreement between scientists. Understanding science as a process is a pragmatic view on this highly philosophical question of understanding science. Scientists have a very action or process oriented view of science. Rather than discussing what science should be or how it (should) evolve (the philosophical questions) in terms of its context and content, scientists have agreed on how science is created, i.e. the scientific process. The process discussed here refers to the scientific approval process and the creation process. A process is usually defined by its input, output, the activities that transform input into output, and finally who is to have the responsibility for such activities. The scientific process is quite well elaborated in terms of how it is controlled, assessed and measured. No research is to be considered scientific (no matter its scientific content) if it does not undergo and successfully pass the scrutinizing scientific review. Nonetheless, because the review process often establishes the degree of validity and reliability it cannot be detached from the scientific content. In conclusion, understanding the scientific process is a necessary condition, although it is not sufficient in itself.

Science as the process of generating valid and reliable questions and answers: In the beginning of this section I argued that the context of science, its process and content are closely interrelated. My understanding of science is primarily based on the scientific process and its content. The scientific research process is that of generating reasonable questions and/or answers. The term “reasonable” refers to something assessable and with a fairly high degree of validity and reliability. In my understanding of scientific research, I do not appeal to “objective facts”. This is because scientific knowledge, i.e. the questions and answers generated through the scientific process, can neither be conclusively proved or disapproved with reference to “objective facts”. Even though I assume that objective facts exists, I believe that scientists are not able to grasp such facts at all times, the reason being that validity cannot be conclusively proven to exist (or not to exist), nor can validity be calculated in any objective sense. In my understanding of scientific research, I do appeal to “assessable” validity and reliability. This is in line with what some philosophers argue that the minimum criterion for an observation to be called scientific is that it is publically verifiable. Private observations can not be subjected to the scrutiny of scientific test by others (i.e. the assessment of validity and reliability). Consequently, to be assessable also means to be accessible. In my understanding of scientific research I do not appeal to observations or theories explicitly, e.g. by specifying the scientific process as one of inducing or deducing reasonable questions and/or answers from observations or theories. This is because the scientific research process includes both deductive methodology (and indeed the questions and answers may be derived from theories) as well as inductive methodology (and indeed the questions and answers may be induced from observations). Thus, both deductive and inductive research processes are implicitly assumed;

questions and answers may be derived from theories or induced from observations. Ultimately, however, I would argue that theories are induced from observations. I, therefore, support Mayo (1996) in that both deductive (theoretical) and inductive (empirical) reasoning need to be considered in defining our contemporary view of science. Mayo (1996) has attempted to capture the implications of the new experimentalism in a philosophically rigorous way. She argues that the extremes of the theory-dominated views of science have lost touch with, and cannot make sense of, one of its most distinctive components, experimentation.

I now hope that my view of the philosophy of science and how it relates to our contemporary scientific research process, and the interrelationship between the philosophy of science and our contemporary scientific paradigm has been somewhat clarified. According to Wandén (1981), there are at least two schools within the philosophy of science that fit well with our contemporary view of science, or our paradigm, empiricism (i.e. logical positivism, falsificationism and neo positivism) and rationalism (e.g. conventional rationalism and structuralistic Marxism). While the former suggests more of an inductive approach, the latter leans towards a deductive approach (Wandén, 1981). In any case, it seems that both schools support the thought that scientific knowledge is derived from the facts, i.e. with reference to my understanding of science, fairly valid and reliable questions and answers are generated through a fairly valid and reliable scientific process. Based on my previous discussion, I think that I myself have a positivistic view on our world; I believe that there is one, and only one objective reality. All three different positivistic perspectives agree that empirical data is the key for our knowledge about reality. Unlike logical positivism and in accordance with falsificationism and neo positivism, I do believe, however, that our interpretation of observations depends on our prior understanding (e.g. theories, instruments, and paradigm) of observations. I also believe that such reality can be described in a variety of different ways depending on individual and subjective perceptions. Individual and subjective perceptions can be elevated to become general and objective truths as long as such perceptions are within the confines of the ruling paradigm. This perspective is sometimes referred to as neo positivism and is represented by Thomas Kuhn for example (Wandén, 1981). Having said that I lean towards a neo positivistic perspective does not mean however that I rely on an inductive approach only, simply because we cannot always rely on our observations. Just like neo positivism, rationalists (conventional and structuralistic Marxism) stress the importance of methodological tools, processes and ruling paradigm. As in the case of structuralistic Marxism, I believe that both underlying structures and its revelations (which are possible for researchers to observe) need to be understood in order to be able to develop a theory. I also think it is possible, just as in the case of structuralistic Marxism that an idea of the underlying structures can only can be developed through logic and thinking, i.e. by interpretation of the empirical data. This is one of the reasons I believe that different schools of economics are based on different paradigms, which interpret reality in different ways. Neither of them should be understood to represent any kind of absolute truth. Although it may not be possible to theoretically or philosophically defend such a position, and to combine empiricism (in my case close to neo positivism) and rationalism (in my case close to structuralistic Marxism), in practice I do combine these two perspectives on research in using an inductive as well as a deductive approach based on the belief that there is one underlying structure that represents the truth. Is it important to conclude the discussion in this thesis by labeling my own view of science? I do not think so. I assume that it is far better to explain my understanding of science rather than just placing myself in a particular philosophical school. I hope that I have been successful in doing that.

4 SUMMARY OF EMPIRICAL CASES



INDUSTRIES are the mental model created by human beings of a group of organizations that interact. Industries exist simply because we say so, and we say so for a reason. The reason is simply to bring order to a complex reality that otherwise would be difficult, if not impossible, to explore and understand, as well as to investigate and shape. Industries, however, cannot be interviewed. The most important components of industries are the corporations that are considered to belong to the industry and that all together are considered to define the industry. Data about corporations that belong to the telecom and the construction industry are presented in this chapter. Because industries are the mental model of humans, as a researcher one should ask whether changes in an industry have happened in the “real world” or in our minds, i.e. the perception or the mental model of an industry has changed. This question, and many other similar questions, is discussed in Chapter 3 “Research Methodology” of this thesis as it relates to the research methodology applied in this study as well as my view as a researcher on the philosophy of science.

Nevertheless, I would like to briefly discuss one thing that relates to the research methodology and the philosophy of science, i.e. the “objectivity” of the contents of this chapter. My ambition has been to present the contents of this chapter as objectively as possible and, at least, free from my own assumptions, beliefs, and interpretations. I have tried to present all the data as it was originally “presented” to me, i.e. as “close” to the source as possible. Just like the figures here, based on quantitative data, are generally considered to be “objective”, the chronological cases in this document could have been put in quotations marks. This, however, eliminates only one source of subjectivity, my own. It does not necessarily guarantee that the contents are entirely objective. My sources may for instance be subjective. I have tried to deal with this by using multiple sources whenever possible in order to verify the data.

Another source of subjectivity is that I have been forced to compile huge amounts of data in order to be able to present coherent cases that together provide the relevant information I need for further analysis. This in turn presents two additional sources for subjectivity. One is that that I, as a researcher, need to make some assumptions in order to be able to “glue” the huge amounts of data together, turning the data into coherent cases that you, as a reader, can read, understand and possibly find interesting. To a researcher, this presents a difficult dilemma. More objectivity means less “glue” and a lesser degree of readability and, most likely, a lesser degree of comprehension for the entire case on the part of the reader, and vice versa. In addition, the data and the cases become, most certainly, dull and less interesting to read. As the reader may notice, I have opted for a more objective approach, with less “glue”. This means that you as a reader may have to look for the “beauty” of the data elsewhere than in the interesting cases. I myself find the cases interesting only by knowing that they are as true to reality as they possible can be.

The second source of subjectivity relates to the selection of all the data that has been available to me. I believe it is worth pointing out that the empirical data summarizes the combined actions of some 200,000 people over a time period spanning eight years. The events described here, thus, total approximately 1.6 million man-years. The 1.6 million man-years are described in the 139,500 words of the empirical data. This means that each man-year is described in approximately 0.087 words. Imagine writing a “diary” using one single word to describe the events of every 11.5 years of your life (or to use seven words to summarize your entire life of 80 years)! Of course you would have to be careful in selecting that single word. In order to enable the reader to understand the focus of the data presented (the single word I have picked to describe every 11.5 man-years), i.e. how the data presented has been selected

from the enormous amounts of data available, and what it is trying to illustrate, I will give a brief presentation of my a priori assumptions in terms of defining and describing driving forces and the rationale for strategic change.

Describing corporate strategy as changing the boundary of the corporation and the division of work at the industry level: The empirical data here describes how the “division of work” and the “boundary of the corporation” has developed within industries over time, i.e. 1994-2002. The collected data presented here was based on my assumption that several industries were dividing into operators, systems suppliers, and what is termed first, second, and third tier suppliers. For this reason, three steps have been included in the value chain. A second assumption on my part, included a trend towards specialization (e.g. companies striving to focus on their core competence by outsourcing) and a vertical/horizontal integration of a number of value-adding activities (e.g. through M&As and increased collaboration between companies in order to be able to offer complete system solutions). A third assumption was that specialization and integration required adaptation both at industry and at corporate level. A fourth assumption was that strategic change at industry level required one or more companies to coordinate consciously or unconsciously the process of change among the companies in the industry. From a product perspective, this insight has existed for example in companies delegating some coordination to collective standardizing organizations or bodies. This in turn has enabled modularized, open, and standardized product and systems architectures. There thus exists a clear “product logic” for many companies within an industry. I assumed, however, that similar efforts are not being invested in the creation of a new common “business logic,” which has had negative consequences for individual companies and industries. Outsourcing has not achieved the expected cost savings and the sale of system solutions has not generated the expected increase in revenues. In other words, added cost has exceeded added value. Similarly, it has been difficult for many companies to implement a new “business logic” in practice, a business logic in which risk sharing and profit sharing most certainly would have been natural components. Most of the data here focuses on enabling further investigation with regard to the assumptions described above. These a priori assumptions are further described in Chapter 1 “Background and Purpose” and Chapter 3 “Research Methodology”.

Describing driving forces for strategic change: The empirical data describes how major decision makers explain the rationale and the driving forces for corporate strategy and changes in the division of work within industries. The collected data presented here was based on my assumption that a successful corporate strategy which also involves a new business logic at the industry level, requires an understanding of strategic content and the process of change at both firm and industry level. By analogy with “product logic,” I assumed that strategic change involving specialization and integration at the industry level requires a good understanding of how the process of change should be driven and coordinated at this particular level. Keywords in the process of strategic change were, I believed, pace (i.e. at what rate the process of change takes place or should take place in order for all actors in the value chain to keep pace), sequencing (i.e. in what order the process of change takes place or should take place), and coordination (i.e. which company or companies coordinate(s) or should coordinate the process of change). A second assumption was that today’s leading companies (or future leading companies) are those (or will be those) that have created and will be able to create a position that allows them to drive and coordinate strategic change at the industry level and thereby implement innovations in terms of product logic, process logic and, perhaps most importantly, business logic. These companies understand the inertia of

their own industry as well as its existing structure and adapt the pace and sequencing of strategic change accordingly.

The empirical data in this chapter describes (i) corporate strategy as changing the boundary of the corporation and the division of work at the industry level and (ii) the driving forces for such strategic change. The descriptions refer to the telecommunication and the construction industry. The data should allow for a further analysis of similarities and differences between the industries. The a priori assumptions which led to the selection of these two industries are further described in Chapter 3 “Research Methodology”.

4.1 Telecom industry 1994-2001

Between 1994 and 2002 growth in the cellular segment of the telecom industry was extraordinary. World-wide, the cellular segment experienced almost a 2,000% increase in number of cellular subscribers, from approximately a total of 55 million in 1994 to 1,155 million subscribers in 2002. Growth in the fixed segment of the telecom industry was strong over the period 1994-2002. From 1994 to 2002 the number of fixed subscribers almost doubled, from approximately 650 million to almost 1,130 million subscribers (see Figure 4:1).

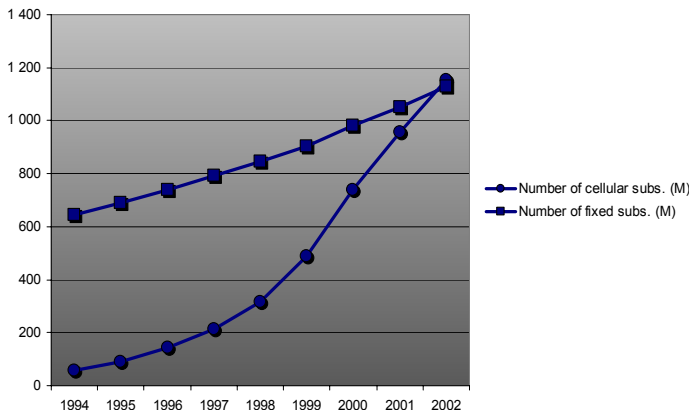


Figure 4:1 Global subscriber-base by type of service 1994-2002 (source: ITU)

By 2002, an estimated 400 million mobile phones were being sold annually, almost 18 times as many as in 1994 on an annual basis (see Figure 4:2). Growth, however, stagnated in 2000-2001. In 2001, for the first time in the history of cellular telephony, the number of mobile phones sold during a calendar year declined.

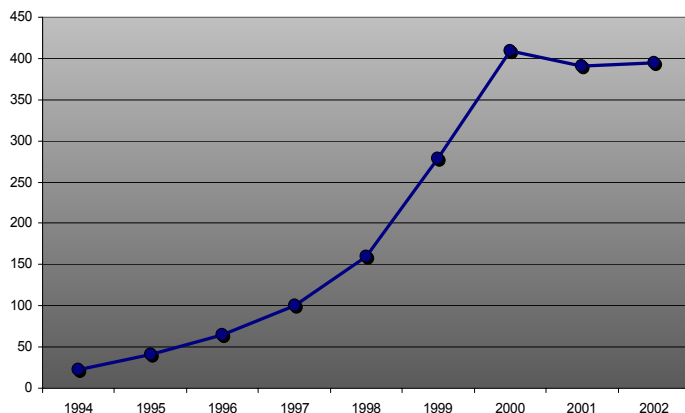


Figure 4:2 Global sales of cellular phones 1994-2002 (source: Ericsson)

The equipment segment, i.e. primarily the segment of system suppliers including corporations such as Ericsson, did not show the same dramatic global growth as did the service segment, primarily the operator's segment. Global turn-over in equipment and services doubled from USD 675 billion to USD 1,300 billion (see Figure 4:3). Considering the staggering growth in the number of subscribers in general and cellular subscribers in particular, the growth in turn-over indicates towards a strong price pressure for services and equipments globally.

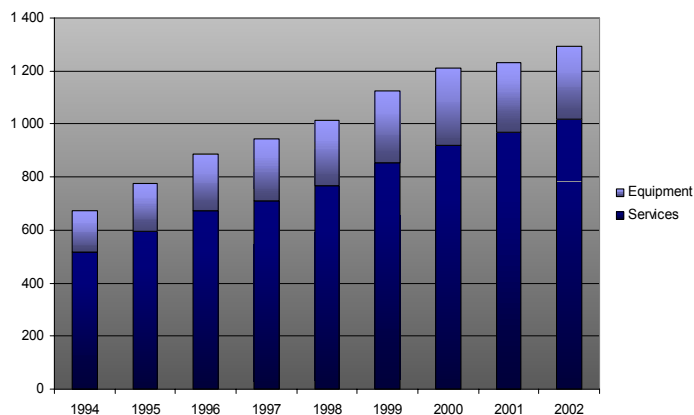


Figure 4:3 Global turn-over (BUSD) by services and equipment 1994-2002 (source: ITU)

Not surprisingly, growth in the turn-over of equipment and services referred primarily to the cellular segment both for system suppliers and operators (see Figure 4:4).

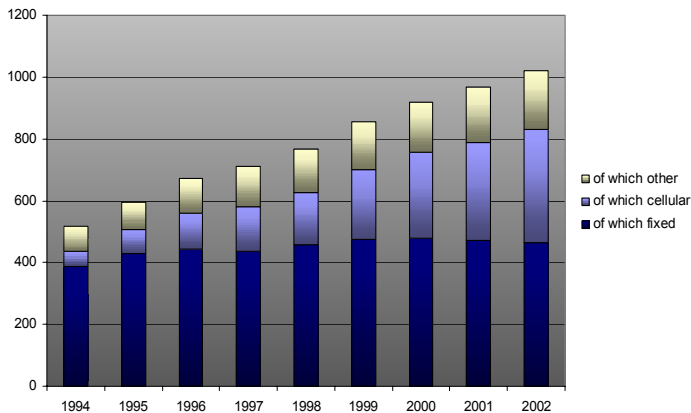


Figure 4:4 Global turn-over (BUSD) by type of equipment 1994-2002 (source: ITU)

From a national perspective, the Swedish telecom industry developed in a way which was very similar to the global market. In Sweden, the cellular segment increased from approximately 1.4 million subscribers in 1994 to 7.2 million subscribers in 2001 (see Figure 4:5). Three cellular operators held a nationwide cellular license and operated their own cellular system in Sweden, i.e. Telia, Comviq and Europolitan.

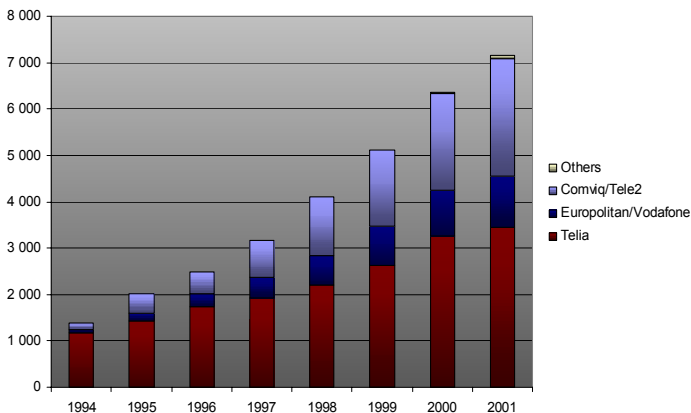


Figure 4:5 Subscribers by cellular operator and service provider (x 1,000) 1994-2002 (source: PTS)

In monetary terms, from 1994-2001 the Swedish telecom market almost doubled in size. In 1994 the telecom service segment turned-over almost SEK 24 billion. By 2001 this figure had increased to almost SEK 44 billion (see Figure 4:6).

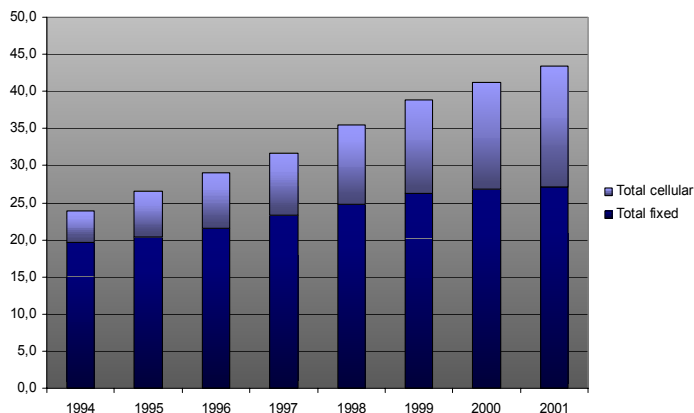


Figure 4:6 Turn-over by service (BSEK) in Swedish telecom industry 1994-2002 (source: PTS, Telia)

Since 1994, Swedish telecom industry had contributed to a larger portion of Swedish GNP indicating that the industry had in fact been capturing market share from other industries. In 1994 turn-over in the telecom service segment totaled 1.5% of GNP. By 2001 this figure had increased to almost 2.0%.

“[An] important development has been that this industry has been able to capture money from other industries... Young people today take the money that they used to spend on clothing and spend it on mobile telephony and different types of service applications... We have only seen the beginning of this...Japan is at the forefront in this respect [Jan Wäreby, VP Sony Ericsson]...”

The most important factors that contributed to the strong growth in cellular communications were falling prices for air time as well as for mobile phones (Telia AR). The lower price was the result of increased competition due to liberalization and privatization. A successful standardization process of technology, not the least in Europe through GSM and WCDMA, enabled economies of scale and contributed also to lower prices (Magnus Tannfelt, Vice President, Allgon; Kurt Hellström, CEO Ericsson).

The telecommunication market in Sweden, both the private end-user segment, and the corporate segment, had attracted many competitors from around the world. The reasons many operators and service providers established themselves in the Swedish market were the high standard of living (e.g. education and spending power), a well developed infrastructure, and a high degree of “technology usage” (counted in penetration of PCs, fixed and mobile subscriptions, etc.). In addition, in Sweden the corporate segment was highly attractive because Swedish industry had many multinational corporations (such as within the pharmaceutical, automotive and aviation industry) that needed to communicate between subsidiaries around the world. The number of fixed and cellular operators and service providers in Sweden increased from a total of 14 in 1994 to 408 in 2001 (see Figure 4:7).

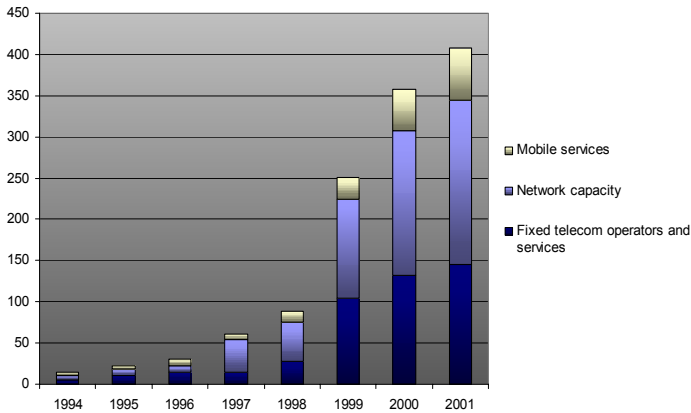


Figure 4:7 Number of operators and service providers in Sweden 1994-2002 (source: STELACON, PWC, PTS)

As competition in Sweden increased, primarily in the long distance traffic segment, prices began to fall (see Figure 4:8).

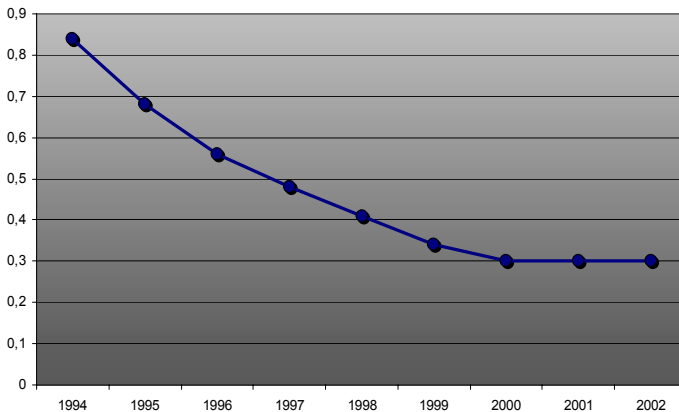


Figure 4:8 Price per minute (SEK in long distance call) 1994-2002 (source: PTS)

With regard to liberalization, a revised Telecommunications Act became effective in 1997. The revised Telecommunications Act meant that the special agreement between Telia and the Swedish government was terminated and that the telecommunication industry was to be regulated only through licensing and legislation (Kenneth Karlberg, Vice President, Telia). Thus, one could argue that the Swedish telecom industry was liberalized in 1997.

Between 1995 and 1998 the telecom industry experienced several trends that affected the competitive landscape. From an institutional perspective, liberalization continued on a global scale. 1998 was the year when most of the EU countries deregulated their fixed telecommunication markets. In Sweden PTS' authority had been limited to dispute mediation between operators. In 1998, however, the Telecommunications Act was amended allowing PTS to rule on disputes between operators. The Radio Communications Act was revised so that PTS, on completion of a bidding process, would grant licenses (PTS AR; Kenneth Karlberg, Vice President, Telia). From an industry perspective a global trend emerged among operators to create mega alliances in joint ventures for fixed telecommunication and Internet

access, e.g. Unisource/Uniworld/WorldPartners (including Telia and AT&T), GlobalOne (including France Telecom and Sprint), and Concert (including British Telecom and MCI) (Telia AR). In addition, in order to meet the increasing competition and to become more cost effective, transferring traffic to IP-based solutions emerged as an important issue for operators. It was expected that the development would be similar to the subscriber migration from analog to digital telephony. Not surprisingly, industry players in the computer and datacom industry, such as Microsoft and Cisco, began to increasingly penetrate the traditional domains of the telecom industry. Globally, a great variety of different analog and digital standards for mobile communications had been developed and deployed and still, new ones were under development. New cellular systems standards continued to be introduced to the market, e.g. CDMA/IS-95 (primarily in the US) and PHS 1900 (Japan). In Europe, however, the standardization process was successful. In 1998, an international agreement was reached within ETSI with regard to the standard for the third generation mobile system, 3G. The standard air interface agreed upon was referred to WCDMA, a technology supported by e.g. Ericsson (Kurt Hellström, CEO Ericsson). Another increasing trend became outsourcing. Corporate customers outsourced e.g. O&M of their business telecommunication network to operators, turn-key suppliers and CEMs (e.g. Flextronics), operators outsourced e.g. network construction services to turn-key suppliers and CEMs, and turn-key suppliers outsourced e.g. manufacturing to CEMs.

“A growing business is what we call “management services”...our customer sometimes ask us to take over their communications network...equipment, personnel...everything...an outsourcing solution... this creates opportunities both for our consulting business as well as our systems integrator business...it enables us to learn and understand our customer better and secure future deliveries within our core business [Kennet Rådne, VP Telia]...”

“If we compare the telecom industry and the computer and data industry for a moment... we [the telecom industry] used to be very vertically integrated...I think we'll soon be no longer... so what happened, the systems integrators emerged... Ericsson used to do everything themselves...then Ericsson outsourced manufacturing to Flextronics and others...they are becoming more and more a systems integrator... An interesting company is Flextronics...they started out by taking over some of Ericsson's outsourcing...then we outsourced to them...installation...maintenance...and spare parts handling...in addition Flextronics sometimes work for corporate end users...in other words today Flextronics range over a big chunk of the value chain...they are becoming a major player although the customer never sees their brand...This is a good example of how the value chain is being sliced in several horizontal layers [Kennet Rådne, VP Telia]...”

“We have been criticized for outsourcing our customer care...but customer care can mean different things...if you mean the responsibility for delivering quality customer care services we have never outsourced it...on the other hand if you mean hands on, picking up the phone and answering the customer...yes we have and still do... I really don't care who does the job...however I would never allow letting go of control, we must be able to decide quality standards and so on... The line goes where you can differentiate yourself... You may buy or sell according to a technical specification or a functional specification...and this goes for outsourcing...what you need to consider is the impact on your ability to differentiate... A simple rule is...if somebody else can do it better let him do it... In the uncomfortable situation when you need to be good at something and are not...the solution is not outsourcing...you have to improve... Outsourcing doesn't mean that things get automatically cheaper...but you may on occasions achieve a higher degree of flexibility... Before you outsource it's important to understand how the company that you are outsourcing to will be able to bring down your cost and still make a profit... One example is if you have a small organization that is outsourced to a much bigger one, then you can buy it back on the margin so to speak [Kenneth Karlberg, VP Telia]...”

“During 2000 and 2001 we outsourced installation and maintenance to Flextronics and Swedia Networks... Swedia Networks by selling the company ...a market [installation and maintenance] with no competition...we didn't expect this solution to be instantly cheaper...in this case we had a long-term perspective, we wanted to encourage the creation of such a market... Overtime we expect to see a

competitive market and to buy at a much lower price... Although Ericsson offer these kind of services we thought that by contracting Ericsson we wouldn't achieve the market structure we were looking for...a competitive market place... To achieve our goal will take time...no outsourcing company is prepared to buy, like in our case, your maintenance department unless you commit to buy their services for a certain time period...this means that we are still contractually bound to these outsourcing companies... When it comes to installations services...in the Swedish market today we have two big players, Swedia and Bravida...so I would say we have succeeded [Kenneth Karlberg, VP Telia]..."

"When it comes to outsourcing maintenance activities this followed our general outsourcing strategy, we don't let go of control...we draw the line at the operations and maintenance center...when we started to build the GSM system in 1990...services where launched in '91...at that time...competition was all about coverage, everybody promoted their coverage...did we share infrastructure, sites, towers, radio base stations...no...did we share maintenance resources...no...why, because competitive advantage was build on this [coverage] at the time...we needed to have control over these matters...this was important and decisive... If you look at today's GSM networks and futures 3G systems...coverage provides no competitive advantage...everybody knows that we have the best coverage...some other players have lousy coverage...still competition is fierce...this means that these are the areas [e.g. to increase coverage by acquiring and constructing sites, install equipment] that are potentially open for cooperation...in order to bring down costs...or outsourcing... When it comes to fixed networks and its maintenance...everybody uses Telia's back-bone network...by default, this [the maintenance of the backbone network] will never provide a competitive advantage...as a consequence these activities have a potential for being outsourced... In the future I believe that an operator won't be responsible for monitoring the network, however you will have to carefully be able to monitor the services you provide to the end user...this is what matters...your source of competitiveness... We need to put emphasis on functionality and service quality rather than network performance...although they are interrelated... A good example of this logic and that things have changed over time is that we had a big discussion not long ago within Telia... I personally think that it makes perfect sense to outsource installation services of fixed telephone networks and not of mobile cellular systems...once again it all depends on where your source of competitive advantage can be found... This actually happened a couple of years ago...we outsourced installation and maintenance services of our fixed network...at that time we were in a critical face of installing and launching dual band service's...we choose not to outsource installations at that time [of the dual band cellular system]...two years later we outsourced it [Kenneth Karlberg, VP Telia]..."

Between 1999 and 2001 the above mentioned trends intensified. Outsourcing activities on behalf of operators increased including network construction, O&M, and network planning activities. Standardization work continued on a global scale. ITU established WCDMA as the standard for 3G cellular systems under the name IMT 2000 Direct Spread. Also ARIB, the Japanese standardization body, adopted WCDMA as the standard for 3G. The decision within ITU, ETSI and ARIB led to the formation of a global standardization organization 3GPP in order to focus on the details of the 3G standard. In Finland, the world's first UMTS licenses were awarded by the Finnish PTT (PTS AR). Rather than creating joint venture companies and mega alliances, operators began to engage in major M&As. A number of "mega operators" were created as a result of major M&As. The mobile operators Vodafone and Airtouch merged in 1999. In October the same year, the largest merger in the history of telecommunication thus far took place when MCI WorldCom acquired Sprint for USD 129 billion (Ericsson AR; Kenneth Karlberg, Vice President, Telia).

"During this period [1994 and onwards] you have seen a pretty strong consolidation among the operators...it has been a brutal development... In principle, in 1994 you only had national operators...a few were being privatized...like Vodafone...they had just begun at the time...well...actually most of the operators that are big today were small and had just begun at that time... If you look at the suppliers, there were a number of national players [around 1994]...like Ericsson and Televerket...they existed in every country...but many of those have disappeared, they have been merged, have been eaten-up or closed down... Today, if you consider the ten largest operators they have a substantial portion of the global market...and on the supplier side it's the same thing...there you only need to consider some five major players [Jan Wäreby, VP Sony Ericsson]..."

“I don’t hesitate to say that since 1994 we see a greater concentration in this industry due to mergers and acquisitions...and this will probably continue...from smaller suppliers to the big ones, like our customers...cost is probably the most important factor driving this development...this is a global business and if you are too small you don’t have the strength to compete on a global scale... economies of scale in R&D and manufacturing has become increasingly important [Magnus Tannfelt, VP Allgon].”

In Sweden, regulations were established to increase competition even further. Operators were required to offer “förval” and “number portability” to all fixed and cellular subscribers. “Number portability” meant that a fixed subscriber was able to keep his/her telephone number as he/she switched operator or service provider. “Förval” meant that a subscriber was able to actively choose a service provider for long distance calls (national and international) without having to dial a prefix. In addition, cellular operators were required to make available, on reasonable commercial terms, excess capacity to any other operator and service providers if so requested (Kenneth Karlberg, Vice President, Telia).

“Number portability didn’t have any major impact on our business...few customers left us because of this... When we got regulations that forced us to make available our network to our competitors...of course this influenced our business...more with regard to how we conducted business, our business model [whole sales vs. retailer]...rather than in terms of profitability...what we lost in one end we got back in the other...so to speak [Kennet Rådne, VP Telia].”

Some new trends emerged with regard to mobile data and the merger between the telecom and datacom industries. Mobile data services continued to increase. An example of the increasing demand for mobile data was the increasing demand for SMS. Up to 10% of an operator’s total revenues were generated from SMS services (Allgon AR). In January 2000, an estimated of 4 billion short messages were sent on a global basis. End-of-year this figure had increased to more than 30 billion messages per month (Ericsson AR). In Sweden, a similar development took place (see Figure 4:9).

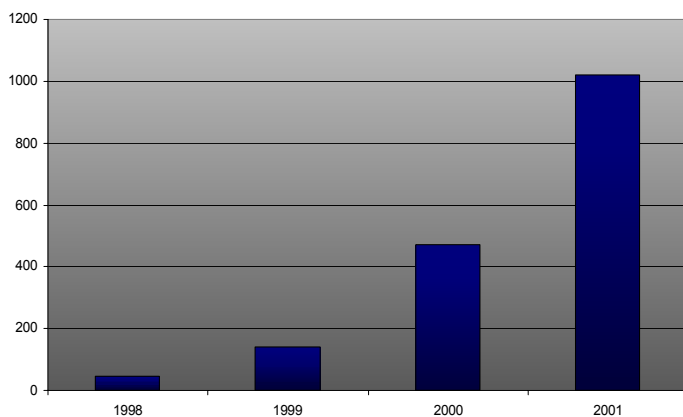


Figure 4:9 SMS messages in Sweden (x 1,000,000) 1998-2001 (source: PTS)

“Another interesting development is when we...the telecommunication industry meet the IT industry... it’s pretty obvious that these two industries have met... if this was implemented [IP telephony over LAN] the one that is responsible for operating the LAN will also be responsible for the telephony service... What has happened is that the so-called “service creation” part of a telecom network...a part that has been traditionally integrated within the telecommunication switch...has been put in a separate platform...a computer platform...this means that the computer and data industry has been able to drive this fourth dimension of telecommunication...applications, added value services, intelligent services...and so on... I don’t know if one should understand this as if the telecom industry is merging with the data industry or expanding its domain... [Kennet Rådne, VP Telia]”

“When we are requested to take responsibility for “networking” [in an outsourcing solution]...including LANs, PABXs and so on...I understand that the convergence between IT and telephony is no longer something that we discuss on an abstract level within the industry...it’s happening because the end-users...our customers...are requesting this to happen...convergence is customer driven...technology is only an enabler... As a consultant and systems integrator we also make sure we are able to compete with the datacommunications companies...we take care of the end-user and use these companies [datacommunications companies] as suppliers, not the other way around... Looking at the “network” rather than the “computer room” as the center of communications makes a big difference in our ability to compete... I think we will see more and more service and software applications [computer and telecom] become available at the network level and not like today in every single computer...look at the telecom industry...you used to have an answering machine in your home...now this service is available at the network level...why shouldn’t computer applications be available at the network level...if we manage to change this mentality we will be in a very interesting position...in this scenario, telecommunication become far more important than computers...who can operate large telecom networks and guarantee end-to-end services...the operators...of course [Kennet Rådne, VP Telia]...”

“If you look at the GSM World Conference some 15 to 20 years ago you had around 75 operators...not even that...and a few suppliers...Ericsson, Nokia...around 150 people participated...this was the industry...that was it...the industry was vertically integrated...we cooperated, discussed...everybody could meet and talk to each-other...today on the GSM World Conference you have between 25 to 30,000 participants...there are relatively few operator in this crowd...they are even hard to find...there are many other types of companies [e.g. datacom]...new players...it’s not that easy anymore to discuss and agree on what to do...the complexity is much higher...there are many more services...services are more complex...and everybody wants in [Kenneth Karlberg, VP Telia]...”

“[An] important aspect is...the functionality of the phone...to offer different frequency bands and new services, like data services, image...and so on...this has a great impact on us...many new phones have FM radio...so we need an antenna that is able to receive FM radio...GPS is coming...blue tooth...and many other features that require new antenna solutions [Magnus Tannfelt, VP Allgon]...”

Both messaging and imaging applications were now supported by a new standard, Multimedia Messaging Services (MMS). MMS was expected to drive the early demand for GPRS and 3G (Kenneth Karlberg, Vice President, Telia). Mobile data, GPRS and 3G (packed-switched networks) gave rise to a new business logic. In the short-term, operators would charge the end-user based on actual data transfer rather than based on the airtime, i.e. the time the end-user accesses the network (circuit switched networks). Eventually in the long-term, however, end-users would be offered free access to the telecommunication network and only be charged for content and added value services (Ericsson AR).

“All pricing...towards end-end user, between operators...is built on one single unit...seconds...now when data services are getting more important...seconds as a pricing unit doesn’t work...we need to implement other units for relevant charging...the industry needs to agree on what we should be charging for and how...these questions are related to a new business models [what to charge] and technology [how to charge]...if we are to offer seamless international communications...roaming...it’s quite obvious that the industry needs to have a common view on what we should be charging...you can’t have one [operator] that is charging based on “time”...another based on “kbit” and a third based on...something else...this has to do both with the technology and the commercial issue [Kenneth Karlberg, VP Telia]...”

Convergent technologies, and applications, e.g. broad band communications over the power network, so-called Power Line Communication (PLC), Software Defined Radio (SDR) through which a radio transmitter/receiver could be changed to handle different applications, e.g. TV, radio, telecommunication, etc. only through a different software downloads, made it difficult for PTS to exercise its authority under the Telecommunications Act. On completion of the “e-komutredningen”, PTS submitted suggestions to the Swedish Government on how the Telecommunications Act and the Radio Communications Act could be replaced by a new Digital Communications Act (Kenneth Karlberg, Vice President, Telia).

By 2001, growth in fixed and cellular telecommunication stagnated. It became obvious in the wireline segment that optical backbone networks had been built at a rate that had created excess capacity (Ericsson AR). The wireline area continued to evolve from circuit-based networks to packet-based multimedia networks, as did the convergence of telephony, data, video and media (Ericsson AR; Kurt Hellström, CEO Ericsson). The cellular market was becoming equally saturated and operators began to cut subsidies on mobile phones, reducing the growth rate of new subscribers and slowing down replacements. The main objective for operators increasingly became to keep current customers and to avoid churn, i.e. that subscribers left for another operator or service provider. In addition, operators awaited the licensing process for the third generation of mobile systems. Consequently, operator's investments in equipment, including radio base station equipment and traditional microwave equipment, decreased. In 2000, four UMTS licenses were granted by PTS, to Europolitan, Tele2, Orange and Hi3G. In 2002 PTS received only one application, by SweFour, for the fourth nation-wide GSM license.

"In Sweden everybody was surprised when we didn't get a 3G license, not only Telia...everybody assumed that we were going to win a license...and to some extent...they expected to benefit from Telia winning a license...should we have won a license we had to offer national roaming, allowing for instance Hutchinson to enter the market quickly...traditionally we have also been responsible for getting the site permits from the all the municipalities...now we had no reason to get engaged in this process...so when Swedish municipalities began to call Orange they always ended up with a French speaking person in Paris...that's not how the municipality of "Eslöv" is used to work...we have been the ones that have taken initiatives in order to coordinate things...even Vodafone and Tele2 are used to see us taking a number of initiatives that benefit us all...now there was no one to take this responsibility...this of course slowed down the entire process... We got the agreement fairly quickly [with Tele2]...we were notified on December 16, 2000 [that Telia was not awarded a license] and during the Christmas and new years holidays we signed the deal with Tele2...but we still needed approval from PTS and the Swedish Competition Authority...the Competition Authority took at least a year to notify us...during that year we couldn't take actions... For reasons that I mentioned earlier...this probably delayed the entire process across the industry and the roll-out of 3G...everything would have been quite different if we had been part of the process from the very beginning...we would have solved many issues...as we have always done...the reason why this "unbelievable"... "unbelievable" from an outside observer...agreement between Tele2 and Telia was that we had something that they didn't...money...or at least, the means to get the money that was required...and they of course had something we didn't have...a license...naturally these to match each-other perfectly...you need both in order to build a network...of course the corporate cultures are different within Telia, Tele2 and Vodafone...but...most of us know each-other on a personal level...some of the thing you read in media are exaggerated and of course we all need to play our roles [Kenneth Karlberg, VP Telia]."

4.2 Telia

Telia (previously Telegrafverket and Televerket) was established in 1853 as a telecommunication company, developing and manufacturing telecommunication equipment as well as providing telecommunication services. In 1881 Telia began its telephony operations in Stockholm. In 1981 the NMT cellular system was put in operations. In 1993 Televerket (i.e. the Swedish Telecommunications Administration) was incorporated into Telia AB and all exercise of public authority was transferred to the Swedish National Post and Telecom Agency (PTS). In 2000 Telia was listed on the Stockholm Stock Exchange. The Telia B-share is quoted in the A-list of the Stockholm Stock Exchange.

"...when we were introduced on the stock market...during the first half of 2000...future ventures, research developments...all this needed to be visible...and this was one way of showing where we were going [by having a stake in a number of development companies]...of course when the stock market went down and...and focus became on...having no R&D at all...of course this affected our strategy in this respect...to some degree... Considering the shareholder value perspective...at the time your stock price

went up if you focused on R&D, acquisitions and so on...today “less is more”...your stock price go up if you cut R&D expenditure, outsource...this in combination with...we began to think that partnering, cooperation was a better solution...the way the industry looks today...our old strategy would mean that we would have to have an “infinite” number of small shareholdings...we realized that the world that we lived in was much bigger...many more players were involved...and we recognized that we needed more flexibility...sometimes it even became problematic to have a shareholding in a particular company...you “automatically” excluded the possibility to cooperate with some other companies... From an outside perspective...the shareholder value that we create is very important...and if corporate management are looking for a comfortable life...I understand we need to focus on this [to create shareholder value] to some extent...It’s reasonable to say that we have moved towards a shareholder value perspective since we were floated on the stock market...of course... From an inside perspective on the other hand the world looks quite different...there are so many things you need to consider...I think that there are things that we have done, development-wise, that would not have been possible as a company listed on the stock exchange market...some things need a longer time perspective...time perspective now is in general 3 months...long-term development plans are hard to fit in this...but of course...market capitalization is extremely important...I agree...the operative staff should be more focused on creating value for customers and competitiveness...top management and the board need to communicate and satisfy the shareholders [Kenneth Karlberg, VP Telia]...”

During the 90’s Telia’s strategic focus included divesting its manufacturing facilities and thereby becoming a pure operator and service provider, to expand globally, offer complete solution or “one-stop-shopping”, integrate forward, develop an effective marketing organization, broaden its distribution channels, and to differentiate through service quality and customer support. Telia internationalized most rapidly during the mid/end of the 90’s as shown by the increasing percentage of foreign sales of total net sales (see Figure 4:10).

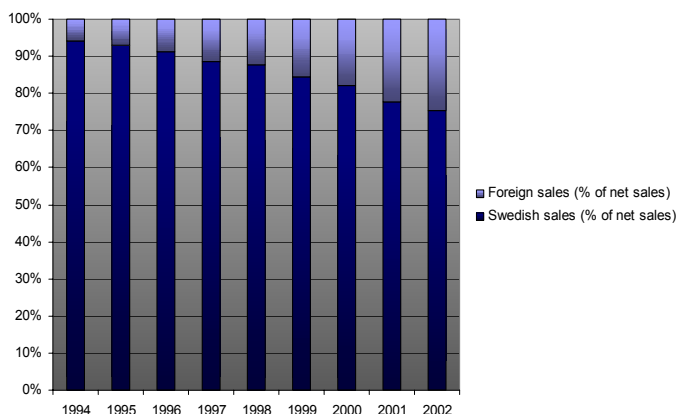


Figure 4:10 Telia domestic and foreign sales of total sales (source: Telia)

“The telecom industry has had its shifts in terms of what people in general thought to be a successful strategy...particularly when it came to internationalization and acquisitions...today we are much more focused on industrial investment rather than financial investments...in an industrial investment we consolidate the business we acquire or the market we enter...with the entire group...in a financial investment we usually tried to acquire a specific technology or simply tried to make money... A good example is...last year we acquired Powercom in Denmark...the rationale was to get better coverage in one of our home markets...back-bone as well as access and IP telephony...on the other hand Eircom and Eircell were two financial investments that we made in Ireland...we don’t consider Ireland as a home market...so these two companies were sold last year [Kennet Rådne, VP Telia]...”

“...after a while one could argue that we hadn’t been focused with regard to our international expansion...like one financial analyst once said...“if you look at a map and think about Telia’s international foot-print, it looks like somebody spit in headwind“... it looked a bit straggly, I agree...some markets didn’t develop as we had expected...like in Brazil...but this was due to developments in the

country...then we came closer to the listing in the Stockholm Stock Exchange...we needed to show a clear strategy and to communicate where we were going to invest our money...international expansions are costly...and difficult...we needed to focus...also some on the foreign investments were financial not industrial...the difference, as I see it, is that when you make a financial investment you should have a clear exit strategy, know exactly when to harvest and how ...so we decided to bring the money back home and focus... Our Nordic strategy was based on our international experience in general...we came to the conclusion that...as Swedes we should be doing business in markets that we know reasonably well...it's hard to send Swedes over to Brazil and do business, we don't really understand the culture...the same goes for Africa, Sri Lanka, Asia [Kenneth Karlberg, VP Telia]."

Telia's main competitors in the Swedish market were Comviq and Europolitan. By the mid 1990's Telia was already expecting multimedia communications services to increase. Telia believed that it was well prepared for developing such services by integrating its know-how and capabilities from various different parts of the organization, e.g. mobile and fixed telephony, Cable-TV, TeleMedia, etc. Consequently, during the end of the 1990's Telia's strategic focus included augmenting its product strategy by including multimedia and information services, i.e. creating information (through various types of data compilation), storing, transmitting and presenting such information, in addition to its traditional business as an operator.

"What characterized this period during -98 and -99, but also in 2000...is that all ideas were worth trying...Today we need to look if they are economically feasible...at profitability...if there is a market... These dimensions were not that important during the end of the 90's...it was an exiting time...very creative, visionary...Of course there were some people like me that said that this will take a while...there are no killer applications to be found, they already exist...one is voice and the other one is mobility...but it was like shouting in a desert... We don't lack services...we have an enormous amount of different services...the key is packaging and presenting these services in an attractive and profitable manner...there we have the challenge [Kenneth Karlberg, VP Telia]."

Telia's augmented multimedia product strategy suggested that Telia was to act as an information broker (Kenneth Karlberg, Vice President, Telia). For such purposes Telia began to look for partners in the datacom industry and to invest venture capital in small companies with a growth potential in the telecommunication based multimedia industry. As in 2000 Telia became listed on the Stockholm Stock Exchange and came under pressure from the capital market, the search for cooperative ventures turned into an active search for investment opportunities through acquisitions and equity shareholdings. In 1998 Telia began to acquire substantial amounts of equity interests in tele- and data communications companies with strong positions in R&D or marketing. Additional rationales for such acquisitions were to share and reduce business risk and to create technologies that could be broadly accepted within the industry, thereby creating "de facto" standards (Kenneth Karlberg, Vice President, Telia). This strategy can be detected in the negative cash-flow (i.e. investments) in shares and participations between 1999 and 2000 (see Figure 4:11).

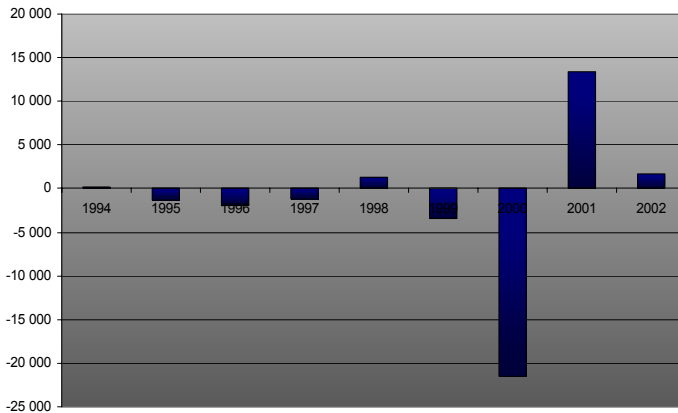


Figure 4:11 Telia cash-flow (MSEK) in shares and participations 1994-2000 (source: Telia)

Telia's strategic ambition could also be achieved by merging with other strong operators. As a consequence, Telia announced publicly its intention to merge with Norwegian Telenor. For several reasons this merger never took place. However, in December 2002 Telia and Finnish Sonera merged.

Traditionally, Telia's competitors in Sweden had targeted large corporations by offering fixed long distance services. During the mid 1990's, however, Telia's competitors began to expand their target segments to include small and medium sized companies (e.g. by offering business communications) as well as private end-users. During this period approximately 50% of Telia's competitors in the Swedish segment for fixed public telephony leased lines from Telia. As a consequence of the increasing competition and in order to cope with the saturated Swedish market, Telia began to look for niche segments and to continue its international expansion, to increase its service quality even further and to launch a variety of customer retention programs (Kenneth Karlberg, Vice President, Telia).

Competition in the end-user segment continued to increase however, during the end of the 1990's. Initially, Telia could compensate for lost business in the end-user segment, i.e. its retail business, through its wholesale business targeted at competing operators and service providers, particularly as the use of the Internet was noticed. Eventually, however, in the early 2000's, Telia could no longer compensate for the loss in the business and end-user segments by developing a wholesale strategy. Over-capacity in the transport network was one of the reasons.

"Many different players are now looking to establish a relationship with the end-user...you also have virtual operators...like Virgin Mobile...they don't have a network... As an end-user you buy your subscription from Virgin and the network operator loses his relationship with the end-user... In our case our business in the end-user segment has decreased...and our business of selling network capacity to other service providers has increased...we haven't made a strategic decision that this is how we see our role and position in the future... You have a choice to make in this respect...either you focus on your network investment and try to maximize the utilization of your network...in this case you could possibly work through various channels...service providers...your main focus becomes "production" and "production efficiency"...this is a wholesale strategy...the other possibility or strategic choice would be to consider network operations as a commodity...where you have low margins and heavy investments...a quite unattractive position over time...but somebody has got to do it [own and operate the network]...we have

positioned ourselves in the end-user segment...whatever happens it's important to be close to the end-user and to focus on the "share-of-wallet"...we have a customer base of 5 to 6 million subscribers...this is where we need to have a strong position... [Kennet Rådne, VP Telia]

"Over time we have a decision to make...what customer are we supposed to serve...we have established Skanova...a company that focuses on selling network capacity to service providers...our competitors...leased-lines...Everybody competes for the end-user...on the fixed side we have been able to compensate for what we have lost to our competitors in the end-user segment by selling network capacity to the same competitors...as an incumbent you have an option, either you resist competition or you accept it and see it as a business opportunity...Skanova is doing this...this is a big issue within Telia...if we open up our network products to our competitors we will increase competition for the end-user...it leads us to the question where we are to have our main business...today we do both...but somewhere down the line we will have to make a choice...it's hard to have both these customers under the same umbrella [Kennet Rådne, VP Telia]..."

Following Telia's record year of 2000, its sales, net margin and profitability fell to record low levels during the period 1994-2000 (see Figure 4:12 and Figure 4:13).

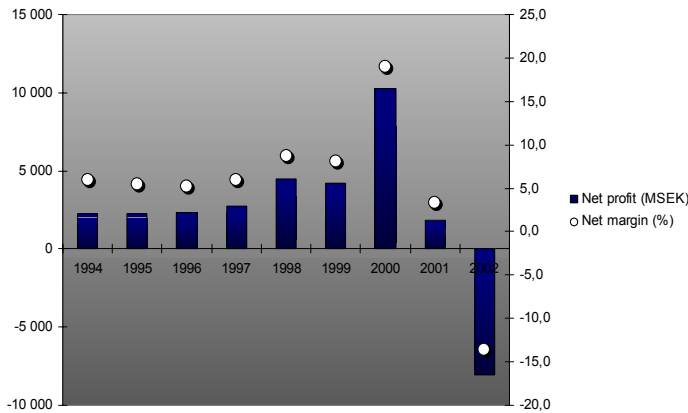


Figure 4:12 Telia net profit and net margin 1994-2002 (source: Telia)

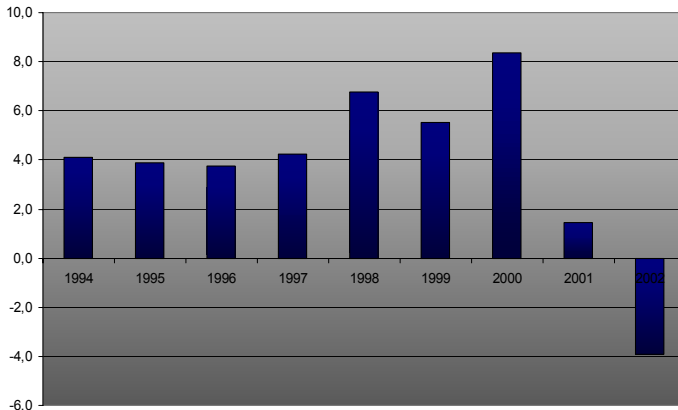


Figure 4:13 Telia ROA (%) 1994-2002 (source: Telia)

In response to the weak financial performance, Telia's strategy began to focus on its core businesses within mobile, internet services, international carrier, and networks. Its international strategy became limited, first to the European country markets and later to the

Nordic and Baltic Sea region, Poland and Russia (Kenneth Karlberg, Vice President, Telia). Telia began to actively search for synergies across its core businesses. In addition, Telia drastically reduced its total number of employees (see Figure 4:14).

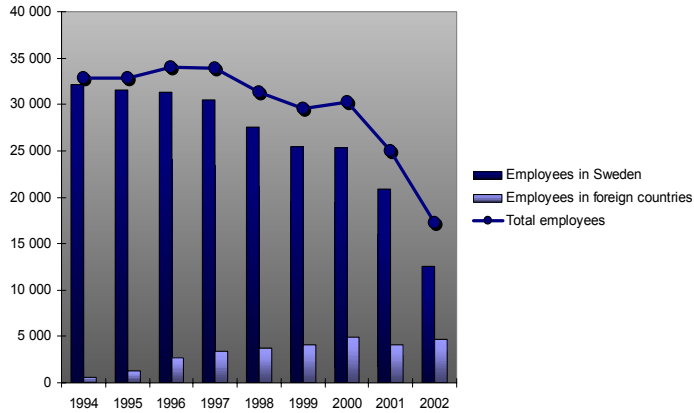


Figure 4:14 Telia number of employees 1994-2002 (source: Telia)

Telia's development between 1994 and 2001 at the corporate level is summarized in the table "Telia facts and figures" below.

TELIA FACTS & FIGURES

	1994	1995	1996	1997
STRATEGY	Strategy content and process in "Vision 2001" and "2002 NOW". Divest manufacturing (e.g. ELLEMETEL), expand international (Europe) through e.g. M&As compensate for loss market share in Sweden.	Not to be pushed back in value chain by content providers. Focus on multimedia information services; create, store, transmit, present information. Acquisitions and equity investments in e.g. fixed network operations in the Philippines and mobile network operations in India. Subsidiaries established in Denmark and in Norway for the supply of international traffic, data communications and corporate communications.	Telia as "information broker". Search for partners and equity investment opportunities in telecom, telecom and multimedia industries. Establishment of Slotsbacken Venture Capital in order to invest in small companies with growth potential in the multimedia industry. International expansion through acquisitions and equity investments, e.g. in Finland, Norway, Estonia, Latvia, Lithuania, Poland, Ireland, India, China, etc. in areas such as telecom, datacom, paging, Internet, and digital-TV.	International expansion and launch of CRM-programs to cope with saturated Swedish market. International presence in 20 countries. Telia awarded mobile license in, e.g. Uganda. Efficiency pigm TRIM97 launched.
M&S	Subscriptions and phones through 2,000 retailers and 100 own POS (Telia Butik AB).	300 additional POS, e.g. Expert, GEAB.		
PRODUCT	IN and value added services in order to increase revenues and lower costs. Enabled by digital technology in switching and transport networks.	E-commerce, interactive education, gaming entertainment, etc. through web portals. Portals expected to drive cellular and fixed business. Portal revenues expected from advertising and transactions (e-commerce).	Web services including hosting and applications development (e.g. Internet banking). Infomedia services, e.g. trade with pre-owned cars (Bilguiden) and tourist info (Navigo). Internet portal passagen.se launched including applications such as entertainment in Funbase, sports and events in Sportbase, etc.	Integrated systems for PC, TV and phones. IP and web technology.
OPS	Focus on coverage, capacity and quality. Coverage through international roaming agreements (41 operators in 27 countries), acquiring equity interests in international operators and equity JV (e.g. Unisource). Capacity by migrating subscribers from NMT to GSM. Quality through enhanced network planning and O&M activities. 81% of fixed subscribers in Sweden connected to the digital AXE.	Warehouses for e.g. spare parts outsourced to NVL Logistics, and Flextronics. Roaming agreements with 47 operators in 30 countries. 91% of fixed subscribers in Sweden connected to the digital AXE. New optical sea cables between Sweden and Holland (called ODIN), and between Sweden and Estonia taken into commercial operations.	Increased demand for leased lines, consulting services and data access products, e.g. LANs.	40 agreements for leased lines. Integrated GSM 900 and 1800 GSM 900 indoor coverage. Digitalization of the fixed network considered completed as 99.3% of Telia's subscribers connected to the digital AXE. Development of modularized business systems. Telia Business System's data communications product family growing (e.g. servers, modems, etc. from Cisco, 3Com and US Robotics) relative corporate switches from Ericsson (MD110) and Northern Telecom (Meridian).
STRUCTURE OWNERS	6 BAs for core business: Network Services, Unisource. Governments 100% of shares.			
	In -96 reorganization into 6 Business/Product Areas and 6 Market/Customer Units.			

TELIA FACTS & FIGURES

	1998	1999	2000	2001
STRATEGY	Over capacity in transport network, wholesale strategy by targeting virtual operators and service providers. Wholesale increased 20% despite prices being lower. International focus on Nordic and Baltic region, Russia.	Liberalization, open systems architecture, inexpensive technologies (e.g. Java) created increased competition through smaller new entrants. Shared platforms between telecom and datacom industries and the outsourcing of total communications solutions (by customers) increased competition and the convergence of telecom and datacom industries. Telia Business Innovations equity investments and commercialize infocom systems, i.e. tele, data, media. Merger Telia and Telenor halted.	Strong income statement and profitability. Focus on core competencies (mobile and fixed services, portals, and equity investments) and dives/outsource other activities, e.g. network deployment, installation, maintenance, admin support. Divest info media, e.g. catalog business. Focus on customer share through loyalty programs.	Focus on becoming market maker and leader, increase customer loyalty (interrelated). Market maker, drive industry in products, services, "business logic". Actively concentrate international operations (see 1998) incl. Poland. Rationale economies of scale in network operations, capitalize on increasing information flow in the region. Focus on early adopters AND high-end users. Radical downsizing, divestments, outsourcing, reduction of employees. Equipment purchased increasingly from datacom companies, e.g. Cisco and Cap Gemini.
M&S		Complex marketing intelligence, due to complex industry; increased coop. in MI (e.g. Swisscom).	Challenge to develop business model for packed switched data.	
PRODUCTS	Record year in R&D investments. Focus on broad band access. Business systems focus on outsourcing solutions and consulting services.	Coop. in tele- and datacom industry; speed-up R&D, share costs and risks, create "de facto" standards. First 3G call in coop. with Ericsson. WAP-portal launched in coop. with Oracle (MyDOF). Development of machine-to-machine services, e.g. "intelligent cars".	More restrictive in "experimental" product development. In coop. with tele- and datacom companies establishment of Hiperlan2 Global Forum for future WLAN.	SMS revenues substantially increasing. Focus on development of new SMS and MMS services. Some focus on applications (e.g. gaming) and content. Investment in e.g. NetGameFactory.
OPS	Digitalization in fixed network completed (AXE). Churn from narrow band to broad band. Pre-paid for cellular.	Retail and wholesale in fixed, domestic market. Wholesale in fixed, international markets (organic), e.g. pan-European Vikingsnät and transatlantic TAT-14 cable. Operator in home 2G markets (M&As). Service provider in other 2G markets (coop.). Acquire 3G license and act as operator in domestic and international markets. Replace traditional switches with routers enabling packed switched data and broad band. Business systems increasingly outsourcing solutions (e.g. CRM) and systems integration.	Creation of 50/50 JV with Tele2, Svenska UMTS Nät, for 3G network deployment and O&M, excluding service packaging, M&S. NMT 900 terminated. Wholesale business from 50 to 120 interconnect agreements (operators and service providers), totaling 15% of fixed revenues. Creation of Speedy Tomato for European service and content provisioning. Unisource dissolved.	GPRS commercially in Sweden, Norway, Finland. New business logic for portals; revenue sharing with content/application providers. First operator to offer "game on demand". Content/applications offered e.g. news, music, sports developed in coop. with e.g. Barracuda (TV), Bonnier (publisher), Disney (entertainment), FunPlanet (gaming), Warner (music). EoY Telia began to "clean up" its product portfolio. Telia Equity engaged heavily in divestments. Over capacity and price pressure; wholesale focus on M&S rather than tech. development and implementation.
STRUCTURE OWNERS	In -98, reorganization into 8 BAs and 3 MAs (Denmark, Finland, Norway).		Reorganization into 5 BAs and 3 MAs. Public offering of 30% of Telia's shares. Dividend policy 15-25% of net result annually.	Reorganization into 5 BAs in core businesses, i.e. Mobile, International Carrier, Networks, Internet Services and Equity.

4.3 Ericsson

Ericsson was established in 1876 as a manufacturer of telecommunication equipment. During the 1980's Ericsson began to focus on cellular infrastructure equipment. The Ericsson A- and B-shares are quoted in the A-list of the Stockholm Stock Exchange. The B-share is also quoted in e.g. Frankfurt, London, Paris, and New York (NASDAQ).

In the period 1990-96 Ericsson's strategy and structure was to a great extent based on a study called "Ericsson in the '90s", presented in 1990. Ericsson's strategy was very straight forward. Ericsson often in cooperation with its main customers such as Telia was to develop, manufacture and market telecommunication infrastructure equipment.

"One interesting thing about the position Sweden has in the telecommunication and IT industry...it [the industry] was build during a time when we had a monopoly situation...and three major players were able to cooperate...one was the government that acted very wise because they stimulated a very offensive Telia...investments in technology and so on...you also had Ericsson that could cooperate very intimately with Telia because Telia had the monopoly...we developed mobile telephony, the AXE...in very close cooperation...and the whole thing worked because of a tight cooperation between the three of us... Today the situation is very different... there are many players in the market...and Ericsson of course cannot favor Telia... Ericsson needs to have a business relationship with Telia... The government can no longer influence Telia the way they used to...Telia has been floated on the stock market... In Sweden when we look at the future and try to understand what will contribute to our future success...we need to be careful about how we look upon our past...the terrain looks very differently today...a basic requirement to create future success in this industry is that we [industry players and the government], as a minimum, must be able to talk to each-other [Kenneth Karlberg, VP Telia]..."

Ericsson was, however, not to engage in operations, e.g. network operations, which could create a competitive situation with its main customers, the telecom operators. Over time however, in certain segments (e.g. business network operations), Ericsson abandoned this strategy.

"We have tried for a long time to sell services, professional services, business consulting... This has to do where in the value chain you are...and how you would like to change your position... We have always known that we have the know-how in building, optimizing and expanding telecom systems...that go beyond what an operator could possibly know simply because we do this in a lot of different places... This [forward integration through service offerings such as O&M, Business Consulting, etc.] does not mean that we will compete with our customers...in this we are still very clear... We will still never compete for obtaining a license and serve the end-user [Kurt Hellström, CEO Ericsson]..."

"The way I see it, Ericsson is also trying to integrate forward... when they operate a company's communications systems...because this is my customer too... Ericsson manufacture corporate communication systems and sells these systems directly to companies...in order to enhance their offering, sometimes they also agree to sell and deliver services...like so-called "management services"...they agree to operate a company's communications systems...in this case we target the same customer and offer the same service...network operations... I understand where they are coming from but unfortunately we collide, head-to-head [Kennet Rådne, VP Telia]..."

Ericsson's main competitors, in the business of mobile systems, were American AT&T (later Lucent) and Motorola, Canadian Nortel, German Siemens and Finnish Nokia. In the market for narrow band exchanges for fixed telephony Ericsson's main competitors were French Alcatel, Siemens, Lucent and Nortel and in the mobile phone market Motorola and Nokia (Jan Wäreby, Vice President, Sony Ericsson). Among Ericsson's largest global customers were operators such as Airtouch, AT&T, BellSouth, BT, Cable & Wireless, Deutsche Telecom, France Telecom, Mannesmann, SBC, Sonera, Telecom Italia, Telia, Telefónica and Vodafone.

In the cellular equipment segment, during the years 1994-2002, Ericsson held a world market share of approximately 37-40% counted in installed subscriber base (ITU, Ericsson). During the same period in the fixed equipment segment, Ericsson's world market share remained relatively stable at around 13-17% (ITU, Ericsson). Measured in global market turn-over, Ericsson's world market share remained relatively stable at around 4-6% over the period 1994-2002 (ITU, Ericsson).

Due to regulatory changes in 1994, Teli was acquired from Telia, strengthening Ericsson's manufacturing capabilities within Ericsson Radio Communications, Public Telecommunications and Business Networks. This marked the end of an extended and close cooperation between Ericsson and Telia. During the mid 1990's Ericsson began to develop and implement standardized processes and procedures, e.g. the New Product Introduction (NPI) and the Transfer Product Introduction (TPI) processes, throughout the organization. One of the reasons was to be able to meet the increasing price pressure by lowering operational costs. In addition, Ericsson's large investments in product development, decreasing PLCs, rapid organizational and market growth as well as increasing customer requirements for shorter lead-times, required Ericsson to review its processes and procedures in various functional areas. From a market perspective, Ericsson's focus included increasing its presence in emergent markets such as Brazil, Russia and China.

Development work focused on the AXE (i.e. the switching system used both in fixed and cellular networks), RBS (i.e. the radio base station equipment in cellular systems) and microelectronics. Despite the fact that there was a strong price pressure on products within the business area Public Telecommunications, in particular on the AXE switching system, the business area continued to do financially well. Nevertheless, during the mid 1990's Ericsson began to focus on increasing efficiency and reducing costs in Public Telecommunications. Ericsson Radio Communications continued to grow rapidly. Demand for its products increased and customer demands required shortened lead-times. Ericsson experienced a sharp decrease in PLC, in particular for mobile phones, and shortened lead-times from development to full scale commercial manufacturing, from RFP to proposal/contract as well as from order to delivery.

"In general, mobile phones have a life cycle of one year...if it's a really good product maybe two years [Jan Wäreby, VP Sony Ericsson]..."

The so-called "Sub-My" facility for manufacturing of microelectronics in Kista was put in operations during 1995. On customer request, another increasingly important development area for Ericsson became services to complement its product portfolio. Ericsson network construction services in particular were requested among the new operators with newly awarded licenses in e.g. Sweden, Germany and in the Philippines (Kurt Hellström, CEO Ericsson).

In 1996 Ericsson's new strategic plan was launched, "2005 – Ericsson entering the 21st century", or simply "2005" which had become the working name of the study (Sven-Christer Nilsson, CEO Ericsson, 1998-1999). One of the new ideas compared to its previous strategy was that project financing was becoming an increasingly important source of competitive advantage. As a consequence, Ericsson Project Finance was established. Probably the most important realization during the market and strategic review was that the "infocom" segment was becoming an increasingly important part of the telecom industry. Strategically, this meant that Ericsson, in addition to retaining its leading position in fixed and mobile telephony (development, manufacturing and marketing), also had to become a leading supplier in this

new segment, which included network systems and products used in multimedia communications. The dominant market trend identified was the convergence of three industries, the telecommunication, data and media industries, i.e. mobile and fixed telecommunication, IP communication or other forms of data communication, cable-TV and satellite-based radio/TV. Ericsson estimated that these areas were eventually to be interconnected (Kurt Hellström, CEO Ericsson).

“The strategy process led by Lennart Grabe was called Ericsson 2005...it came to the conclusion that our AXE should be put in what we called “harvest-mode”...and that we needed to focus on open architectures, IP telephony...when this was presented on a strategy conference...Lars Ramqvist with his closest staff...killed this idea...sometimes the media calls this conference “the Södertuna Massacre”...the AXE was still the “bread and butter” of the local companies and the local managers around the world...the ones that were present at the conference... so when this came up everybody laughed...they said “we shall continue to live on the AXE, this is our source of revenues, we cannot put the AXE in harvest-mode...” Harvest mode only means that you don’t invest in further development...of course you should continue to take advantage of it...and profit from it...AXE will live for at least some 20 more years... So the entire work presented by Lennart Grabe, Ericsson 2005, was changed... Ramqvist said...“well, well, I don’t understand this Internet thing...my successor will have to deal with it”...unfortunately it took 3 years before someone else came in...we lost three years... of course reality would not turn-out to be as in the scenarios, reality will be a combination of Service Mania, Grand Tradition and...but all in all it was pretty good...interesting thoughts to build on... But everything was just thrown away...after this we had a shot-gun approach... Two weeks after I became CEO I called for a 2-3 day seminar... we developed a new strategy...Ericsson was totally out of control when it came to IP, there was no coordination in what we were developing... I quickly decided to cut the AXE development staff by half we used all our R&D money to maintain old products rather than to develop new ones...all this I had to change... [Sven-Christer Nilsson, CEO Ericsson, 1998-1999]”

“Narrow band networks are not being deployed anymore with the exception of China and some few markets in Latin America... This product will eventually die...and we will not continue to develop our classical AXE any further... What’s coming now and in the future is IP-based networks... The datacom industry is of course driving this...on a “best effort” basis...you send data and sometimes have to try again and again... But this is not possible with voice... The telecom industry is a real-time application...the datacom industry never understood this [Kurt Hellström, CEO Ericsson].”

“This is how I structure and understand this industry... the systems are very robust...they deliver high quality services... it’s also a matter of...“real time”...telecom systems are also optimized to take care of voice... The computer industry is diametrically opposed to this...it’s optimized for data of course...but what is it that characterize it...if it works it’s great...but it’s only a best effort...if it doesn’t work today let’s try tomorrow...then of course “tomorrow” may be a millisecond later...but anyway... I dare to say that IP is far more cost effective...so you would like to have the best of both worlds... reach where these to meet...this is what I call carrier class, real time, IP-networks... So the question is who will reach this point... many U.S. based computer companies like Cisco say that they will be the ones... today Ericsson is there through ENGINE...they have been able to bridge between narrow band circuit switched data and broad band, packet switched data [Sven-Christer Nilsson, CEO Ericsson, 1998-1999].”

Ericsson began to implement its strategy laid out in the document “2005” between 1997 and 1998. Ericsson began to concentrate its distribution channels for Mobile Systems into five geographical areas. Infocom Systems focused on services, broad band applications and IP based telephony through a continued development of the AXE within the so-called AXE-N project (Kurt Hellström, CEO Ericsson; Sven-Christer Nilsson, CEO Ericsson, 1998-1999).

“The AXE-N project...I tried Ramqvist to let go of this and to do a real business case out of it...internally within Ericsson, people said that this was one of the greatest failures ever... I always asked “failure, in what sense?” This had been Sweden’s largest competence development project ever... This is why Ericsson, all by itself, has been able to become number one in developing both 3G telephones and systems...the infrastructure side...Lucent had to buy this because they didn’t develop this competence in-house, Nortel the same...they hadn’t had the AXE-N-project... I believe people forget this...or they don’t

think about it this way...the only know it [the AXE-N-project] as a failure [Sven-Christer Nilsson, CEO Ericsson, 1998-1999]...”

Efficient manufacturing was to be achieved by outsourcing manufacturing activities, primarily of products within Infocom Systems to, among others, Flextronics, SCI and Solectron (Kurt Hellström, CEO Ericsson). In order to increase focus on the Infocom industry and in order to satisfy the capital market, in 1998, Ericsson’s strategic focus on IP telephony was to be carried-out through an acquisitions strategy launched as “string of pearls”. String of pearls aimed at obtaining know-how in areas that the capital market, including investment analysts and shareholders, believed Ericsson was lacking. Smaller acquisitions took place of IP companies such as Juniper Networks. The string of pears strategy can be detected in the moderate negative cash-flow (i.e. investments) in shares and participations between 1998 and 1999 (see Figure 4:15).

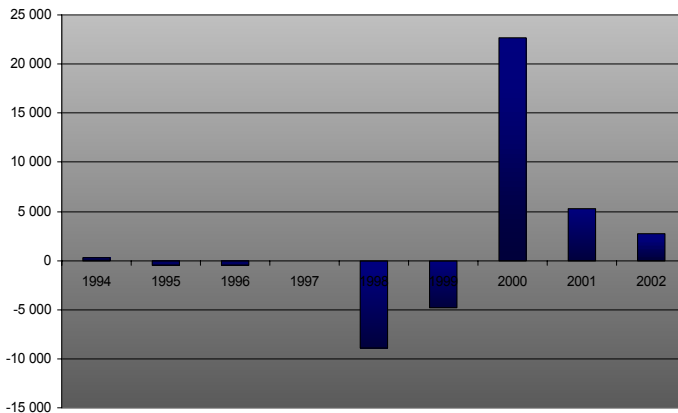


Figure 4:15 Ericsson cash-flow (MSEK) in shares and participations 1994-2000 (source: Ericsson)

“String of pearls was a strategy to obtain new technology instead of developing it ourselves... This was one way of explaining to the world how we worked during the end of the 90’s... Well...string of pearls... in order to be someone in this industry you had to do major acquisitions... People thought we should have bought Bay Networks and asked why we didn’t buy a whole bunch of other companies... Cheered by the capital markets...we were “coward” and we got punished through our share price... At that time we coined the expression string of pearls... in order to explain that we planned to acquire exactly what we needed... This has been an extremely successful strategy... We could not buy with our shares and had to buy with real money. Had we done that it would have been a disaster... Today we may say that we were able to foresee the future and that we made wise decisions, or we may say that we simply were not allowed to make major acquisitions and pay with our shares [Kurt Hellström, CEO Ericsson]...”

“...look at Lucent for a moment...they had the ambition to be like Cisco, so they bought a lot of these computer companies...and bought an ATM company...for 19.6 billion dollars...this company’s sales totaled some 1.9 billion dollars and had never showed profitability...and this went on...just like Cisco did...people told Lucent “buy companies and your share price will go up”... Lucent tried and failed...and so did Alcatel, as did Nortel... What did Ericsson...we had our strategy...“string of pearls”...we had the competence so we said we would carefully select those companies that complement our product portfolio and assist us to reach this critical point...and at that time, in 1998, nobody had reached this point...today Ericsson is there through ENGINE...they have been able to bridge between narrow band circuit switched data and broad band, packet switched data... many of these companies have been driven by the stock market...by some stockbrokers in New York...it was doomed to fail [Sven-Christer Nilsson, CEO Ericsson, 1998-1999]...”

During 1998, in the area of mobile terminals, Ericsson experiences a 30% price decrease across the entire product portfolio. The low-end segment, a segment in which Ericsson was not well positioned in, had become increasingly important. This contributed to the poor financial results presented in 1999. As a consequence, several large restructuring programs were launched to cut costs, including divestments, outsourcing activities, and a reduction of the number of employees. The 1999 downsizing program was launched in order to reduce the number of employees by approximately 11,000 over a two year period. A similar program, Back to Profits, was launched in 2000, including, partnering (eventually the creation of Sony Ericsson) and the complete outsourcing of manufacturing. The goal was to have the handset business back to profits by 2001 (Jan Wäreby, Vice President, Sony Ericsson; Kurt Hellström, CEO Ericsson). Ericsson Technology Licensing began to work to turn Ericsson's patents into licensing revenues, with particular focus on Bluetooth and Mobile Platforms. The idea was to develop the technology required inside the mobile communication devices and to supply such platforms to Sony Ericsson among other manufacturers and service providers.

"[During the mid 1990's] you didn't have the same competition by the cent...we, just like the operators, skimmed the market...now we are targeting segments... competition is fierce...everything needs to be optimized to reach its maximum potential... The logic behind mobile platform...some years ago everybody were doing their own GSM development...their own micro chips...but with 3G people cannot afford it...it requires tremendous financial resources...so you need a substantial chunk of the world market who are willing to sponsor this...otherwise you can't do it... everybody is looking for economies of scale... Towards the end-users you will see many different products...but you will also see a consolidation in the core technology [Jan Wäreby, VP Sony Ericsson]..."

"70% of sales is in the low-end range, if you are not there you will not be on the shelf...then you begin to lose volumes, presence, brand...you will lose the underlying "machine" that everybody notice [Jan Wäreby, VP Sony Ericsson]..."

"In conclusion, I see fewer manufacturers and more brands in the future...as an end-user you will have virtually an infinite number of different models and brands...among the manufacturers you will have only a few that will be responsible for the technology and R&D...the mobile platform as we have begun to call it...look at Ericsson [Magnus Tannfelt, VP Allgon]..."

According to Ericsson, the structure of the handset market began shifting from a few complete suppliers spanning across the entire value chain to a chain of specialized companies. Ericsson positioned to reach consumers and to serve operators through the Sony Ericsson joint venture and to provide platforms to other manufacturers and equipment providers (Jan Wäreby, Vice President, Sony Ericsson; Kurt Hellström, CEO Ericsson).

"When we started to look for a potential partner, we instantly turned to Asia...having a western partner would only result in "more of the same"...all the large consumer product giants are from Asia... We looked at some different options...Sony suited us perfectly because of a number of parameters...number one, they are the largest and the best within consumer electronics...they were established on the telephone market and although they were not the largest they had a presence in Japan...that's another important parameter...third, they were not competing with Ericsson...if you look at Panasonic and NEC they have certain business on the systems side...then you need to decide what systems you will support and so on...with Sony it was easier to see how we complemented each-other without having to consider other businesses in the portfolio...it was a clear cut...the last part was that Sony had an entire portfolio of content...gaming, movies and music...they are one of the world's largest content providers...Sony was definitely our first option [Jan Wäreby, VP Sony Ericsson]..."

For the purpose of developing the licensing business, Ericsson established two product-related licensing organizations Ericsson Mobile Platforms and Ericsson Technology Licensing. Ericsson Mobile Platforms offered complete 2.5G and 3G technology platforms to manufacturers of mobile phones and other mobile devices. The platforms consisted of

complete component specifications, printed circuit board layouts and software. In addition, Ericsson offered support and customization services (Jan Wäreby, Vice President, Sony Ericsson).

“We have been criticized for our outsourcing strategy...but nobody has ever told me how we are to handle the price and cost pressure on the market... outsourcing began at ETX, it became to expensive to make these...printed circuit boards in the switches...to manufacture them...it was outsourced... To outsource to Flextronics has also been one way of selling and closing down manufacturing facilities...I mean to close down a manufacturing facility is always hard...it deals with people and it involves large capital amounts...can you have someone to take over it’s good... When outsourcing was at its peak...Flextronics and Solecron and others...these people are not stupid...I mean...they understand that “if Ericsson can’t make cheap telephones in Kumla, neither will we”... Their strategy was to manufacture not only telephones...telephones and other things that could be manufactured in China would be moved to China... We still keep the chassis of the telephone, the mobile platform, and let others to manufacture the body... We make a platform just like they do in the car industry... A platform is “rules”, “tools”, “key components”, and “reference design”, this we sell...just like in the car industry... If you consider companies like Arima...they don’t have this [technology and know-how], they buy this...in their bill of material there is the platform, the intelligence so to speak... [Kurt Hellström, CEO Ericsson]”

“Ericsson manufactured processors, both CPs and RPs...that is the central and regional processors in the AXE...over time other manufacturers had developed faster processors...during -95 at the Radio division we began to work in order to replace Ericsson’s own developed processors with purchased and better ones...and if you do this what happens...the Norrköping factory needed to be closed down...together with other manufacturing facilities...there were a lot of things that could be purchased instead... When it comes to outsourcing I think Ericsson has been right in using companies like Flextronics...I think outsourcing is OK when it relates to a product that has reached its peak in the product life cycle...what’s difficult is the transfer of this product to your partner, the product specification so to speak...its hard to do this internally...much harder with an external company, because you have to be very precise...if you look at the AXE I think this [outsourcing] is right... Flextronics, Solecron and others take responsibility for managing all the suppliers... They also take responsibility for systems integration... When it comes to radio base stations...is more complicated... the product life cycles is shorter...and there is more research and development work related to it...development needs to be close to manufacturing... I spoke to Jan Wäreby last week...they have been successful in using ODMs [for mobile phones]...they have managed to specify exactly what they need...the man-machine interface and so on...the rest is up to the manufacturer...if you outsource manufacturing while you’re still responsible for development...and the product life cycle may be shorter...then it’s more difficult...I am not saying Ericsson is wrong...but I am not entirely convinced that they will be able to profit from this...my idea is to integrate development and manufacturing for this kind of products...that’s how I would do it [Sven-Christer Nilsson, CEO Ericsson, 1998-1999]...”

“Outsourcing is based on having a partner that is an expert in manufacturing...this means that your partner should be able to ramp-up manufacturing faster than you... Of course you need things to work smoothly and effectively...but that’s another issues, it doesn’t have to do with outsourcing itself... You will have both pros and cons...when you have it outsourced you will have clearer interfaces and specifications of your requirements...across this border...just like between us and [Ericsson] Mobile Platforms...When you are dealing with this kind of complex products it’s pretty healthy to have a clear specification, time lines and so on...if you don’t comply you don’t get paid... What happened was that Ericsson outsourced everything to Flextronics, except for the factories in China...for legal reasons we had to keep them... In addition, these factories in China were very cost effective for many reasons...salaries were at competitive levels... we still have manufacturing at Flextronics, Sony and Ericsson in China...which we also use as a benchmark...we know from previous experiences how good we have done it...it’s good to have an in-house point of reference with regard to costs...to know how cheap you are able to manufacture...this of course is something we can play when discussing with other manufacturers...this is an important parameter [Jan Wäreby, VP Sony Ericsson]...”

In the same vein, between 2000 and 2001, the so-called Efficiency Program was introduced. The purpose of the program was primarily to reduce to costs within Ericsson Mobile Systems. Ericsson’s focus was on profitability by strict cost control and reduction of operational expenses. The Efficiency Program was designed to deliver cost cuts in the range of SEK 20

billion. The program included creating more efficient design centers, reducing the number of employees, offices and manufacturing facilities, reducing inventory levels and actively chasing accounts receivable.

“At the end of 2000, we launched the Efficiency Program in order to restructure Ericsson and to downsize the telephone business as we uncovered all the problems and realized that they had totally lost control over the situation and that we could not entirely save this business...we needed to find a partner... We had had this thing in New Mexico [a fire in a manufacturing plant of components], we had the wrong product portfolio; we were entirely focused on the high-end segment... When we had launched this program we saw that the telecom industry in general was entering into a new phase with a more moderate pace of development... Then this enormous and brutal fall came... it has almost crushed the entire industry... This has been a devastating thing one has been forced to do...we have gone from 107,000 employees to below 65,000, and we need to reach below 60,000 before the mid of this year... In this quarter alone many people will still have to leave Ericsson... this is painful [Kurt Hellström, CEO Ericsson]...”

During the last quarter of 2001 the Efficiency Program had delivered total savings of SEK 7 billion and lowered operational expenses by 20% (Kurt Hellström, CEO Ericsson). Fixed and cellular systems operations struggled with financial problems. The most important reason was that operators cut network investments due to e.g. over capacity in the fixed backbone networks, stagnated growth of cellular subscribers (2G) and because operators were awaiting 3G licenses and equipments. If we consider the period 1994-2001, in 2001, Ericsson presented all-time low financial results, i.e. net profit, margin and ROA (see Figure 4:16 and Figure 4:17).

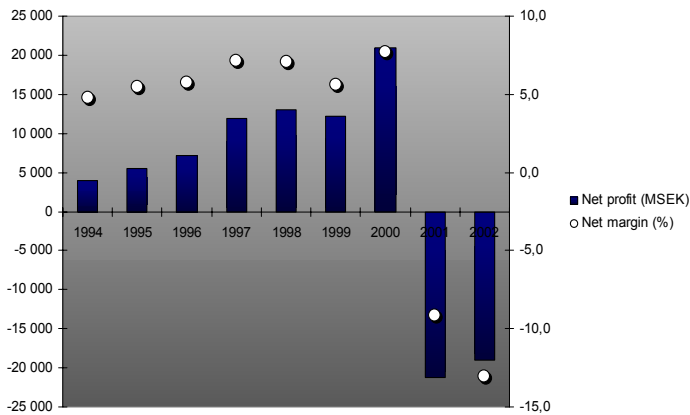


Figure 4:16 Ericsson net profit and net margin 1994-2002 (source: Ericsson)

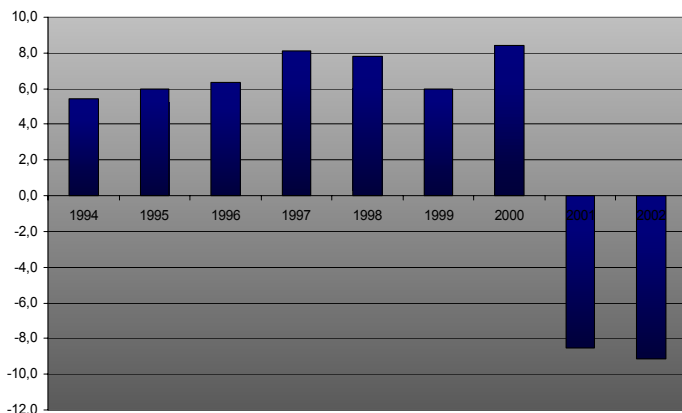


Figure 4:17 Ericsson ROA (%) 1994-2002 (source: Ericsson)

The results of the Efficiency Program could also be seen in the drastic reduction of total number of employees and total assets during the period 2001-2002 (see Figure 4:18 and Figure 4:19).

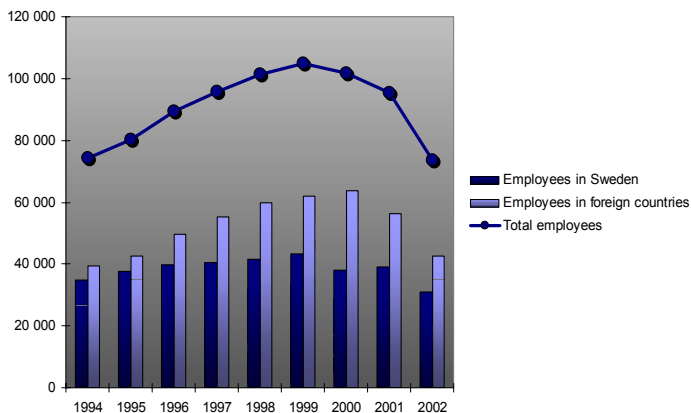


Figure 4:18 Ericsson number of employees 1994-2002 (source: Ericsson)

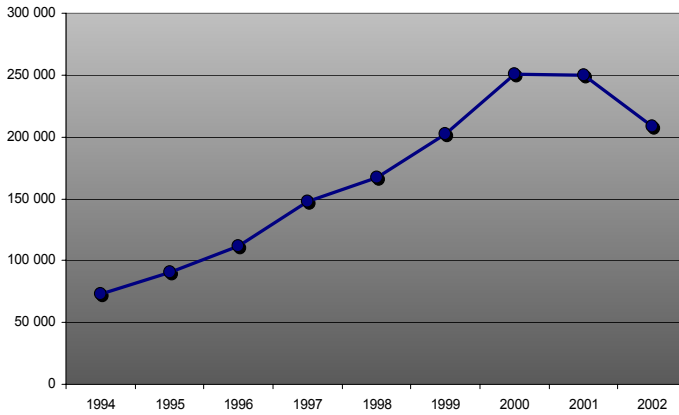


Figure 4:19 Ericsson total assets (MSEK) 1994-2002 (source: Ericsson)

Ericsson's development between 1994 and 2001 at the corporate level is summarized in the table "Ericsson facts and figures" below.

ERICSSON FACTS & FIGURES

	1994	1995	1996	1997
STRATEGY	Ericsson's strategy and structure to a great extent based on a study, "Ericsson in the '90s", presented in 1990. Strategy not to compete with telecom operators. Rapid growth in China and Russia.	Standardizing processes and procedures, e.g. New Product Introduction (NPI). Transfer Product Introduction (TPI). Rapid growth in cellular communications. Increasing price competition, shorter PLC, and lead-times.	In -96 "2005-Ericsson entering the 21 st century" identified convergence between telecom, datacom and media industry. Traditional value chain (components, systems, and operators) develop into content, content packaging, content distribution, services for accessing content, end-user equipment. Driving forces: microelectronics, Internet, consumer focus, globalization, deregulation, merger between telecom, datacom and media industry. Shot-gun approach to achieve "Wanted Position Year 2000", i.e. among customers preferred supplier and prime innovator, among employees life-long learning opportunity, organizationally more customer focused and cost-effective. Focus during -97 to increase operational efficiency.	
M&S	Marketing, sales, distribution through subsidiaries. Since 1989 Ericsson's cellular and private radio products and systems in the US co-branded, manufactured, sold, and distributed through a JV with General Electric (GE).		Project financing increasingly a competitive advantage (e.g. in US, Brazil and China), however increased the risk on Ericsson. JV with GE terminated. Increased competition in cellular systems from Qualcomm in the U.S. as a number of networks were deployed based on IS-95 CDMA technology, a standard that Ericsson chose not to develop and deliver. Upgrades and system build-outs increased relative new business and accounted for almost 70% (-97) of sales with regard to cellular systems.	
PRODUCTS	Development and manufacturing highly decentralized due to AXE modular design, local product adaptations (customer requirements), local standards, political requirements). Record year in R&D investments relative net sales. A number of JVs for product development in specific areas of technology, e.g. Public Telecommunications with Swedish Telia in ELLEMTEL Utvecklings AB.	Expanded service portfolio, e.g. network design and construction (-95) and business planning and development (-96), due to increased demand for services to complement products. ELLEMTEL was acquired from Telia. Development of AXE to include IN-services. Development of low-end mobile phones for mass market. "Battle" for digital cellular standard TDMA, e.g. Ericsson, and CDMA, e.g. Qualcomm (-95). Development of Bluetooth initiated (-96).	Professional Services to include virtually all traditional activities of operators. Further development of AXE for broad band applications and IP.	
SUPPLY & MFCTRG	Most components, i.e. micro-circuits, sourced from external suppliers. "Strategic" components sourced internally. Ericsson had developed such know-how primarily through JVs, e.g. with Texas Instruments.	Ericsson Components put in operations a production plant of strategic microelectronic components in Kista, Sweden. "Sub-My" facility. Manufacturing facilities transferred from fixed to mobile communications.	Business exchanges and phones outsourced to Flextronics (-96). Efficient manufacturing by global outsourcing e.g. of circuit board assembly to e.g. Flextronics and Solecitron (-97).	
STRUCTURE OWNERS	Matrix of 5 Business/Product Areas (Radio and Public Communications, Business Networks, Components, Microwave). (Major) Local Companies in 76 countries (-94) representing market organization. Increasing problem in keeping the organization together due to cultural diversity spread across the organization, e.g. between national cultures, the HQ and the local companies, technology and marketing departments (and even between sales and marketing), and between product areas, e.g. fixed and cellular telephony.		Reorganization into 3 BAs, Mobile Systems, Infocom Systems, Mobile Phones.	

ERICSSON FACTS & FIGURES

	1998	1999	2000	2001
STRATEGY	As a consequence of a technology review followed by business operations review, focus on IP technology and to phase-out the AXE. Launch of M&A strategy "string of pearls" to acquire smaller datacom companies in IP and to satisfy and communicate to the capital market its intended business and competencies. B-shares reached all time high.	The previous product strategy of putting the AXE in harvest mode and halting further development of the AXE while focusing on IP technology was abandoned. Restructuring program to reduce number of employees by 11,000 over two years. Global Time to Customer prgram was launched to reduce lead times. Major outsourcing continued.	Ericsson experienced major cash-flow problems. The "back-to-profits"-program was launched including the outsourcing of manufacturing activities of mobile phones. A number of products were phased-out to adapt to future product requirements, e.g. cellular phones based on American AMPS/D-AMPS standard.	Income statement and profitability reached all time low. The "efficiency"-program was launched in order to reduce costs. Total assets and the numbers of employees were reduced drastically. The "efficiency"-program reduced the number of employees from some 107,000 employees to 85,000. Consultants and temporary workers were cut by half.
M&S	In -98 a 30% price decrease across the entire product line of Mobile Phones. Prices continued to fall.		Ericsson Consumer Products lost 10% market share. "The Mobile Internet Revolution" campaign was launched globally.	Consumer Products increased revenues from licensing agreements, e.g. with Samsung, Sony Ericsson. Ericsson Technology Licensing proactively worked to turn patents into licensing revenues focusing on Mobile Platforms and Bluetooth.
PRODUCTS	Bluetooth Special Interest Group (SIG) and Symbian, for the development and marketing of the EPOC operating system, were established in coop. with tele- and datacom companies.	Acquisitions of IP and datacom companies included e.g. TouchWave, Torrent. Qualcomm was acquired enabling the standardization of digital cellular. Services including business consulting increased substantially, primarily within Enterprise Solutions. SIG launched first Bluetooth product, a cordless headset.	Searched for cooperative arrangements in R&D in order to lower costs and risks. In mobile internet focus was on location services, infotainment and transactions. Ericsson Microsoft Mobile Venture was established as a JV with Microsoft. Consumer Products was to be focused on technical engineering and design.	A 50/50 JV was established with Sony for the design, M&S of multi-media terminals and mobile phones (Sony Ericsson Mobile Communications). The JV with Microsoft was dissolved. Whenever possible, R&D activities were to be conducted through coop. and networking. Ericsson Mobility World was established to support third party developers of content and applications It. Gathered some 100,000 people around the world. Ericsson Global Services continued to increase, employing some 20,000 people. Around 20% of total infrastructure sales were generated by services.
SUPPLY & MFCTRG	Design problems, shortage of components, difficulties in ramping up manufacturing contributed to weak performance of Mobile Phones.		Manufacturing of low-end mobile phones outsourced to ARIMA from Taiwan (-00). Flextronics responsible for supply chain management and manufacturing in facilities in Sweden and internationally. Rationale: economies of scale, reduce capital exposure, lower business risk (-00).	
STRUCTURE OWNERS		Reorganization (-99) into 3 Business Segments (Network Operators and Service Providers, Consumer Products, Enterprise Solutions) and 4 MAs (Europe/Middle East/Africa, North America, Asia Pacific, Latin America). Ericsson Services established as separate BUs under Network Operators and Service Providers.	Reorganization into 5 divisions. Mobile Systems, Multi-service Networks, Consumer Products, Global Services, Data Backbone and Optical Networks.	

4.4 Allgon

Allgon was established in 1946 as a manufacturer of car mounted antennas. During the 1980's Allgon began to focus on radio base station (RBS) antennas. The Allgon B-share was introduced on the OTC list of the OM Stockholm Exchange in 1988 and has been quoted on the A-list since 1994.

"I think the owners and how corporate management and the board have dealt with the owners have had an important role in Allgon's development... in a sense, owners should not be part of the decision making process...they simply don't understand the business and this industry...the board and corporate management shouldn't focus on the quarterly reports in order to provide the shareholders instant satisfaction...not in an industry as the telecom... The board and our shareholders have made us focus on things that they thought to be "safe" business...it has been disastrous... We established a business unit called Microwave...all the money we earned went into the development of microwave links...this was totally crazy...we were supposed to compete with Ericsson...among others...at a time when Ericsson themselves considered this segment to be very mature and competitive...and for us to start from scratch...we needed to make extremely heavy investments in product development...in this segment you cannot be a niche player...you need to have the entire product portfolio...this didn't work out...we should have invested all this money in our core business in order to expand...rather than broadening our business... During the last couple of years...we like many others in this industry have focused on our shareholders...unfortunately...shareholders have had a very short time perspective lately...the annual report has not been particularly important compared to the next quarterly report...this has been bad for us and many other companies as well... [Magnus Tannfelt, VP Allgon]..."

In the beginning of the 1990's Allgon's product portfolio included RBS equipment, mobile equipment (e.g. car and boat mounted antennas, batteries, chargers, hands-free sets and other accessories) and terminal antennas including digital and analog mobile communications products supporting all cellular standards. Allgon's customers were system suppliers, e.g. Ericsson, Nokia, Hughes Network Systems, Northern Telecom, OKI, Samsung and Siemens, and cellular operators, e.g. McCaw/Cellular One and Celcom. In addition, and especially with regard to its consumer products, Allgon's customers included car manufacturer and retail stores. Allgon's competitors could be found internationally, e.g. The Allen Group, Celwave and Centurion from the USA, Kathrein, Hirschman, Hama and Telebox from Germany, Andrew from the UK, MAT Equipment from France, Nippon Antennas, Harada and Yokowo from Japan and Galtronics from Israel.

In the mid 1990's, Allgon's strategic focus included to continue to invest in product development, increase the efficiency of its manufacturing and distribution channels and to expand internationally.

"I joined Allgon in 1994...at that time through to -98 we were focused on one thing only...to grow as quickly as possible...the only problem we had was to manufacture and deliver the required volumes in order to satisfy the market demand...an entrepreneurial spirit ruled in the company at that time...we made unreasonable amounts of money...each year we doubled volumes and sales...nobody looked at the cost side of the business...it was fun...but some day it had to end [Magnus Tannfelt, VP Allgon]..."

Allgon's international expansion was in part driven by the internationalization of their customers but also by the opportunities given by global industry growth in general (Magnus Tannfelt, Vice President, Allgon. Allgon internationalized aggressively in 1995 as shown by the increased percentage of foreign sales of total net sales (see Figure 4:20).

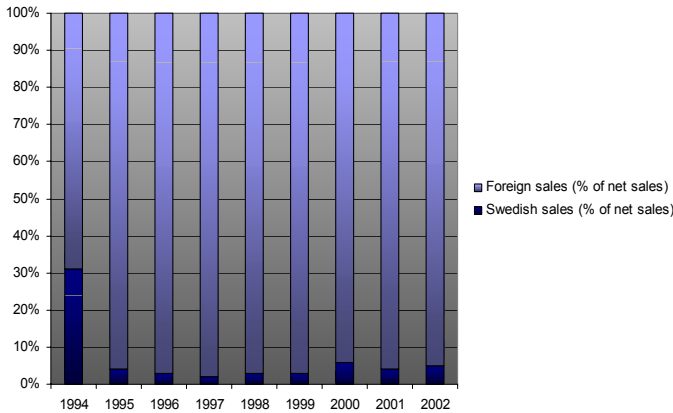


Figure 4:20 Allgon domestic and foreign sales of total sales (source: Allgon)

“During this period we expanded globally... Our mobile antenna factory in Beijing is located very close to Nokia’s new manufacturing facility...the world’s largest factory of mobile phones...that’s basically how we ended-up in Beijing...when it comes to mobile phones the entire industry has located around the Beijing area...you also find Sony Ericsson in that area...Motorola have their R&D in Beijing and manufacturing just an hour from Beijing...you have Siemens...it’s very concentrated...I think we have a good location...to be close to our customers is important... Most important when it comes to our international expansion has been to follow our customers...legislation and other things have been important but not as important as our customers... I think this is key for us as a supplier, you don’t really have a strategy of your own, you follow the strategy of your big customers... [Magnus Tannfelt, VP Allgon]...”

“Another trend in this business is a powerful concentration in Asia...both when it comes to the mobile phones and the infrastructure equipment...and this has not only to do with manufacturing... now R&D is moving to Asia... development needs to be close to manufacturing in order to be able to ramp-up manufacturing quickly... development lead-times for a new phone is around six months and manufacturing needs to be ramped-up in a couple of weeks to its full capacity...after 12 months you need to close down the manufacturing of that particular phone model...this requires that everything works together, the design and development work need to be done in parallel with the planning of manufacturing... Another important factor for moving development to Asia and China is development costs...the cost for a Chinese engineer is around 1/5 of the cost for a Swedish engineer... of course Chinese engineers don’t have the same experience as Swedish...but they learn [Magnus Tannfelt, VP Allgon]...”

From 1996-1999 Allgon’s continued to invest in product development and to add new products to its portfolio, e.g. microwave links for transmission systems, OMC, satellite antennas, and internal cellular terminal antennas (Magnus Tannfelt, Vice President, Allgon). A new facility for the development of microwave links for transmission systems was established in Sweden (Magnus Tannfelt, Vice President, Allgon). In addition, consulting services were becoming an increasing source of revenues. Allgon’s strategy included to reposition in the value chain in order to develop complete subsystems rather than components. This strategy can be detected in a moderate negative cash-flow (i.e. investments) in shares and participations between 1997 and 1999 (see Figure 4:21).

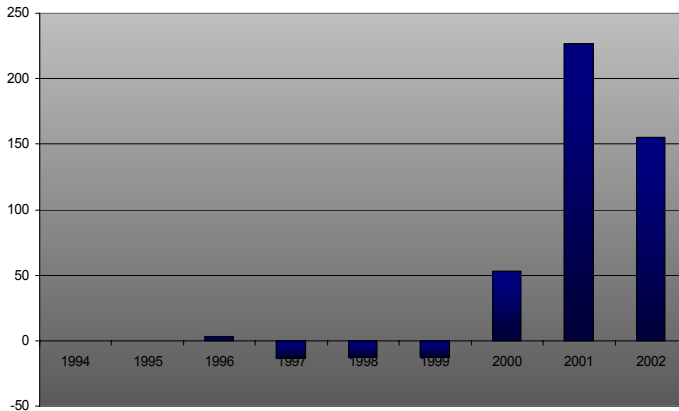


Figure 4:21 Allgon cash-flow (MSEK) in shares and participations 1994-2000 (source: Allgon)

A major driving force for expanding the scope of offering was requirements among system suppliers, e.g. Ericsson, to develop and deliver complete subsystems. Consequently, system suppliers were selecting fewer but larger (in scope and scale) sub-suppliers. Allgon decided to reposition accordingly in the value chain, to move upstream and develop complete subsystems rather than components (Magnus Tannfelt, Vice President, Allgon). By repositioning, Allgon managed to win a global sourcing agreement with Ericsson for radio base station antennas. Shorter lead-times and shorter PLC required Allgon to emphasize on logistics, distribution, design and supply management (Magnus Tannfelt, Vice President, Allgon).

“...previously the large phone manufacturers released a couple of new phones per year...today the market has totally exploded... We make proposals for 2-3 projects [new phones to be released and new antenna solutions] each week...these phones have a life cycle of maybe 12 months, sometimes even lesser...every manufacturer...I don't know...they probably have some 25 different models...and nobody knows which one will be their best selling product...two problems arise if you consider these huge volumes that are being handled...one is that nobody wants to end-up with a huge stock of phones that they are not capable of selling...the second is that you cannot afford not to deliver your best selling product... This means that the requirements for improved logistics, lead-times and flexibility and to be able to ramp-up manufacturing are enormous... the only solution, as I see it, is to be found in the design of the phones...an intelligent design may lower costs even further, decrease lead-times across the supply chain and increased flexibility [Magnus Tannfelt, VP Allgon]...”

As a consequence of the convergence between products (voice and data communications), Allgon realized it needed to target a broader range of potential customers, including manufacturers of terminals for voice and data communication.

As shown by Allgon's weak income statement (net profit, margin) and balance sheet (ROA), year 2000 and onwards represented a tough financial challenge for Allgon. Financially, 2001 represented all-time low considering the period 1994-2001 (see Figure 4:22 and Figure 4:23).

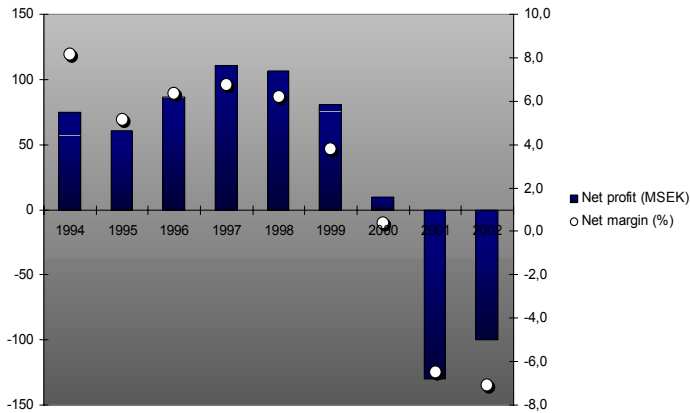


Figure 4:22 Allgon net profit and net margin 1994-2002 (source: Allgon)

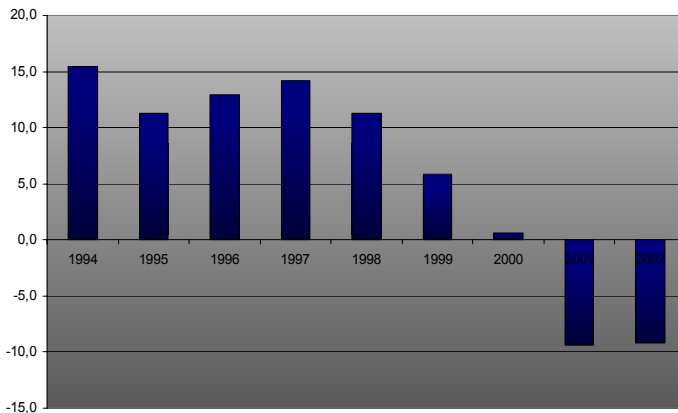


Figure 4:23 Allgon ROA (%) 1994-2002 (source: Allgon)

Allgon's strategic focus, however, included continued investments in product development, primarily microwave links, internal terminal antennas, and the OMC (Magnus Tannfelt, Vice President, Allgon). The increasing demand for integrated antennas continued to represent an opportunity for Allgon to develop a larger module in which the antenna component was only one of several integrated components.

If you look at the external antenna, it used to be a well defined component in a mobile phone...the interface towards the radio transmitter and receiver was clear... the development from external to internal antennas went very fast... this is a huge development for us... it's more difficult to get paid for the work that we invest in this kind of antennas [internal antennas]... we intend to take greater systems responsibility...from antenna manufacturing to the integration of components into antenna near systems... When selling external antennas the business model is simple...we deliver a number of antennas based on a unit price... we sold a product... However, when we started to sell internal antennas we were actually selling functionality... we were more like selling the design... What we deliver today, the antenna element, is like a piece of metal that is integrated within the phone...it is still physically separated from the rest of the phone, but the interface is no longer standardized...it used to be a quite standardized mechanical interface... traditionally there weren't many different ways of doing this...today, in the integrated or internal antennas there are numerous solutions... We see that it makes sense for us to design an integrated solution and take responsibility for a larger part of the phone...to integrate the antenna with the speaker...or with a larger plastic component...like the frame... In order to be able to sell this to our

customer we need to take a look at the entire supply chain... you can no longer focus solely on the antenna... Suddenly you also find yourself competing with a number of new competitors...like many contract manufacturers...Flextronics and so on... we actually have to think on how to manage the supply chain rather than how to handle our logistics... Today, although we do business with the phone manufacturers we make most of our deliveries to the contract manufacturers...the phone manufacturers have outsourced... We see that we have some strengths that our "new" competitors lack...despite our size...if you would compare us with Flextronics for instance...our solutions with regard to design, manufacturing, logistics and so forth are tailor-made for this industry...we have technical know-how...remember that our core is not only manufacturing...we have development...and to some extend research... We see that there is a great risk that we are pushed upstream in the value chain...we don't focus on integrating forward but to keep our position...and the relationship with the phone manufacturers [Magnus Tannfelt, VP Allgon]...

"Both we and Allgon realized quite late that built-in antennas was to become standard in mobile phones...I mean...there are very good engineering reasons to have external antennas...coverage for instance...but this goes back to what I said...the phone gets bigger and it doesn't look nice...these are more important factors... This has been entirely driven by consumer requirements [Jan Wäreby, VP Sony Ericsson]..."

In addition, Allgon was to further develop its service portfolio. In 2001, Allgon initiated a program to develop a platform for electronic document handling and e-business solutions. The increased competition and price pressure in general and the phone manufacturers' strategy (e.g. Nokia and Ericsson) to source larger quantities from fewer suppliers in particular contributed to Allgon's substantial loss of market share since its peak in 1997. In addition, one of Allgon's major customers, Ericsson, had lost substantial market share in the mobile phone business (Magnus Tannfelt, Vice President, Allgon). As a consequence, Allgon began to focus on cutting costs (e.g. in R&D and in HR) and to narrow its product portfolio through divestments (e.g. to focus on antenna solutions for systems rather than for mobile phones). Investments in product development declined in 2001 for the first time since 1994.

"...we used to have huge expenditure in R&D...today however we focused more on the "D" [development]...rather than investing in research aiming at new product platforms we develop our existing platforms according to customer requirements...today we have two different organizations, a smaller one working with research and a much larger one working with development...the latter we call "Customer Engineering"...we no longer have a corporate function that we call R&D... [Magnus Tannfelt, VP Allgon]"

"...our customers...are not prepared to take any risks...they shovel everything on us...at the same time prices are pushed down...so we cannot charge a premium for the additional risk... Why am I saying that our customers shovel the risk on us...our customers are not prepared to pay for R&D that we do on their behalf...our lead-times are pushed... we deliver more direct orders...than from contracts...so far they pay on delivery...now customers are increasingly requesting to pay when they use our products... in 1994 our discussion with the customers were very much focused on securing deliveries...to be able to guarantee volumes...there were not much discussions about prices...we never met with the customer's purchasing or logistics department...today these are the people we meet...purchasing, logistics, quality managers... Today we need to negotiate with open books...of course our customers argue that this is a matter of cooperation to assist each-other in lowering total cost...really what they are looking for is to squeeze our prices and margins even further...the concept is copied from the car industry [Magnus Tannfelt, VP Allgon]..."

The results of such efforts could also be seen in the drastic reduction of total number of employees and total assets during 2001-2002 (see Figure 4:24 and Figure 4:25).

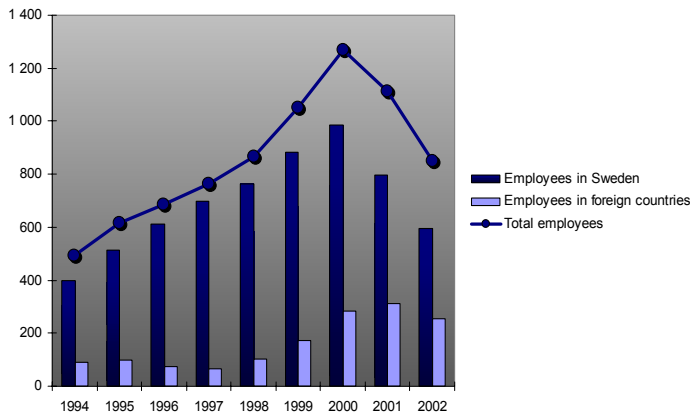


Figure 4:24 Allgon number of employees 1994-2002 (source: Allgon)

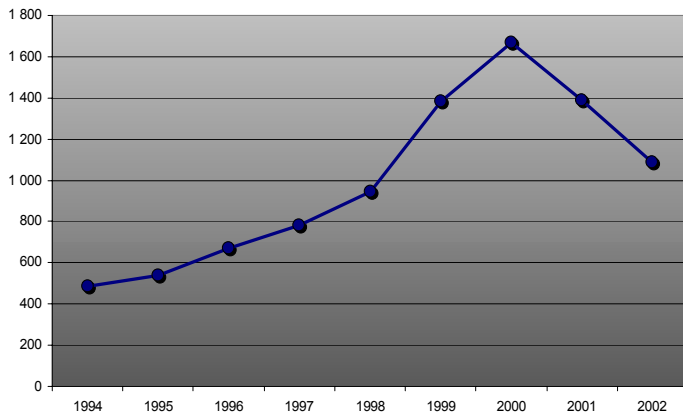


Figure 4:25 Allgon total assets (MSEK) 1994-2002 (source: Allgon)

Allgon's development between 1994 and 2001 at the corporate level is summarized in the table "Allgon facts and figures" below.

ALLGON FACTS & FIGURES				
	1994	1995	1996	1997
STRATEGY	Internationalization, primarily in Europe through exports, own subsidiaries and joint ventures. Focus on creating shareholder value.	Product development, international expansion, efficient distributions channels.	Customers increasingly demanded complete subsystems and selected fewer but larger suppliers. Orders smaller and placed more frequently. This contributed to increasing sales and distribution costs for Allgon. Increased focus on systems development and logistics.	
M&S	International sales through exports, own subsidiaries, joint ventures, distributors and agents "Mobile Academy" introduced as a marketing channel program, including training to retailers, merchandizing, etc.	Foreign sales of total sales increased dramatically. The distribution strategy of consumer products focused on reducing the number of distributors channels and distributors, focusing on the larger ones.	Allgon's subsidiaries in Germany and Turkey were sold. For the first time, sales of digital equipment surpassed analog equipment.	Global supply agreement for radio base station (RBS) antennas signed with Ericsson.
PRODUCTS	Focus on development, manufacturing and marketing of RBS and mobile equipment (e.g. antennas and accessories).	Focus on development of digital products, e.g. RBS and terminal antennas supporting PCN (GSM 1800), PCS (D-AMPS 1900), and CDMA/IS-95.	Development focused on microwave links and operations and maintenance center (OMC).	Product convergence in antennas that supported cellular, satellite and GPS.
SUPPLY & MFCTRG	Design and manufacturing activities executed in Sweden. Components sourced from primarily Swedish suppliers according to Allgon's design and specification. Quality control of sourced components Allgon's responsibility. Multi-supplier strategy for standard component for flexibility in terms of volumes and to keep investment in manufacturing equipment and facilities low.	Focus on increasing the degree of automation to meet increased demand. New facilities established in the USA and Japan to provide customer support, to develop and make market and customer adaptations of existing products, shorten delivery lead-times, lower currency risk.		Labor intensive manufacturing relocated to China for reducing cost and to be able to offer technical support and customer adaptations according to major customer requirements, e.g. Ericsson and Nokia.
STRUCTURE OWNERS	Product organization including 3 BUs, System, Mobile and Terminal Antennas. The members of the board owned 36.1% of the votes. Strategic decisions often made to satisfy the short-term needs of shareholders' and board members rather than the long-term strategic objectives of Allgon.			BU Mobile and Terminal Antennas merged, and Allgon System and Mobile Communications created.

ALLIGON FACTS & FIGURES				
	1998	1999	2000	2001
STRATEGY	Explicit M&A strategy targeted at companies with potential to increase economies of scale and enhance core competencies. E.g. to increase its competence, primarily within filter technology, Swedish West Plating and British 3C Scotland acquired (-98). In addition, Wireless Solutions Sweden, engaged in development of wireless applications and products, e.g. wireless Internet access, wireless LAN access and Bluetooth applications was acquired (-99). Shorter lead-times and shorter PLC required Alligon to emphasize on logistics, distribution and supply management. As a consequence of the convergence between products (voice and data communications), Alligon targeted a broader range of potential customers, including manufacturers of terminals or devices for voice and data communication.		Weak income statement and profitability primarily due to expenditure in the development of microwave links and multi-task mobile phone antennas. Search for partners to BU Microwave (SEK -45 million) and Wireless Solutions (SEK -76 million). Alligon entered the business of wireless Internet and LANs, Bluetooth applications by acquiring Wireless Solutions.	Focus on reducing costs due to increased price pressure from phone manufacturers and loss of market share (due to loss of market share of major customers such as Ericsson). Expenditure in research cut, reduction of employees. Focus on narrow product portfolio, e.g. antenna solutions for systems rather than phones, through divestments. Increased scope of offering into turn-key solutions and systems, e.g. coverage and antenna systems, microwave solutions.
M&S	Sales and manufacturing facility established in Brazil. Market share in terminal antennas of 40%.	Sales office in Japan established. Remaining shares in sales company in Hong Kong acquired.		Due to outsourcing agreements between phone manufacturers and CEMs, Electronics emerges as a potential competitor as well as a potential customer of antenna components to Alligon. By focusing on systems design (e.g. antenna near part system) CEMs are also perceived by Alligon as potential manufacturing partners by outsourcing some of its manufacturing.
PRODUCTS	Development costs of microwave equipment totaled 14% of total corporate R&D. Increased demand for consulting services. Different standards (air interface, frequency bands), applications (voice, data, satellite, multimedia e.g. radio, Bluetooth) made development of antennas increasingly a complex task. In addition, manufacturing from design to assembly more complex because antennas built into cellular phones were increasingly requested.	First generation of microwave links as well as satellite phone antennas launched. Development costs of microwave equipment totaled 22% of total corporate R&D.	All time high in R&D net expenditure. Development costs of microwave equipment drained the corporation's resources totaling 26% of total corporate R&D. Internal antennas enabled Alligon to develop a larger module or system, antenna near part system, in which the antenna was one integrated component.	Expenditure in research was cut while focusing on development for customer adaptations. Customer adaptations were often perceived as one way for customers to push costs and risks related to research to Alligon without actually paying for it. Microwave expanded its offering to include turn-key deliveries, including a complete service portfolio (consulting, installation, commissioning, test, training, tech. support, and optimization).
SUPPLY & MFCTRG	Manufacturing facility in Dallas, USA was expanded to include the manufacturing of terminal antennas. 5% of Alligon's manufacturing in the U.S. while 95% in Sweden. "Ship-to-line" policy implemented, i.e. components to be delivered directly to Alligon's assembly line with no prior quality control made by Alligon.	Manufacturing costs increased sharply due to lack of components in the industry. Manufacturing of internal antennas ramped-up.	Overcapacity in manufacturing of external antennas. Demand of internal antennas could not be met.	
STRUCTURE OWNERS			Reorganization into 4 BU, Systems, Mobile Communications, Microwave, Wireless Solutions.	Reorganization into 5 BU, Coverage Systems, Antenna Systems, Microwave, Telecom Equipment, Mobile Communications.

4.5 Construction industry 1994-2001

Both the building construction and the civil engineering segments of the construction industry are presented here. These two segments of the construction industry have shown to be intimately related, as the development of one has often required the development of the other. One main difference between these two segments, however, is that the building construction segment has often been privately financed while the civil engineering segment is often publicly financed (Stefan Holmlund, Vice President, NCC; Claes Linné, Vice President, Drott).

“Today we sometimes end-up in a catch 22 situation...when nobody takes the initiative...the project development and construction companies will not build private homes, apartments, office buildings...in areas where there are no communications...roads...telecommunication and so on...and these communications will not be deployed unless somebody takes the initiative to construct private homes, office buildings [Stefan Holmlund, VP NCC]...”

“In cooperation with the municipalities we can develop new regions...they need to take care of the infrastructure and we can develop new property projects...the infrastructure and property development projects need to be developed in parallel... If you take Kista...Kista belongs to four different municipalities Stockholm, Sundbyberg, Sollentuna and Järfälla...four political organizations need to agree with the land-lords on how to construct the highway to and from Kista...this can take very long time [Claes Linné, VP Drott]...”

During early 1990's several institutional factors played an important role for the overall development of the construction industry. The combination of the Swedish budget deficit with relatively high interest rates, primarily due to increasing rates in the U.S., affected the construction industry negatively (Skanska AR). However, Sweden's decision to join the EU had the potential to affect the industry positively (Skanska AR). A Swedish membership of the EU could have an effect on the labor unions and the cost of labor could potentially be challenged through international competition (Peter Carlsson, President Södra Building Systems). However, the EU was not perceived as entirely positive for the construction and civil engineering industry. Around 10% of Sweden's development assistance budget to developing countries was expected to go through the EU, thereby decreasing Swedish bilateral assistance and the possibility for Swedish construction companies to develop export projects to such developing regions and countries around the world. In Sweden, major investments such as the Öresund Bridge and the Arlanda Link, and economic packages such as the so-called Dennis package in Stockholm and the “Gothenburg agreement” in Gothenburg were expected to drive the market positively (Skanska AR). Some political policies that had a direct impact on the residential market were the level of interest subsidies and property tax and the Swedish “utility value-based system” for setting residential rents. The utility value-based system may have contributed to hampering industry growth (Drott, AR 1999). With regard to costs, the Swedish government had decided to liberalize the market by removing interest subsidies and by selling land at market price. On the revenue side, however, rental levels were still regulated through the utility value system (NCC AR). This may explain the low construction volumes in Sweden despite there being a high demand in metropolitan regions.

“The real-estate companies owned by the municipalities don't have the same requirements as we do with regard to...generating return on shareholder's equity...the market we have is not a free market...it's based on the utility value system...it gets really bad when these companies compensate vacancies with subsidies from the municipalities rather than raising their rents or by any other means...this has a direct impact on our rents...we may not raise our rents in order to covers our costs... Energy taxes have a direct impact on our costs, in particular when it comes to rental apartment buildings...we are responsible for

paying the heating...we cannot transfer an increased cost to our tenants due to the value system... [Claes Linné, VP Drott]..."

"We have a strong presence in the Stockholm region where there is a shortage of apartments...remember that we have a market imperfection through rental regulations...demand and supply can not balance...the industry would like to construct, tenants would like to rent...but there is no incentive to satisfy the demand...no incentive for us and the construction industry to develop projects and increase construction...this is why a black market has developed in Stockholm for rental apartments [Claes Linné, VP Drott]..."

"In 1993-94 when the mortgage loan system was redrafted...and the "Danell-system" was introduced...this industry changed...costs became suddenly an important issue... Politicians are now frustrated because we don't deliver the products they would like us to deliver...the reason is that politicians would like to see that we focused on constructing apartment buildings in the low-end segment...unfortunately construction is too expensive...costs are too high...we are forced to target the high-end segment...naturally we build for the segment that we think will be able to pay...the rent regulations that are still in force have a strong impact on the construction industry...if somebody decides "this is the maximum rental cost", it doesn't mean that markets behave in a way that the cost levels are exactly what politicians decide it to be... The municipalities and the politicians are in fact the ones that have created this situation... If we are to construct an apartment building for rental apartments and be able to offer low rental levels...let's say around 700 [Swedish] crowns per square meter [and year] we need to be able to purchase land that enables such rental levels...land price cannot exceed around 500 to 1,000 [Swedish] crowns per square meter [and year]...if land costs around 3,000 [Swedish] crowns per square meter [and year] I am only able to build for the high-end segment...or to build apartments for sale also targeted at the high-end segment...municipalities make land available for exploitation at market prices or above...rents however, are not set according to market price...they are regulated [Jan Byfors, VP NCC]..."

In 1994-95 the institutional setting improved, primarily due to lower interest rates in Sweden and internationally. In addition, the Swedish crown gradually regained strength during 1995 (NCC AR). In 1994, for the first time in the 1990's and after nearly four years of recession, sales in the construction industry, including civil engineering and industrial building constructions (e.g. offices, public buildings) increased (NCC AR, Skanska AR). Swedish residential building construction activities, however, remained weak in 1995 (NCC AR, Skanska AR). Compared to 1993, in 1994 the segment civil engineering increased by 11% and the segment industrial building by 6%. Residential housing constructions, however, decreased by 25% (NCC AR). In 1994, approximately 10,000 new apartments starts were reported (NCC AR, Skanska AR, see Figure 4:26). Sweden was thus among the five countries in the world with the lowest residential construction per capita (Skanska AR; Mats Williamson, President Skanska Sverige). Government subsidies in 1995 stimulated an increase in residential construction (Skanska AR).

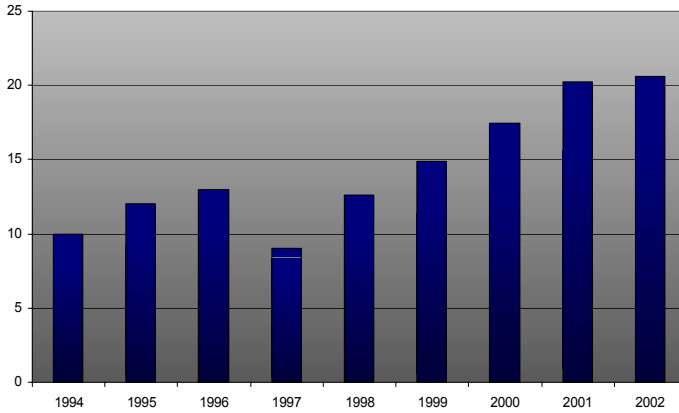


Figure 4:26 Housing starts in Sweden (x 1,000) 1994-2002 (source: NCC, SCB)

Despite a total of 275,000 apartments, i.e. around 10% of all the Swedish apartments, not having been refurbished in over 40 years, refurbishment projects, so-called ROT-projects (“Reparation, Om- och Tillbyggnad”), also remained at low levels (NCC AR, Skanska, AR). The ROT segment was however expected to increase by the end of the 1990’s (NCC AR, Skanska AR) as measures taken by the Swedish government were expected to stimulate the refurbishment of older apartment building (Skanska AR). Demand in some very specific sub-segments and geographical locations, however, increased, e.g. housing for students (in university towns) and homes for elderly (NCC AR). From an international perspective most construction projects in Sweden, including ROT-projects, were considered small. This meant that many small competitors were able to compete with the larger construction companies.

“NCC, Peab and Skanska together have probably 50% of the Swedish construction market... If you compare the market for new buildings and the market for refurbishment of older buildings...the latter is very large...and here is where we have the strongest competition from the smaller, local construction companies [Claes Larsson, President Skanska Projektutveckling].”

Measured in sales, the five largest construction companies in Sweden were Skanska (excluding JM), NCC, SIAB, PEAB, JM, Lundbergs and Platzer (NCC AR, Skanska AR, see Figure 4:27).

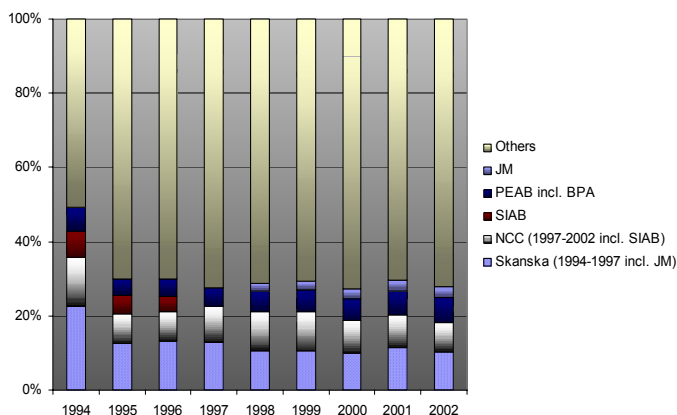


Figure 4:27 Market share by construction company (% of sales) 1994-2002 (source: NCC, Skanska)

“In the beginning of the 90’s after the economic crises in Sweden only three major construction companies survived...Skanska, NCC and Peab...maybe JM...JM is the only construction company that has been specialized...in housing construction...many component suppliers also disappeared...and the middle layer disappeared completely...they were bought by the three...maybe four...big ones or simply went bankruptcy...the industry concentration increased...there were fewer companies...among the smaller companies we have many local suppliers, sometimes but not always, very specialized [Jan Byfors, VP NCC]...”

In 1996, overall construction activities turned slightly upwards (NCC AR) due to low inflation, relatively low interest rates, and an increasingly strong SEK (Skanska AR). Investments in repairs and renovations also stimulated the segment for industrial building components and systems. A general trend in the construction industry was the increasing value of industrial building components and systems (Skanska AR). Some estimates indicated that such components and systems totaled on average approximately 1/3 of the total construction cost (Skanska AR). The segment for industrial building components was considered more stable than the building construction market in general (Skanska AR). The reason was that sales of industrial building components could rely not only on new construction projects but also on ROT-projects, i.e. maintenance, repair and renovation projects (Skanska AR; Claes Larsson, President Skanska Projektutveckling).

Between 1996 and 1997, the prices and rental levels of detached houses and tenant-owned apartments increased in the prime locations of major cities (NCC AR). In general, however, construction activities in this segment remained at a low level, primarily due to uncertainty regarding future political policies (NCC AR, Skanska AR). As new constructions represented a diminishing share the overall market, repairs, renovations and maintenance represented an increasing share (Skanska AR). Growth in the production of new housing was, however, expected to increase and to be dominated by single-family houses and tenant owner apartments in prime locations in growth areas, e.g. in large towns or in cities with universities (NCC AR). A number of additional factors, such as low interest rates and an increased lending propensity among banks and other financial institutions, indicated that an upswing would occur in the aforementioned housing segment (NCC AR). In the civil engineering segment there was an ongoing shift from public financing towards private financing of major projects through e.g. BOT-projects (Skanska AR; Mats Williamson, President Skanska Sverige). Some of the plans for infrastructure projects which had been government driven

were delayed or postponed, e.g. Norra Länken highway in Stockholm (Skanska AR). According to the Swedish Construction Federation, after a few years of growth, investments in roadwork and civil engineering projects decreased by approximately 2% between 1996 and 1997 (NCC AR, Skanska AR). The segment for road-surfacing alone, declined by 15-20% (NCC AR). One of the probable reasons was that the industry was waiting for the Swedish Government to adopt a national plan for Sweden's transport infrastructure (NCC AR).

In 1998, Sweden showed a positive GNP growth and relatively low interest rates. The competitive situation changed considerably during 1998 and onwards as construction companies from Norway, e.g. Selmer and Veidekke, Denmark, e.g. Pihl & Sön, and Finland, e.g. YIT, established operations in the Swedish market (NCC AR, Skanska AR). As a consequence, land and building rights prices increased and margins decreased (Skanska AR; Jan Byfors, Vice President, NCC). Marketwise, in 1999, most building construction segments developed favorably in terms of vacancy rates and rental levels. Decreasing profitability among medium sized construction companies however, resulted in a consolidation in the industry whereby the larger construction companies bought up the smaller ones (Skanska AR; Claes Larsson, President Skanska Projektutveckling; Jan Byfors, Vice President, NCC; Peter Carlsson, President, Södra Building Systems). Another general trend noted in the construction industry was the ambition shared by many construction companies, and their customers, to take responsibility for the project management function of a project and to outsource the actual construction work to sub-suppliers (Skanska AR; Claes Larsson, President Skanska Projektutveckling; Peter Carlsson, President Södra Building Systems).

"At NCC we have engaged in substantial outsourcing...pushing our suppliers to do more...we however retain control and management of the construction process though our own project managers... suppliers today deliver not only materials and components but also resources to put everything together...to get everything in place...there are many reasons for us doing this...one is specialization...a company delivering a floor or tile knows exactly how to do it [install and deploy]...another reason is to transfer risk...in a construction process you have to be able to manage risk [Jan Byfors, VP NCC]..."

Because purchasing decisions and decisions affecting quality levels, lead-times, etc. were often made at the project level, developing project management capabilities became a key issue for most industry players, larger construction companies in particular but also real-estate companies (Peter Carlsson, President Södra Building Systems). In 1999, with regard to infrastructure projects financed by Swedish central and local governments, the public sector decided to cut back on investments (Skanska AR). The Swedish National Road Administration requested that it also be permitted to test the BOT business model in several major highway and other civil engineering projects (NCC AR). The number of BOT-projects increased (Skanska AR). Requirements for environmental, as well as social, responsibility among corporations increased (Skanska AR). During the early 2000's this became evident as the construction industry increased the use of wooden structures, partly due to environmental reasons (NCC AR).

"Maybe wooden buildings are becoming or will become more common...we need to lower construction costs...and unfortunately wooden buildings are quite expensive... cement, concrete and reinforced concrete are some of our competence areas...we know these materials much more than wood [Mats Williamson, President Skanska Sverige]..."

In general terms, the growth trend in constructions projects between 1998 and 1999 was primarily noted in major metropolitan areas and university towns, e.g. Stockholm, Gothenburg and Malmö (Skanska AR). The positive development in the real-estate market was related primarily to residential, office and retail premises. Demand increased primarily

for modern, functional and flexible offices, warehouses and industrial premises, i.e. premises that could easily be adapted to the varying needs of the customer (Drott AR). The positive development was explained by the increased growth and demand in industries such as IT, computer, and the telecommunication industry as well as various types of consulting companies (NCC AR). With regard to housing construction, one continuous trend was the relative increase of construction based on the total package concept. In Sweden, between 1998 and 1999, 65-73% of the total construction segment was accounted for by the total package concept (NCC AR). In addition, it became apparent that the demand in the residential segment was increasingly becoming heterogeneous (Skanska AR).

In 2000, the construction industry slowed down and this development accelerated during 2001. As a consequence, the real-estate segment consolidated. In 2000, several listed real-estate companies were subject to M&As, i.e. CA Fastigheter acquired Evidentia, Skandia acquired Diligentia, Rodamco acquired Piren (Claes Larsson, President Skanska Projektutveckling, Drott acquired Närkebro and Balder, AP Fastigheter acquired Diös, and an investor consortium acquired Norrporten (Drott AR).

“The real-estate companies that we have acquired...like Närkebro and Balder...originally came from the banking industry...they [the banks] floated these companies in order to redeem pledges...these facilities and companies had existed for a long time...in other constellations...not necessarily as real-estate companies...what the banks did was only to collect all these building under one umbrella in order to be able to sell them...through the stock market...in a sense industry concentration has increased and this has been driven by financial forces in the banking industry [Claes Linné, VP Drott]...”

Several factors contributed to this slowdown in the industry. From an international point of view, the American economy weakened during the second half of 2001. The economic downturn in the U.S. also resulted in a slowdown in the construction market as there were a number of cancellations of orders and delays in project start-ups (Skanska AR). This trend became more pronounced after the terrorist attacks on September 11 (Skanska AR). From an institutional point-of-view, in Sweden during the year 2000, new property tax rates lead to substantially higher rates for residential units in prime locations such as older residential buildings in central Stockholm and in sea side locations (Drott AR; Mats Williamson, President Skanska Sverige; Jan Byfors, Vice President, NCC; Stefan Holmlund, Vice President, NCC). With regard to industrial premises and offices the demand originated from the financial, IT and telecommunication industry slowed down during the second half of 2001 (Skanska AR, Drott AR). Consequently, demand and rental levels decreased and vacancies increased (Drott AR). This trend applied to the Stockholm region in particular and became most evident towards the end of 2000 (NCC AR, Skanska AR). In addition, Swedish real-estate prices decreased towards the end of 2001, probably due to the downturn in the stock market (Skanska AR). This enabled international real-estate investors to step up their activity in Sweden, not the least in the real-estate segment, both as buyers of real-estate and shares in constructions and real-estate companies (Skanska AR).

“Until 2000 we didn’t have many foreign investors in Sweden...we closed a few larger businesses with GE Capital and Morgan Stanley...in -99 I think...most investors were Swedish... Since 2000 the number of foreign investors has increased substantially... These companies don’t really focus on the tenants...of course they understand that they need to take care of their tenants in order to be able to make a profit in the end...but they see it more like a financial investment...it’s not their core business to manage properties...they have a very straight forward way of doing business... Last spring we sold a substantial amount of real estates to Goldman Sachs...worth 3 billion...they contracted an external company to take care of property management, services...and so on...while they retain responsibility for the financial investment...capital management... This is a trend in the Swedish real estate market...we have more specialized players today...I mentioned the entrance of large international financial management

groups...they are specialized in capital management...a second group of companies are the smaller, effective and local real estate companies...they take a more active role in real estate management...you have real estate companies like Drott and Vasakronan...they include real estate acquisitions and sales...as core in their business...but they also develop their real estate portfolio and customer relationships through increased service levels and so on [Stefan Holmlund, VP NCC]...”

“All our customers have one thing in common...they’re looking for the rental net...and or a potential increase in the market value of the facility...Financial investors and the pension funds look solely at the investment...short- and long-term...they outsource much of the operation and maintenance, and the services offered to their tenants...Vasakronan, one of our largest customers, is a professional real-estate company...they take responsibility for operations and maintenance and a greater responsibility for the services [Facility Management, etc.]... The profile of our customers have changed...we now sell more directly to financial institutions and private banks...in addition the ownership structure of the real-estate companies have changed...financial institutions and private banks have substantial holdings in these companies [real-estate companies]...Of course the requirements we have from our customers reflect this...we need to be able to sell a return-of-investment rather than a building [Jan Byfors, VP NCC]...”

This development was also reflected in construction companies, although it was not as evident because of their international operations (the valuation of these corporation and shares were not as dependent on the Swedish market as real-estate companies). Drott, Skanska and NCC may serve as examples. In 2000, foreign investors in Drott peaked, and owned 21% of Drott’s votes. Prior to that, a typical figure had been 8-14%. During 2000-2002 foreign investors owned 14% of Skanska’s share capital. Prior to that, a typical figure had been 8-12%. Despite NCC showing a relatively low figure, foreign investors in NCC also peaked in 2000, owning 7% of NCC’s share capital (Claes Larsson, President Skanska Projektutveckling).

4.6 Drott

Drott was established in 1898 and listed on Stockholm’s Stock Exchange in 1901. In the 1970’s Skanska acquired Drott. Drott, as the company is known today, was formally established in January 1998 however when a dormant company within Skanska, AB Ellenbogen, acquired three of Skanska’s real-estate subsidiaries. In 1998, Skanska decided to distribute all of the shares in Drott AB to Skanska’s shareholders. The Skanska shareholders received a corresponding number of Drott shares free of charge. The Drott A- and B-shares were listed on the O-list of the Stockholm Stock Exchange on September 24, 1998 (Claes Linné, Vice President, Drott).

Between 1998 and 1999 Drott’s strategic focus included developing a strong brand and to increasing the pace of acquisitions and sales of properties. Drott also aimed at increasing specialization (e.g. in flexible office facilities) and the geographical concentration of its portfolio of properties. Specialization and concentration enabled Drott to serve its customer better but was also required by the capital market. The portfolio of properties was to be concentrated into Stockholm, Gothenburg and the Öresund region, including Malmö, as well as university towns in central Sweden (Claes Linné, Vice President, Drott). As a consequence, foreign real-estates were divested.

“In the beginning, our portfolio was spread internationally and across Sweden...we have been working hard to concentrate our portfolio...first to Sweden and then to Stockholm, Gothenburg and Malmö...in comparison with other real-estate companies we are quite large in Gothenburg and Malmö...internally, Stockholm is our largest market... Today 75% of our business is located in Stockholm...over time Stockholm is the fastest growing region in Sweden...not at the moment, but over a longer time horizon... Stockholm is much more volatile... The capital market, however, has a three month perspective on our business...they get scared to death when they see the market in Stockholm go down...we have told them that we cannot run our business having a three month time perspective...we need to look several years ahead before we decide on our strategy and the things we need to do... Running a corporation...the day-

to-day operations of a company...differs in many ways to what the capital market would like us to do...as I said they look three months ahead...six months maximum...if we would have this time perspective, I'm sure we would make our tenants very concerned... This is a dilemma [Claes Linné, VP Drott]..."

"One of the trends that we see in the commercial real-estate market is that our tenants require facilities that are flexible... They need to adapt quickly and try to minimize their costs as their needs change over time...minimize adaptation costs...to offer flexible office solutions is good for us too...we make sure that we keep our tenants and we don't require months to make the changes they require...months during which we are not able to charge rents...during a period of time everybody requested open landscapes...now we moving back to cells...different functions in an organization may require different lay-outs... We think we will see an increasing specialization among the real-estate companies...today you have basically two businesses, apartment buildings and commercial real-estate...I have mentioned many other areas of specialization...hotels, industrial buildings and so forth... The stock market demand that real-estate companies specialize [Claes Linné, VP Drott]..."

In addition, Drott's strategy included creating a balanced customer and lease portfolio as well as establishing cost effective operations through property O&M and to offer added value services to its customers, i.e. tenant-adapted property management and services. With regard to its financial strategy, Drott aimed at continuously matching the corporation's capital structure with its asset structure. The overall corporate objective in this respect was to maximize shareholder value.

"When we were detached from Skanska we had practically no liabilities...around 20 million in net liabilities...our adjusted shareholder's equity was around 10 billions...the alternatives we had...in order to have a reasonable capital structure...in order to increase the return on shareholder's equity...was to either return some of the capital to our shareholders or to expand our balance sheet...we choose to expand our balance sheet through acquisitions [Claes Linné, VP Drott]..."

"During two years we have been engaged in buying back our own shares...the rationale for buying our own share has been to get an effective capital structure... In -98, when we acquired Näckebro we "killed" all shares Näckebro owned in Drott...and last time [when Drott acquired Balder] we killed approximately 9% of the shares that we bought back... Both acquisitions of Näckebro and Balder were made in cash... If I would have bought a company with the shares... it would be like issuing new shares...meaning that we would have been diluting our shareholding...by "killing" our shares we got a better capital structure...a better return on shareholders' equity [Claes Linné, VP Drott]..."

In 1999, Drott presented a strong income statement (net profit, margin) and balance sheet (ROA). In fact, this was a record year (all-time high) considering the period 1998-2001 (see Figure 4:28 and Figure 4:29).

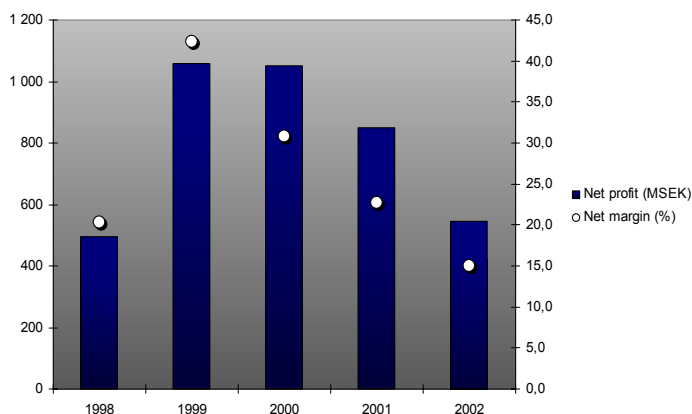


Figure 4:28 Drott net profit and net margin 1998-2002 (source: Drott)

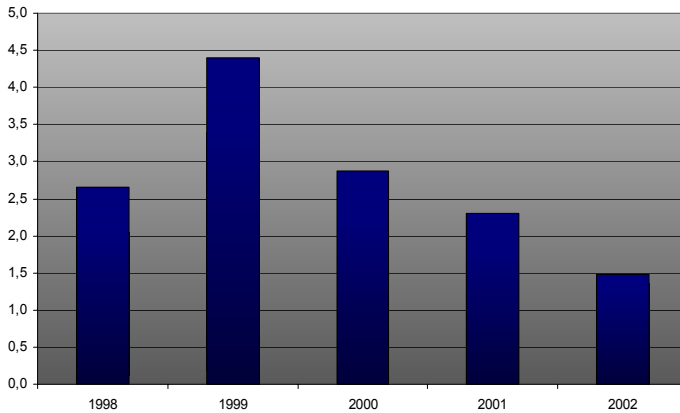


Figure 4:29 Drott ROA (%) 1998-2002 (source: Drott)

Between 2000 and 2001 Drott's mission and overall strategy remained practically unchanged. Drott had been quite successful in as far as since 1998, when Skanska distributed the shares in Drott to its shareholders, the value of the real-estate portfolio had quadrupled. According to Drott this was primarily the result of significant acquisitions in the Stockholm region. In 2000, 70% of the market value of the real-estate was concentrated in the Stockholm region.

"Being a big [regional] player enables you to keep the vacancy rates low...because you can offer your tenant an alternative if he is looking for moving...vacancies are very expensive...you have to find a new customer...it takes several months to find a new customer and you may have to adapt the premise to the requirements of the tenant that is moving in...it costs money... This is a tendency...lease agreements span over a shorter period of time...customers require to have options as they sign the agreement...many customers know that their business might change rapidly...and they have to adapt to such changes rapidly...they might have to grow or shrink their organization [Claes Linné, VP Drott]..."

As the rental market slowed down around 2001, Drott's strategy for achieving maximum shareholder value changed slightly. Focus on tenants became more important (Claes Linné, Vice President, Drott). Drott's explicit strategic intent included concentrating on metropolitan regions with a growth potential, i.e. to continue to concentrate its real-estate portfolio to the Stockholm, Gothenburg and Öresund regions with an emphasis on Stockholm. A more concentrated portfolio was believed to enable efficient property management. In an effort to increase focus on tenants, Drott launched a package of Facility Management services in 2001.

"During this fall, we are launching our Facility Management concept...our ambition is to increase customer satisfaction and to lower our customers' costs in this area [FM]...we will benefit by being able to attract and retain new and existing customers and thereby increase the value of our properties... We don't expect to generate substantial profits from FM...the most important is still to have a rental net in our managed properties irrespective of whether we intend to keep the facility or sell it... Our FM concept has been developed to retain and attract good customers that are prepared and able to pay good rents... As a consequence we only offer FM services to tenants in our buildings not to other tenants..."

Our FM concept has been developed into a full service concept including everything from janitorial services, IT support, furniture, moving assistance, catering...if required by customer we are able to offer an outsourcing solution...to transfer personnel, equipment and so on to our organization... It's up to the customer to decide the service level he would like us to provide...from a plain office space to a full service facility...actually this development of FM services is market driven...our customers took the initiative and asked us if we could manage everything..."

Most of these services [FM] we will purchase from third party suppliers...our role is to coordinate and manage...we are responsible for the service quality towards our customer... Many of our customers purchase all these services today and have somebody within their organization responsible for coordinating everything...we assist them today in negotiating with their service suppliers...

We manage all our properties ourselves...some other real-estate companies purchase property management from third party suppliers...the strategies differ in this respect... Närkebro that we acquired owned properties worth of 10-11 billions...the worth of Drott's property portfolio and Närkebro's were almost the same...in Sweden they had 23 people to handle this [property management]...we had 240 people... Närkebro had outsourced virtually all their property management...one of the first things we did after acquiring Närkebro was to bring property management in-house...in property management we include operations and maintenance as well as the day-to-day contact with the tenants...usually the company managing the property has day-to-day contact with the tenants, not the company owning the facility...this is something [contact with the tenants] you lose when you outsource...we think this relationship is essential to our business...to understand our customer's needs...what the customer is planning to do the next few years... A very small fraction of our property management is outsourced...the idea is to have a benchmark... FM is also a step in this direction...to create a stronger relationship with our customers...fault reports, maintenance work...things that we use to call property management will be included in our FM services...

Skanska, NCC, our suppliers are also looking to offering FM services...many companies are involved...telecom operators and suppliers are looking to operate our customers' communications networks...this is also an FM service...many industries converge through FM... I don't see any problem in this... Skanska bought Ericsson's FM services some three years ago...nevertheless the business logic is different among all these companies...most companies offer FM services to tenants in building that they don't own...we only offer FM services to our customers in our properties...properties that we own and manage... I also see that we can work together...with operators for instance...we don't intent to operate IT and telecom networks...I think we complement each-other [Claes Linné, VP Drott]..."

In addition, in order to increase close collaboration with tenants, Drott continued to adopt a rapid pace of acquisition and sale, and to continuously adapt the capital structure to the real-estate portfolio. This meant having an adjusted equity/assets ratio of 30-40%. The overall business objective remained the same, however, it was expressed in more details. On an average annual basis over a business cycle, Drott's was to increase the adjusted equity per share by 15% (including dividends) and cash flow per share by 15% (excluding property sales and nonrecurring items).

Drott's development between 1994 and 2001 at the corporate level is summarized in the table "Drott facts and figures" below.

DROTT FACTS & FIGURES				
	1998	1999	2000	2001
STRATEGY	<p>Prime corporate objective to create shareholder value through dividends. Dividends policy corresponded to approximately 50% of earnings after tax resulting from ongoing operations. Capital market major driving force to strategy, e.g. for Drott to concentrate portfolio of properties to Stockholm, Gothenburg and Öresund-region. Other regions (and properties in foreign markets) to be divested. In addition to geographical concentration, specialization and divestment of no prioritized operations (e.g. hotels). Core operations included project management, purchasing, real-estate management and financial management. Rationale was to understand how cost added-up in the value chain and minimize risk when investing in new projects. Major task was to identify expanding sub- or micro-markets e.g. Kista in Stockholm. Strong income statement and profitability (-99). Content of strategy formulated (-99), including rapid pace of acquisitions and sales, value adding property management, personal commitment, ongoing dialog with shareholders and capital market, development of strong brand.</p>	<p>In order to adapt its capital structure to its asset structure Drott engaged in repurchasing own shares. In addition, shares were to be used in future acquisitions. Drott's ambition to deliver maximum shareholder return changed slightly as the rental market slowed-down. Tenants became more important. Content of strategy formulated, including to concentrate in growth regions (primarily Stockholm), close collaboration with tenants, rapid pace of acquisitions and sales, and to continuously adapt its capital structure to its real-estate portfolio, meaning adjusted equity/asset ration of 30-40%. New strategy for project development included not to initiate speculative projects, 60% of space had to be leased before initiating a project.</p>	<p>Increase focus on geographical concentration in order to increase efficiency in property management. Focus on balancing commercial and residential real-estate portfolio as the latter generated higher revenues but was more volatile and because residential real-estates financed acquisition of commercial real-estate (75-80% of commercial building pledged as security while 85-90% for residential real-estate). In order to adapt its capital structure to its asset structure Drott continued to engaged in repurchasing own shares.</p>	
M&S	Five largest customers Ericsson Radio, Ericsson Access, Ericsson SAAB Avionics and Telia represented 11-12% of rents. The inertia for prices to reflect demand and supply in real-estate segment represented a major business risk.			
PRODUCTS	Development of tenant-adapted services.			Development of FM services (conference services, receptionists, telecom solutions, janitorial services, etc.) in order to increase customer loyalty and stable cash-flow.
OPS	<p>Cost effective operations through proprietary O&M. Some property management was outsourced for benchmarking purposes of quality and costs. Strategy to retain activities closely related to customers. Other activities had potential to be outsourced. Through the acquisition of Näckebro Drott aimed at increasing earnings by SEK 30 million and cash flow by SEK 150 million through synergies in property management, financing, tax and overheads.</p>	<p>Divestments of real-estates in 7 Swedish locations, the entire portfolio of hotels, and properties in the U.K. and Luxembourg. According to its strategy, Drott took over property management of the Näckebro properties previously managed by an external organization. In addition, Drott decided to bring in-house most of the 50% of property management within Drott Riks that was outsourced.</p>	<p>Balder with a real-estate portfolio totaling SEK 12 billion in 241 properties; primarily Stockholm was acquired. Since 1998, the real-estate portfolio had quadrupled as a result of significant acquisitions, primarily in Stockholm. Fastighets AB Balder and Ragne were acquired. Divestments of real-estates in several Swedish locations and in Holland.</p>	<p>Divestments of real-estates in 37 Swedish locations. Limited demand for new projects while increasing demand for customization and renovations.</p>
STRUCTURE OWNERS	3 BU's to reflect customer segments and geographical focus, Kontor, Bostad and Riks.			A new BU was established, Project and FM.

4.7 Skanska

Skanska (AB Skånska Cementgjuterier) was established in 1887 as a producer of cement products. In 1897 Skanska received its first international order. The Skanska B-share was introduced on the A-list of the Stockholm Exchange in 1965. In 1994 AB Skånska Cementgjuterier was renamed Skanska.

In 1994 Skanska's strategic focus included developing attractive, cost-effective and thus competitive solutions within its core business of construction related services and real-estate management. In addition, Skanska considered the management of its shareholdings in a few listed Swedish companies to be of strategic importance, among other reasons, because it provided Skanska with the financial strength to become an attractive partner in larger construction projects. Because Skanska did not consider the Swedish market to be sufficiently large, nor to grow in a sufficiently rapid pace, Skanska strategically decided to expand internationally both as it had done in the past through project exports, and through acquisitions. The idea was to establish Skanska as a transnational company with several home markets (Mats Williamson, President Skanska Sverige). The rationale for having a strong international footprint was to offset the volatility of local country markets and to capitalize on global economies of scale in terms of technology, purchasing and working processes and procedures (Claes Larsson, President Skanska Projektutveckling). Skanska internationalized aggressively during the entire 90's as shown by the increasing percentage of foreign sales of total net sales (see Figure 4:30).

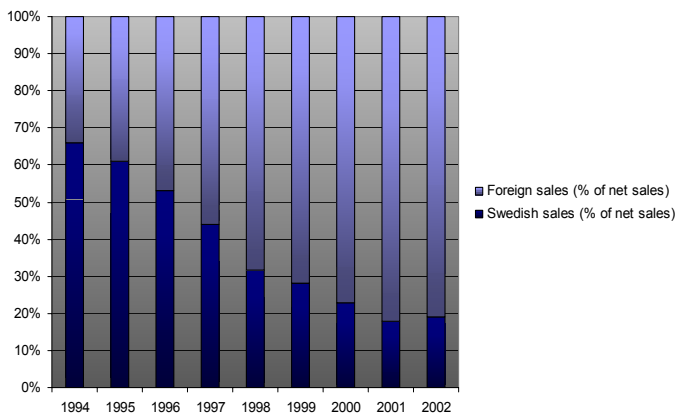


Figure 4:30 Skanska domestic and foreign sales of total sales (source: Skanska)

“When Claes Björk was our CEO...between -97 to -02...we expanded very much internationally...I think we increased our turn-over by a factor 5...our international sales went from 20-25% in the mid 90's to approximately 85% today... Since the construction business is local we say that we need to be a transnational company...we have expanded internationally through acquisitions...we have acquired many companies during the last couple of years...the construction industry is such a mature business that you seldom acquire a company in order to get hold of know-how...acquisitions relate to capturing market [Claes Larsson, President Skanska Projektutveckling]...”

Another strategic area was supply, logistics and purchasing. Through efficient flows of materials and by centralizing purchasing activities and utilizing standardized processes and procedures, Skanska believed it could capitalize on global economies of scale (Claes Larsson, President Skanska Projektutveckling). Other important strategic efforts included changing the corporate culture from a product and production oriented culture to a market oriented culture

and becoming more specialized within different product areas. In fact, market orientation and technical specialization were interrelated strategic efforts which could be linked to risk and profitability. In the U.S., Skanska had experienced that specialization created repeated sales to specific customers. Over time, the relationship with such customers lowered the anticipated business risk, and as a consequence, prices could be offered without a risk premium. Prices were thus brought down while margins were stable.

“We have had similar [partnering] experiences in the U.S. Although it’s common in the U.S., many of our sister companies don’t participate in many competitive tenders... because the risk is small we can offer low prices and have low margins...customers that don’t appreciate us on the other hand...well...we simply ignore these customers...we have to be selective... The margins in the construction industry is very low...maybe 2.5-3%...our vision is to have a 4% profit margin...this is because we have quite a few projects which are not profitable...if we could get rid of all such projects we would reach our target of 4%...estimating risk and managing risk in other words essential... Still today many project managers have two different...schedules...one external that is presented to the customer and another internal, the one that he is actually using in his day-to-day work, that he believes in...this can simply not continue... [Mats Williamson, President Skanska Sverige]...”

From 1995 through to 1996, Skanska adopted industrial components (manufacturing and installation of electrical and water components, etc), industrial construction⁵ and prefabrication as additional core businesses (Claes Larsson, President Skanska Projektutveckling). Skanska entered these segments, in particular the segment of industrial components, through acquisitions. This strategy can be detected in the negative cash-flow (i.e. investments) in shares and participations during 1996 (see Figure 4:31).

“In the beginning of this time period, and from a corporate perspective, we bought components suppliers...windows manufacturing companies...floors... Melker [former CEO of Skanska] always talked about...”industry, construction and real-estate”...these areas were to be regarded as equally important...so back in-94 we focused on establishing a strong industrial business...we bought industrial companies...window and floor manufacturers... like Kährs Golv, Elitfönster... and Skåne-Gripen that dealt with floors, windows and other interior details...eventually we sold most of them...today we still talk about construction and real-estate...we never talk about industry [industrial components]... Nevertheless, we still have production units working with prefabrication...but these are in the area of building construction... one reason for this development is that we today focus on capital efficiency...the business of industry ties-up to much capital...it requires too much capital [Claes Larsson, President Skanska Projektutveckling]...”

As a consequence of its increasing focus on core businesses, Skanska increased the pace of divestments of companies and shareholdings that were not considered to be core. Specialized know-how was specified as the construction fields of bridges, tunnels and hydroelectric power plants. As demand for BOT-projects increased, primarily in Skanska’s international markets, Skanska believed it needed to increase its ability to offer project financing and total solutions across the entire value chain. To be able to do so, Skanska identified some key areas for improvement, e.g. to develop Skanska’s competence in certain specialized technological areas (see above), and to develop its project and financial management abilities (Claes Larsson, President Skanska Projektutveckling). Growth and internationalization enabled Skanska to make use of local sources for project financing and to increase its financial strength in order to increase credibility as a reliable partner in large projects. International growth and BOT-

⁵ According to Boverket (Forum #1 March 2005) industrial construction is different from industrialized construction. Industrial construction means that, for example, houses are built in a manufacturing facility (very much like in an assembly line) and transported to site. Industrialized construction, on the other hand, means that components are manufactured in a manufacturing facility and transported to the construction site where the house is assembled according to the principles of industrial construction, e.g. standardized processes and procedures. Industrial construction includes to a higher or lower degree industrialized construction and vice versa.

projects required Skanska to initiate the development of a detailed strategy for how to assess and manage risk.

“PPP solutions which are solutions for privately financed roads and other facilities...we have implemented this kind of financial solutions in Finland...in the segment of roads...we are engaged in privately financed prisons and hospitals in England... In the future, we expect to implement similar financial solutions in Sweden [Mats Williamson, President Skanska Sverige].”

BOT-projects in Sweden were limited, mainly due to government policy. A driving force in the Swedish market for BOT-projects, however, was that such projects could potentially drive innovations and ultimately lower costs by moving away from technical project specifications towards functional project specifications. Examples of this development can be found in road surfacing and the construction of bridges.

“We have developed some new recipes for asphalt that have longer durability...we are able to guarantee the functionality during a longer period of time compared to our competitors...unfortunately Vägverket doesn't seem to be interested...they argue that our competitors are not able to offer a similar solution which makes the comparison between us [and our competitors] obsolete...in addition they are very focused on cost rather than the value we provide...and of course our asphalt is a little more expensive... Nevertheless, the total cost, over a longer time span, is much lower...this actually hampers innovation...there is no reason for us to develop a better asphalt recipe...to improve quality...they detail the technical solution...all asphalt producers need to deliver a price on the asphalt recipe provided by Vägverket... If you differentiate too much you may create a de facto monopoly...the perception is that this could hamper competition...the difference is that this is driven by innovation...Vägverket should encourage innovation, not hinder it...our ambition is to create added value for our customers, just like anybody else...we try to differentiate for the benefit of our customers...and ourselves... One way to solve this dilemma is to sell BOT projects...because we are interested in looking at the total costs in the long-term ...if we are going to operate a highway for let's say 30 years...in a BOT project we would select high quality asphalt rather than low cost asphalt...in addition, if we would have BOT projects in Sweden we would invest even more in developing new asphalt recipes...it would be profitable for us to do so in the long-run [Mats Williamson, President Skanska Sverige].”

“The Öresund Bridge was different from other projects...maybe the most important difference was that our customer bought our brains... Another important difference was that our customer said that our success was their success so we sat down and discussed how we should measure success...one thing was to develop the project within the budget...other things were as important as the money... time schedule, quality, environment... After having established our common goals we worked in close cooperation...within the frame of the agreement we were very open about what was going on during the project...we offered a fixed price and took substantial risk...this meant that we had an incentive to perform below budget... I mentioned we had an open relationship...an example is that we came up with an idea on how to open the bridge quicker than scheduled...so we offered our customer to redraft the contract and to share the additional revenues...tolls...they would get because of this...we actually open the bridge six months earlier...in order for this to work we had to have a very professional customer that was able to specify at the functional level what he was looking for...the customer was a company established by the Swedish and Danish government...they hired the most competent people they could find...in order to be able to make this enormous acquisition... To purchase according to a very specific technological solution requires the customer [to] request a technology that is known...otherwise he will not be able to specify in such detail...when you purchase a function, like in the Öresund Bridge... we tried to find new solutions...solutions that provided the same functionality but was cheaper...in some other occasions we suggested to deliver increased functionality and quality...these solutions cost more... We had this dialog during the entire project...it was possible because they specified the functionality rather than the technical solution...I think, in the end, the total solution delivered was better and cheaper... this is an opportunity for us...to take this role...or we might see companies entering the construction business aiming at taking this role...to integrate project teams and have them working under the partnering concept...this is not to be seen as an extended role of the project manager...it's an entirely different way of working [Mats Williamson, President Skanska Sverige].”

With regard to Skanska's real-estate operations, the strategy was to concentrate its portfolio of real-estates geographically. In addition, Skanska's real-estate operations would become more specialized (e.g. offices, shopping malls, logistical facilities, and housing for elderly) and increase its project management capabilities.

During the end of the 1990's international growth took place primarily in the United States and in the European markets (Claes Larsson, President Skanska Projektutveckling). The capital required for the expansion of core operations in construction-related services and the development of projects and real-estates was made available by divesting non-core assets. This strategy can be detected in the positive cash-flow (i.e. divestments) in shares and participations between 1997 and 2001 (see Figure 4:31).

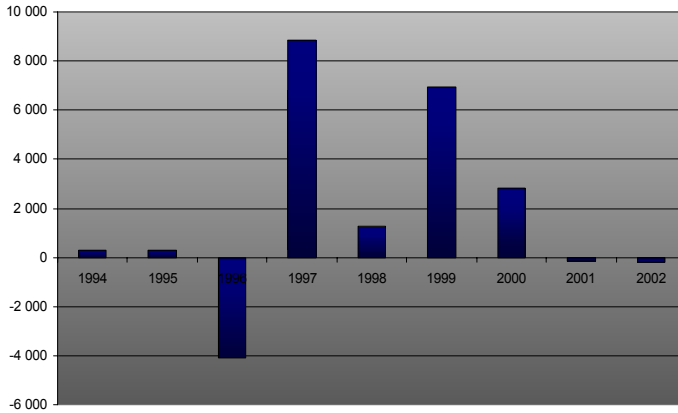


Figure 4:31 Skanska cash-flow (MSEK) in shares and participations 1994-2000 (source: Skanska)

From 1998 through to 2000 Skanska's main strategies remained practically unchanged, with one exception. Skanska's expansion in the segment of industrial components, i.e. manufacturing and installation of components, electrical, water, etc., was halted. In addition, Skanska's component companies, primarily within Skanska Europe, were to be divested (Claes Larsson, President Skanska Projektutveckling). During 1998 Skanska continued to divest none-core assets, e.g. equity interests in companies engaged in none core businesses (Claes Larsson, President Skanska Projektutveckling). Residential real-estate management was no longer considered core, and instead property development was considered central. Consequently, managed residential properties were to be divested while turn-over in new project development was to be increased. This strategic shift enabled larger margins and profits while shrinking the balance sheet.

"Components manufacturing [windows, floor, etc.]...is intimately related to the construction work...as I mentioned construction is a prerequisite for creating value...not a value creation activity in itself...once again I stress that this is from a developers point of view and with a developers definition of "value"... Components manufacturing has little to do with project development where we truly can add value and create profits...this is why we let go of the industry companies...the component manufacturer [Claes Larsson, President Skanska Projektutveckling]..."

"Skanska Sverige's most important suppliers are the ones delivering materials and work force...we contribute with management skills...project management...project management is our core competence... As our core competence we also include purchasing...for instance purchasing of electrical components and installations...in order to be able to do this well, we need to have know-how in the field of components and installations...however, we don't see that we need to do this ourselves...one of our options is to purchase electrical components and installations from Skanska Installation... If Skanska

Installation is the best solution at the regional level the local project organization will purchase from Skanska Installation...otherwise they will turn to "Nisses" [an external local company]...sometimes we don't even construct the walls in a building, we purchase them...it all depends on local market conditions [Mats Williamson, President Skanska Sverige]..."

"We had substantial shareholdings in companies such as SKF and Sandvik during the early...maybe mid 90's... I believe we sold our shareholding in order to release capital to invest in construction related services... In addition, our principle was not to retain our shareholder's money if we could not generate a better return in our core business... Consequently some of the invested capital was returned to our shareholders [Claes Larsson, President Skanska Projektutveckling]..."

"From the mid -90's we began to sell properties...I believe that we have sold properties worth of 24 billions during the last five years...including Drott...this has enabled us to invest in other areas... we have been able to invest and establish a strong operations within project development...we have always engaged in project development but in the beginning of the 90's there was no market for this...in addition we have developed our operations in real-estate transactions...this means that we today develop and sell many more projects compared to in the beginning of the 90's... our balance sheet remains the same from one year to another...this illustrates only that we sell a lot since we invest heavily in new projects and are still able to keep the "same" balance sheet... We focus on project development and construction...if you compare these two areas with real-estate management we are able to create substantially more value...in addition we have higher capital efficiency...the business of real estate management ties-up substantial capital...we strive to minimize the capital that we tie-up in projects and buildings...in this business [real-estate management] we are not capable of adding much value...we need to maximize the turn-over of new projects...the turn-over in project development...projects and properties that we develop must be sold quickly...we can't have it in our books, in our the balance sheet...this is of course the reason why we don't have an industrial business anymore...this is our strategy... This also explains why we transferred Drott to our shareholders... By transferring Drott to our shareholders we increased our shareholder value and trimmed our balance sheet... We did some very successful transactions with Norrporten, Pandox and Piren... we sold real-estates...specialized building facilities to these companies in which we had a shareholder interest and then we sold our shareholder interest little by little...sometimes we call this structural businesses [Claes Larsson, President Skanska Projektutveckling]..."

Commercial real-estate management and property development, however, continued to be considered core. In addition, Skanska continued to expand throughout the value chain in order to take greater responsibility for the entire life cycle of a construction project (Claes Larsson, President Skanska Projektutveckling). In 1998, Skanska decided to enter the business of facility management. The rationale was that customers selected a supplier of construction-related services based not only on price, flexibility, speed of implementation, and quality (from a broader societal perspective), but also on its ability to offer package solutions and services. In addition, by enhancing its real-estate management capabilities through facility management services (added value for tenants) Skanska believed it was able to create added value in the business of property sales, i.e. for investors.

"Many things that we develop provided us with a competitive advantage temporarily...after a while our competitors catch-up with us... Quality used to be something related to the building...today quality goes way beyond the building...it has to do with societal quality in a broader sense [Claes Larsson, President Skanska Projektutveckling]..."

"We used to provide "weather protection" to our customers... today we have increased our offering...added value to our offering...through Facility Management... We bought Ericsson Real Estate and Services [from Ericsson]...we entered the business of Facility Management in -98 or -99 [Claes Larsson, President Skanska Projektutveckling]..."

"In practice we entered the business of Facility Management when we acquired Ericsson Real Estate and Services...one need to be careful when entering this kind of service business...so that you don't add cost rather than value to your offering [Mats Williamson, President Skanska Sverige]..."

"We still have substantial volumes of commercial managed properties...that's part of our strategy, we shall keep such properties...we need to have a critical mass with regard to managed properties...the

reason is that we believe we need to have a strong position in the rental market to enable new project development...we need to know and understand the end-users...our tenants...to have a relationship with the end-users...substantial business comes out of this relationship and understanding... The value of an empty building is often below the construction costs...a fully rented building, with good tenants...those with long-term lease rental agreements...has substantial value...what's valued the most in this business is not the physical building...it's the cash-flow that the building is able to generate...we try to sign lease agreements as early as possible in the project development and construction process...in an optimal case, before the actual construction begins... The message I am trying to convey is that in successful project development there should be no correlation between cost and value...a project is sold on its value and the cost to produce that value isn't interesting. It's not a "margin business" [Claes Larsson, President Skanska Projektutveckling]..."

"Our customers are both the tenants and the investor...the real-estate company buying the building...these two are very much related to each other...we cannot sell unless we have tenants...but we need to approach them very differently... Sometimes, however, we have companies that acquire a building for their own use...in this case the investor and the "tenant" are the same... We need to be an excellent landlord for our tenants in our managed properties if we are looking to offering them to move to any of our development properties... Most of our rental business in development properties is repeated sales originating in our portfolio of managed properties... repeated sales we all now is cheaper than finding a new customer [Claes Larsson, President Skanska Projektutveckling]..."

Skanska's international footprint and service offerings were expanded beyond the U.S. and Western Europe. Skanska's strategic focus included broadening its core businesses to new geographical markets, e.g. Sweden, Nordic Countries, Central Europe, Western Europe, United States, Latin America and Asia, and moving into new services and areas of expertise, e.g. facility management, BOT-projects and telecommunication infrastructure consulting and constructions (Claes Larsson, President Skanska Projektutveckling).

"Three years ago we entered the telecom business through a 10% interest in Orange...Orange was awarded one of the 3G licenses in Sweden... at the time, the logic behind this was simply that everything that had to do with telecommunication and IT was good business...anybody that came to a different conclusion was considered crazy...the whole world believed in this...we were thinking like just like everybody else...at the time it was the right decision...today we can say that this was a wrong decision...the idea was to be able to offer telecom services as part of our Facility Management offering...if it becomes standard to have fiber optical networks installed in buildings we will have to install it...and maintain it if we include this in our Facility Management concept...today, since fiber optical networks are not standard in buildings, we deliver buildings with empty tubes so if the customer requires such network is easily installed...from this perspective our efforts in the telecom industry was not entirely irrational... The server hotels that I mentioned was different because this is actually a building that we need to develop...we knew that by adding just a little more fire safety and an air-condition we could call a warehouse a server hotel and double the rent... The whole telecom and IT industry went down in a matter of months...fortunately we never entered this segment...nobody talks about server hotels today... We never took a strategic decision, and haven't actually decided yet if we are to operate telecom networks in buildings or if we should contract external operators... Last spring we phased out the telecom business...it was integrated with Skanska Services...it cost us a couple of hundred millions... We continue to develop intelligent buildings...it's the future...it's a merger between telecom, IT, and the construction industry [Claes Larsson, President Skanska Projektutveckling]..."

Between 1998 and 2000, expansion through acquisitions focused on country markets in Europe and the United States (Claes Larsson, President Skanska Projektutveckling). During the year 2000, the strategic process of divestments that Skanska had initiated a few years earlier in order to focus more sharply on its core business was considered to be essentially completed.

In 2001, Skanska's strategic focus remained practically unchanged. One could possibly argue that Skanska began to focus on industrial construction by e.g. developing and optimizing its processes and by looking into prefabricated modules. Industrialization through prefabricated

modules could potentially provide better quality to customers, but however, it also had the potential to lower profitability by tying-up more capital and, consequently, create less value for shareholders.

“We have a very process oriented organization...the product actually runs through the organization as we develop it... You could say that this is one way of industrializing the project development and constructions work...to allow the product to run through the organization, a process oriented organization...like a manufacturing line [Claes Larsson, President Skanska Projektutveckling]...”

“Despite the fact that every building is unique we try to industrialize our construction work by using prefabricated modules...the only problem, as I see it, is that we also tie-up capital [Claes Larsson, President Skanska Projektutveckling]...”

Traditionally, industrial construction has been thought to lower the costs that are related to the materials and modules. However, it may be that its greatest potential for cost reduction relates to the work force on the construction site. Prefabricated and standardized modules may require fewer skilled blue-collar workers on site.

“In 1992 we sent a delegation of Skanska engineers to the U.S. in order to scrutinize the American construction industry...to understand why they were able to build so much cheaper than us...we found a variety of different things...they used many standard components...and there were no requirements for any special education among blue-collar workers...they didn't need to be qualified...because of industry rules and legislation but also because of the standard components...you don't need to be very skilled in order to work with standard components [Mats Williamson, President Skanska Sverige]...”

Marketing had previously been a function which focused on macro level trend analysis. As the market had demonstrated a downturn, Skanska began to focus more on marketing activities aimed at customers. In addition, heterogeneous and less professional customers (e.g. financial institutions rather than traditional real-estate companies in the commercial real-estate segment or the increasing number of housing cooperatives rather than traditional real-estate companies in the residential real-estate segment) often required marketing activities to focus on understanding customer needs (Mats Williamson, President Skanska Sverige).

Skanska's financial strategy, however, was fine-tuned and specified in greater detail. Such strategy included, among other things, improving the evaluation of pricing and risk in the tender offer stage and decreasing the capital tied up in fixed assets for contracting operations (Claes Larsson, President Skanska Projektutveckling). As a result of the new financial strategy, Skanska established new financial targets for the period 2002-2004. Skanska presented a weak income statement (net profit, margin) and balance sheet (ROA).

In fact, 2001 was a record all-time low year considering the period 1994-2001 (see Figure 4:32 and Figure 4:33).

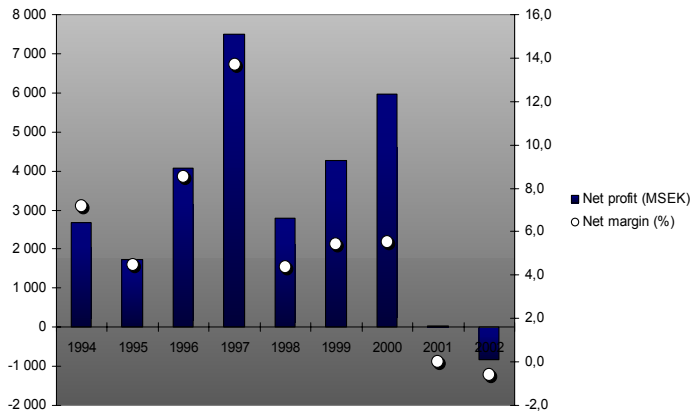


Figure 4:32 Skanska net profit and net margin 1994-2002 (source: Skanska)

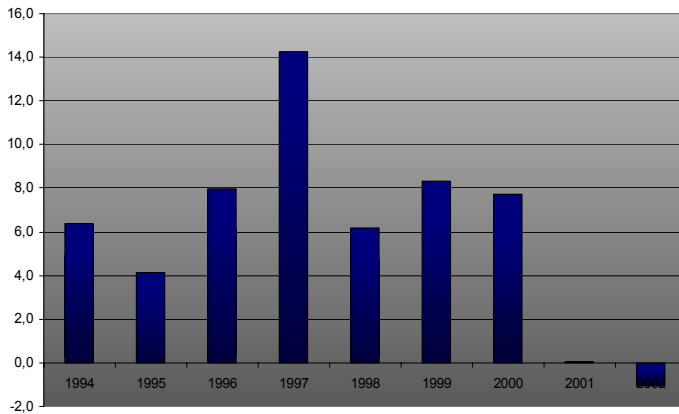


Figure 4:33 Skanska ROA (%) 1994-2002 (source: Skanska)

As a result of the poor financial performance, Skanska began to reduce assets and the number of employees (see Figure 4:34 and Figure 4:35).

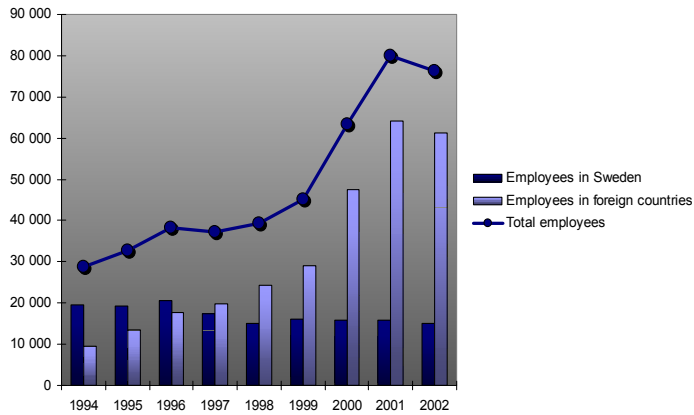


Figure 4:34 Skanska number of employees 1994-2002 (source: Skanska)

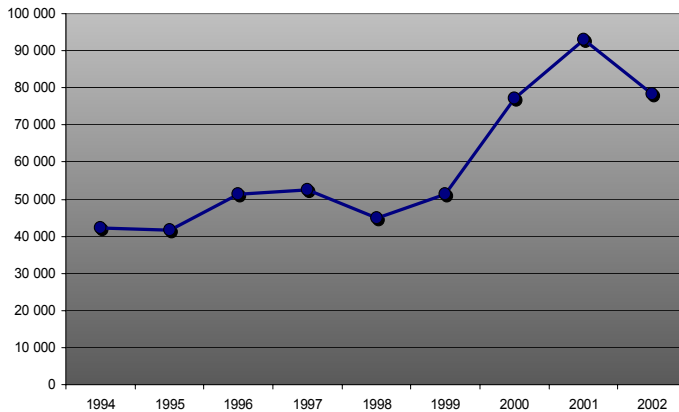


Figure 4:35 Skanska total assets (MSEK) 1994-2002 (source: Skanska)

Skanska's development between 1994 and 2001 at the corporate level is summarized in the table "Skanska facts and figures" below.

SKANSKA FACTS & FIGURES				
	1994	1995	1996	1997
STRATEGY	As purchased products and services totaled 70% of a construction project, focus on supply and logistics by creating network of suppliers across Europe; and through 3T and "Skanska's Way of Working" projects for reducing lead times, increase quality, and reduce costs. Major investments had been made in listed companies (shares valued 11% of total assets) in order to increase financial strength, a competitive factor in larger projects. Home markets outside Sweden, Denmark, Finland and the U.S. (19% of corporate sales) Intl expansion through acquisitions and exports from home markets.	Focus on core business (construction, real-estate and industrial manufacturing), grow internationally, broaden specialized know-how, and concentrate real-estates. Continued international expansion for growth as well as off-set local fluctuations. Specialized projects e.g. Öresund Bridge, High Coast Bridge, Halland Ridge Tunnel increased know-how and served as reference projects for its international expansion.	Divest shareholding/companies not considered core. Invest in core business, return SEK 8-10 billion to shareholders. Policy to increase dividends. Change culture from product and production to market orientation. Competence development in e.g. project and financial management to increase scope of offering; total solutions, e.g. BOT-projects. Increase focus on industrialized production, prefab, e.g. kitchen, floor, building components. Focus on improved logistics: 4,000 projects in Sweden, 75% less than SEK 5 million. Increase participation across the value chain, e.g. ventilation and electrical installations. Focus on developing new IT-systems for lowering purchasing costs, efficient logistics, improved project management.	A strategic review resulted in focusing on core business, international growth, increasing participation in value chain in order to offer total solutions and BOT-projects, increasing specialized know-how, developing risk management tools, and concentrate real-estates. Investments in core operations financed through divestment of non-core assets and operations.
M&S	Bid on the Öresund Bridge, based on functional rather than technical specification.	Signed agreement for Öresund bridge through the consortium Sundlink Contractors.	Sales increased by 24% primarily due to acquisitions. Awarded Halland Ridge contract.	Due to increased outsourcing and risk-sharing in the U.S. customers increasingly required DBOM-projects (Design, Build, Operate and Maintain).
PRODUCTS	Expand service portfolio.	Development of wooden building construction. Development of financial solutions in coop. with credit institutions increased, e.g. in the U.S.	Development of standardized, modularized, prefab products to lower costs.	Sensible Housing, i.e. low cost, prefab, wooden apartment buildings that took 5 weeks to erect, was launched in Sweden.
OPS	Increase pace of turn-over, concentrate real-estates. Divest foreign properties. Focus on high-end apartment projects. Sales in the U.S. doubled through acquisitions (e.g. Beers).	Local construction through acquisitions in Germany, Poland, Czech Rep., Hungary, Baltic states. Prefab housing construction decreased due to low number of housing starts in Sweden.	Acquisitions primarily in the U.S.	Divestment of shares in Gräninge, Sandvik, JM, Pandox, etc.
STRUCTURE OWNERS	Real estate-ops through BA's Real-Estate, Skanska USA, and JM. Construction ops through 4 BA's; Construction Sweden, Construction USA, International, Teknik, Industriforetag.	Construction ops through 4	Reorganization (-96) into 6 BAs, including BA BOT-Projects, 2 new units under real-estate operations, Project Development Sweden and Project Development Foreign Markets.	

SKANSKA FACTS & FIGURES				
	1998	1999	2000	2001
STRATEGY	Skanska's expansion in the components segment, e.g. electrical installations, was halted due to low profitability. Companies to be divested. Continued divestment of other non-core assets (e.g. Boxholm). SEK 10 billion transferred to shareholders through Drott. In Sweden, profitability rather than growth became increasingly important. Growth of less professional real-estate buyers, e.g. tenant-owned building cooperatives.	Telecommunication segment identified as a specialized area with growth potential. Operational Risk Assessment was implemented as a tool for identifying, quantifying, limiting business risk, in e.g. BOT-projects. A stock option program to corporate management introduced.	Skanska's refocus on core businesses considered completed. Increasing demand real-estate management for services due to customers' outsourcing. Skanska entered the telecom operator business through Orange in Sweden (10% interest). Orange was awarded a 3G license.	Weak income statement and profitability. Focus on reducing costs, assets, number of employees. New financial strategy; improve evaluation of price and risk in the proposal process, decrease overheads, increase productivity at project level, decrease capital tied up in fixed assets, increase turn-over in real-estates. BOT-projects strategically important; attracted long-term institutional investors, e.g. life insurance companies, pension funds, looking for companies with long-term, steady revenue streams. IT-based Skanska Knowledge Network introduced to increase productivity at project level by sharing information and know-how.
M&S				As expected in 1995 the bridge that Skanska had built outside Uddevalla between 1997 and 2000 contributed to gaining know-how and served as reference projects for winning the contract over the Cooper River in South Carolina. Both bridges were very similar.
PRODUCTS	Expand real-estate offering through FM-services.	Sensible Housing planned to be introduced in UK, Norway and Poland.	Focus on developing new projects, BOT, FM and Telecommunications. Total solutions to be offered in coop. with subcontractors.	
OPS	Continued growth in U.S. through acquisitions. Home markets: UK, Norway, Switzerland, selected Central European Markets through acquisitions. Argentinean SADE was acquired. Increasing demand for BOT-projects in Europe, e.g. Finland.	Continued growth in U.S. through acquisitions. Continued increasing demand for BOT-projects in Europe, e.g. UK. High-end apartment projects included e.g. Gåshaga in Stockholm. The Öresund Bridge was successfully completed.	Continued growth through acquisitions in U.S. and Europe. Through the acquisition of Exbud in the U.S. Skanska increased sales by SEK 5.3 billion and the number of employees by 14,000. Continued increasing demand for BOT-projects in LA, e.g. Chile.	Strongest growth for BOT-projects in the UK. Skanska Telecom Networks was refocused towards servicing and maintenance.
STRUCTURE OWNERS			Reorganization into three fields of operations, Project Development, Construction Services, and New Business. A new BU was created, Skanska Telecom Networks.	Reorganization into three fields of operations Project Development and BOT, Construction Services and Services.

4.8 NCC

NCC (Nordic Construction Company) was established in 1988 as a merger between JCC and ABB. In 1991 NCC's A- and B-share was introduced on the A-list of the Stockholm Exchange.

In 1994, NCC's strategic focus included increasing customer focus and performing value adding activities in the civil engineering, building and real-estate segments (defined as NCC's core business) ranging from production of ballast, i.e. production of the raw materials used in asphalt and concrete for infrastructure facilities (e.g. bridges, roads, railways) and buildings (e.g. residential, commercial and manufacturing and storage), through to O&M of such facilities and buildings. In its home markets, NCC was to offer its entire product portfolio and operate through wholly owned subsidiaries and to grow organically (primarily in Sweden) or through acquisitions (primarily in other Nordic country markets). In other selected markets NCC was to offer first and foremost civil engineering services and to operate on a project basis or through joint ventures and alliances in larger-scale projects. NCC's product offerings were to be differentiated through quality, services and price. The rationale for NCC's corporate strategy, particularly in the Nordic region, was to create synergies in areas such as technical development, purchasing, IT and specialization. The latter meant that NCC aimed at developing special purpose construction competencies, e.g. rail road constructions or telecommunication infrastructure constructions. In addition, establishing activities in several domestic markets provided the opportunity to offset economic fluctuations.

"Back in -94 the division of work in our industry was pretty clear...then many companies aimed at integrating forward in the value chain and to do as many value activities as possible.....in addition many construction companies went beyond the boundaries of the industry...Skanska entered the telecommunication industry through Orange...we [NCC] established NCC telecom and we had plans to establish a broad band operator...everybody aimed at doing everything...not only by broadening the portfolio of products and services that was sold but also to produce the entire portfolio in-house...the division of work was blurred within this industry...I guess this happened at the same time the stock markets reached peak levels...between -99 and 2001...we then saw that few companies were profitable in doing everything...today we are back to where we started...the division of work is once again clear [Stefan Holmlund, VP NCC]."

"The different project organizations are not particularly specialized in different product areas...some specialize in infrastructure and other on buildings...that's it... We have tried to create a more specialized organization...like in housing and private homes...they are specialized on the products and the end-users...in this organization the specialized expert units have the know-how...but they contract the construction resources from other parts of the organization...the traditional line organization... we are specialized in highways, bridges and other areas...this is one way of industrializing the processes, to capitalize on repetitive effects...in an industrialized process we need to be able to transfer know-how between individuals [Jan Byfors, VP NCC]."

In accordance with NCC's international strategy, from 1995 through to 1997, NCC acquired companies and strengthened its position in Norway, Denmark, and Finland. NCC's presence in Finland created a bridgehead to Russia and the Baltic States (Jan Byfors, Vice President, NCC). NCC internationalized aggressively during the mid 90's as shown by the increasing percentage of foreign sales of total net sales (see Figure 4:36).

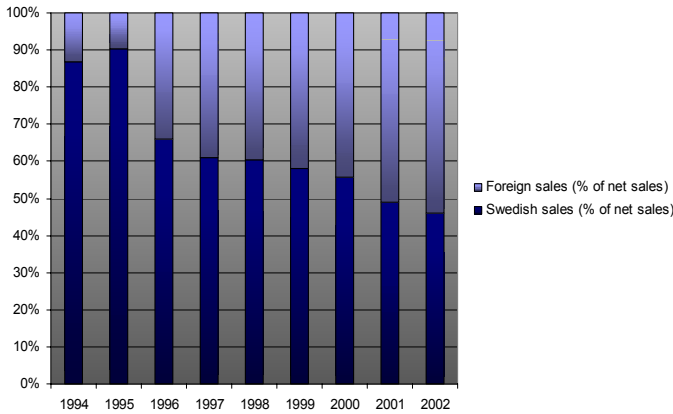


Figure 4:36 NCC domestic and foreign sales of total sales (source: NCC)

“From 1994 to...maybe 2001...NCC’s strategy was to grow, grow, grow...to capture market share...our growth strategy was based on mergers and acquisitions...we looked too little at profitability... Some two years ago we suddenly stopped and said “we need to focus on profitability first and foremost and to grow accordingly”...so we began to focus on the things that generated profit...at least in a foreseeable future...and cut the rest...today we are profitable in virtually all of our markets and segments... The reason we decided to grow through mergers and acquisitions was simply because organic grow takes too long time...this has to do with creating shareholders value...today we still aim at growing...growing through organic growth...through increasing our scope of profitable business [Jan Byfors, VP NCC]...”

During this period and onwards, NCC focused on strategic areas of research including IT applications to increase efficiency in the construction process and in property management as well as to support the development of prioritized areas. Prioritized areas of improvement included quality, customer service, employee development, and environmental policy development and implementation. The ability to offer turn-key solution and creative financial solutions became increasingly important, as showed by the Mälarbanan (a BEST-project) and the Arlanda Link (a BOT-project) projects. A driving force in the Swedish market for BOT-projects was that governmental buyers cut costs by reducing their staff. As a consequence, these buyers lowered their overall competence level and the construction companies were required to take a larger responsibility for the entire construction process.

“Unfortunately we no longer have competent buyers...primarily in the public sector...In an effort to cut cost, Byggnadsstyrelsen, Vägverket, Banverket...and the real-estate companies owned by the municipalities...all these organizations have got rid of many competent people...primarily during the 80’s and the 90’s... to some extent the responsibility for the entire construction process has been transferred from the buyer to the seller...that’s us [Jan Byfors, VP NCC]...”

“I think Ericsson was able to develop state-of-the-art technologies, know-how and a strong international market position because they had a very good customer, Televerket...we’ve had the same thing with regard to civil engineering...particularly roads and railways...with Vägverket...I am convinced that Swedish construction and civil engineering has been competitive internationally...in Saudi Arabia for instance...due to the relationship with Vägverket and their contribution to developing our know-how in Sweden... Vägverket still exists but they don’t have the same know-how as they used to and cannot contribute to developing know-how as they used to...this has been an evolutionary process in which Vägverket have changed its role...moved away from technology and traffic safety...and decided that this is up the market to develop...Vägverket’s purchasing decisions are based on certain specifications, at the functional level as I mentioned...we are truly concerned about this development...their competence is in general too low...sometimes our discussions end-up in conflicts...A parallel can be found in Byggnadsstyrelsen and the building construction [Jan Byfors, VP NCC]...”

With regard to project and real-estate management, NCC's strategic focus included concentrating its portfolio to priority locations and optimizing its land holdings, e.g. through development or sales of low-yield development properties and through acquisitions of attractive land. In addition, efforts were put into reducing the portfolio of properties held for future development and increasing the efficiency of management activities. In addition, NCC's strategy was to maximize synergies across its operations and to minimize procurement costs. In the short-term, this was to be realized through the creation of economies of scale, partly through the increasing purchasing volume resulting from the acquisition of SIAB in 1997 (Jan Byfors, Vice President, NCC; Stefan Holmlund, Vice President, NCC); while in the long-term, the aim was to raise procurement expertise and to use a common IT-based purchasing system. These efforts were to be introduced at all levels of the organization, from the project level at work sites through to corporate management (Jan Byfors, Vice President, NCC).

"The most difficult thing to get control of is the purchasing process...65-70% of our turn-over is purchased...our added-value is quite small...to get synergies and economies of scale is not easy because the project organizations are very strong...they have traditionally been responsible for purchasing all the materials and services... the project organizations are very autonomous, it's difficult to control it from the outside...from the line organization...it's hard to tell the project organization what tools they need to use and so on...I am not saying it's impossible...we do it [control the project organization from the line organization] but there is a huge barrier...the culture is within the project organization...and it's very strong...sometimes stronger than the corporate culture [Jan Byfors, VP NCC]..."

During 1998 through to 1999, NCC continued to expand internationally. NCC also continued to increase integration (across the value chain), specialization and procurement efficiency. In addition to the Nordic region, NCC aimed at creating a leading position and establishing "domestic markets" in the Baltic region and Poland. NCC also aimed at creating a strong footprint in Germany and in European Russia, through its operations in the Baltic region. Its international expansion would be carried-out through organic expansion, acquisitions, and alliances (Jan Byfors, Vice President, NCC).

In order to increase margins and profitability, NCC aimed to gain control over more value activities as well as to gain more control over the value chain. The installations segment, e.g. installation of electricity, telecommunication and heating facilities, accounted for a progressively larger part of the total construction costs of a building, while at the same time it was a segment with a relatively high growth rate, primarily because the complexity and the number of different technical systems were increasing. As a consequence, NCC considered it to be vital to increase its presence in these areas. NCC Housing's total package approach provided a good example of a successful value chain integration resulting in improved profitability. As a consequence, NCC Housing established a specialized unit focusing on projects based on a total package concept (Jan Byfors, Vice President, NCC). In addition, the total package concept was one way for NCC to lower costs by moving towards standardized modules and industrial construction.

"The only way to lower costs is to industrialize the construction process...we are pretty clear how this is going to be achieved...modularization...and industrialization... We also work on reducing costs by standardizing our products with a few variations so we can satisfy the specific needs of the customers... we are doing this for apartment buildings... One example is the concept that we call "Ljuva Livet", one and two story apartment buildings that are very cost effective... We work with designing modules that are industrialized and prefabricated... We standardize a number of modules...these modules are usually on a room level...the living room, bed room, kitchen...in addition we have standard and modularized systems of joists...and walls, when we design an apartment building we do it based on the standardized modules...for every module we have a few different designs...in order to be able to provide options for

our customers...to deliver according to customer requirements...in most cases however, the outer dimensions are fixed...the outer dimensions are defined according to what's possible to load into a truck platform...until now our suppliers have been proactive in designing standardized modules and showing us the benefit of it...cost savings and so on...we are taking a more proactive role...we decide what products we need to deliver and ask our suppliers if they are able to develop the required modules...it's changing...this shift is very much due to our effort to standardize the end product...the apartment building...few apartment buildings have been designed and constructed according to a standard...the apartment buildings don't necessarily have to look the same but the product logic behind it needs to be the same... Modularization means that we define some technical specifications such as standard outer dimensions and joints...and the interface...between different modules...in addition we need to specify the functionality that we are looking for...when it comes to the end-product...the buildings...we try our customers to understand the they should be concerned with the functionality that they are looking for and to allow us to decide how we technically are going to achieve this...we think our customers know best what they need and we are better in finding the best technical solution... If you take a road as an example...the customer needs to specify the traffic intensity, how long it's supposed to last, maintenance costs...it's up to us to find the best technical solution according to the functions specification...this way of working enables this industry to find the most cost effective solution and to generate a high degree of technical innovations [Jan Byfors, VP NCC]..."

"A very important question is how we can industrialized this industry...the construction work...it's very difficult to achieve this...I mentioned mobile factories and fixed products...in order to be more effective we need to improve our processes...I also mentioned how we can avoid reinventing the wheel in every project...in our projects we have too many people that wont let go of control...we are slowly industrializing this industry...3D technology, modularization of construction components are some of the efforts [Stefan Holmlund, VP NCC]..."

However, one of the risks in standardizing modules across an industry is that such efforts eventually could hamper innovations and the ability to lower costs even further.

"Too much standardization, just like regulation, impede the rate of innovations...if you aim at introducing a new product that has not been developed according to some market standard...this will of course be virtually impossible...this is a balance that we need to consider within this industry just like in any other industry I guess...the construction industry has developed from a very regulated environment...we used to have Statens Planverk...a government authority...that detailed exactly how apartments had to be built and how they had to look like...they had various incitements to have the industry to follow their regulations...legislation was one...but you also had to comply with all their regulations in order to be able to get loans...nobody in this industry had to think or was allowed to develop any creative solutions...if you planned to construct a 2 bedroom apartment you looked it up in one of their manuals...there was no need to and no room for developing innovations...the industry was hampered...and, in a sense, restricted peoples mind...everybody expected someone else to tell them what to do...there was no creativity [Jan Byfors, VP NCC]..."

In addition, NCC's focused on reducing its portfolio of managed properties, developing its financing and risk management capabilities, increasing quality, developing management capabilities through its corporate culture and establishing a solid strategy development process and organization for such purposes.

The corporate strategy of reducing its portfolio of managed properties became tightly linked to the objective of increasing shareholder value. The value of the portfolio of managed properties was around SEK 6 billion at the end of 1999. NCC's target was to reduce the portfolio to approximately SEK 4 billion. The capital released by the sale of managed properties would in part be reinvested in real-estate development and acquisitions, and in part distributed to the shareholders.

"We have seen a shift within NCC...3 to 4 years ago we were extremely focused on shareholder value...now we are extremely focused on our customers and on creating long-term profitability...we have changed "regime" and we have another corporate strategy...focusing on our customers will create profitability...and eventually shareholder value...this also has to do with the owners...approximately five

to six years ago NCC merged with SIAB...one of the largest owners of SIAB was Fredrik Lundberg... Fredrik Lundberg is very long-term and he truly understands this industry... He also believes that shareholder value is a consequence of customer focus and long-term profitability... A proof of this shift within NCC can be found in how bonuses and other incentives are paid to top management...it has nothing to do with our share price anymore [Jan Byfors, VP NCC]...”

“It’s difficult to engage in property development and being forced to deliver results on a quarterly basis...as I mentioned property development takes several years...we need to balance the requirements of our shareholders and our customers [Stefan Holmlund, VP NCC]...”

The decision could be seen in the direct return of NCC’s shares in 2000 (the B-share reached all-time-high during the period 1994-2002), as well as the immediate positive reaction of the capital market in 1999 (see Figure 4:37 and Figure 4:38).

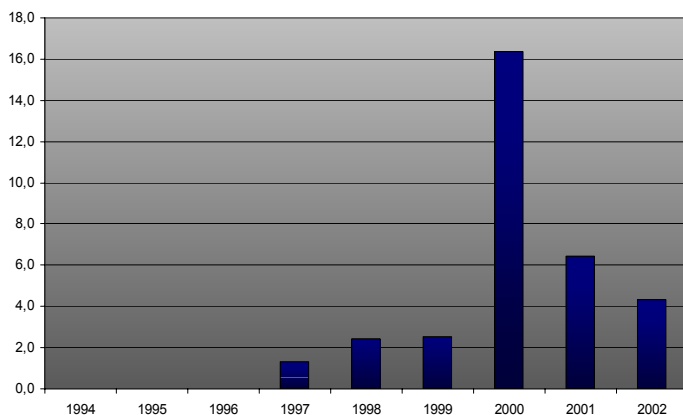


Figure 4:37 NCC direct return on B-share (%) 1994-2002 (source: NCC)

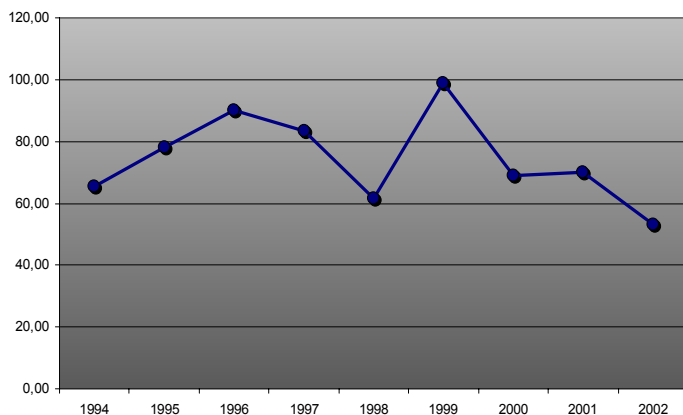


Figure 4:38 NCC adjusted share price (B-share in SEK) 1994-2002 (source: Stockholmsbörsen)

Financial management, risk management and quality assurance increasingly became strategic areas within NCC in general and within NCC Civil Engineering and Housing in particular. This development related to the increasing importance of BOT projects. A BOT project should pay for itself over the concession period, after which it is handed over to the purchaser. This meant that revenues were generated over time and that the construction projects tied up capital for a longer period of time. A BOT project put NCC in an ownership situation, which was quite different from taking responsibility for production only. Becoming an owner of a

project and deferring revenues over time dramatically changed the risk profile of the project and the requirements for financing capabilities of NCC. Nonetheless, BOT-projects allowed the industry to move away from tenders based on detailed technical specifications towards functional specifications. This encouraged innovations and the possibility to differentiate.

“The construction industry is very much controlled...if we close a deal with the public sector we are told exactly what we need to deliver...this actually hampers innovations and the ability to compete [Jan Byfors, VP NCC]...”

“We work on specifying “functions” rather than the “technical specifications” that will be delivered...this is also one way of getting more customer focused...functions have the customer as the starting point...functions that mirror some kind of value to the customer...technical specifications on the other hand have us as a construction company and our products as the starting point...I am not sure that if I would describe our products from a technical point of view that our customers would understand what I was talking about or could translate those [specifications] into some sort of value [Stefan Holmlund, VP NCC]...”

During 2000, NCC’s strategic focus remained practically unchanged. This included product development, increasing marketing and sales activities, continuously lowering procurement costs through economies of scale, reducing costs in construction operations, developing IT and e-business solutions to support all of the above and finally to continuously enhancing skills, e.g. in marketing and sales and business process (particularly with regard to BOT-projects). In addition, NCC slowly began to develop a portfolio of facility management (FM) services.

“In Europe today most larger construction companies say that their business is in Construction AND Services...for some of them 50% of their revenues comes from Services...not only Facility Management Services...they operate subways...are responsible for operations and maintenance of public buildings...highways...provide financial solutions...and so on...this is a clear trend...many construction companies are integrating forward...we also began to develop these areas...today we are holding back a bit...we need to make sure we are the best in what we are supposed to do...construction work...eventually we may target the segment of Facility Management...we are holding back at the moment [the development of Facility Management]... I mentioned that 65-70% of our business is purchased material...you might think that we could increase the added value we provide by integrating backward...the problem is that the suppliers market is very fragmented... we rather integrated forward... we construct the entire road...we aim at taking responsibility for the signposts...and so on...sometimes we even own and operate a high-way...it’s easier to integrate forward than backward... The construction industry is a profitable industry as a whole...however the players closest to the end-users are less profitable...like the architects, consultants and the construction companies...the ones upstream in the value chain...the ones closest to the gravel...are the most profitable...companies manufacturing and producing components, building materials, raw materials and so on...maybe to the contrary of other industries where the companies closest to the end-users are the ones that profit the most...even though 65-70% of our business is purchased and upstream companies are the most profitable we integrate forward...sounds strange maybe...the reason is that this is exactly what we are trying to change...to create more value and profitability downstream where we have our business... By moving forward in the value chain we aim at increasing our profitability from 2-3% to 5-6% [Jan Byfors, VP NCC]...”

Although FM services were mostly related to real-estate management (targeted at tenants), NCC believed that FM services could actually increase value in turn-over properties (targeted at investors). Consequently, FM services could support the development of new real-estate project development.

“From time to another we have defined our customer as the one buying the real estate and sometimes the tenant... We have decided that our customer is the one actually buying the building...the investors...however, ultimately the tenants are the ones that create value...if you own a facility and you are not able to make money out of it...rent it or lease it...you will not be able to sell it... In order to attract and retain tenants...and eventually to be able to sell the facility...we need to offer facility management

services...to attract tenants is part of an “extended” construction process...it’s a difficult balance...how much effort and focus you need to put on the end-users...the tenants...and the investors... I remember back in -94 when I was working in Kista...the vacancy rates were much higher than today...on average over 20%...at the time, we noticed that in buildings where we offered more services...it was easier to rent, we had lower vacancy rates...in bad times rents didn’t drop as much as in our other facilities...it took us a while before we realized this...since then we constantly think on how we are able to develop our offerings to include more than just the office space...most construction companies do this today...we have a management company that in turn purchases all the services we have promised our customers... Skanska for instance...they acquired the real estate portfolio of Ericsson and took over all their personnel to manage this... this is not our strategy... The real challenge is to make money out of this business [value added services/facility management]...many are struggling and there are many reasons for this...as a construction company we are not used to make this kind of business...we need to be careful when preparing proposals and estimating costs...in addition, this business requires economies of scale... The only way to create economies of scale is to have many similar clients in many similar buildings...it facilitates if these buildings are relatively close to each-other...this is one of the reasons we have been focused on concentrating our portfolio...in Kista for example [Stefan Holmlund, VP NCC]...”

“NCC Property Development is one example of how we are moving from being a general contractor to a project developer...what differs Property Development from the general trend is that their ambition is to find an investor as soon as possible...sometimes we need to find the tenants to be able to sell the property...the ambition is however not to own the property and maintain it... In Finland we don’t start the construction work unless we have found a buyer or investor... A couple of years ago we established Consess that is focused on services...the idea was to deliver anything that the customer would require with regard to services...Consess helps us to attract tenants and to sell the facilities we construct...an attractive investment consists of the building and the tenants...with long-terms leases...that’s the reason we still have it [Consess]...We used to manage our own buildings...we have sold many of those buildings [managed properties] and our true ambition is to have no proprietary buildings...we are no longer a construction and real-estate company...only a construction company... What we sell today is a rental net...future revenues...attractive buildings attracts attractive tenants...those that can afford high rental levels...this is how we create value for money for our customers [Jan Byfors, VP NCC]...”

In 2001 NCC presented a weak income statement (net profit, margin) and balance sheet (ROA). In fact, this was a record all-time low year considering the period 1994-2001 (see Figure 4:39 and Figure 4:40).

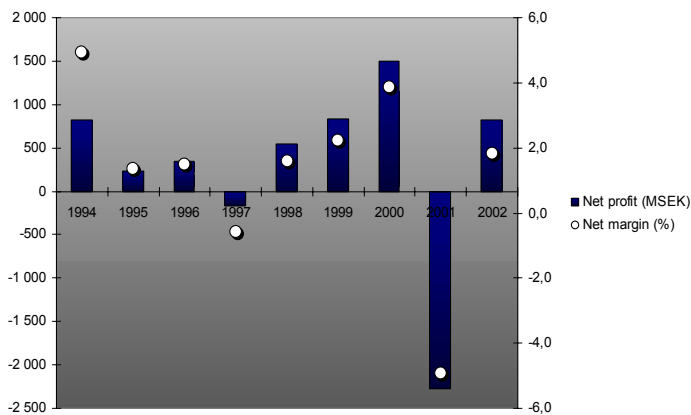


Figure 4:39 NCC net profit and net result 1994-2002 (source: NCC)

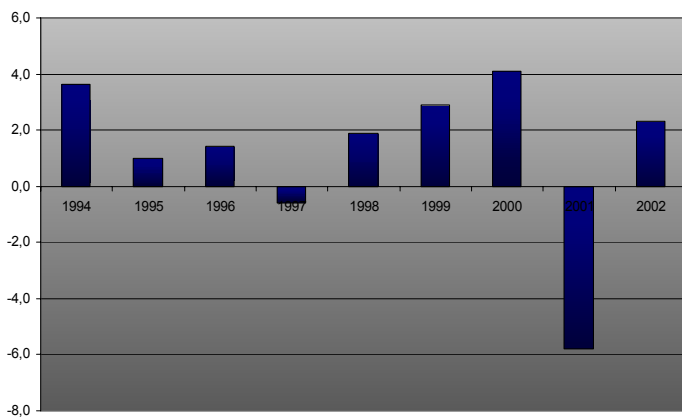


Figure 4:40 NCC ROA (%) 1994-2002 (source: NCC)

As a result of the poor financial performance, NCC began to reduce assets and the number of employees (see Figure 4:41 and Figure 4:42).

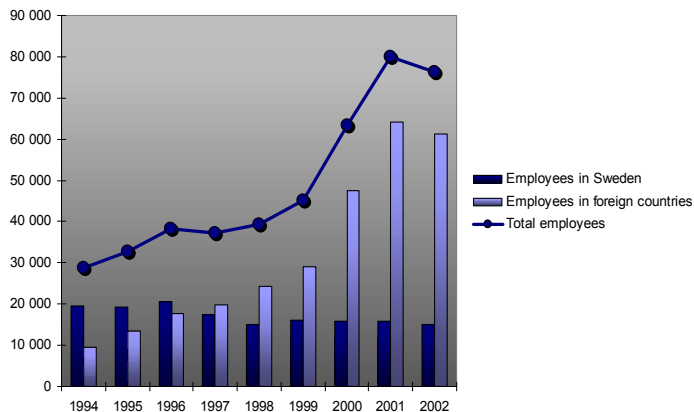


Figure 4:41 NCC number of employees 1994-2002 (source: NCC)

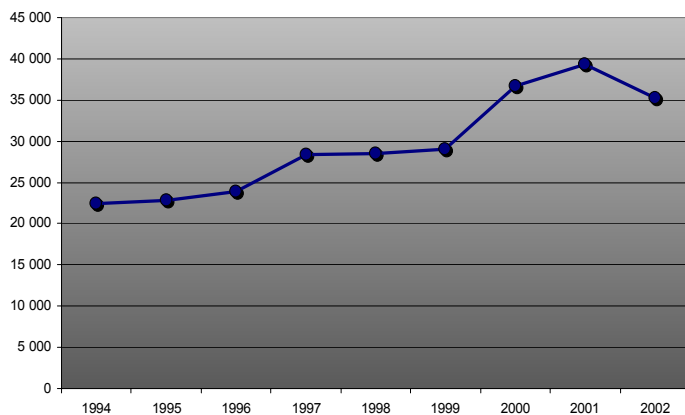


Figure 4:42 NCC total assets (MSEK) 1994-2002 (source: NCC)

In addition, NCC's strategic focus shifted to reducing its financial risk exposure, implement the "partnering concept" in its marketing and sales approach including an "open book" approach, risk sharing and, to some extent, profit sharing (Jan Byfors, Vice President, NCC; Stefan Holmlund, Vice President, NCC).

"Recently we launched the concept of "partnering" with our Swedish customers...we have implemented this concept successfully in Denmark...we share risk and additional profits with our customers...should we be able to complete a project below estimated cost...the entire concept is build on trust and open books [Stefan Holmlund, VP NCC]..."

"Traditionally the construction process worked like a relay race...one party had to tell the next what to do...the problem in this way of working is that you don't have everybody focused on the end-result...everybody focus on their work and what's coming next...the customer's work... We have tried to get everybody involved and focused on the entire project and the end result...everybody is part of "Project Inc"...this is the most important, not each individual company involved in the project... The ones that are the most important in developing a concept...a project...are the customer, the construction company, usually a consultant and an architect...most probably others will eventually become involved...but this is the core team... depending on each company's contribution to the project...sometimes also depending on the economic strength of the company...the risk and profit distribution is agreed upon... This way of working [partnering] we think is better...rather than optimizing a linear project...across the value chain...we create reciprocal relations...within a project organization... In this industry we are very project oriented [Jan Byfors, VP NCC]..."

In addition, NCC focused on evaluating the value chain, continuously reducing the total number of suppliers and increasing coordination within the purchasing function (Jan Byfors, Vice President, NCC; Peter Carlsson, President Södra Building Systems).

"It's easier to create value to the end-user if you have a value chain perspective rather than just looking at your immediate customer...today we talk about the value chain...back in 1994 we never discussed the value chain [Stefan Holmlund, VP NCC]..."

"Since there are so many suppliers involved in a larger project it's sometimes difficult to coordinate how we all should share risk...what we do is that we focus on a few critical suppliers and try to handle these risks...in those cases we look at many different things...quality...delivery capabilities and so on...this is one of the reasons that we minimized the number of suppliers...we have selected a few suppliers in different product segments...the ones that we have selected we enter into a long-term agreement...with some of them we even cooperate in research and development ...we call it supplier cooperation ["leverantörssamverkan"] [Jan Byfors, VP NCC]..."

Due to its many projects in different locations, NCC began to understand that a strong corporate culture could assist in managing the organization as well as to encourage organizational learning. This was one of the reasons the creation of a strong corporate culture emerged as a strategic issue.

"We haven't been particularly successful in reusing gained know-how within the group...to transfer know-how from a successful project in Finland to Sweden... To be able to repeat a successful project is important... we must be able to learn from each-others...to be able to do this we need to create a corporate culture...people's attitude...that stimulates this development...to develop a huge amount of papers in order to document your processes...all these process charts...that simply doesn't work...believe me, we've tried it... In addition to the corporate culture we need an organizational structure that support this...we cannot have an organization managed from the top...when we have found a successful concept and this is going to be implemented in a particular market...the country manager should act as a coach...and assist the organization to create a network...we try to move away from a hierarchical, top-down organization to networked and bottom-up organization... In contrast to most other industries we have mobile factories and fixed products...this means that we need to establish a project organization over and over again...we have tried to use databases and other support systems in order to transfer know-how from one project to another...but as I've said...the most important thing for us is to establish a corporate

culture that people can internalize within themselves...so that people share their knowledge with each-other [Stefan Holmlund, VP NCC]..."

NCC's development between 1994 and 2001 at the corporate level is summarized in the table "NCC facts and figures" below.

NCC FACTS & FIGURES				
	1994	1995	1996	1997
STRATEGY	Focus on core businesses; civil engineering, building and real-estate. Real-estate included activities from concepts development through production to management and sales. Rationale to create synergies in e.g. development, purchasing, competence development through specialization. Grow organically in Sweden and through acquisitions primarily in other Nordic countries. Outside Nordic countries operate through project exports, JVs, alliances (e.g. S.E.C.) Sweden, Denmark domestic markets. Rationale e.g. to off-set economic fluctuations.	Norway established as domestic market through acquisitions. Strategic research included environment and IT (focusing on increasing efficiency). Partnership with W/M-data for IT development. VINST established, an IT-system for project management and purchasing. Improved logistics important due to around 2-3 000 projects in Sweden, around 80% totaled less than SEK 5 million.	During the mid 90's substantial internationalization through acquisitions, e.g. in Finland and Denmark. Sales increased due to such acquisitions. In order to enhance business skills of employees, a sales engineering prgrm was initiated.	Focus on maximizing synergies and minimizing procurement costs, short-term through the acquisition of SIAB, long-term through increased coordination e.g. through the VINST-system. Focus on industrial construction based on a "total package concept" to lower costs, increase quality. Flexithus acquired and coop. established with IKEA for such purposes. In addition to the Nordic countries, international expansion in selected markets now included Baltic countries, central Europe, Middle East, South-East Asia.
M&S	Property sales increasingly targeted real-estate companies AND financial institutions, insurance companies, property funds. Arlanda Link Consortium (ALC) awarded the Stockholm-Arlanda railway project (BOT-project) and Mälarenbanan (BEST-project). Historically Swedish Railway Administration had taken such turn-key responsibility.	Marketing had traditionally focused on macro level trends. Increased focus on marketing promotion, marketing surveys, etc. focusing on customers. Öresund Tunnel Contractors awarded the tunnel construction that was part of the project.		
PRODUCTS	Difficult to get paid for development embedded in products. Development carried-out at project level often perceived to be related to constructions operations, not R&D. To lower costs, increase quality development focus on industrializing construction process, developing building and Malmö.			The service portion of BA Building was increasing, totaling 17% of BA sales.
OPS	Property management focuses on "prioritized areas", i.e. Stockholm, Gothenburg and Malmö. Real-estate in other areas to be divested.		During 96-97 continued concentration of real-estate portfolio to approx. 10 locations in Sweden. Following the decline in property segment (beginning of the 90's), in 96-97, NCC resumed operations involving new Swedish project development in real-estates. Real-estate strategy also to discontinue jointly owned real-estates. Mälarenbanan was completed. In -97 sales of managed properties intensified. The lion part went to financial investors, e.g. Morgan Stanley and GE Capital. Requirements of such customers quite different: the rental net, Specialized areas increasingly energy, roads, municipal facilities. SIAB was acquired for growth (increasing sales by some SEK 33 billion), economies of scale (e.g. purchasing and R&D), increased competitiveness in larger projects, off-set market fluctuations (e.g. between Germany and Sweden).	
STRUCTURE OWNERS	5 BAS, Civil Engineering, Building, Production, Real-Estate, Invest.			Reorganization into 6 BAS, Civil Engineering, Housing, Building, Industry, Real-Estate and Invest.

NCC FACTS & FIGURES				
	1998	1999	2000	2001
STRATEGY	Strategic review, "NCC Future" (-98). Main objective to increase value growth of NCC-shares. Five bullet prgm launched incl. increase dividends, limit shareholdings in non-core operations, increase liquidity of shares by intensifying contact with asset managers in e.g. Nordic capitals, London, transactions to acquire complementary businesses to existing business, incentives to senior executives through continuous stock options prgm. Expand international (domestic markets Baltic region, Poland), increase value chain integration (e.g. electrical installation and telecom), specialization, procurement efficiency through increasing coordination internationally, between subsidiaries and projects (70% of construction costs related to purchases). NCC Sourcing Committee established for such coordination purposes (-99). Rationale to increase margins, profitability. Standardized processes to increase quality, decrease costs; quality deficiencies increased construction costs by 5-10%, 80% of deficiencies systematic, recurring.		Until 2000 growth mostly through acquisitions. Organic growth was to be achieved through focusing on product development, M&S, procurement, construction operations, IT and organizational development. Specialized areas were telecom and services. Weak income statement and profitability (-01). Focus on lowering costs, increase profitability. Reduce number of suppliers, create long-term relationships with key suppliers ("partnering concept"); open books approach, risk sharing, increase purchase of standardized modules (to standardize construction process, decrease costs, lead-times). Specialization disintegrated the value chain. Reduction of total assets, number of employees. Focus on core operations and narrowly defined home markets (Nordic region). Divestments of operations with low profitability, low future potential. Strategy for international expansion and value chain integration abandoned. Restrict acquisitions.	
M&S	Branding campaign launched targeted at capital market, customers, and potential employees to enhance strategic competence areas, e.g. project and risk management. Marketing, sales organization, "home-buyer-shops" targeted at end-users established in Stockholm, Gothenburg, Malmö.	Marketing (e.g. marketing intelligence) towards customers increasingly important due increasing scope of offering according to specific needs (both civil engineering and housing).	Create long-term relationships with key customers. One enabling factor was IT and e-business.	More selective in bidding for contracts.
PRODUCTS	Projects for multistory wooden constructions. Focus on project management, transfer risk, outsourcing development work to suppliers.	Focus on IT (intelligent buildings) and increased construction efficiency.	Focus on building services (e.g. janitorial services, renovations) and FM-services (e.g. energy management, IT, telecom, security, catering, cleaning, switchboard services).	Building services reduced by 2/3 and concentrated to Sweden for economies of scale. FM was liquidated entirely.
OPS	Increase value chain integration through total package concepts (segment of housing projects) and alternative forms of financing in civil engineering projects (e.g. BOT-projects). Such efforts required development of know-how in project, risk management, and market know-how (e.g. of international markets). Project management in real-estate operations now considered core and management and sales of real-estates supporting activities. A-train test operations under the name Arlanda Express (commercial -99).	Portfolio of managed properties was to be reduced from SEK 6 billion to SEK 4 billion. Capital gains were to be invested in project development, acquisitions as well as distributed to shareholders. Öresund tunnel completed. Housing increased sales according to the total package concept, totaling 47% of total housing starts. Total package concept introduced in Norway and Finland. Specialization in services and telecom.	Kista Science Tower the largest development project. Increase construction efficiency through project management, IT and total package concept. Housing increased sales according to the total package concept, totaling 55% of total housing starts	Real-estate increase sales of managed properties in order to tie-up less capital. All managed properties to be sold within 2 years. Housing construction in e.g. Poland was terminated.
STRUCTURE OWNERS	BOT unit formed within BA Civil Engineering. In 1999 Telecom A/S established. Focus on corporate culture rather than corporate structure to manage decentralized organization (projects, countries). Business Development, for strategic planning established. Shareholders reacted positively to NCC's strategy directed at the capital market; NCC shares all-time high in 1999. In 2000 direct return also reached all-time high. Turn-over of NCC shares increased by 85%. Non Swedish shareholders increased from 2.7% to 4.4% (-99).	Focus on corporate culture rather than corporate structure to manage decentralized organization (projects, countries). Business Development, for strategic planning established. Shareholders reacted positively to NCC's strategy directed at the capital market; NCC shares all-time high in 1999. In 2000 direct return also reached all-time high. Turn-over of NCC shares increased by 85%. Non Swedish shareholders increased from 2.7% to 4.4% (-99).	BA Building and Civil Engineering merged into BA Contracting. Contracting organized according to key accounts. Telecom and Service independent BAs.	Some corporate functions were discontinued including quality and environmental issues. Rationale was to move such activities to project level and reduce costs.

5 ANALYSIS



The analysis in this chapter is structured according to the frame of reference. The first section focuses on describing the dynamics in the value chain of the telecom and construction industries between 1994 and 2002. The second section focuses on the content and process of strategy at the corporate level, including corporate level bundling through mergers and acquisitions and corporate level unbundling through outsourcing (both the vertical and horizontal dimensions of corporate bundling/unbundling are included in the analysis). The third section focuses on the content and process of strategy at the functional level, including bundling through systems, functions and solutions and unbundling through modularization and complementary products (both the vertical and horizontal dimensions of functional bundling/unbundling are included in the analysis). The “horizontal dimension” referred to includes both related and unrelated businesses. The analysis focuses on both similarities and differences between the telecommunication and the construction industries with regard to strategy (both at the corporate and functional levels) and industry dynamics (i.e. changes in the division of work within value chains) as well as similarities and differences in the reciprocity between corporate strategy and industry dynamics.

In summary, the strategic and industrial dynamics revealed by this research incorporate the following interrelated strategic patterns of events:

- **Dynamics in value chain:** increased specialization and need for value chain coordination and integration (see section 5.1)
- **Dynamics in strategy:** expanded network horizon in value creation including customer, capital and competence markets (see section 5.2)
- **Dynamics of and interdependencies between M&As, outsourcing, systemization and modularization:** changes in scope of offering and boundary of the firm relative initial core competence (see section 5.3)
- **Industry level drivers:** changes in industry scope, i.e. the boundary of industries, through e.g. intra-industry consolidation, inter-industry merger, and inter-industry forklift (see section 5.4)

I assume that the term “analysis” is intuitively understood by most people. On occasions, however, I have been asked how I use (or possibly define) the term and how I apply such term in practice, i.e. how in fact I conduct an analysis. The way I understand and put an analysis in practice are in accordance with a combination of three different schools within the philosophy of science; falsificationism, neo positivism, and structuralistic Marxism (see chapter 3 “Research methodology” and “particularly “On the philosophy of science”). The analysis here should be understood as a best effort to interpret the empirical data by using the frame of reference, i.e. by using our prior understanding of similar observations (see Wandén, 1981 with regard to neopositivism). The empirical data is understood as “the revelations of the true structures” (see Wandén, 1981 with regard to neo positivism and structuralistic Marxism). Such interpretations are used by means of induction to confirm, falsify or complement existing theory (see Wandén, 1981 with regard to falsificationism). To some degree in chapter 5 “Analysis” but perhaps more so in chapter 6 “Corporate level conclusions”, the descriptions which are possible to observe (see the descriptive patterns in chapter 6) are based on the revelations (i.e. the empirical data) of the true underlying structures. The theories of the underlying structures are developed (see the explanatory patterns in chapter 6) through logic and thinking (by means of deduction) and by using the interpretation of the empirical data (by means of induction).

The next sections (5.1-5.4) analyze and *describe* how corporate strategy, from a value chain perspective, has evolved in the telecommunication and construction industries between 1994

and 2001. By analyzing and describing the interdependencies between M&As, outsourcing, system sales as well as between value creation towards customer, capital and competence markets, important drivers are identified for such evolution. In addition, industry as well as macro level drivers are discussed at the end of this chapter. The interdependencies and drivers identified are keys to *understanding* how corporate strategy has evolved from a value chain perspective in the telecommunication and construction industry between 1994 and 2001 (see Figure 5:1).

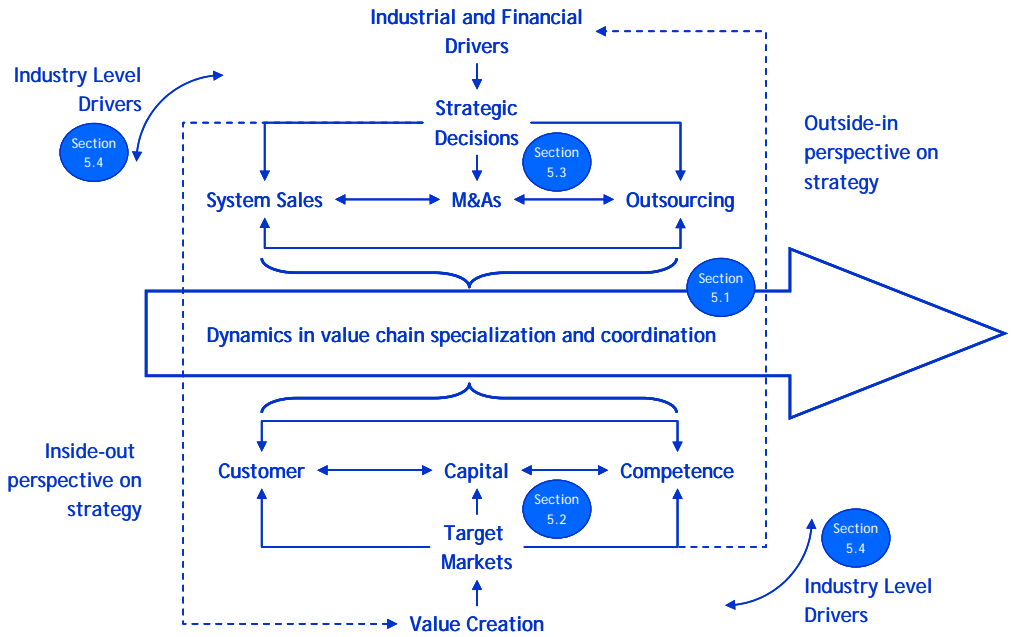


Figure 5:1 A framework for describing and understanding corporate strategy from a value chain perspective

5.1 Dynamics in value chain – specialization, coordination and integration

Both the telecommunication and the construction industries show an increased specialization across the value chain, and, as a result, an increased need for value chain coordination and integration.

TELECOMMUNICATION INDUSTRY: During the early 1990's the main value activities within the telecommunication industry were performed by the Original Equipment Manufacturers (OEMs), Components Manufacturers, Turn-Key Suppliers, Operators and Independent Points of Sales (POS), see Figure 5:2. The division of work among industry incumbents was clear and stable. The industry was mature and stable with a predictable growth, and to a large extent controlled by the government, e.g. through the government owned operator Telia.

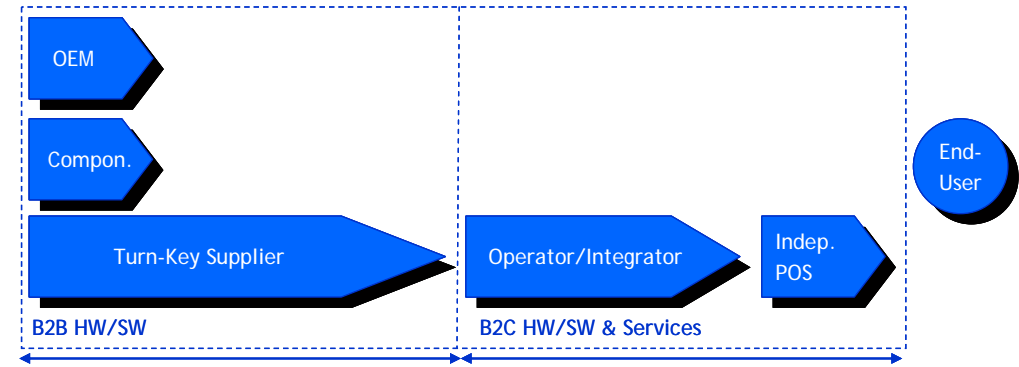


Figure 5:2 Division of work in the telecom industry early 1990's

Turn-key suppliers (e.g. Ericsson) performed research and development, subsystem design (switching and radio base station subsystems), engineering and manufacturing, and marketing and sales of PDAs and telecommunication systems (fixed and cellular). In addition, turn-key suppliers developed and manufactured strategic components, e.g. Ericsson manufactured the central and regional processors of the AXE. To some extent, the turn-key suppliers performed services such as telecom systems engineering, integration and deployment (often operators took this responsibility, not the least in their fixed network). Such value activities were directed towards or performed on behalf of the operators. The operators (e.g. Telia and Vodafone), on the other hand, took responsibility for the marketing and sales of fixed and cellular services, systems operations (e.g. network monitoring, network optimization, network enhancements, such as network upgrades and new service deployment), maintenance (e.g. spare parts handling, repair activities) and end-user operations (e.g. billing and customer care). Such value activities were directed towards corporate and private end-users. The independent points of sales (e.g. Expert) took responsibility for the marketing and sales of PDAs towards the end-users. The components manufacturers (e.g. Allgon) and Original Equipment Manufacturers (e.g. Segerström) supplied standard components to the turn-key suppliers. Allgon supplied radio base station and cellular phone antennas, Segerström supplied the AXE-cabinet, and other component manufacturers and OEMs supplied the plastic covers of mobile phones, etc.

Liberalization and privatization in the telecom industry contributed to increasing competition, industry growth and fragmentation as well as a redistribution of the division of work across the value chain. Technological development, including modularized and standardized subsystems contributed to increasing competition and the number of specialized subsystem suppliers for systems such as voice mail and data applications. One example was the modularization of the AXE and the development of standardized interfaces between the modules within the AXE as well as between the AXE modules and other external modules. This enabled specialized subsystem suppliers, e.g. of voice mail systems, to develop and market stand-alone subsystems that could be integrated with the AXE. Enhanced features and quality of PDAs, such as smaller and greater battery performance, and systems/services, such

as improved voice quality through the enhanced digital speech voice coder, improved network coverage through improved network planning and management tools from various suppliers of cellular radio frequency planning software tools e.g. LCC and the Ericsson/HP Operation Support System, OSS, software, as well as enhanced services through SMS, also contributed to the market growth, increasing competition, and industry fragmentation. This development was further encouraged by lower prices for PDAs, equipments and services.

The redistribution of work included incumbents and new entrants such as Original Equipment Manufacturers, OEMs, Contract Equipment Manufacturers, CEMs (e.g. Flextronics), Build, Operate and Transfer (BOT) Supplier (e.g. Ericsson), Service Providers, (e.g. Telia Mobile), Operators (e.g. Telia Networks), (Mobile) Virtual Network Operators, (M)VNOs (e.g. Djuiice owned by Norwegian Telenor), Mega Retailers (e.g. OnOff) and the Dependent Points of Sales, POS (e.g. Teliabutiken and Vodafone Stores), see Figure 5:3. The increasing competition is illustrated by the increasing number of companies, particularly within each segment of the value chain (see y-axis of Figure 5:3). In addition, the increasing degree of specialization is characterized by smaller and increasing number of segments (see x-axis of Figure 5:3).

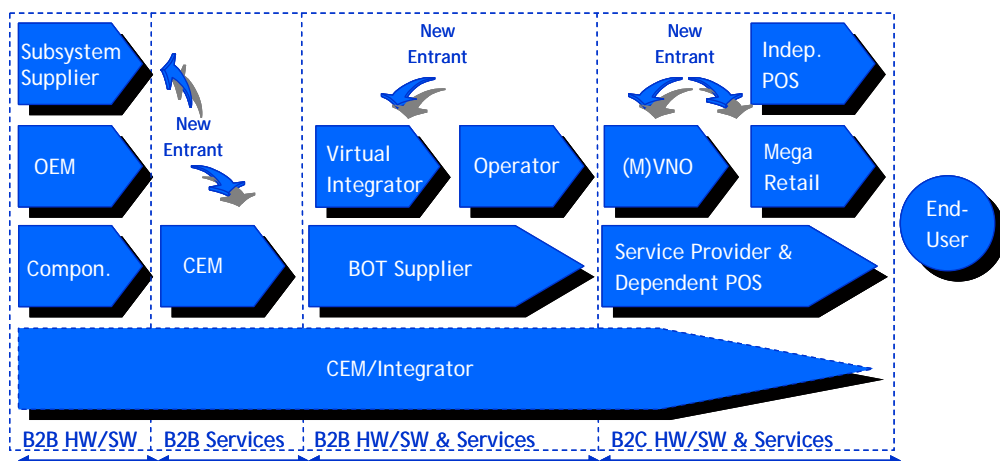


Figure 5:3 Division of work in the telecom industry late 1990's to 2002

Provided components manufacturers, OEMs and CEMs were willing and able to develop their R&D and manufacturing capabilities, turn-key suppliers increasingly outsourced R&D and the manufacturing of strategic components (e.g. Ericsson's central and regional processors in the AXE). As a consequence, components manufacturers, OEMs and CEMs increased their scope of supply moving into systems (e.g. Allgon from antennas to antenna near part system) and systems integration (e.g. Flextronics).

A new entrant in the telecom industry was the Contract Equipment Manufacturer (CEM), manufacturing PDAs (e.g. mobile phones) and cellular systems previously manufactured by the turn-key suppliers. In addition, the CEMs were increasingly engaged in research and development related to the manufacturing process of PDAs and fixed and cellular systems. This was a consequence of outsourcing on behalf of the turn-key suppliers. Although the design and engineering of systems and sub-systems were not outsourced by the turn-key suppliers, the turn-key suppliers increasingly needed to involve the CEMs in such activities in order to enable a cost effective manufacturing process carried out by the CEMs. As operators

also outsourced to CEMs (e.g. network maintenance), CEMs were increasingly spanning across the entire value chain.

“Flextronics...they started out by taking over some of Ericsson’s outsourcing...then we outsourced to them...installation...maintenance...and spare parts handling...in addition Flextronics sometimes work for corporate end users...in other words today Flextronics range over a big chunk of the value chain...they are becoming a major player although the customer never sees their brand...This is a good example of how the value chain is being sliced in several horizontal layers... If Flextronics would market their brand towards the end-user we would...and I guess this goes for Ericsson too, not be very happy with them...in order for them to be successful they need to be careful about this [Kennet Rådne, VP Telia]...”

A second new role in the telecom industry was being played by the operators that focused on systems operations and maintenance, i.e. wholesale of telecommunication services (excluding service provisioning to end-users, that is to say retail of telecommunication services). This was a consequence of “traditional operators” outsourcing such activities to operators or BOT suppliers. The turn-key suppliers, on the other hand, were increasingly becoming Build Operate and Transfer (BOT) Suppliers, including operations and maintenance of telecom systems. As previously discussed (see Chapter 5), turn-key suppliers were increasingly outsourcing value activities previously performed in-house, e.g. manufacturing of strategic components to components manufacturers and OEMs, manufacturing of PDAs and cellular systems, and the research and development related to the manufacturing process of PDAs and cellular systems. They retained, however, systems design and engineering as well as network deployment and installation capabilities in order to integrate forward and to supply the operations and maintenance of cellular systems to operators or service providers.

The Traditional Operators were increasingly becoming Service Providers. As previously discussed (see Chapter 5), the traditional operators were increasingly outsourcing value activities which they themselves had previously performed in-house, such as the operations and maintenance of cellular systems. By focusing solely on marketing and sales of services and end-user operations such companies were usually called service providers. In addition, the service providers tended to integrate forward by establishing proprietary points of sales, i.e. Dependent Points of Sales, a POS owned by the service provider (a dependent POS could also be owned by a virtual operator or a traditional operator) and by taking over, in an outsourcing solution, the operations of business networks. Often, the operators/service provider outsourced such operations and maintenance of business networks to the CEMs. The dependent POSs as well as the O&M of business networks were the result of the traditional operator integrating forward towards the end-user, both private and corporate.

A new third entrant was the (Mobile) Virtual Network Operator, e.g. Djuiice owned by Norwegian Telenor. The virtual operator offered fixed and/or cellular services and performed the same value activities as the service provider. However, the main difference was that they did not own the fixed or cellular system. Rather the virtual operator leased spare/over capacity in the network (e.g. the cellular system) owned by the service provider and operated by the operator or BOT supplier.

The value activities performed by the Independent Points of Sales did not change. Independent POS still performed the marketing and sales activities of PDAs towards the end-users. The only difference was that they were increasingly engaged in the marketing and sales of services on behalf of the virtual operators and service providers. This should be seen as a change in their scope of supply to include services. A fourth new entrant was the Mega Retailer. The mega retailers had traditionally performed value activities related to the

marketing and sales of white and brown goods. However, in increasing their scope of supply, the mega retailers also engaged in the marketing and sales of PDAs and services on behalf of the virtual operators and service providers.

A fifth new entrant was the virtual integrator. The virtual integrator took the responsibility for R&D and the design of PDAs and/or systems. Virtual integrators generated revenues through patents and IPRs. One example is the creation of Ericsson Mobile Platforms. Through Ericsson Mobile Platforms and Ericsson Technology Licensing, Ericsson offered complete 2.5G and 3G technology platforms to manufacturers of mobile phones and other mobile devices (e.g. Sony Ericsson, Samsung). The platforms consisted of complete component specifications, printed circuit board layouts and software. In addition, Ericsson offered support and customization services. Thus, through Ericsson Mobile Platforms, Ericsson became a virtual integrator of cellular phones.

Table 5:1 Summary value chain dynamics in the telecom industry

	Sub-supplier	System supplier	Operator
M&As	M&As for economies of scope and scale in order to comply with system suppliers demands for “total solutions” and lower costs.	M&As for acquiring new or complementary technology.	M&As for growth and economies of scale related to operational synergies, e.g. in transmission network and customer handling.
Outsourcing	Outsourcing manufacturing to CEMs and research to component manufacturers (retain design and development).	Outsourcing e.g. manufacturing to CEMs and research to sub-supplier.	Outsourcing e.g. maintenance and spare part handling to CEMs and third parties in order to lower costs by re-shaping the division of work within industry thereby creating competitive supplier segments and economies of scale across the industry, outsourcing systems operations to system supplier.
Systemization/modularization	Increase scope of offering from products to systems (e.g. from antenna to antenna near part system). Offer includes compliance with function rather than technical specification.	Increase scope of offering from systems to BOT-projects. Offer includes compliance with “grade of service” rather than function.	Increase scope of offering to include e.g. content development and management.

CONSTRUCTION INDUSTRY: In the beginning of the 1990’s few new projects were developed due to the economic recession and, consequently, value chain integration through e.g. project management was not required for coordination purposes (e.g. Claes Larsson, President Skanska Projektutveckling). At the time, the division of work across the value chain was organized in three main segments. These three segments in the value chain were essentially coordinated through market transactions. The value chain was characterized as a “relay race” (Jan Byfors, Vice President, NCC). Upstream in the value chain there were suppliers such as Kährs Golv (floors), Elitfönster (windows), and Skåne-Gripen (floors, windows and other interior details) and eventually also Södra Building Systems (system of joists, prefabricated

floor structures and wall systems) in the industrially manufactured components and installations segment. Further down the chain came the turn-key suppliers, i.e. major construction corporations such as Skanska and NCC. Closest to the end-users were the operators, i.e. the property management divisions of the major construction companies and the real-estate companies such as HSB and eventually also Drott (see Figure 5:4).

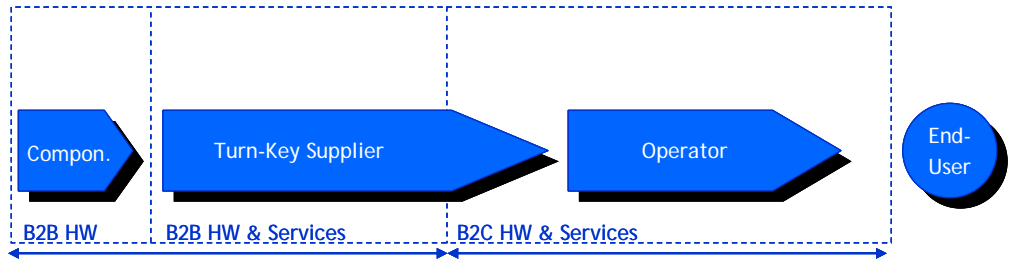


Figure 5:4 Division of work in the (building) construction industry early 1990's

In the civil engineering segment (road surfacing, bridges, etc.), the sub-suppliers (such as producers of ballast, such as gravel and crushed rock, and cement for the production of concrete and asphalt) were integrated with the turn-key suppliers such as NCC. In a first phase (1995-1998), it was noted that the component segment was expanding at a rapid pace and that the costs related to such components increasing at an even more accelerated pace. Consequently, components and installations represented an increasing cost of the total construction cost (e.g. Claes Larsson, President Skanska Projektutveckling; Jan Byfors, Vice President NCC). One of the driving forces was an increasing complexity and number of different technical systems available (e.g. Claes Larsson, President Skanska Projektutveckling). As a response, the largest construction companies, the turn-key suppliers, integrated backward into the segments of manufacturing and installation of ventilation and electrical equipment and components, kitchen, floors, ceilings, windows, etc. This backward integration was primarily done through acquisitions. The rationale was to lower costs and increase profitability. The value chain in the building construction and the civil engineering segments now looked very similar with regard to the division of work (see Figure 5:5).

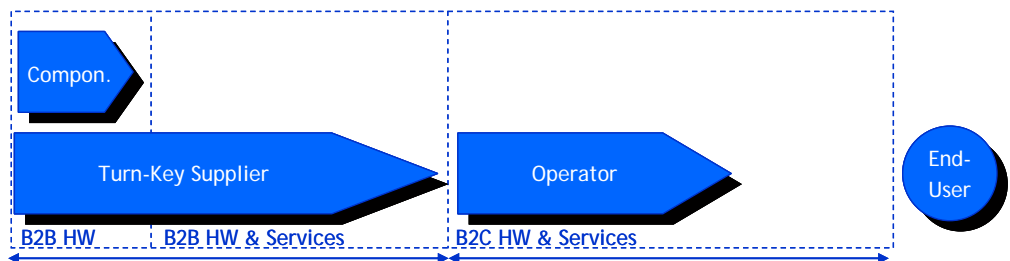


Figure 5:5 Division of work in the construction industry around 1995-1998

In a second phase (1999-2001), the turn-key suppliers divested their manufacturing of industrialized components and outsourced installations of such components to the component manufacturers. One reason was that industrial manufacturing tied-up capital and burdened the balance sheet, something that was not appreciated by the capital market (e.g. Jan Byfors, Vice President, NCC). Turn-key suppliers also increasingly began to outsource some of the actual construction work. This outsourcing of construction work increased as foreign companies from e.g. the Baltic States began to offer their services in Sweden at lower costs. With regard

to new project development, the turn-key suppliers now focused on project management, taking responsibility for coordinating activities across the value chain, or rather activities within value constellations, i.e. activities executed in larger project organizations or temporary joint venture companies including architects, suppliers, turn-key suppliers, and buyers. With regard to property management, large portions of the turn-key suppliers' portfolios of managed properties were divested, not least to foreign investment bankers such as Morgan Stanley or GE Capital (directly or indirectly through the stock market). In addition, substantial real-estate value in managed properties was transferred to shareholders (e.g. Drott). The divestments and the outsourcing of industrial components as well as of managed properties enabled a lighter balance sheet and allowed for greater profitability e.g. in terms of ROA. In addition, divestments and outsourcing arrangements enabled to free capital to be invested in other core activities or to increase the return to the shareholders. Shareholder value, thus, increased directly in the short-term as a result of increasing dividends and by transferring of real-estate value to the shareholders or indirectly in the long-term as a result of increasing profitability, i.e. what the shareholders at the time seemed to value the most.

Sometimes in competition with the operators, i.e. the real estate companies, turn-key suppliers also expanded their service offering to include facility management. Facility management services often targeted virtual operators or corporate customers. Corporate customers increasingly divested their properties and outsourced property management services (e.g. Ericsson). The virtual operators were the new entrants in the real-estate segment. The virtual operators viewed the construction and real-estate segments of the industry purely as a financial investment. These virtual operators were often foreign investment banks such as Morgan Stanley or GE Capital with little or no experience of actually taking an active role in property management. Virtual operators purchased real-estates from corporations that rather leased than owned their properties. They also purchased real-estates from the managed properties portfolios of NCC and Skanska for example. The virtual operators created a new type of customer in the construction industry. Virtual operators "owned" the tenants but were not particularly competent in property management, and consequently required FM services from e.g. Skanska and NCC. However, virtual operators were considered very competent in financial management. This required companies such as Skanska and NCC to create value by developing perhaps a more solid and profitable business case when selling both managed properties and new projects as well as when selling facility management. In the private end-user segment, some construction companies established proprietary points of sales (POS).

Different strategies among turn-key suppliers can be found for integrating forward into facility management. Skanska did this primarily through acquisitions (e.g. by acquiring Ericsson Real-Estate & Services in 1999), NCC primarily through organic growth (e.g. by establishing Consess). As argued by the turn-key suppliers themselves, eventually, FM services included service areas that were far beyond their capabilities as turn-key suppliers in the construction industry. One example is Skanska's equity interest in Orange, a JV company with e.g. France Telecom and Bredbandsbolaget, for acquiring a 3G cellular license in Sweden. The rationale was to enhance Skanska's know-how in the IT and telecom industry, e.g. in order to be able to develop intelligent buildings.

During this period, BOT-projects became more common in the civil engineering segment, both internationally and in Sweden (e.g. Öresund Project, Arlanda Link, Mälarbanan, etc.). A driving force in the Swedish market for BOT-projects was that governmental buyers (e.g. Vägverket for roads, Banverket for railways, and former Byggnadsstyrelsen for buildings) cut costs by reducing their staff. As a consequence, these buyers lowered their overall competence level and the construction companies were required to take a larger responsibility

for the entire life cycle of the construction project. In addition, as BOT-projects are often seen as an ongoing cost rather than a one time investment (from the point of view of the buyer), there was no need for developing a common time perspective between the buyer and the seller and a common view with regard to when the BOT-project was supposed to pay-off (e.g. Mats Williamson, President Skanska Sverige). From a shareholder perspective, BOT-projects benefited Skanska and NCC as they developed into BOT-suppliers. BOT-projects generated a stable flow of revenues over a long period of time which attracted institutional and long-term investors such as the pension funds. BOT-projects also enabled Skanska and NCC to compete to a larger extent on differentiation rather than purely on cost. As BOT-projects allowed the industry to move away from tenders based on detailed technical specifications towards functional specifications, this encouraged innovations and the possibility to differentiate as well as lowering total costs over the life cycle of a project. Previously during a public tender all bidding companies were required to make a proposal based on a detailed technical specification resulting in technically very similar proposals and competition solely based on price. In BOT-projects, however, the degree of e.g. product specification was lower, enabling the bidding company to introduce innovations at its own risk, as long as the performance specifications were met. Hence, BOT-projects required the major construction companies to develop or enhance several competence areas, e.g. project and financial management, risk assessment and management related to the entire life cycle of a project and not only to the construction process, and marketing for assessing customer needs rather than solely assessing future macro-economical trends. The division of work in the construction industry late 1990's to 2002 is illustrated in Figure 5:6.

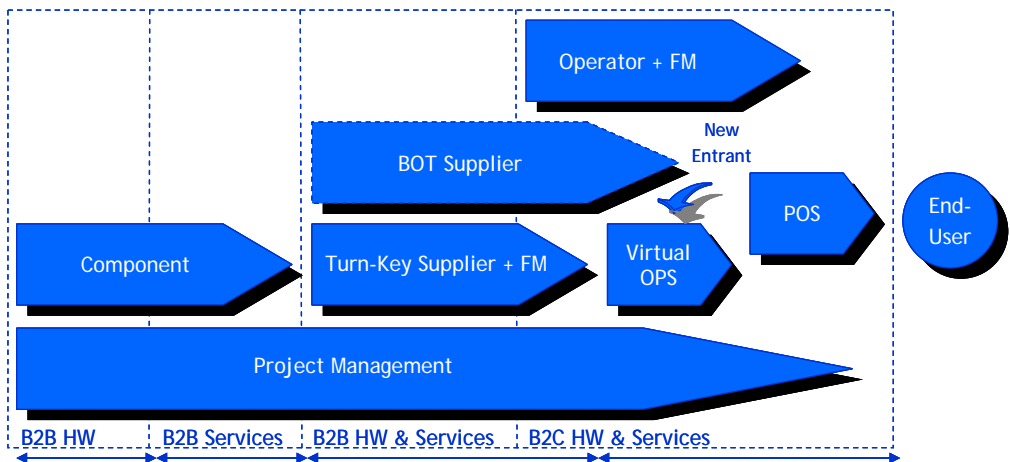


Figure 5:6 Division of work in the construction industry late 1990's to 2002

Table 5:2 Summary value chain dynamics in the construction industry

	Sub-supplier	System supplier	Operator
M&As	No evidence of any trend. The benefits of M&As are believed to be achieved through cooperative alliances. If, however, the sub-supplier is owned by the system supplier M&As may occur for economies of scale/scope.	M&As for risk diversification and growth.	M&As for growth and economies of scale related to financial synergies.
Outsourcing	Outsourcing manufacturing and research to component suppliers (retain design and development).	Outsourcing e.g. construction works to third party supplier (e.g. international suppliers of work-force) and research to sub-supplier.	Outsourcing e.g. maintenance and technical management.
Systemization/modularization	Increase scope of offering from products to systems (e.g. from joists to “lightweight wooden technology and systems” including joists and plasterboards). Offer includes compliance with function rather than technical specification.	Increase scope of offering from systems to BOT-projects. Offer includes compliance with “grade of service” rather than function.	Increase scope of to include facility management and beyond (including O&M of telecom network).

From a value chain perspective the division of work and the execution of value adding activities has become more specialized e.g. with regard to R&D, manufacturing, marketing and sales of hardware, software and services. The increasing degree of specialization has increased the need for value chain coordination and integration. Thus, this increasing degree of specialization and need for coordination and integration has created new opportunities for new entrants as well as for incumbents and a new competitive scope is emerging in systems integration. A new competitive arena has emerged in the field of value chain coordination and inter-organizational systems integration. New entrants such as CEMs (e.g. Flextronics) as well as incumbents such as the traditional turn-key suppliers (e.g. Ericsson, Skanska, NCC) are actively seeking to take this role by turning into virtual integrators in the business of PDAs and inter-organizational project managers and/or BOT-suppliers in the field of telecommunication systems and constructions. The process of transformation to increase coordination and integration capabilities across the value chain requires the re-bundling of the corporate scope (e.g. Hagel III, Singer, 1999) through strategic decisions at the corporate level including M&As and outsourcing. At the functional level, the process of transformation includes the bundling and unbundling of the offering through systemization and modularization. In conclusion, the reciprocity between strategy on different levels and the division of work and competitive scope from a value chain perspective can not be ignored when describing and understanding the dynamics of strategy. The interrelationships between value chain dynamics and strategy at different levels (found and discussed above) are illustrated in Figure 5:7.

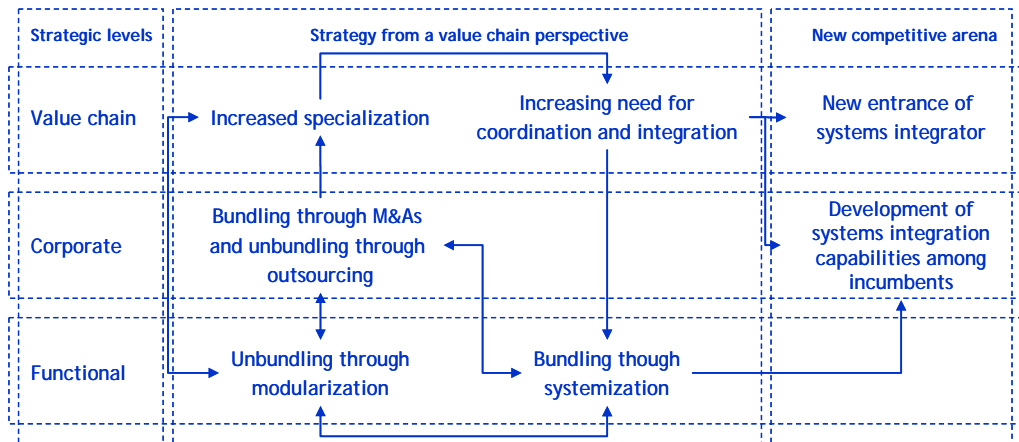


Figure 5:7 Strategy from a value chain perspective

The figure above shows that several different interrelated drivers may produce increased industry specialization and need for coordination and integration. It also shows that increased specialization across the value chain may produce a variety of strategic decisions at the corporate level. One example is that systemization often requires modularization in order to serve heterogeneous customer demands in a cost effective manner (e.g. Bonaccorsi, Pammolli, Tani, 1996; Wilson, Weiss, John, 1990; Cova, Hoskins, 1997; Bansard, Cova, Salle, 1991). Modularization, on the other hand, creates the opportunity for new specialized actors to enter the industry (see the beginning of this section). Consequently, the need for coordination and integration will increase. Incumbents may develop new system integration capabilities or a new entrant may take this new role (as has Flextronics in the telecom industry). In this respect, outsourcing and M&As are two important strategic decisions for repositioning in the value chain. As a result of Telia's and Ericsson's outsourcing to Flextronics, Flextronics increased its span across the value chain.

5.2 Dynamics in strategy – expanded network horizon in value creation

The dynamics in strategy refers to changes in the rationale for strategic decisions, and consequently, what it is that drives such decisions and what the purpose or expected results and outcomes for such decisions are. By dynamics in strategy is meant both the content and process of strategy. The strategic decisions referred to include primarily those that have an impact on the boundary of the firm, i.e. mergers and acquisitions, outsourcing, as well as the scope of offering, i.e. systemization and modularization. The single most important finding with regard to the dynamics and the content and process of strategy is the expanded network horizon in value creation. The term “network horizon” has been defined as “how extended an actor's view of the network is” (Salmi, Havila, Anderson, 2001, p 63 with reference to Anderson, Håkansson, Johansson, 1994). According to Salmi, Havila, Anderson (2001) “few empirical studies have been made of network horizons, an exception being a recent analysis by Holmen and Pedersen (2001), which discusses the actor's knowledge and ignorance of various *connections*” (Salmi, Havila, Anderson, 2001). The connections between actors referred to here is the value that is created between actors or created by one actor and exchanged with other actors. The term “network horizon in value creation” denotes the extension of the network of stakeholders to which an actor targets its value creating activities. Porter (1980) argues that industry competitors, suppliers, buyers and substitutes drive industry competition and determine the profit potential in an industry. In coping with the five

competitive forces, Porter (1980) suggests three generic strategies; cost leadership, differentiation and focus. Value chains and value systems represent the relevant activities for understanding costs as well as the potential sources for differentiation. As such, value activities are the key source of competitive advantage. According to Porter (1985), “creating value for buyers that exceeds the cost of doing so is the goal of any generic strategy” and “value is the amount buyers are willing to pay for what a firm provides them” (Porter, 1985, p 38). Value activities include support activities such as technology development and HR management. Consequently, employees in the competence market are seen as a means to create value for customers and not as an end in itself, i.e. a market that needs to be attracted by offering some sort of added value. In addition, shareholders in the capital market are not part of the value chain or system (the mean) and not a direct target of firms (the end). Thus, implicitly shareholders cannot create value for the firm and the firm should not target its value creating activities directly towards the shareholders although it can do so indirectly through customers, profits and dividends. Empirical evidence in this study shows, however, that firms do target their value creating activities directly at customers as well as at shareholders in the capital market (e.g. through activities that drive the stock price) and at employees in the competence market. The expanded network horizon in value creation reflects the corporations’ aim, on a global scale, to not only create value for customers in customer markets but also for shareholders in a capital market and employees, potential employees or consulting or outsourcing partners in a competence market (see Figure 5:8).

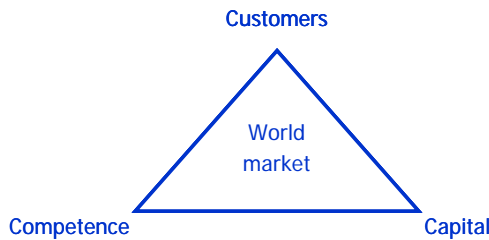


Figure 5:8 Global markets Customers, Capital and Competence

The rationale for such an expanded network horizon in value creation relies on two important factors. First and foremost, the increasing globalization of customers, capital and competencies, the diffusion of know-how, due to phenomena such as multilateral free-trade agreements has increasingly created competitive and global customer, capital and competence markets. Secondly, because an industrial logic for value creation is complemented by a financial logic for value creation, i.e. value creation towards customers has been complemented and sometimes even substituted by value creation towards the capital market, e.g. shareholders. In this process it became common to create value towards the competence market by turning employees (including management) into shareholders and offering them financial incentive packages. Some of the findings which relate to this are further discussed below.

5.2.1 Attracting the capital market through a financial logic

Attracting the capital market through a financial logic refers to creating value for the capital market and attracting it through a financial logic based on portfolio management, positioning and repositioning which, in the short-term, benefits shareholders through increasing the value of shares or the corporation’s marcap. The discussion and analysis of how value is created and the capital market attracted is structured according to the suggested analytical model. The discussion begins with corporate level bundling and unbundling through M&As and

outsourcing and is followed by functional level bundling and unbundling through systemization and modularization.

MERGERS AND ACQUISITIONS: Empirical evidence (e.g. Skanska's entry in the telecom industry through Orange or market entry in the U.S.) shows that M&As are used for repositioning into unrelated and new business areas including new market and/or product areas (i.e. diversification) as demanded by e.g. shareholders. Such demands may be based on minimizing environmental uncertainties (Pfeffer, 1972) or minimizing risk in ways that shareholders cannot do on their own (Chatterjee, Lubatkin, 1990). Skanska's M&A strategy for entering new markets, such as the U.S. market, is one successful example. Skanska argues that it is able to offset volatility of local country markets by international M&As as well as increase value for shareholders. While net sales increased from almost SEK 40 billion (1994) to almost SEK 110 billion (2000), foreign sales went from approximately 35% (1994) to around 80% of total net sales during the same period. This growth was achieved through M&As, as shown by Skanska's increase in the change of cash-flow originating from investments in shares and other participations, from slightly below SEK 300 million (1994) to slightly above SEK 2,800 million (2000). During this period Skanska's marcap doubled from approximately SEK 20 billion (1994) to above SEK 40 billion (2000). Clearly, Skanska's M&A strategy increased sales and created value for shareholders. This somewhat contradicts theories that conclude that M&As for the purpose of acquiring the target company's customers are seldom successful (Anderson, Havila, Salami, 2001). Consequently, M&As are used for satisfying shareholder's demand of improving absolute performance, expanding income statement through growth in turn-over and sales, which in turn may drive shareholder's rewards. This complements existing theory where growth is a common explanation for M&A. However, in e.g. "empire building theory" (Trautwein, 1990) growth, particularly in management controlled firms, is often linked to senior executive rewards (Kroll, Wright, Tooms, Leavell, 1997).

Probably the most surprising finding is that an articulated M&A strategy may be developed as a "strategic brand" in order to make the corporation's current and future businesses (developed through organic growth and internal investments) visible to outsiders such as the capital market, including institutional investors and shareholders. M&As as a strategic brand may satisfy the capital market's demands for rapid growth into specific business segments. In other words, M&As as a strategic brand facilitates the communication of the strategic direction of the corporation (rather than actually executing major M&As). In the Ericsson case, the "string of pearls strategy" was launched for such purposes. Previous research has shown that M&As often have a negative effect on R&D intensity at the corporate level and are often a substitute for managerial commitment to innovations (e.g. Hitt, Hoskisson, Ireland, 1990). Ericsson's "string of pearls" shows that there is probably a more subtle relationship between M&As and R&D intensity as well as M&As and management commitment to innovations.

OUTSOURCING: Outsourcing is used to satisfy shareholders' demand for improving relative performance, shrinking the balance-sheet and increasing profitability, e.g. ROA. Considering "primary activities" including operations (e.g. manufacturing and assembly, and equipment maintenance) logistics, marketing, sales and services, and "support activities" such as R&D, HRM, procurement and firm infrastructure such as general management, finance, accounting, etc. (Porter, 1985), major outsourcing decisions often encompass manufacturing, followed by research and eventually development (required for customer adaptations). With reference to the existing literature on outsourcing, it is important to note two things. First, unlike research on M&As, there is little to be found in the outsourcing literature linking the outsourcing

decision to shareholder demands or financial factors as suggested by this research. Rather than financial factors such as corporate performance measures and profitability, the outsourcing decision has been linked to operational costs, often cost of ownership versus transaction costs (e.g. Ellram, Maltz, 1995; Walker, 1988; Cox, 1996; Reve, 1990). Second, in research into the outsourcing of R&D activities it is implicitly suggested that such outsourcing, when it occurs, encompasses research as well as development activities (e.g. Howells, 1999). This study shows that research may be outsourced while development is kept in-house to facilitate the development of customer adaptations. This supports the idea that “if core competencies are not recognized, individual SBUs will pursue only those innovation opportunities that are close at hand – marginal product-line extensions or geographic expansions” (Prahalad, Hamel, 1990, p 98). Consequently, among “innovation opportunities that are close at hand” are developments for customer adaptations. Nonetheless, if both research and development activities are outsourced, the outsourcing of research often occurs first followed by the outsourcing of development. The reason for this relates to satisfying shareholder as well as customer demands in the short-term. Customer adaptations often generate immediate return and involve little or no risk. Howells (1999) also concludes that “...less and less of this routine R&D and technical work will be undertaken ‘in-house’ and instead will be the responsibility of CRTOs [Contract Research and Technology Organizations]”. The analysis in this research suggests differently. Complex research activities that cannot provide shareholder value (or customer value) in the short-term and that involve a higher degree of risk may be outsourced. Because such research may require substantial investments and time, the risk is higher and the expected return is generated in the long-term.

Outsourcing is also used for repositioning and changing the business logic e.g. moving from product sales into licensing agreements and IPRs. Shareholders’ demands for a light balance sheet as well as customers’ demands for total solutions are satisfied through “packaging” and marketing competence in IPRs rather than in products. This confirms the view that most companies are unable to build world leadership in more than five or six fundamental competencies, and consequently, this “tends to prompt the search for licensing deals and alliances through which the company may acquire, at low cost, the missing pieces” (Prahalad, Hamel, 1990, p 84). Implicitly, thus, Prahalad and Hamel (1990) suggest that the buyer, by focusing on its core competencies, may pull for licensing agreements and alliances. This analysis complements previous research by Prahalad and Hamel (1990) as it indicates that the seller, by focusing on its core competencies, may push for licensing agreements. Focusing on core competencies may thus lead both buyer and seller to pull and push for a licensing agreement, and possibly to the creation of an alliance around such agreement.

The licensing agreement between Ericsson and the alliance between Sony Ericsson confirms Prahalad and Hamel’s (1990) conclusion. Understanding that the “tangible link between identified core competencies and end products is...core products-the physical embodiments of one or more core competencies” (Prahalad, Hamel, 1990, p 85) helps to understand R&D in information and communication technologies (ICT) as being Ericsson’s core competence, IPRs its core products and mobile phones as the end products. This finding highlights the importance of distinguishing “between the brand share... in end product markets... and the manufacturing share... in any particular core product” (Prahalad, Hamel, 1990). From 1994 to 2002 Ericsson went from a 25% market share in global sales of cellular phones, i.e. the end product, to a 6% market share. How much Ericsson lost/increased its market share in core products is however unknown to the public. However, “to sustain leadership in their chosen competence areas...companies seek to maximize their world manufacturing share in core products” (Prahalad, Hamel, 1990, p 85). This is probably what Ericsson has been doing for

the past couple of years. Ericsson Technology Licensing reports increasing revenues from licensing agreements, particularly as its core product portfolio (including Ericsson Mobile Platform and Bluetooth) and customer base are increasing (including Sony Ericsson, LG Electronics and Samsung for Mobile Platforms and Intel, Philips, ST Microelectronics and Samsung for Bluetooth technology). The Ericsson Mobile Platform encompasses complete component specifications, printed circuit board layouts, software and support and customization services for the manufacture of mobile phones. Eventually, Ericsson's strong position in core products may once again allow it to "shape the evolution of applications and end markets" (Prahalad, Hamel, 1990, p 86). Ericsson's share price (adjusted for issues and split) plummeted from SEK 411 in 1994 to SEK 6 in 2002, peaking at SEK 547 in 1999. This indicates that the capital market may not value the same things as the customer market. Despite the fact that Ericsson's market shares in end products, i.e. the cellular phones business, fell from 25% to 6%, nobody really knows if or how much Ericsson lost/increased market share in core products, the mobile platforms. Value for these two markets may thus be created differently. In addition, it indicates that the capital market should not alone guide corporate strategy as it may not entirely understand the corporation's core competence and cannot entirely distinguish between core products and end products. This leads to the next discussion related to strategy and the capital market.

Unlike most research the findings in the beginning of this section reveals that outsourcing is a decision influenced by shareholders. In addition, it highlights outsourcing as a strategic decision from a "strategic positioning" perspective, both product/market positioning as well as value chain positioning. Research on outsourcing often spotlights outsourcing as strategic. Outsourcing can be seen as strategic from a core competence perspective (e.g. Quinn, Hilmer, 1994; Long, Vickers-Koch, 1995; Javidan, 1998). Outsourcing and the make or buy decision based on the analysis of operational costs versus transaction cost, however, are often linked to operational effectiveness and to a much lesser extent to corporate strategy (Jauch, Wilson, 1979). This is despite the fact that "operative decisions [such as the make or buy decision]...influence the strategic thrust of the organization" (Jauch, Wilson, 1979, p 56). Apart from research on outsourcing based on the core competence perspective, outsourcing has been linked to the strategic planning (in particular the SWOT-analysis) and execution process (Jauch, Wilson, 1979). The analysis and findings herein complement existing research on outsourcing by showing the link between outsourcing and the "positioning school" of strategy, i.e. particularly product/market positioning and value chain positioning. In its essence, outsourcing may be one way of entering a new product business and moving from traditional product sales to licensing. In addition, outsourcing may be used not only for repositioning upstream in the value chain (as shown by Ericsson) but also downstream as suggested by Wise and Baumgartner (1999), horizontally as suggested by Hagel III and Singer (1999), or repositioning according to where profits in the value chain are the highest (Gadiesh, Gilbert, 1998).

5.2.2 Attracting the customer market through an industrial logic

Attracting the customer market through an industrial logic refers to increasing value or decreasing costs (e.g. Porter, 1980) through economies of scale/scope and the creation of synergies which in the long-term benefit shareholders through dividends. The discussion and analysis of how value is created and the customer market attracted is structured according to the suggested analytical model. The discussion begins with corporate level bundling and unbundling through M&As and outsourcing and is followed by functional level bundling and unbundling through systemization and modularization.

MERGERS AND ACQUISITIONS: Empirical evidence shows that M&As are used for creating economies of scale/scope (often) within existing business areas including established market and/or product areas. Examples of M&As targeted at market or product areas are Skanska's acquisitions in the U.S. including Exbud (2000) which increased Skanska's sales by approximately SEK 5.3 billion and the number of employees by some 14,000 and Ericsson's often smaller acquisitions in the field of fixed and mobile communications technology including Advanced Computer Communications, Juniper Networks, Torrent Networking Technologies and TouchWave (1998-99) for IP technology and Qualcomm (1999) for CDMA technology. With regard to mergers, probably the most noticeable corporate mergers include Telia and Sonera, Allgon and Centurion, and Sony and Ericsson, the latter, however, a merger at the SBU level. Value creation in such related M&As as a result of economies of scale/scope, has been confirmed in previous research (e.g. Seth, 1990; Nguyen, Devinney, 1990). Economies of scale/scope have the potential to create value for the customer market by lower costs and prices (e.g. Porter, 1980, 1985).

OUTSOURCING: With regard to outsourcing it seems that external outsourcing (outsourcing to an external corporation) is preceded by internal outsourcing, (outsourcing functional or SBU activities to a corporate expert unit), e.g. the Ericsson Radio Systems IT support activities. Theoretically, corporations may be thought to have two options with regard to external outsourcing; domestic or international. However, empirical evidence shows that domestic outsourcing may not be the end, but is rather the means to international outsourcing. Thus, domestic outsourcing is used in order to facilitate international outsourcing, often to low labor cost countries such as China. One of the reasons Ericsson outsourced its manufacturing of mobile phones to Flextronics in Sweden was to facilitate the transfer of such manufacturing activities to China. As Ericsson required lower prices for manufacturing services, it also expected Flextronics to move such activities to China. Flextronics thereby had to take responsibility for transferring such activities to China including the process of negotiating with the Swedish labor unions. Flextronics as opposed to Ericsson, which is considered a Swedish corporation, could avoid discussions including Ericsson's responsibility to save Swedish jobs.

"To outsource to Flextronics has also been one way of selling and closing down manufacturing facilities...I mean to close down a manufacturing facility is always hard...it deals with people and it involves large capital amounts...can you have someone to take over it's good... When outsourcing was at its peak...Flextronics and Solectron and others...these people are not stupid...I mean...they understand that "if Ericsson can't make cheap telephones in Kumla, neither will we"... Their strategy was to manufacture not only telephones...telephones and other things that could be manufactured in China would be moved to China [Kurt Hellström, CEO Ericsson]..."

The transaction cost perspective on outsourcing suggests that internal costs for "making" should be evaluated against transaction costs for "buying". In other words, internal conditions should be evaluated against external conditions. As concluded by Prahalad and Hamel (1990), however, outsourcing from a core competence perspective suggests that the outsourcing decision is more or less an internal matter based on understanding the corporation's core competencies; "[it is not] possible for a company to have an intelligent...sourcing strategy if it has not made a choice where it will build competence leadership... the costs of losing a core competence can be only partly calculated in advance" (Prahalad, Hamel, 1990, pp. 93-94). Thus, in this respect, outsourcing from a core competence perspective is traditionally more "introvert". Empirical evidence, however, suggests that analyzing a company's core competencies is a dynamic process and involves evaluating the corporation's core competencies against those available in the market, e.g. through outsourcing. The dynamics, here, refer to changing market conditions over time. Telia's installation activities of mobile

systems were initially (during the early 1990's) an internal activity which differentiated Telia and provided a competitive advantage through a better coverage of mobile services. As most competitors expanded their coverage and were able to offer practically nation-wide services (by mid to late 1990's) coverage and installation services no longer differentiated Telia nor provided Telia with a competitive advantage. This contributed to the outsourcing of Telia's installation services to Flextronics. The same thing happened with installation services of fixed networks as most fixed operators are in fact service providers servicing their customers though Telia's back-bone network.

"When it comes to fixed networks and its maintenance...everybody uses Telia's back-bone network...by default, this [the maintenance of the backbone network] will never provide a competitive advantage...as a consequence these activities have a potential for being outsourced... In the future I believe that an operator won't be responsible for monitoring the network, however you will have to carefully be able to monitor the services you provide to the end user...this is what matters...your source of competitiveness... We need to put emphasis on functionality and service quality rather than network performance...although they are interrelated... I personally think that it makes perfect sense to outsource installation services of fixed telephone networks and not of mobile cellular systems...once again it all depends on where your source of competitive advantage can be found... This actually happened a couple of years ago...we outsourced installation and maintenance services of our fixed network...at that time we were in a critical face of installing and launching dual band service's...we choose not to outsource installations at that time [of the dual band cellular system]...two years later we outsourced it [Kenneth Karlberg, VP Telia]... ..then we outsourced to them [Flextronics]...installation...maintenance...and spare parts handling... [Kennet Rådne, VP Telia]"

In conclusion, sourcing/outsourcing internally or from external supplier depends on continuously evaluating the corporation's own core competence against the core competence of competitors and potential suppliers. In addition, sourcing/outsourcing depends on the costs as well as the differentiating factor of such activities and, as a consequence, the degree to which such activities contribute to competitive advantage.

Outsourcing may also be used for proactively re-shaping the division of work within industries and to create competitive supplier segments. Telia's outsourcing of installations services to Flextronics and Swedia Networks (rather than to Ericsson) was a proactive decision to increase competition in the supplier segment of the industry as well as to create economies of scale across the industry (e.g. in operations including installation services and spare parts handling,) thereby facilitating a lowering of costs.

"During 2000 and 2001 we outsourced installation and maintenance to Flextronics and Swedia Networks... Swedia Networks by selling the company ...a market [installation and maintenance] with no competition...we didn't expect this solution to be instantly cheaper...in this case we had a long-term perspective, we wanted to encourage the creation of such a market... Overtime we expect to see a competitive market and to buy at a much lower price... Although Ericsson offers these kind of services we thought that by contracting Ericsson we wouldn't achieve the market structure we were looking fore...a competitive market place [Kenneth Karlberg, VP Telia]"

Once again it should be mentioned that the outsourcing of research is quite different from the outsourcing of development. Outsourcing research has been used in order to focus on end products and applications while minimizing technological risk, e.g. the risk of developing an obsolete technology. Outsourcing development, on the other hand, has been used in order to focus on core products and to create economies of scale while allowing customers to develop the end products and applications. While Allgon adopted the former strategy in order to focus on developing customer adaptations, Ericsson adopted the latter. Ericsson outsourced development and manufacturing of the end product "mobile phones" to Sony Ericsson, Samsung and others while retaining research within the core product "Mobile Platforms".

While the objective of outsourcing research has often targeted the creation of short-term shareholder value, outsourcing development has focused on competitiveness in the long-term. This finding is confirmed by previous research as a “company multiplies the number of application areas for its core products, it can consistently reduce the cost, time, and risk in new product development. In short, well-targeted core products can lead to economies of scale and scope” (Prahalad, Hamel, 1990, p 86).

SYSTEMIZATION AND MODULARIZATION: Empirical evidence indicates that bundling into total solutions, such as BOT projects, creates real value rather than expected value, the latter often calculated and presented in e.g. a business case. Expected value referred to here is often pitched by the seller through a theoretical calculation of the buyer’s expected return on investment with regard to the system solution being offered, including the scope of hardware, software and services. Real value, or a stream of revenues, is often offered through a combination of hardware, software and services and includes the buyer’s customer. Thus, value creation for buyers may be interpreted and put into practice in two quite different ways. Value creation for buyers may either be interpreted as the expected value, which means that the seller needs to understand what creates value for the buyer and to deliver a product or a service that both parties (the seller and the buyer) expect to generate a certain value (e.g. profit for the buyer). In this case, however, the business risk is on behalf of the buyer since the expected value (i.e. the profit) may not be materialized. Value creation in terms of real value, on the other hand, means that the seller not only understands what creates value for the buyer, but the seller has been able to put such knowledge into practice. In this case, however, the business risk is on behalf of the seller since the real value need to be materialized before the actual purchase and sale agreement between buyer and seller occurs. Building constructions provides a good example. The price for a building is often lower than the construction costs unless reputable tenants (i.e. the buyer’s customers) with long lease contracts are included in the offer for the building (tenants which are able to generate a “certain” stream of revenues). This is one example of real value creation. Expected value is often termed “speculative building construction” in the construction industry as the building is constructed without having tenants or buyers for the building.

“The value of an empty building is often below the construction costs...a fully rented building, with good tenants...those with long-term lease rental agreements...has substantial value...what’s valued the most in this business is not the physical building...it’s the cash-flow that the building is able to generate...we try to sign lease agreements as early as possible in the project development and construction process...in an optimal case, before the actual construction begins... The message I am trying to convey is that in successful project development there should be no correlation between cost and value...a project is sold on its value and the cost to produce that value isn’t interesting. It’s not a “margin business” [Claes Larsson, President Skanska Projektutveckling]...”

Thus, BOT-projects offer buyers added value. This implies a partial change in the business logic of suppliers; often the price-carrier changes from hardware and software (e.g. a building or telecom equipment) to a grade of service and actual revenues generated. One example is the BOT-projects offered both by telecom system suppliers such as Ericsson and major construction companies such as Skanska and NCC. In addition, it often requires building new core competencies. Competence in areas such as risk assessment, operations, and marketing often need to be developed or enhanced.

Risk assessment is vital in order to calculate and offer the right price levels that reflect the (new) risk exposure. The process of initiating system sales in general, and the implementation of such strategic decision in particular, is very much concerned with a company’s ability to asses and manage risk, e.g. risk associated with third parties. This can be illustrated by the

Ericsson case when they introduced in their system offering U.S. based Harris equipment for wireless transmission. The Ericsson case showed that liquidated damages triggered by the equipment supplier Harris could become the responsibility of the system supplier, Ericsson. Because of Harris' fault (e.g. late delivery) Ericsson had to pay liquidated damages to its customer (i.e. the operator). Such liquidated damages, calculated on the entire cost for the system to be delivered by Ericsson, were far greater than the damages paid to Ericsson by Harris. Risk assessment and management is a difficult issue irrespective of how well the coordination and the agreed division of responsibility between the system vendor (i.e. the equipment buyer) and the equipment seller seem to be. The importance of risk assessment and management in system- and BOT-projects is also found in the construction industry. During 1999 Skanska implemented a model, Operational Risk Assessment (ORA), which assisted managers to identify, quantify, and limit Skanska's business risks in construction projects in general and in privately financed BOT-projects in particular. The model assisted the analysis of risks connected to the construction portion of the project, as well as an analysis of the risks associated with an ownership role and responsibility for management of the facility. NCC implemented similar procedures between 1998 and 1999.

Theoretically, risk is often discussed as uncertainty and, as such is often linked to the environment or the external context, on different levels of analysis. Often risk has been discussed from an "international perspective" or from a "national perspective" at the societal level (e.g. Hadjikhani, 1998; Miller, 1993), i.e. the institutional setting in terms of legislation, economic and political system and the risk associated with such "systems". Risk from an "industry perspective" at the sector level has a similar approach. Porter (1980) views business risk primarily from an industry perspective, e.g. the generic risk in fragmented industries, emerging industries, mature industries, declining industries as well as in global industries.

The findings of this study, however, are linked to risk at the organizational (e.g. Ericsson), dyadic (e.g. Ericsson and Harris) or cross industry level (e.g. Telia, Ericsson, and Harris). At the organizational level we find risks such as the risk associated with the development or enhancement of core competencies in areas such as risk assessment, project management and marketing (e.g. Skanska). At the dyadic level we find risk associated with third party suppliers (e.g. Ericsson and Harris). Theoretically, risk at the organizational and dyadic level views risk, and its implications, as the gap between buyer's and seller's different perceptions of risk due to information asymmetries (e.g. Cova, Hoskins, 1997) or as the potential "client insolvency" (Lemaire, 1996). Consequently, risk evaluation and a search for contracts with an acceptable risk level is critical before entering into sales and purchase agreements. In addition, sellers may hedge risk, e.g. by entering into joint ventures with other suppliers. This has given rise to financial engineering or financial innovation, including arrangements such as BOOT arrangements. Thus, risk associated with system sales and BOT-projects has been discussed in previous research by e.g. Cova and Hoskins (1997). They suggest that system sales have certain peculiar characteristics; system sales has to do with unique customer demands or "segments of one", complex project organizations including skills and resources from within both the customer's and the contractor's network of external partners, factors associated with time and frequency of transactions (i.e. discontinuity), and an increased risk associated with all of the above.

To summarize; theoretically, risk management is one major factor driving BOT-projects. In addition, because risk is often regarded to be uncertainties, theory suggests that risk may be eliminated under conditions of perfect information. This research has shown that BOT-projects in fact increase the business risk at the organizational and dyadic level and that perfect information cannot entirely eliminate risk in the process of moving into system sales

and BOT-projects as it incorporates creating new or enhancing old core competencies in areas such as risk assessment/management, operations, and marketing. In other words, under perfect information, existing theory indicates that there should not be any uncertainties and, thus, risk, with regard to finding information about core competencies that are available and needed within the corporation. However, under perfect information that eliminates uncertainties, this research (through e.g. the Ericsson/Harris case) has demonstrated that there is still a risk in the process of creating or enhancing such core competencies. In addition, these findings confirm previous research by Norman and Ramires (1994) in that the “risk formula”, i.e. how risk is to be shared, managed and absorbed between the parties, are dependent on the offers range, time span and the relative amount of activity options the offering allow. The range and time span in a BOT-project are large because BOT-projects cover more aspects of the customer’s value creation activities and because the intended duration of the co-producing relationship is longer. In addition, the relative amount of activity options is best described as bundled (as opposed to unbundled). If a BOT-offering is created through M&As, these findings also confirm Seth’s (1990) conclusions. Lowering the systematic risk, i.e. diversification into new product markets, is not a valid source for value creation, neither in related nor unrelated acquisitions (Seth, 1990). According to Seth (1990), corporations cannot create additional value by diversifying and lowering risk than can shareholders on their own.

Competence in operations, on the other hand, is essential in order to manage the costs side of the offering (e.g. project and implementation management). A trend among major construction companies has been to take responsibility for the project management function of a project and to outsource the actual construction work to sub-suppliers. Because purchasing decisions and decisions affecting quality levels, lead-times, etc. often are made at the project level, developing project management capabilities is a key issue for most industry players, the larger construction companies in particular but also the real-estate companies. To mention one example, in order to expand its BOT-offerings in 1996, Skanska identified project management as one core competence area for improvement (together with certain specialized technological areas, and financial management for project financing).

“Skanska Sverige’s most important suppliers are the ones delivering materials and work force...we contribute with management skills...project management...project management is our core competence... As our core competence we also include purchasing... [Mats Williamson, President Skanska Sverige]...

“Among the larger construction companies the trend has been to focus on “project development”...they wish no longer to be engaged in construction work...only to develop projects...this means that they acquire land and develop their own project...and sell when the building has been leased...sometimes they even assist to establish tenant owned cooperatives in order to “create” a customer...the profits are higher compared to selling an “extra-pair-of-hands” and building materials...JM has been very successful...key for these companies has been to get hold of attractive land...this means that these companies have developed their competencies in various areas and not only areas related to the construction work itself...this I believe is valid for both private homes, apartment buildings as well as commercial premises... The responsibility for fitting everything together in large construction projects goes down to the project manager and his team...this is where quality levels, delivery lead-times and other requirements are set and the purchasing decisions are made...when we sell we sell to the project manager at the construction site...the project manager and his team may come from a large construction company or from a customer...a real-estate company for instance...or both...the project manager can be externally contracted from companies specializing in project management...as an external consultant...or be employed by one of these companies [Peter Carlsson, President Södra Building Systems]...”

The relationship between system sales and BOT-projects with project organizations and project management has been confirmed by previous research. Bonaccorsi, Pammolli, and Tani (1996) argue that because of demand heterogeneity and technical interdependence

between the functions of individual components, companies that design, produce and market systems are often organized on a project basis. In other words, corporations need to make project management a core competence or enhance such core competence as they move from product sales into system sales or from system sales into BOT-projects.

Enhanced marketing competence is finally important for being able to target the customer's customer directly and throughout the life-cycle of the project. Examples are found both in the telecom and in the construction industry and are related to BOT-projects. As the system supplier (e.g. Ericsson or Skanska) takes ownership of a telecom system or a building, as the case may be, it may also take responsibility for marketing towards end-users and for developing such a system in accordance with the requirements of the subscribers or the tenants. Traditionally, however, system suppliers do not have competence in consumer marketing or distribution. Essentially, BOT-projects may require competencies in both industrial and consumer marketing and sales. The importance of marketing in system sales and BOT-projects has been confirmed by previous research, often referred to "project marketing (e.g. Bansard, Cova, Salle, 1991; Günter, Bonaccorsi, 1996; Cova, Hoskins, 1997; Azimont, Cova, Salle, 1998). Existing theory on marketing and sales related to systems and BOT-projects, however, often assumes either an industrial (e.g. Cova, Hoskins, 1997; Hammarkvist, Håkansson, Mattsson, 1982) or consumer approach (e.g. Hart, 1995; Pilkington, Chong, 2000; Zipkin, 2001), seldom both as is required in BOT-projects and shown by this study.

All together, it seems that systemization through e.g. BOT-projects has the potential to bring added value for customers and added risk for the supplier. In addition, it may require a shift in core competencies or require the development or enhancement of core competencies. In summary, moving into total solutions has the potential to create real added value for customer rather than expected added value. The difficulty, however, is to change the business logic of the corporation (e.g. change of the price carrier from hardware to services) and to develop or enhance core competencies in areas such as risk assessment (e.g. the organizational risk of developing or enhancing core competencies required for system sales and BOT-projects and the dyadic risk with regard to responsibilities and penalties that cannot be eliminated under normal contractual terms and conditions), operations (i.e. to make project management a core competence or enhance such core competence as the corporation moves from product sales into system sales or from system sales into BOT-projects) and marketing (e.g. combining industrial marketing and consumer marketing and distribution).

The overall finding above is in part confirmed by previous research. Hammarkvist, Håkansson and Mattsson (1982) suggest that initiating system sales entails two main processes; analysis and implementation. The former process, the analysis, aims at analyzing the prerequisites for initiating system sales and the company's ability to fulfill such prerequisites. As such, it involves risk assessment and the evaluation and selection of a marketing strategy in terms of "problem solving" and "solutions delivery" capabilities. The implementation process aims at evaluating and selecting individual projects as well as creating a profitable project/systems portfolio. Once again, this process involves assessing the business risk of each individual project as well as the risk of the selected project portfolio (e.g. the total number of projects, the similarity and interdependency between individual projects, and their distribution over time). Hammarkvist, Håkansson and Mattsson (1982) suggest that the risk assessment should include the complete lifecycle of a project, including feasibility study, proposal preparation, proposal evaluation, contract negotiations and signing, detailed project planning, manufacturing/delivery, installation/commissioning/test, cut-over, operations and further development of the system.

Despite industrial construction projects, through modularization, standardization and systemization, being able to bring about higher quality (in the construction process as well as in the end-result) and lower costs (with regard to customer adaptations throughout the life cycle of buildings), it has been argued that industrial construction, as opposed to traditional industries, is difficult to implement because the manufacturing facilities (i.e. the project organizations) are mobile while the end products (i.e. the buildings) are fixed.

“In contrast to most other industries we have mobile factories and fixed products...this means that we need to establish a project organization over and over again...we have tried to use databases and other support systems in order to transfer know-how from one project to another... A very important question is how we can industrialized this industry...the construction work...it's very difficult to achieve this...I mentioned mobile factories and fixed products...in order to be more effective we need to improve our processes...I also mentioned how we can avoid reinventing the wheel in every project...in our projects we have too many people that wont let go of control...we are slowly industrializing this industry...3D technology, modularization of construction components are some of the efforts...the problem is that the architect, local authorities, construction and property development companies, local project managers...everybody wont let go of control...this means that it's hard to industrialize some components or projects...to put everything under the same “roof” or into one “manufacturing facility” [Stefan Holmlund, VP NCC]...”

The logic behind this reasoning is difficult to grasp considering that industrializing construction projects through modularization, standardization and systemization was achieved in Sweden during the 60's and the beginning of the 70's. It is reasonable to assume that other factors come into play when construction companies do not move into industrial construction which has the potential to create value for customers. As already discussed, one factor has to do with the risk of creating and enhancing core competencies in areas such as risk assessment/management, project management, and marketing management (and how such risk is perceived by management as well as the capital market). In addition, today's construction corporations are likely to be more focused on creating value for shareholders than they were during the 60's and the 70's. From the perspective of the capital market, industrial construction burdens the balance-sheet by requiring investments in manufacturing facilities. Consequently, while industrial construction may create value for customers in the longer- term (e.g. quality and adaptations over the life-cycle of a building) it does it less for shareholders in the short-term.

5.2.3 Attracting the competence market through a financial/industrial logic

Attracting the competence market through a financial and industrial logic refers to creating value for and attracting the competence market through a financial or industrial logic which in turn enables value creation for capital as well as customers markets, in the short- as well as long-term. In its essence, this means to retain and attract competence and resources vital for maintaining and developing core competencies and core products (Pralhalad, Hamel, 1990).

The findings in this research complement those of Prahalad and Hamel (1990) in two important ways with regard to competing for competence and resources. First, competing for resources is not only an internal matter between SBUs, as suggested by Prahalad and Hamel (1990). Competition for competence and resources can be found internally as well as externally to the corporation. Second, internal competition for resources is not equivalent to competing for money, as has been suggested by Prahalad and Hamel (1990). Because competing for competence and resources often involves people, it should probably not be based on a top-down, mechanistic process. The allocation of human skills should probably not be based on a mechanism similar to that of the capital budgeting process as suggested by Prahalad and Hamel (1990); “How strange that SBU managers, who are perfectly willing to

compete for cash in the capital budgeting process, are unwilling to compete for people – the company’s most precious asset. We find it ironic that top management devotes so much attention to the capital budgeting process yet typically has no comparable mechanism for allocating the human skills that embody core competencies” (Prahalad, Hamel, 1990, p 87). In addition, it should probably not be based on a top-down approach solely run by corporate management and corporate human resource management; “...corporate officers should direct an audit of the location, number, and quality of the people who embody competence. This sends an important signal to middle management: core competencies are corporate resources and may be reallocated by corporate management” (Prahalad, Hamel, 1990, pp. 89-90) and “...people may be exposed to a variety of businesses through a carefully planned rotation program... Those who embody critical core competencies should know that their careers are tracked and guided by corporate human resource professionals (Prahalad, Hamel, 1990, p 91). Top-down, mechanistic approaches are often developed on a “one-fits-all-basis” because the people at the top, responsible for developing such processes or programs, often lack in-depth insight into the core competencies held by individuals. As a consequence, the one-fits-all-approach quickly turns into one-fits-nobody and expert individuals that embody the corporation’s core competencies seldom feel attracted by such programs. Rotation programs developed by corporate human resource professionals are probably suited for introducing trainees to the corporation and not for developing core competencies. Such programs offer the experts in the corporation little or no value and will be resisted.

Unlike money that has no will of its own, people should probably be encouraged so that their will is in accordance with what is best for the corporation, e.g. to move to corporations or SBUs where their skills and know-how is best utilized. In practice, this could mean moving where the return on the employee’s efforts is the greatest, both for the individual as well as the corporation. One way to encourage such resources to act for the best of the corporation as well as for their own best is to offer employees some added value in return for their (added) effort, e.g. to relocate within another SBU. It is not uncommon, however, that this sort of internal competition (e.g. competition based on offering competitive remuneration packages) is banned within corporations for expert resources. Internal competition for expert resources should probably be carried-out in a similar way to external competition for general management resources. The latter is very much a straight-forward process as illustrated by Skanska. In 1999 Skanska’s Board of Directors decided to allot a total of 294,000 stock options to ten individuals in the Corporate Management of Skanska, including the president and CEO. The irony is not that “top management devotes so much attention to the capital budgeting process yet typically has no comparable mechanism for allocating the human skills that embody core competencies” (Prahalad, Hamel, 1990, p 87) but rather that top management seems to believe that expert resources are motivated differently than general management resources.

In conclusion, competing for resources in order to attract, retain or redeploy competence should potentially be based on value creation towards the competence market, including both internal as well as external resources. The discussion and findings on how value is created and the competence market attracted is structured according to the suggested analytical model. The discussion begins with corporate level bundling and unbundling through M&As and outsourcing and is followed by functional level bundling and unbundling through systemization and modularization.

MERGERS AND ACQUISITIONS: Empirical as well as theoretical evidence indicates that M&As are used for gaining access to new competence. In this respect, however, creating value

becomes essential in order to avoid undesired employee turn-over in the target company (Walsh, 1989; Walsh, Ellwood, 1991; Krug, Hegarty, 1997).

OUTSOURCING: Empirical evidence indicates that the sourcing strategy changes as a result of the diffusion of competence as well as the establishment of multilateral free-trade agreements. The Ericsson case shows that it changed its sourcing strategy from highly skilled labor markets (e.g. Sweden and the U.S.) through outsourcing to low cost labor markets as competence in cellular technology was diffused globally. Although the diffusion of know-how may not drive outsourcing, it is clearly an enabler to outsourcing. Multilateral free-trade agreements are enabling construction companies to outsource construction services in Sweden to foreign companies from e.g. the Baltic States.

SYSTEMIZATION AND MODULARIZATION: As previously mentioned, non-industrialized, labor intensive construction projects in traditional project organizations ties-up less capital in manufacturing facilities. Such labor intensive construction projects are able to satisfy shareholder's demand for a light balance-sheet. Attracting and retaining the right competence at the right cost becomes vital, particularly in those kinds of large and labor intensive projects.

Total solutions often require sales/project organizations and sales/project managers to be very much independent of the line organization in order to have customer credibility. This is often the case as total solutions often require consultative selling, as confirmed by existing theory (e.g. Azimont, Cova, Salle, 1998) and by e.g. the Ericsson and the Telia cases.

"And then consulting...we have many experts... It's hard to have Ericsson's people walking in and saying "you need Ericsson" and "Ericsson is the solution to everything"...of course people [customers] get afraid... Nonetheless, we have people that do work with operators and other companies that work with operators and their business strategies...of course the selection [of equipment and systems] may fall on Ericsson, but not necessarily... I say like IBM, sometimes these [Ericsson] consultants in order to show too much independence avoid promoting Ericsson...it's not forbidden to promote Ericsson...this is difficult to balance...are you too loyal to Ericsson you may lose credibility [towards the customer/operator], are you too independent you may even become disloyal to the company [Ericsson]...you need always to think what's the best for the one [company] you are working for [Kurt Hellström, CEO Ericsson]..."

"A couple of years ago we entered the consulting market...in 1998... We aim at end-to-end communications...in order to do this we think we need to be able to offer consulting...to have an advisory role...to be able to assist our customers in specifying the communications solutions that best fit him...how to optimize their cost structure in this respect...then we have to put it all together...to integrate the entire packaged solution according to their specification...the last part of this is to make it operational...deliver the service packages... I believe we need to be able to handle these three steps... Nonetheless, sometimes it's hard to be a consultant and to be the one that delivers the solution...this is also a matter of credibility...it's a balance... Today this business is not big for us...but an important one [Kennet Rådne, VP Telia]..."

Independent sales/project organizations, particularly when projects are branded individually and project organizations given profit and loss responsibility, create difficulties both to developing loyalty among employees towards the corporation and its strategies as well as to creating a learning organization. When independent project organizations create difficulties in developing a learning organization, core competencies become difficult to nurture and develop. Because "core competencies are the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies." (Prahalad, Hamel, 1990, p 82), the core competencies of the corporation will eventually begin to erode. As "senior management should spend a significant amount of its time developing a corporate wide strategic architecture that establishes objectives for

competence building” (Prahalad, Hamel, 1990, p 98), it need to recognize the dilemma of sometimes conflicting corporate objectives (how to create value for customers and/or employees and/or shareholders) and conflicting organizational structures (how to create a learning organization in a decentralized project organization). Management philosophy as well as corporate culture becomes vital for creating value towards the competence market. Encouraging employees and management to become shareholders through compensation packages including shares and stock options, etc. is one additional way of creating loyalty towards the corporation. Previous research has confirmed that “corporate governance is more effective...when senior managers hold significant ownership stakes...” (Kroll, Wright, Toombs, Leavell, 1997). This finding, however, refers to corporate governance in M&As.

5.2.4 Summary attracting capital, customer and competence markets

In summary, any successful corporation needs to continuously develop three basic core competencies, i.e. to continuously develop its ability to create value towards the customer, capital and competence markets. The means for doing this is to continuously define and redefine boundaries at different strategic levels, in particular the boundary of the corporation and its offering at functional level, through strategic decisions including M&As, outsourcing and systemization and modularization. The continuous process of redefining the boundary of the corporation reflects the corporation’s need to adapt to a changing environment and its ambition to change the environment to suit its purposes, in other words a continuous process of balancing the outside-in and the inside-out perspective of strategy. Table 5:3 at the end of this section summarizes the findings with regard to how to create value (related to the process of strategy) and what creates value (related to the content of strategy) for the capital, customer, and competence markets. In general terms, the rationale for value creation is to retain and attract capital, customers, and employees. The rationale for value creation targeted at the competence market may also be to encourage employees to redeploy (Prahalad, Hamel, 1990). It should be mentioned that creating value for competence markets enables the creation of value for customer markets, which in turn enables the creation of value for capital markets and the fulfillment of the organizational purpose. Consequently, value creation targeted at different markets are all interrelated.

Shareholder requirements have had a great impact on corporate strategy as well as on industry dynamics in terms of the division of work within value chains. As shareholder requirements have focused on aspects like direct return on shares, corporate strategy has focused on short-term projects, e.g. short-term R&D projects. In addition, the changes of shareholder requirements from net profit to profitability (e.g. ROA) and back again have also had an impact on corporate strategy and industry dynamics. Corporations that have been focused on the financial driving forces (e.g. to increase return on shareholder’s equity by expanding the balance sheet) and on the creation of shareholder value have acted accordingly by e.g. increasing their rate of M&As. The result at the industry level has been industry consolidation. Another example of how shareholder value focus affects corporate strategy and industry dynamics is the increased focus on (what is believed to be) core competence. The result has been to transfer assets to shareholders (instead of increasing dividends) which increases liquidity of shares (e.g. Skanska and Drott). Consequently, industry fragmentation in terms of ownership has increased.

The empirical cases show that the shareholder value perspective had a renaissance during the early 90’s. The “construction crisis” at the beginning of the 1990’s led to major downsizing efforts (e.g. in technical competence/staff) in order to cut costs. In addition, markets were liberalized (telecom industry), and state-owned companies were privatized (telecom and construction industries). The low market capitalization among construction and real-estate

companies attracted international investors and major changes in ownership structure were allowed and possible (e.g. international investment banker made investment in Swedish construction industry as well as in the Swedish telecom industry). As real-estate prices increased dramatically during the mid of the 90's and onwards, the numbers of small building cooperatives increased. These changes resulted in major changes in customer competencies (e.g. from technical to financial competencies). Both smaller building cooperatives as well as large financial institutions lacked technical competencies. This led to changes in customer demands from demands on technological solutions that maximized product performance, to financial solutions that maximized return on investment.

As a result, the requirements on the construction companies included taking greater responsibility for the entire construction process. Sometimes there was also an increasing perception of lower quality levels in construction projects (lack of competence made building cooperatives and financial institutions unable to produce specifications according to the "old" industry standard which contributed to the perceived low quality). Construction companies were required to enhance their marketing function (in order to understand customer requirements for example) as well as to develop competencies in areas such as risk assessment and financial management in order to be able to deliver total solutions e.g. BOT-projects. Another development was that an intra-industry fragmentation was noted in terms of the power balance across the industry, i.e. from uniform power balance between (large) real-estate (e.g. Riksbyggen, HSB) and (large) construction (e.g. Skanska, NCC) companies to a diversified structure of power balance, e.g. in the growing segment of building cooperatives, power shifted towards the construction companies, while in the segment dominated by large financial institutions, such as investment banks, power has shifted away from construction companies.

The industry cases, particularly the Allgon case, show that allowing shareholders to get involved in day-to-day operations (or even in some strategic decisions) may result in the fact that corporations lose momentum and consistency in the execution of their strategy. Shareholders typically lack in-depth knowledge of the business environment and may lack understanding of the risk related to some strategic decisions, e.g. shareholders may encourage M&As when it is too risky or decide not to engage in M&As when it in fact is required. This holds true for both the telecom as well as the construction industries.

The tension between corporate strategy and the demand from shareholders is created by several indicators. From time to time, corporate strategy is well aligned with the demands of their shareholders. These indicators relate to shareholders often not having the same objective as the corporation (including customer, employees, and corporate management), market failure that creates information asymmetries, and the integrity of corporate management.

- Market failure and information asymmetries: Market failure and information asymmetries and/or a great ability for corporations to compete for capital in the capital market may lead to financial investments e.g. acquisitions of unrelated business in order to create short-term profits and shareholder value. Information asymmetries (e.g. with regard to business risk) between shareholders and corporate management may also lead to difficulties in developing a corporate strategy that is able to satisfy shareholders as well as create customer value and hence contribute to competitiveness and long-term profitability. Information asymmetries may also lead to requirements from capital market e.g. to become more specialized which may lead to increasing business risk and the potential loss of synergies. Another requirement from the capital market has been to integrate forward due to the expected higher margins. Often the

capital market has been unaware of the fact that forwards integration in the construction industry also means higher costs (capital costs).

- Integrity of corporate management: A “weak” corporate management or an imbalance of power between management and shareholders may create a strategy oriented solely towards short-term shareholder value creation on the expense of customer and employees (and possibly the corporation’s ability to create long-term shareholder value). A “strong” corporate management or a balance of power between management and shareholders enables a balanced strategy towards long-term shareholder value creation, while simultaneously satisfying the demands of customers and employees.

Probably the most important finding that can be drawn from the above discussion is that corporate strategy needs to be developed towards customers as well as towards the capital market. Some examples from the telecom and the construction industry are provided below. Strategic flexibility requires financial (to have cash available on demand and on reasonable terms) as well as market flexibility. Thus, corporate strategy aimed at creating strategic corporate flexibility needs to be developed towards customers as well as towards the capital market (shareholders and lending institutions). Value creation and innovations are important both in targeting customers as well as targeting the capital market (e.g. by developing innovative risk management tools or internationalizing its borrowing capabilities as in the case of Drott).

Although the discussion has concentrated on the customer, capital and competence markets (i.e. employees) one should remember the increasing number of active stakeholders and the increasing complexity of strategy as a result. It has been argued, explicitly and implicitly, that strategy needs to aim at satisfying (and balancing sometimes incompatible demands) of at least customer, capital (i.e. shareholders), and competence (i.e. employees) markets. The content of strategy may be direct (i.e. to attract/target e.g. a customer by delivering value to such customer) or indirect (to attract/target one stakeholder indirectly by delivering value to another stakeholder, e.g. attracting customers, capital or employees by delivering value or satisfying the demands of environmental groups, or attracting employees through customers, etc.) and based on an economic as well as social dimension (the interplay among groups of stakeholders, e.g. how one shareholder affects another, how one customer affects another, how one employee affects another, etc.). As customer loyalty is decreasing, owning customers is becoming more difficult. Thus, interlocking customers through other stakeholders may be viable for creating customer loyalty.

This may be of most importance as industries mature and innovations change from revolutionary to incremental innovations (from a technological perspective) and differentiation becomes more difficult. Empirical evidence from the industry cases show that innovations, although incremental, are broader in scope, i.e. they are targeted at a larger group of stakeholders (e.g. customers, shareholders, employees, environmental groups as well as society in general). This enables a “social” differentiation (e.g. Skanska’s Code of Conduct covering social responsibilities such as environment policies, human rights, business ethics, etc.) which may lower costs (e.g. risk for costs and settlement of damages arising from environmental issues such as the Halland Ridge), and increase revenues by attracting environmentally aware customers or opening new business opportunities (e.g. to environmentally certify companies on behalf of the National Board of Housing and Planning as in the Drott case) and attracting the capital market and investors (e.g. the Dow Jones Sustainability index has ranked Skanska as one of the leading construction companies in this respect). A summary of how capital, customer and competence markets have been attracted

through mergers and acquisitions, outsourcing, systemization and modularization is provided in Table 5:3.

Table 5:3 Attracting capital, customer and competence markets

Capital Market	Customer Market	Competence Market
<p>Mergers & Acquisitions Minimize risk for shareholders, enter new markets, and acquire target company's customers.</p> <p>Improve absolute performance by expanding income statement through growth in turn-over and sales in order to comply with demands from capital market and drive shareholder's rewards.</p> <p>Articulate and communicate M&A strategy developed as a "strategic brand" in order to make the corporation's current and future businesses (developed through organic growth and internal investments) visible.</p> <p>Outsourcing Improving relative performance, shrinking balance-sheet and increasing profitability e.g. ROA in order to comply with demands from capital market and drive shareholder's rewards. Outsourcing for such purposes of complex activities that represent higher degree of risk and investments and cannot provide shareholder value (or customer value) in the short-term. Outsourcing research rather than development (for the purpose of developing customer adaptations) is one example.</p> <p>Outsourcing for repositioning and changing the business logic e.g. moving from product sales (e.g. from mobile phones as end products) into licensing agreements (to IPRs as core products), distinguish between "brand share" in end product markets and "manufacturing share" in core product markets.</p> <p>Outsourcing may be used for repositioning in the value chain; up- and downstream, horizontally, or according to where profits in the value chain are the highest.</p>	<p>Mergers & Acquisitions Economies of scale/scope and value for customers by lowering costs/prices.</p> <p>Outsourcing Internal, external, domestic outsourcing means to international outsourcing.</p> <p>Evaluate core competence against competitors' and suppliers'. Outsourcing depends on cost/differentiation factor of core activities, degree to which such activities contribute to competitive advantage. Lower cost, re-shape industry's division of work, create competitive supplier segment, economies of scale across industry.</p> <p>Outsourcing research; focus on end products, minimize tech. risk. Rationale: create short-term shareholder value. Outsourcing development; focus on core products, customers to develop end products. Rationale: create economies of scale in core products, focus on corporation's long-term competitiveness.</p> <p>Systemization & Modularization Systemization through BOT-projects potential for "real added value" for customers, added risk for supplier. Difficulty to change business logic (e.g. price carrier) and to develop/enhance core competencies, e.g. risk assessment, operations (i.e. make/enhance project mgmt a core competence), marketing (combine industrial and consumer marketing/distribution).</p> <p>Industrial construction incl. modularization, systemization burdens balance-sheet, requires investments in manufacturing. While industrial construction may create value for customers long-term (e.g. quality, life-cycle adaptations of building) it does less so for shareholders short-term.</p>	<p>Mergers & Acquisitions Compete for internal and external resources as well as expert resources and general management resources.</p> <p>M&As used for gaining access to new competence may require special attention to value creations towards the competence market in order to avoid undesired employee turn-over in target company.</p> <p>Outsourcing Diffusion of competence as well as the establishment of multilateral free-trade agreements enables sourcing/outsourcing from highly skilled labor markets to low cost labor markets.</p> <p>Systemization & Modularization Non-industrialized, labor intensive construction projects in traditional project organizations ties-up less capital in manufacturing facilities. Attracting and retaining the right competence at the right cost becomes vital for creating shareholder value.</p> <p>Major project organizations have often to be independent from the line organization in order to be credible towards customers, particularly as total solutions often require consultative selling. This may create difficulties in developing loyalty among employees towards the corporation and its strategies as well as in creating a learning organization. As a consequence, core competencies become difficult to nurture and develop. Management philosophy, corporate culture and sometimes encouraging employees and management to become shareholders vital for creating value for and loyalty towards the corporation amongst employees.</p>

Based on the above analysis and findings, the extended analytical model earlier suggested in this thesis should thus, be complemented by means of illustrating the purpose of strategy and the purpose of the corporation, i.e. to create value towards the customer, capital and competence markets (see Figure 5:9).

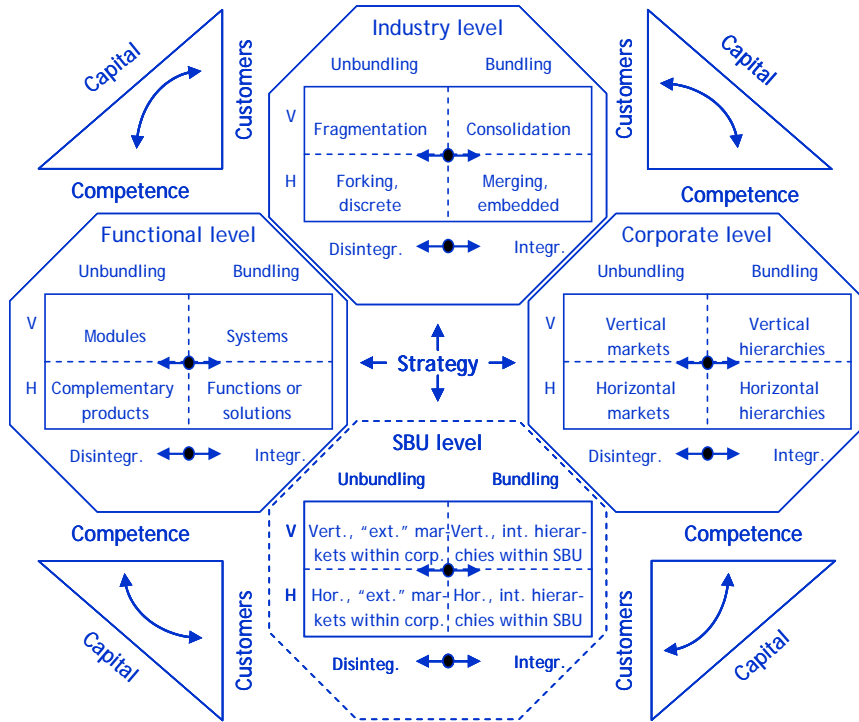


Figure 5:9 Strategy as bundling and unbundling at different intertwined levels for the purpose of creating value in customer, competence and capital markets

5.3 Dynamics of M&As, outsourcing, systemization and modularization

The previous section described strategy from a value chain perspective, i.e. corporate strategy and the division of work within value chains (see section 5.1). In this section, strategy from a value chain perspective is further elaborated. In addition to explicating the reciprocity between corporate strategy and the division of work within value chains (see section 5.3.5), the dynamics of strategy as bundling and unbundling at different strategic levels, i.e. M&As, outsourcing and systemization and modularization (see sections 5.3.1-5.3.3) and the interrelationships between mergers and acquisitions, outsourcing, systemization and modularization (see section 7.3.4) is further elaborated in the following sections of this chapter. In summary, the dynamics found in this research incorporates the following sometimes sequenced strategic events:

- **Systems Sales:** strategic decision to move towards system sales (see 5.3.3)
- **Mergers and acquisitions:** often targeted at downstream activities (see 5.3.1)
- **Outsourcing:** often targeted at upstream activities (see 5.3.2)
- **Vertical integration:** a vertical movement forward in the value chain (see 5.3.5)

5.3.1 Dynamics in mergers and acquisitions

The two industry cases show similarities as well as differences in the content and process of mergers and acquisitions. In the telecom industry, M&As have been used in order to gain access to know-how and/or to obtain new technologies while in the construction industry, M&As have been used to obtain access to new markets and to gain market share. In both cases, however, the underlying rationale for utilizing M&As to reach such strategic goals has been similar. M&As are believed to save time and reduce costs in the process compared to organic growth or internal investments in e.g. R&D or marketing. The identified dynamics with regard to the content and process of M&As as a strategic decision are discussed below.

CONTENT OF MERGERS AND ACQUISITIONS: The dynamics in the content of mergers and acquisitions include M&As targeted at technology or competence and M&As targeted at market acquisitions; M&As based on an inside-out (market creation) as opposed to an outside-in (market adaptation) perspective on strategy; M&As targeted at creating added value rather than minimizing cost; domestic versus international M&As; and financial in contrast to industrial M&As.

Create added value and minimize cost in mergers and acquisitions: In a mature industry such as the construction industry, the rationale has often been to gain access to new markets while the rationale for M&As in the emerging industries such as the (cellular) telecommunication industry has often been to gain access to know-how and/or new technology. Nonetheless, both within the telecommunication and the construction industry, the strategic decision for M&As has often, not to say always, been based on saving time and reducing costs, i.e. it has been considered less time consuming and less costly to grow into new markets or technology areas respectively through M&As compared to growing organically or investing in internal R&D.

Domestic or international mergers and acquisitions: Both the telecommunication and the construction industries show that M&As have changed from being mostly small domestic affairs to large, international ones. The best example in the construction industry can be found in the Skanska case, particularly from its expansion in the U.S., although NCC has also been engaged in international M&As. Skanska went from acquiring of small Swedish manufacturers of industrial components such as electrical, water, floor and windows components to acquiring large constructions companies in North and South America. Real-estate companies have also been subject to international mergers and acquisitions (primarily international investment bankers). In the telecom industry, the merger between Allgon and American Centurion (Magnus Tannfelt, Vice President, Allgon), Telia and Finnish Sonera (Kennet Rådne, Vice President, Telia; Kenneth Karlberg, Vice President, Telia), as well as the one between Ericsson and Japanese Sony (Jan Wäreby, Vice President, Sony Ericsson; Sven-Christer Nilsson, CEO Ericsson, 1998-1999) illustrate this phenomenon.

Financial or industrial mergers and acquisitions: In general terms, the content and rationale for mergers and acquisitions have changed from financial acquisitions based on financial drivers, such as portfolio management as a result of shareholder requirements (Kenneth Karlberg, Vice President, Telia), to industrial acquisitions based on industrial drivers, like the creation of synergies and economies of scale (Magnus Tannfelt, Vice President, Allgon). The content and rationale for financial acquisitions have been to gain time and to satisfy the capital market in the short-term. Focus has been on the income statement and growth, increased turn-over and sales. Corporate performance has been measured in absolute terms. The content and rationale for industrial acquisitions have been to gain time and to satisfy the customer market as well as the capital market (in the long-term). Focus has

been on economies of scale/scope. Corporate performance has been measured in relative terms or profitability such as ROA. Empirical evidence is found both in the telecom industry (e.g. Telia, Ericsson) and in the construction industry (e.g. Skanska). Some of the examples found in the corporate cases show that the aim is to gain access to new capital markets (e.g. Kenneth Karlberg, Vice President, Telia), to access competence and new technology particularly during rapid technological development (e.g. Kurt Hellström, CEO Ericsson; Sven-Christer Nilsson, CEO Ericsson, 1998-1999), to satisfy shareholder's demands for growth (e.g. Kenneth Karlberg, Vice President, Telia) or to make organic growth strategy visible to shareholders (e.g. Kurt Hellström, CEO Ericsson).

PROCESS OF MERGERS AND ACQUISITIONS: The dynamics in the process of mergers and acquisitions include a rationale for "management of meaning" in contrast to a rationale for "explaining change" and M&As.

Rationale for "management of meaning" or rationale for "explaining change": From a corporate perspective, managing change has been a process similar to what has been termed "management of meaning" (Pettigrew, 1997) and "sense-making" (Gioia, Thomas, Clark, Chittipeddi, 1994) towards the capital market. By creating a strategic brand for its M&A strategy ("string of pearls") Ericsson was able to show the capital market businesses which it intended to be in and to make such a decision visible to the capital market. To Ericsson it was obvious that organic growth and internal investments in R&D were not as visible to an outsider such as an institutional investor as was an articulated M&A strategy. The shareholders' demand on rapid growth, e.g. through M&As, led Ericsson to the creation of a "strategic brand" to satisfy such demand. This facilitated the communication of the strategic direction of the corporation (rather than actually executing major M&As). In the Ericsson case, the "string of pearls strategy" was launched for such purposes. In its essence, managing change and creating value for shareholders has been founded on a process based on the "management of meaning".

In the construction industry, managing such change has been quite different and closely related to what has been termed "crisis in perceptions" (Pettigrew, 1987) and "explaining change" (Garud, Van de Ven, 2000). The change process from financial to industrial mergers and acquisitions has been managed based on explaining "crisis in performance" (e.g. the "construction crisis" in the beginning of the 90's) and the relationship of causality between such bad performance (at industry as well as corporate levels) and government policy (e.g. legislation such as the utility value system, taxes, etc.), market saturation, etc. In its essence, managing change and creating value for shareholders has been founded on a process based on creating "crisis in perceptions" and "explaining change".

A summary of the different relationships of finality (RoF) identified in this study with regard to corporate level bundling through mergers and acquisitions in the telecom and in the construction industry is presented in Table 5:4 and Table 5:5.

Table 5:4 Summary of identified RoF: corporate level bundling through mergers and acquisitions (telecom)

CORPORATE LEVEL		
Sub-supplier	Systems supplier	Operator
<p>M&As → • economies of scale → industry concentration</p> <p>rapid industry growth → • manage through organizational culture rather than strategic plans and corporate structure → strategic decisions such as M&As influenced by corporate culture e.g. market oriented culture may drive acquisitions to capture market share while a technology oriented culture may drive acquisitions to tap into new technology</p> <p>industry maturity → • targeting of mass market with less technology oriented customers, however, with greater demands on basic product features → development of market oriented corporate culture (enabling marketers to develop future product specifications based on customer requirements) rather than technology oriented culture (enabling engineers to develop future product specifications) → change in corporate structure e.g. from product organization to market/customer and process oriented organization (e.g. KAM organization)</p> <p>industry evolution from growth to maturity → • strategy change from short-term organic, strategic maneuvering at the functional level to long-term, mechanistic strategic planning at the corporate level • M&A process changes accordingly, i.e. from being an emergent strategy based on a bottom-up, incremental process and decision to a planned strategy based on a top-down, radical process and decision</p>	<p>industry context, e.g. rapid pace of industry evolution or diffused technology know-how → • (facilitate) M&As in order to save time or to acquire know-how</p> <p>shareholders' demands on rapid growth e.g. through M&As → • the creation of a "strategic brand" to satisfy such demands by communicating the strategic direction of the corporation (rather than actually executing major M&As)</p> <p>industry maturity → • targeting of mass market with less technology oriented customers, however, with greater demands on basic product features → development of market oriented corporate culture rather than technology oriented → change of acquisitions targeted at competence and technologies (enabling engineers to develop future product specifications) to acquisitions targeted at markets (enabling marketers to develop future product specifications based on customer requirements); change in corporate structure e.g. from product organization to market/customer oriented organization (e.g. KAM organization)</p> <p>interaction between value chain and end-users → • technology innovations drive end-users → social innovations drive corporations → further technology and social innovations (and so on) • change from technology driven corporations to market driven corporations and back to technology driven corporations (and so on)</p> <p>acquisitions by major telecom suppliers of minor data/IT companies → • consolidation in the supplier segment of the telecom and data and IT industry</p>	<p>financial drivers (e.g. portfolio management) and/or industrial drivers (e.g. synergies) → • M&As</p> <p>M&As → • industry consolidation → increased competition</p> <p>M&As → • costly, "creates" new competitors, fewer potential partners → shareholder value may decrease</p> <p>M&As → • makes corporate strategy visible towards capital market ("strategic brand") → shareholder value may increase</p> <p>shareholder demands for expansion and few borrowing opportunities in local market to carry-out expansion → • international M&As to access foreign capital markets → loss of management focus and loss of synergies across businesses and markets → shareholder demands to focus and concentrate businesses and markets → divestments</p> <p>requirements for new competencies → • M&As → brings competencies to the corporation (provided, however, staff and/or management of the acquired corporations is kept)</p> <p>M/As → • industry rivalry decreases, e.g. between the merging corporations and their customers or their suppliers • industry rivalry increases, e.g. between the suppliers as well as customers to the merging corporations</p>

Table 5:5 Summary of identified RoF: corporate level bundling through mergers and acquisitions (construction)

CORPORATE LEVEL		
Systems supplier	Systems supplier (cont.)	Operator
<p>focus on sales and turn-over → • rapid increase of market share → M&As (in saturated markets with high entry barriers and risk of retaliation from incumbents M&As are estimated to be less time consuming and less risky than organic growth)</p> <p>focus on rapid acquisition of know-how and technology → • M&As (in industry characterized by rapid technological evolution and high expenditure in R&D M&As are estimated to be less time consuming and less risky than organic growth)</p> <p>macro level conditions (e.g. market size, growth rate, economic volatility/risk, etc.) as well as know-how of local market conditions → • internationalization process through M&As (e.g. in stable markets M&As is often preferred by corporations with some local know-how; they know what they do not know and are able to acquire, while project exports is often preferred in unstable markets by corporations with no local know-how; they are uncertain in what they do not know)</p> <p>economies of scale in financing → • creation of large corporations through e.g. M&As</p> <p>forward integration through M&As → • potential to increase revenues</p> <p>forward and backward integration through M&As → • potential to increase revenues and profits</p> <p>vertical integration through M&As in order to increase profitability → •</p>	<p>(cont.) corporations choose “the line of least resistance” rather than where the opportunities are the highest → focus on the revenue side (forward integration) rather than the cost side (backward integration) of business, e.g. it seems that backward integration could be more profitable than forward integration in construction industry</p> <p>mature industries (in which innovations often relate to processes rather than products) including mostly project organizations → • internationalization process seldom incremental; know-how and processes need to be transferred to foreign market (rather than products)</p> <p>internationalization in mature industries → • clear focus with regard to <i>how</i> (M&As seem more promising than organic growth/alliances or even a mixture of the above), <i>where</i> (a few selected markets seems more promising than a world-wide target or a shut-gun approach), and <i>what</i> (entering with a few specific products seems more promising than to enter with the entire product portfolio) in order to increase management attention and lower costs</p> <p>M&As → • emergent strategy common as core and non core businesses are acquired in a bundled package → divestment or the outsourcing of non core business → industry concentration and specialization</p> <p>market failure, e.g. information asymmetries, and/or the ability for corporations to compete for capital in the capital market → • financial investments e.g. acquisitions of unrelated business → short-term profits and shareholder value</p>	<p>financial driving forces (e.g. to increase return on shareholder's equity by expanding the balance sheet) and focus on the creation of shareholder value → • M&As and intra-industry consolidation</p> <p>flexibility requires to have cash available on demand and on reasonable terms → • strategy aimed at creating corporate flexibility need to be developed towards customers as well as the capital market (shareholders and lending institutions) → value creation and innovations are important both in targeting customers as the capital market (e.g. by developing innovative risk management tools or internationalizing its borrowing capabilities as in the case of Drott) → M&As to access foreign capital markets</p>

5.3.2 Dynamics in outsourcing

The industry cases show that the content and rationale for the decision to outsource is very similar, namely to retain value activities while minimizing costs. In addition, both industries show similarities in the content and rationale for outsourcing in terms of financial/industrial outsourcing as well as differences in the process of outsourcing in terms of the rationale for “management of meaning” and rationale for “explaining change”. The identified dynamics with regard to the content and process of the outsourcing and the make or buy decision are discussed below.

CONTENT OF OUTSOURCING: The dynamics in the content of outsourcing include a competence rather than a cost based make or buy decision, a make or buy decision based on a differentiation strategy or a cost leadership strategy, the outsourcing of manufacturing rather than R&D activities, domestic in contrast to international outsourcing, financial as opposed to industrial outsourcing, and outsourcing due to a change in business logic; from a logic based on product sales to a different logic based on competence and intellectual property rights.

Retain added value and minimize cost in the make or buy/outsourcing decision: The content and the rationale for the make or buy decision in the telecom industry has changed from being based on increasing value to being based on decreasing cost. Telia’s decision to retain installation services was initially based on the rationale that mobile coverage was a source of competitive advantage. Eventually the decision to outsource installation services was based on the rationale that mobile coverage was no longer a source of added value creation, differentiation and competitive advantage. In addition, as price was increasingly becoming a source of competitive advantage, to lower costs increasingly became a source of competitive advantage (e.g. Kenneth Karlberg, Vice President, Telia). This development is intimately related to the change in outsourcing manufacturing activities to R&D activities.

Outsourcing manufacturing and outsourcing R&D: Both the telecom industry and the construction industry show a change from making in-house through outsourcing manufacturing activities to outsourcing R&D activities. The driving forces behind this development in outsourcing however differ between the industries.

The corporate cases in the telecommunication industry show that the rationale for making in-house through the outsourcing of manufacturing activities to the outsourcing of R&D activities has occurred as components become more mature over time, i.e. standardized, non differentiating, and, often, involving little or no future R&D. As illustrated by the Telia case, outsourcing may occur as the value of certain activities is eroded and as technological know-how is diffused, making competence for supplying such activities available in the market (e.g. Kenneth Karlberg, Vice President, Telia). Examples of such activities have been installation services and customer care services. In the Telia case, the reduced value of “coverage” in cellular resulted in the outsourcing of installation services by Telia. As a result, the make or buy decision focused on minimizing costs rather than differentiating its offer (e.g. Kenneth Karlberg, Vice President, Telia). Initially, Ericsson sourced its strategic microelectronic components from factories such as the so-called “Sub-My” facility in Kista (e.g. Sven-Christer Nilsson, CEO Ericsson, 1998-1999; Jan Wäreby, Vice President, Sony Ericsson). Strategic components that became increasingly non-strategic were outsourced in order to lower costs e.g. the central processors (CP) and regional processors (RP) in the switching system (e.g. Kurt Hellström, CEO Ericsson; Sven-Christer Nilsson, CEO Ericsson, 1998-1999). Allgon had a similar development in outsourcing manufacturing followed by the outsourcing of research. Development activities, however, were kept in-house (e.g. Magnus

Tannfelt, Vice President, Allgon). Consequently, over time the perceived value of certain value activities are eroded and outsourced in order to lower costs (e.g. Jan Wäreby, Vice President, Sony Ericsson; Kurt Hellström, CEO Ericsson; Magnus Tannfelt, Vice President, Allgon). This development has to do with a change from a high pace of technology development and no wide-spread know-how in the market, to a lower pace of technology development and wider-spread know-how. It seems that this process starts with manufacturing activities followed by research activities and development activities. It is worth noting however, that outsourcing is not only a reactive measure to the changing environment. As the Telia and Allgon cases show, outsourcing has been a strategic and proactive decision taken in order to create competitive segments in order to lower costs eventually, e.g. Telia's outsourcing in the installation services segment (e.g. Kenneth Karlberg, Vice President, Telia; Magnus Tannfelt, Vice President, Allgon).

In the construction industry the outsourcing of manufacturing began with the outsourcing of the manufacture of floors and windows. It was then followed by the outsourcing of R&D activities. In comparison with the telecom industry, the driving forces behind the outsourcing of R&D activities were different. A mature industry and project based industry like the construction industry often engage in process development rather than in product development (e.g. Utterback, 1996). This is not to say that product development does not exist but rather the focus and the rate of major innovations is related to processes rather than products. As shown by the NCC case, development work often takes place at the project level within the project organization involving the contractor, the suppliers and the customer (e.g. Jan Byfors, Vice President, NCC). One consequence is that title of innovations is unclear as several companies including the customer are often involved in a project and hence in the product development process. In addition, innovations are not defined and documented and thus are used in other projects without being productified and priced. Major construction companies have thus noticed the difficulty in capitalizing on innovations embedded in processes and products that have been developed in projects and as a consequence, have outsourced and pushed R&D activities upstream in the value chain (e.g. Peter Carlsson, President, Södra Building Systems).

Domestic or international outsourcing: Ericsson's decision to locate R&D as well as manufacturing in Sweden with regard to cellular systems was based on the rationale that competence in mobile technology was available in Sweden and provided a competitive advantage in product features. The decision to outsource manufacturing as well as R&D to low wage countries was based on cost minimization. Ericsson's domestic outsourcing to Flextronics and Solecron in Sweden was in part intended as an international outsourcing to low cost countries such as China (e.g. Kurt Hellström, CEO Ericsson). Not only did Ericsson outsource the manufacturing in e.g. Norrköping, it also "outsourced" the troublesome process of moving such manufacturing out of Sweden (e.g. negotiating with labor unions). Consequently, sourcing has moved from highly skilled labor markets to low cost labor markets as competence is diffused globally. In essence, this means that the content of the outsourcing decision in the telecom industry, in part, has changed from being based on the core competence of the corporation (e.g. Quinn, Hilmer, 1994) to being based on cost, including transactions costs (e.g. Ellram, Maltz, 1995; Walker, 1988). It also shows, however, that core competencies are not static; their value is relative to the core competence of other competitors and consequently changes over time. Thus, the outsourcing decision needs to evaluate the internal context (e.g. internal costs and core competencies), the external context (e.g. transactions costs and competitors core competencies) and how such contexts change over time. In this respect, empirical evidence supports Fill, Visser (2000) in that the outsourcing decision needs to consider contextual factors, strategy and structure as well as

costs. It also supports the view that globalization and outsourcing to low wage countries are important driving forces (Deavers, 2001).

The construction industry is similar in this respect and encompasses the outsourcing of industrial components such as windows on behalf of the larger construction companies. Despite the fact that the construction industry has “mobile manufacturing facilities and fixed products”, the construction industry has recently also been able to outsource to low wage countries, although this is a recent and “small” phenomenon. Multilateral agreements on free trade and competitive legislation (including liberalization and privatization) have enabled the competence market to move freely across borders and enabled outsourcing (e.g. a local construction company outsources to a low wage country and workers move to the local construction site).

Financial or industrial dynamics in outsourcing: The content and rationale for financial outsourcing have been to satisfy the capital market and shareholders’ demands in the short-term (e.g. Kurt Hellström, CEO Ericsson; Magnus Tannfelt, Vice President, Allgon). Focus has been on the balance sheet and profitability. Corporate performance has been measured in relative terms such as profitability and ROA. Examples are Telia, Ericsson, and Skanska. Skanska for example has created shareholder value through outsourcing in a very direct manner; some of the capital that has been obtained through outsourcing has been distributed to its shareholders through dividends. The telecom industry also shows that the content and rationale for industrial outsourcing have been to create economies of scale, for example by concentrating manufacturing to one or a few suppliers that are able to serve the entire industry (i.e. industry specialization which enables lower costs), and economies of scope, e.g. by allocating capital to such activities and areas that are considered core and that among them create synergies. The rationale has been to satisfy the customer market (e.g. through lower costs, flexibility in manufacturing and logistics enabling ramping-up as well as scaling down manufacturing volumes of e.g. mobile phones) as well as the capital market (in the long-term). In addition, the rationale has been to reduce technology risk, e.g. the risk in investing in technology that becomes obsolete before it pays off (e.g. Magnus Tannfelt, Vice President, Allgon), and to increase management focus on core business (e.g. Kurt Hellström, CEO Ericsson). In this respect, empirical evidence supports Jauch and Wilson (1979) in that the make or buy decision needs to consider the corporation’s vision and objectives (e.g. maximize shareholder value) as well as internal strengths (e.g. core competencies) and weaknesses (e.g. internal costs) and environmental opportunities and threats (e.g. transaction costs, competitors core competencies, etc.).

Business logic based on product sales or business logic based on competence and intellectual property rights: As shown in the Ericsson case, the creation of a new business logic or a major repositioning may be the strongest driving force to outsourcing. A business logic here simply refers to the logic that determines the offering’s price carrier. Major outsourcing activities took place as Ericsson moved away from a business logic based on product sales, i.e. mobile phones, towards licensing agreements and IPRs, i.e. the “mobile platform” including “rules”, “tools” and “reference design” (e.g. Kurt Hellström, CEO Ericsson).

PROCESS OF OUTSOURCING: The dynamics in the process of outsourcing include a rationale for “management of meaning” in contrast to a rationale for “explaining change”.

Rationale for “management of meaning” or rationale for “explaining change”: Most important, both in the telecommunication and the construction industries, has been to manage

such change according to what has been termed “crisis in perceptions” (Pettigrew, 1987) and “explaining change” (Garud, Van de Ven, 2000). The change process from financial to industrial outsourcing has primarily been managed based on explaining “crisis in performance” (see the discussion above). Nonetheless, the telecom industry has also relied on a management process similar to what has been termed “management of meaning” (Pettigrew, 1997) and “sense-making” (Gioia, Thomas, Clark, Chittipeddi, 1994) in its communication with the capital market. The merger between the telecom, datacom and content industry (e.g. communications, broadcasting, entertainment, including radio, TV, gaming, in the cellular business) and the wave of mergers and acquisitions created uncertainty among various companies and their shareholders, as to what businesses the company was, or should be engaged in. Substantial outsourcing has enabled Ericsson to return to what it, and its shareholders, believes that it should focus on; R&D and manufacturing of telecommunication equipment, primarily infrastructure equipment.

A summary of the different relationships of finality (RoF) identified in this study with regard to corporate level unbundling through outsourcing in the telecom and in the construction industry is presented in Table 5:6 and Table 5:7.

Table 5:6 Summary of identified RoF: corporate level unbundling through outsourcing (telecom)

CORPORATE LEVEL		
Sub-supplier	Systems supplier (cont.)	Operator
outsourcing → • increase flexibility and ROA, increase risk originating from third party, however, decreases risk originating from technological uncertainty (e.g. reduces the risk of investing in a technology that becomes obsolete)	cost control and risk management → • outsourcing to multiple suppliers or retaining at least one manufacturing facility in-house	change towards maturing industry → • value of certain activities eroded → outsourcing such activities or industry consolidation through the creation of equity joint ventures among competitors for sharing cost
outsourcing → • industry fragmentation → changes in the division of work, however, not necessarily changes in the structure of relationships (e.g. Ericsson's outsourcing of manufacturing to Flextronics still require Allgon to negotiate with Ericsson and agree on prices, design, etc., however, they need to deliver antenna components to Flextronics)	outsourcing → • increases specialization at corporate and industry level → risk sharing across the value chain	understanding how cost adds-up in the value creation process → • (enables) outsourcing
industry maturity and consolidation → • reveals strategic mistakes in the past → radical (rather than incremental) adaptation of the corporation to the new industry environment through corporate downsizing including outsourcing and divestments, establishment of cooperative arrangements, etc. in order to cope with the scope of delivery (despite downsizing), centralization, etc. (both sub-suppliers and system suppliers)	outsourcing → • change of corporation's industry position and change of relative positions among industry players • creation of new business logic at corporate and industry level (e.g. moving from product sales towards licensing agreements and IPRs)	outsourcing → • specialization in parallel value chains (e.g. one value chain specializing in manufacturing and another in development, marketing and distribution)
	shareholders' requirements (e.g. improved ROA) and lack of management focus on core business → • outsourcing	outsourcing → • industry fragmentation → increased need for integration → emergence of systems integrator
	standardized component with standardized interfaces, non differentiating components, mature components involving little future R&D → • outsourcing	outsourcing → • increased requirements for bundled solutions (e.g. system solutions, "total solutions") → merging industries
	change towards maturing industry → • change from high pace of technology development and concentration of know-how to low pace of technology development and wide-spread know-how → change of focus from R&D in highly skilled country markets to manufacturing in low cost labor markets → outsourcing	outsourcing → • changes both in intra industry relationships and inter industry relationships, e.g. the point of cooperation in the value chain between the telecom and datacom industries has changed moving upstream in the value chain due to outsourcing in the telecom industry (cooperation has changed from cooperation between operators and telecom suppliers, through cooperation between operators and datacom suppliers, to cooperation between telecom suppliers and datacom suppliers)
Systems supplier		outsourcing → • the creation of competitive industry segments or increased industry competition for some outsourced products or services → lower costs and prices
change in the perception of R&D; from development of core competence, e.g. investments in human assets, to development of products and/or technologies, e.g. investments in product assets → • the perceived risk of failure in R&D increases; a "failure" in an investment in human assets contributes to a learning process, e.g. what does not work; a "failure" in an investment in product assets generates sunk costs → outsourcing R&D		

Table 5:7 Summary of identified RoF: corporate level unbundling through outsourcing (construction)

CORPORATE LEVEL		
Systems supplier	Systems supplier (cont.)	Operator
<p>outsourcing decision focused on either up- or down-stream segments of the value chain (i.e. suppliers or customers) → • outsourcing trap, i.e. less cost control or less control over the value creation process → profitability down → outsourcing need to consider both segments</p> <p>outsourcing → • purchasing (e.g. negotiation, tendering), marketing (e.g. market intelligence and information systems to understand market conditions such as cost levels across the value chain), and supply and risk management (e.g. protecting against shortage of supply) need to be or become core competencies → retain at least one manufacturing facility to compete in open market</p> <p>transfer of risk and costs → • outsourcing R&D, non professional services such as installation services → specialization across the value chain, e.g. coordination/integration</p> <p>project organizations → • product development at the project level → title of innovations unclear (several companies including the customer are involved in the project and the product development process), innovations used in other projects without being defined, documented and priced → difficult to capitalize on innovations embedded in products that have been developed in projects → R&D is outsourced</p>	<p>financially driven strategies and corporations driven by the capital market including shareholders → • lack of long-term strategies by constant shift in performance measures (from sales/income statement to profitability/balance sheet) → change in definition of core competence → M&As to increase sales and “grow” income statement and outsourcing to increase profitability and “shrink” balance sheet</p>	<p>outsourcing value added services → • a “natural relationship” or point of interaction with the customer is lost → increased costs in marketing and sales</p> <p>outsourcing or divestments → • requires to make the scope of what is going to be outsourced/divested visible → (internal) bundling (e.g. the consolidation of Skanska’s buildings into one organizational unit, i.e. Drott) before (external) unbundling (outsourcing)</p> <p>moving towards functional purchase/sale → • does not allow for the substantial outsourcing of technology areas → customer (e.g. real-estate companies) may lose valuable competence and seller (e.g. construction companies) may lose a demanding customer that is able to contribute to product development and the technical specifications</p> <p>information asymmetries (e.g. with regard to business risk) between shareholders and corporate management as well as conflicting interests between shareholders and customers → • difficulties to develop a corporate strategy that is able to simultaneously create value for shareholders as well as customers → outsourcing is followed by M&As and so on</p>

5.3.3 Dynamics in systemization and modularization

There is sometimes a strong correlation between bundling and unbundling; it is not uncommon that companies that engage in unbundling also engage in bundling, e.g. unbundling cellular phones into modules has enabled Ericsson to become a “virtual bundler” by retaining the responsibility for project management and design; competence is turned into design and design is turned into IPRs. Ericsson is now engaging in licensing transactions rather than standard transaction (i.e. sales of cellular phones). In the construction industry, major construction companies also retain control of project management. This may have to do with lowering capital costs. Consequently, the “virtual organization” and competence focused organization is able to lower capital costs and make the balance sheet “lighter” through unbundling and (virtual) bundling. Thus, total solutions may be developed in a virtual organization provided the corporation takes the responsibility for designing such solutions. This allows for increasing the scope of offering while keeping a “light” balance sheet. It may also increase the ability to command the value chain by becoming responsible for the “dominant design”, and it “secures” markets for its core products, as well as frees capital for e.g. investments in core products. This is also one of the reasons the construction industry has been unwilling to push for industrial construction and unbundling through modularization; industrial construction burdens the balance sheet. The rationale for functional level unbundling and modularization has been similar in the telecom and in the construction industry. One important difference is that the construction industry, through BOT-projects, has taken the concept of bundling one step further, including the customer’s customer in the offering. In a very practical way this means that tenants are part of the offering when a building is sold. Thus, in the construction industry, corporations are sometimes even looking for end-user requirements and for how value can be created to satisfy the end-user. The identified dynamics with regard to the content and process of systemization as well as modularization are discussed below.

CONTENT AND PROCESS OF SYSTEMIZATION: The dynamics in the content and process of bundling through systemization is discussed below. Such dynamics include financial or industrial drivers, increasing the scope of offering or scope of engagement in time, creating expected or real value, seller or buyer driven systemization, and system bundling or virtual bundling.

Financial or industrial drivers: Financial bundling has to do with being in the “right” business in order to satisfy the capital market (e.g. requirements on Ericsson from the capital market to enter the computer and data industry for delivering solutions including IP-telephony). Industrial bundling has to do with adding more value than cost and increasing direct and indirect revenues. Indirect revenues may be generated through increasing customer loyalty and decreasing risk.

Increasing the scope of offering or scope of engagement in time: Increasing the scope of offering has to do with the solution including hardware, software and services offered to the customer. Increasing the scope of engagement in time often means adopting the customer’s life cycle perspective on e.g. costs and revenue streams. Empirical examples for creating value through adopting the customer’s life cycle perspective of an investment and increasing the time of engagement can be found in BOT-projects both in the telecom and in the construction industry and is supported by existing theory (e.g. Gadiesh, Gilbert, 1998)

Expected or real value creation through systemization: An expected value is often offered through a theoretical calculation on the return on investment with regard to the system

solution being offered, including the scope of hardware, software and services. Real value or a stream of revenues is often offered through a combination including the scope of hardware, software and services and the customer's customer (for more details on real and expected value see 7.2.2 Systemization and modularization). This also means an increased risk on behalf of the seller originating both upstream (from the suppliers of components or subsystems) as well as downstream (originating from the customer's customer). As mentioned, total solutions may increase the supplier's risk and require new approaches for risk management, e.g. through risk sharing in cooperative value constellations across the value chain and across adjacent value chains. Total solutions may hence increase industry consolidation and require the suppliers of total solutions to increase their ability to manage the value and supply chain. An alternative is to become a virtual bundler, i.e. to retain design, marketing/sales, and possibly industry coordinating for materializing the system solution (for more details on virtual bundler see 7.1 Dynamics in value chain – specialization, coordination, and integration, telecommunication industry).

Seller or buyer driven systemization: Changes have occurred with regard to who drives the development of system solutions. While sellers do so in order to manage the value chain, increase growth, etc. buyers are often looking for outsourcing solutions.

System bundling or virtual bundling: Traditional systemization often means bundling hardware, software and services into a solution. Virtual bundling means taking responsibility for and owning the design (see Ericsson, Allgon and Skanska, NCC).

Other issues of functional level bundling: The ambition to interact closely with customers in order to understand their specific needs, particularly as products sales is extended to incorporate system solutions, has required the establishment of project- and KAM-organizations. These organizations are often more or less detached from the traditional line organization. This development has also been found in previous research (e.g. Baldwin, Clark, 1997; Millman, 1996; Rehme 1998, 2001). There are however, additional reasons for establishing similar detached organizations as the scope of supply increases. This study has found that system solutions may require the creation of separate organizational units in order to be able to be perceived as independent and credible. One example is when product and system manufacturers provide business consulting, including advice on what products and systems the customer should purchase. If the consulting team is not perceived as independent, its credibility as a consultant may be harmed which in turn may have a negative effect on sales of products and systems. Ericsson Professional Services was created as a separate organizational unit for such purposes. In other words, system solutions require closer customer interaction. Closer interaction with customers may be achieved through the creation of a customer organization such as project and KAM organization. In order to serve customers better through developing and delivering systems and total solutions corporations, both in the telecom and in the construction industry, have developed from traditional product/market line/matrix organization towards process and customer oriented organization, e.g. project and KAM organizations. Although such a development may be appreciated by customers, it may also create problems with regard to strategy development, corporate management philosophy, organizational learning, and commitment among employees.

System solutions and corporate strategy: Customer orientation, including the development of system solutions, often drives the creation of project and KAM organizations. Such strategic orientation and organizational forms often result in an outside-in perspective on strategy. Both industry cases show, and the construction industry in particular, that provided the internal context is defined by a strong culture on the level of the project organization,

corporate strategy will follow the corporate structure. This means that strategy will have an outside-in perspective on strategy and that formal processes and procedures as well as a mechanistic view on management through the formal chain of command in the line organization are difficult to implement. The most important explanation for this is that the project culture is stronger than the corporate culture. Management has also changed from action driven, line management (mechanistic) to value driven cultural management (organic).

System solutions and management philosophy: Corporate management in project organizations needs to rely on management through culture (rather than mechanistic through the line organization and the chain of command) and the creation of the “right” culture (which can not be created through a mechanistic management philosophy). This has been particularly important to implement in the construction industry as a project culture has been encouraged in order to attract customers through marketing and project branding, and by pushing profit and loss responsibility at the project level. The result has been that while customers may be attracted employees have been “pushed” away from the corporate line organization to the project organization. Management through culture has also been important within the telecom industry as cellular telephony began to grow faster than fixed and as markets were privatized and liberalized (see Allgon and Ericsson).

System solutions and organizational learning: One issue in project based organizations is the difficulty of creating a learning organization due to the dispersion of projects. This has led corporations, particularly in the construction industry, to the creation of a corporate structure that reflects its main processes, in order to create learning through repetition.

The above finding confirms the relationship between past, present and future strategies and the dynamics and dialectics of strategy as suggested by Greiner (1998). According to Greiner (1998), events and strategic decisions are the result of previous events and decisions as well as the cause for future events and decisions. In addition, Greiner (1998) suggests that major solutions implemented in one period of time often become major problems in a later period. In other words, a major solution for competing in the customer market and creating value for customers in order to attract and retain customers may in fact lead to major problems in competing in the competence market and creating value for employees in order to attract and retain employees. Establishing an independent project organization by e.g. assigning profit and loss responsibility at the project level and promoting a project brand may represent a major solution for establishing closer interaction with customers and creating added value for customers. Nonetheless, such independent project organization may become a major problem in a later period of time as organizational learning and the commitment of the employees to the corporation and its strategies deteriorates.

System solutions and adding more value than cost: The rationale for functional level bundling in both industries has been to add more value than costs. The enabling mechanisms have, however, been different. In the construction industry, total solutions (e.g. including FM services) have provided the construction corporations long-term indirect profits through retention of customers/tenants and long-term lease contracts (through which the value of the building increases if sold). Higher commitment from the customer (e.g. to establish long-term lease contracts) has reduced the business risk of the suppliers. Total solutions, including products, services as well as “markets” (tenants or lease contracts that are sold along with the building) have provided customers added value through a stream of revenues (e.g. when a building is leased before it is sold in order to increase the value of the building) and “real” value (i.e. a stream of actual revenues rather than “expected” value based on a “business case” or expected revenues). This means that increasingly buyer and seller have shared risk and that

the seller's risk increases while buyer's risk decreases. This occurs as the seller takes responsibility for delivering real value by taking responsibility (and the risk it represents) to market and sell products and services to the customer's customer. Nonetheless, customers may also perceive an increased risk in purchasing "function" due to uncertainty with regard to the unknown solution, technology, etc. As the Södra case shows, the perceived risk can be lowered by e.g. risk-sharing, education, or through the creation (if possible) of a competitive market (the differentiation effect may however disappear). Total solutions provide added value to customers as the supplier is engaged in the value creation process across the value chain and throughout the life cycle of solutions and products; often the ambition is to deliver the same value across the life cycle at a lower cost.

It seems that the dynamics in bundling has changed from being growth driven by the seller (or to increase ability to manage the value and supply chain) to being driven by the buyer through outsourcing (e.g. Kurt Hellström, CEO Ericsson; Magnus Tannfelt, Vice President, Allgon). This development has enabled an easier and faster introduction of bundled solutions. If driven by the seller, bundled solutions are often resisted by the buyer as well as by the competitors because such solutions may increase vertical (and horizontal) competition (e.g. Kurt Hellström, CEO Ericsson).

The scope of offering in "systems sales" has in itself has changed from system design and integration (including hardware, software and services, i.e. the sale of "expected value") to total solutions including hardware, software, services and customers (i.e. the sale of "real value" or a stream of revenues). A consequence of this development has been an increased risk on behalf of the seller originating both upstream, from the suppliers of components or subsystems, and downstream, from the customer's customer (e.g. Richard Fleetwood, Vice President, Ericsson).

A summary of the different relationships of finality (RoF) identified in this study with regard to functional level bundling through systemization in the telecom and in the construction industry is presented in Table 5:8 and Table 5:9.

Table 5:8 Summary of identified RoF: functional level bundling through systemization (telecom)

FUNCTIONAL LEVEL		
Sub-supplier	Systems supplier	Operator
<p>system development → • M&As in order to combine or obtain competencies</p> <p>product and system design (particularly if moving from product to system design thereby expanding its scope of supply) → • increases industry consolidation and the ability to manage the value and supply chain</p> <p>larger scope (e.g. increasing scope of supply from systems to solutions) → • the role of the integrator change from up stream to down stream due to financial entry barriers and competence requirements (from Ericsson providing systems to Telia providing communication solutions)</p>	<p>total solutions → • creation of separate organizational unit in order to be independent from internal supplier of modules → credibility towards customers with regard to the solution that is being suggested (otherwise sales of core products may be harmed)</p> <p>system sales → • requires understanding customer needs and transforming such needs into a system specification • requires industrial, long-term perspective rather than financial, short-term perspective</p> <p>development of system SW that incorporates traditional HW functions → • enables centralization of “manufacturing” and economies of scale (e.g. distribution of SW is easier, faster and cheaper than HW distribution)</p> <p>system sales → • increased risk for system supplier or supplier of components/modules → new approaches for risk management, e.g. risk sharing</p> <p>increased scope of offering → • change in the vertical division of work → increased vertical competition</p> <p>development of total solutions → • creation of cooperative arrangements for such purposes rather than equity joint ventures due to the “strategic paradox” of equity joint ventures</p> <p>expanding scope of offering through cooperative arrangements → • requires similar corporate cultures developed in a similar context, e.g. similar country market and/or industries</p>	<p>customers’ outsourcing → • total solutions developed and introduced to the market “easier” and faster because it is customer driven • new entrants in the field of systems integration; new entrants bear less risk (e.g. have no investments that can turn into sunk costs), have no hindering legacy, e.g. individuals’ feelings about what the corporation should or should not engage in (“this is what we do around here”) and no established mode of operations, e.g. established processes and procedures (“this is how we do things around here”)</p> <p>customers’ outsourcing → • increase of supplier’s scope of offering • shift in division of work</p> <p>bundling the offering → • value added through integration • higher risk unless manufacturing is conducted in-house</p> <p>bundling the offering → • industry consolidation</p> <p>product development and bundling of components or modules → • often requires social innovations in order to be successful (e.g. mobile video)</p>

Table 5:9 Summary of identified RoF: functional level bundling through systemization (construction)

FUNCTIONAL LEVEL		
Sub-supplier	Systems supplier (cont.)	Operator
<p>expanding scope of supply → • risk of adding more cost than value unless business model (e.g. price carriers) is reexamined</p> <p>development of systems and moving into systems sales → • may require vertical/horizontal cooperations in e.g. R&D, marketing and sales, etc. → may enable targeting of new customer segments</p> <p>market entry through innovations (e.g. new system solutions, new materials, etc.) → • differentiation and increase value or lower costs for customers → increases the customer's perceived risk (due to uncertainty with regard to the unknown solution, technology, etc.) → minimize the perceived risk through e.g. risk-sharing, education, or through the creation (if possible) of a competitive market (the differentiation effect may however disappear)</p> <p>market entry with a new system solution or new technology → • may distort the existing value chain in terms of structure, power balance, etc. (risk of retaliation from incumbents) or require to establish a new value chain (costly) → create virtual organization (retaining design, marketing/sales, and industry coordinating for materializing the new system solution in-house) in cooperation with existing value chain</p>	<p>solutions, including products, services as well as the customer's customer (e.g. leasing a building before it is sold to increase value of building) → • "real" value i.e. a stream of actual revenues (rather than "expected" value based on a "business case") is created → risk sharing between seller and buyer (seller's risk increases and buyer's risk decreases) • virtual forward integration</p> <p>total solutions → • focus on the end-user rather than the immediate customer or customer's customer → vertical and horizontal cooperations or creation of value constellations (e.g. between unrelated industries such as constructions and furniture) → economies of scope, e.g. in branding (e.g. IKEA and Skanska in the Bo Klok-projects) and scale, e.g. by targeting new customer segments (e.g. lower-end segments) → potential for industry merger through e.g. equity investments</p> <p>bundling/unbundling decision → • analyze value of offering, i.e. bundled solution vs. unbundled products (in order to create additional value at same cost) and the value creation process across the value chain and throughout the life cycle of solutions and products (in order to deliver the same value across the life cycle at lower cost) → restrictions to entry with a bundled/unbundled solution include high entry barriers, possibility to retain cost control, core competence required and possibility to develop such through organizational learning (e.g. systems integration), unprofitable unbundled, stand-alone product/component</p>	<p>customers' outsourcing → • enables real-estate company to create "solutions" (e.g. including FM services) → provides real-estate company with long-term indirect profits through retention of customers/tenants and long-term lease contracts (through which the value of the building increases if sold)</p> <p>creation of "solutions" → • potential internal competition with existing business (e.g. FM services compete with "traditional" O&M services) → profit margin decreases</p> <p>development of total solutions → • higher commitment from the customer (e.g. to establish long-term lease contracts) → possibility to reduce business risk</p> <p>concentration of real-estate portfolios → • economies of scale in value added services, e.g. FM-services</p>
Systems supplier		
<p>privatization and political will → • drives total solutions and BOT projects (e.g. roads, hospitals, prisons)</p>		

FUNCTIONAL LEVEL		
Systems supplier (cont.)	Systems supplier (cont.)	Systems supplier (cont.)
<p>scope of offering (at the functional level of strategy) → • the boundary of the firm (at the corporate level of strategy) → scope of offering (at functional level of strategy)</p> <p>taking responsibility for designing total solutions → • increase scope of offering while keeping “light” balance sheet, increases ability to command value chain, “secures” markets for core products, frees capital for e.g. investments in core products</p> <p>change of scope of supply, e.g. by taking responsibility for project design, project management, O&M, etc. (as in BOT-projects) → • change the boundary of the firm → change the business logic, e.g. price carrier and corporate performance measures (e.g. operating margin vs. return on capital employed as in Skanska) → change in required core competence, e.g. risk assessment and financial management</p> <p>change from technical specifications to functional specification in purchase/sale → • bundled solutions are offered → change the role of marketing, e.g. responsibility for estimating value for money changes from buyer to seller, seller’s technical statement of compliance changes to functional and financial statement of compliance</p> <p>change of focus from content and (external) context of strategy (i.e. in terms of products areas and market segments) to process of strategy (e.g. in terms of handling PLC across the value chain and after market) → • change from product/market oriented structure to a process oriented structure with less focus on hierarchies and more focus on culture as a management tool (i.e. the internal context)</p>	<p>project based organizations with “fixed products and mobile manufacturing facilities” → • difficult to establish learning organization and industrialize production → establish standardized processes and procedures and process oriented structure, information systems, systematically re-deploy people that participated in successful projects across new projects in order to spread know-how and to spread the “cultural” dimension of successful projects</p> <p>project organizations → • difficult to centralize (e.g. purchasing) at corporate/SBU level primarily because project culture is stronger than corporate/SBU culture (centralizing refers to strategy, organization, management, and support systems) → each component in a system is purchased ad-hoc which increases total system costs</p> <p>strong culture at the project level of the corporation → • outside-in strategy formation process → formal processes and procedures as well as a mechanistic view on management through the formal chain of command in the line organization are difficult to implement as project culture is stronger than corporate culture → corporate management through the creation of the “right” culture</p> <p>project branding, profit and loss responsibility at project level, etc. → • project culture is encouraged → attracts customers while “pushing” away employees from the corporation to the project organization</p>	<p>functional sales → • close interaction with private customers (e.g. through establishing Points of Sales) and industrial customers (e.g. through establishing KAM organization) in order to establish functional specification and for differentiation as well as for creating innovations</p> <p>creation of value constellations including various stakeholders in developing a solution → • social relationships and close interaction → effective communication and cost effective solutions</p>

CONTENT AND PROCESS OF MODULARIZATION: The dynamics involved in the content and process of unbundling through modularization is discussed below. Such dynamics include financial or industrial drivers to unbundling through modularization

Financial or industrial drivers: Industrial drivers to unbundling through modularization include cost effective customer adaptations (by integrating different standard modules), rapid and sequenced R&D (R&D can focus on enhancing specific modules with no need for developing or adapting the entire system), rapid and sequenced internationalization which increases the return on investments and lowers risk (specific modules may be introduced in foreign markets to test market feasibility, e.g. manufacturing, marketing/sales and customer support of specific modules may be internationalized with no need to internationalize the entire system at once). In addition, unbundling through modularization seems to enable industrialized manufacturing, particularly in the construction industry, which lowers costs and increases quality. Financial drivers may however hinder unbundling through modularization for the purpose of initiating industrial manufacturing. Industrial manufacturing (compared to labor intensive projects particularly in the construction industry) is perceived to tie-up capital and lower profitability.

Functional level unbundling and adding more value than cost: In the telecom industry unbundling and modularization has been carried out in order to allow for a sequenced entry in international markets thereby lowering risk. The most important driver, however, has been to develop tailor made solutions (without increasing development costs) as well as to decrease costs in research through rapid (and possibly more sequenced) market launching of new modules. A similar development is noted in the construction industry. Unbundling in the construction industry has been intimately related to modularization and industrial construction (e.g. Skanska, NCC and Södra). As customer relationships have become shorter (e.g. in terms of shorter lease agreements) direct and indirect costs have increased, e.g. direct costs for remodeling an office and indirect costs because an office is being remodeled and not rented out. Consequently, flexible products through unbundling and modularization have been required in order to serve different customer requirements while lowering costs for customer adaptations. Unbundling and modularization enables cost effective customer adaptations and longer lasting relationships between seller and buyer as tailor made solutions generate longer lease contracts as well as repeated sales (i.e. through renewed lease contracts or as a tenant becomes a buyer of a building).

One important difference however can be noted between the telecom and the construction industry. In the construction industry, corporate management has often resisted unbundling, modularization and the development towards industrial construction. The reason has been their focus on shareholder demands and profitability, e.g. ROA, in the short-term. Industrial construction (compared to labor intensive construction work on site, i.e. non-industrial construction work) and consequently, unbundling into modules ties capital in manufacturing facilities and, thus increases capital costs and lowers profitability e.g. ROA.

Unbundling in combination with outsourcing and industry fragmentation often increases the need for integration, which enables the emergence and entry of the system integrator (e.g. Kennet Rådne, Vice President, Telia). In addition, it seems that new entrants have no hindering legacy (e.g. investments already made, feelings about what to engage or not engage in) and mode of operations (processes and procedures) which, among incumbents, makes it difficult to take the role of the systems integrator (e.g. Kurt Hellström, CEO Ericsson).

The rationale for functional level unbundling and modularization has been similar both in the telecom and in the construction industry. One important difference is how well these industries have succeeded in their efforts to modularize. The construction industry has had difficulties because such efforts have been driven by an industrial logic to move towards industrial construction (lowering costs, increasing quality, etc.). However, there has also been resistance from the capital market because industrial construction ties-up capital (and lowers profitability).

Functional level unbundling and industry structure and dynamics: Unbundling and modularization has had great impact on industries in terms of increased pace of industry development through shorter PLC. Most important, however, is probably that unbundling has lowered entry barriers in specific industry segments and increased the rate of innovations, particularly in the telecom industry. In terms of industry structure, unbundling has resulted in industry fragmentation and specialization, e.g. in product development, marketing/sales, systems integration, etc. As unbundled components have found new applications in adjacent industries (e.g. blue-tooth used in cellular phones as well as in computers, consumer electronics), the general perception of a merger between industries has increased and, as a consequence, intra-industry competition has increased (e.g. the telecom and datacom industries).

A summary of the different relationships of finality (RoF) identified in this study with regard to functional level unbundling through modularization in the telecom and in the construction industry is presented in Table 5:10 and Table 5:11.

Table 5:10 Summary of identified RoF: functional level unbundling through modularization (telecom)

FUNCTIONAL LEVEL		
Sub-supplier	Sub-supplier (cont.)	Operator (cont.)
<p>modularization (core and peripherals) → • separation of research from development → economies of scale in research of core products and mass customization in development of peripherals</p> <p>customer requirements for e.g. smaller products → • products become components (e.g. cellular phone antennas integrated as components rather than sold as separate products) → value of component decreases → increased scope of supply through systems integration in order to maintain value and profitability • increasing need for integrating design and manufacturing • new business logic/model (e.g. based on the design of the antenna system to be integrated rather than the antenna product) • new value chain position in terms of new customers, competitors and suppliers</p> <p>unbundling in order to decentralize manufacturing into different product groups → • higher manufacturing costs, e.g. less economies of scale and synergies in manufacturing, however, lower costs at industry level (increased flexibility in e.g. internationalization through piggybacking and locating manufacturing facility close to customer's facility increases manufacturing synergies across the value chain)</p>	<p>economies of scale (through market share) and early mover advantages → • early internationalization in the growth-phase of an industry → establishment of local sales offices and central manufacturing facilities → functional separation of sales and manufacturing and coordination through logistics → increased pace of internationalization process, higher flexibility, lower risk, however, increased costs</p> <p>Systems supplier</p> <p>modularization, e.g. separating the voice mail system from the switch (system supplier) or unbundling telecom services into "connectivity", "content" and "store" (operator) → • focused and cost effective R&D through rapid (and possibly more sequenced) market launch → increased pace of industry development through shorter PLC</p> <p>unbundling (system suppliers as well as operators) → • development of consulting services for being able to bundle the system solution according to customer specification</p> <p>Operator</p> <p>modularization → • sequenced entry in international markets → lower risk</p> <p>unbundling → • requires profitable (stand-alone) components/modules → creation of new business logic (e.g. access based on airtime and content based on transaction)</p>	<p>unbundling → • increased industry specialization, e.g. in product development, marketing/sales, systems integration, etc.</p> <p>unbundling → • change with regard to the competitive landscape as competitors may turn into customers (e.g. wholesale services targeted at service providers and retail services targeted at end-users)</p> <p>unbundling → • ability to target new customer segments → increased economies of scale → increased industry competition based on cost • new value chain position • creation of separate organizational units in order to retain credibility towards different customer segments (e.g. Skanova for wholesale business and Telia for retail business)</p> <p>unbundling → • opportunities to target new customer segments with different levels of product/system integration → different levels of business risk related to market and product/system</p> <p>modularization → • development of new applications for the unbundled components/modules in adjacent industries → inter-industry merger</p> <p>modularization → • lower entry barriers → increased intra-industry competition and innovations → development of inter-industry competitiveness (e.g. telecom vs. datacom industry)</p>

Table 5:11 Summary of identified RoF: functional level unbundling through modularization (construction)

FUNCTIONAL LEVEL		
Systems supplier	Systems supplier (cont.)	Operator
<p>modularization → • cost effective customer adaptation → long lasting relationship between seller and buyer → repeated sales</p> <p>increasing construction costs → • modularization and development of standard products and components → standardization of processes • centralization of purchasing activities → structured and limited network of suppliers → industry consolidation</p> <p>increasing construction costs → • industrial construction → increased capital costs (manufacturing facilities tie-up capital) → burdens the balance sheet and lowers ROA → in order to increase shareholder value (or satisfy shareholders' demands) lighten the balance sheet and increase ROA → divesting industrial construction facilities and move back to traditional labor intensive, on site constructions in project organization</p> <p>corporate management, compared to SBU and functional level managers, often more focused on creating shareholder value e.g. in the short-term financial performance • → lesser focus at corporate level on modularization and industrial construction due to capital costs (SBU and functional level managers more often than corporate level managers have a customer focus and focus on the long-term financial performance, thus greater focus on modularization and industrial construction in order to satisfy specific customer requirements while keeping costs down)</p>	<p>industrialization through specialization and defining level of specialization → • standardization and organizational learning through repetition</p>	<p>shorter customer relationships (e.g. lease agreements) → • increased direct (e.g. direct costs for remodeling an office) and indirect costs (e.g. costs while an office is being remodeled and not rented) → flexible products to fit different customer requirements → modularization</p> <p>requirements from capital market → • increased specialization → increased business risk and potential loss of synergies (e.g. financial synergies)</p>

5.3.4 Interdependencies between M&As, outsourcing and systemization

M&As, outsourcing and systemization are not entirely independent strategic decisions. Understanding what drives these decisions helps to understand the dynamics of value chains and value creation. In addition, understanding how these decisions affect each other, further helps to understand the dynamics in value chains and value creation. This section discusses the interdependencies between such strategic decisions.

Interdependency between M&As and outsourcing: The interdependencies identified between the dynamics in M&As and outsourcing include internal management and capital costs and external transaction costs, the relative importance of profits and profitability, and marketing (or lack of marketing) as a tool for communicating with the capital market (or lack of information resulting in market imperfections). These interdependencies between the dynamics in M&As and outsourcing are discussed below.

This study has shown that over a longer period of time, companies that engage in substantial mergers and acquisitions engage, sooner or later, in substantial outsourcing (e.g. Telia, Ericsson). One explanation is that internal management costs as well as capital costs increase through M&As and eventually such costs exceed the alternative transactions costs. Consequently, management and capital costs are lowered by outsourcing. The relative importance of bottom line profits in the income statement and profitability (e.g. ROA) in the balance sheet also change the importance to conduct M&As or outsourcing. In this respect, M&As create a heavy balance sheet while outsourcing enables a “lighter” balance sheet.

In addition, this study has shown that in times when shareholders' capital exceeds what a company needs for investments in its core businesses for growth, increased competitiveness or any other strategic reason, it is not unlikely that such surplus capital is invested through mergers and acquisitions in unrelated businesses for short-term profits rather than returned to the shareholders as dividends (e.g. Skanska). Successful marketing as a tool for communicating with the capital market (and attracting the capital market) may have contributed to the allocation of abnormal amounts of capital to certain companies as shareholders do not claim such surplus capital invested in unrelated businesses. Nonetheless, the lack of marketing and information may also have contributed to this development through the creation of market imperfections and information asymmetries. Shareholders may not have been provided with information about how the capital will be used, e.g. if it will be invested in core or non-core businesses. The lack of information implies that shareholders have not been given the opportunity to invest their money directly in the target-company (e.g. SKF) of the company that they in fact invested in (e.g. Skanska). At least from a risk perspective, corporations cannot create additional value by diversifying and lowering risk than can shareholders on their own (Seth, 1990). We can take the case of Skanska which shows that Skanska had a substantial shareholder interest in SKF. It is reasonable to assume that Skanska's shareholders did not invest directly in SKF because they were either convinced that Skanska was able to diversify or invest their money in unrelated businesses better than they could do on their own (an example of successful marketing) or simply did not know about Skanska's investments plans (an example of lack of marketing and information). As such potential market imperfections are corrected divestments or the outsourcing of non-core businesses takes place in order to return such invested capital to the shareholders or in order to be invested in core businesses. This has been the case in Skanska. Successful marketing implies that shareholders have been given the opportunity, however, not been willing to invest directly in the target-company (e.g. SKF in the Skanska case). The reason could be that some

companies have been better at attracting capital by means such as marketing towards the capital market.

Evidence is found in both industry cases that these explanations to the reason why a wave of mergers and acquisitions is followed by substantial outsourcing is closely related to costs, profit and profitability as well as to marketing. It also shows that there is both an industrial and financial logic to such interdependency between M&As and outsourcing. The “do’s and don’ts” in business and particularly among investment agencies and among institutional investors, may change (e.g. the relative importance of profitability, e.g. ROA, in the balance sheet and bottom line profit in the income statement may change). Consequently, the importance of mergers and acquisitions (including vertical integration) and outsourcing may change.

In both industries, such a development (mergers and acquisitions, and outsourcing) has implied a vertical movement towards the end-users and away from the corporation’s core competence. In addition, it has implied a horizontal movement, sometimes into adjacent industries. As a result, the scope of supply has been broadened.

Interdependency between M&As and systemization: The interdependency identified between the dynamics in M&As and system sales primarily concerns expanding the scope of supply through M&As. Both industry cases show that M&As have been one way forward to combine (or obtain) competencies and to expand the scope of supply towards systems, functional and total solutions. In addition, customers’ outsourcing has enabled total solutions to be introduced to the market “more easily” and faster.

The development of “total solutions” has been made easier and faster through customers’ outsourcing because it has been customer driven rather than driven by the seller. The result is a shift in the division of work across the value chain. Developing the offering towards total solutions may have great implications for the corporate strategy; it may require corporations to develop core competencies (e.g. systems integration, risk management, marketing, etc.), it may require focus on the entire value chain and end-users rather than on the immediate supplier and the customer or the customer’s customer, and it may require the corporation to change its business model (e.g. price carrier, mode of interaction). As mentioned, Ericsson has become a “virtual bundler” by retaining the responsibility for project management and design; turning competence into design and design into IPRs. Ericsson is now engaging in licensing transactions rather than in standard transaction (i.e. sales of cellular phones). Consequently, total solutions may require new performance measures to be developed. With regard to marketing and the mode of interaction, total solutions often imply a change in the tendering and bidding process, i.e. a change from technical specifications to functional specifications in the tendering process and a change from a technical statement of compliance to a functional and financial statement of compliance. This implies a change in the role of marketing, e.g. the responsibility for estimating value for money changes from buyer to seller. It seems that forward integration through M&As has been a common solution in order to combine or obtain competencies (rather than backward integration) and to broaden the scope of offering, e.g. telecom and datacom solutions (e.g. Magnus Tannfelt, Vice President, Allgon).

Interdependency between outsourcing and systemization: The interdependencies identified between the dynamics in outsourcing and system sales are the separation of design and manufacturing that enables the outsourcing of manufacturing, the separation of R&D to

research and development that enables the outsourcing of research, and product modularization that enables the outsourcing of manufacturing and/or research activities.

The separation of design and manufacturing as well as the separation of R&D into research and development, has taken place as corporations have increasingly focused on cost minimization and increasing immediate revenues. Both the telecom (e.g. Ericsson, Allgon) and the construction (e.g. Skanska, NCC) industries have shown this. One finding in this respect is that research is based on an inside-out (market creation), long-term strategy. Development, on the other hand, is based on an outside-in (customer/market adaptation). This kind of functional separation is found in both the telecom (e.g. Allgon, Ericsson) and in the construction industry ("by default" e.g. Skanska, and NCC). In the construction industry, research and development have traditionally been separated from each other due to the large extent of project organizations; research has been a corporate or SBU function in the line organization and development has been, informally, a function of the project organization. As previously, discussed this has not always been very successful. Title of innovations can be unclear (several companies including the customer are often involved in a project and hence the product development process), innovations are not "defined, documented and priced" and thus used in other projects without being formally "sold". Consequently it is difficult to capitalize on innovations embedded in products that have been developed in project organization. As a result R&D has been pushed upstream in the value chain, e.g. through outsourcing (as in the case of Södra).

5.4 Industry level drivers

An understanding of how industries develop over time as well as understanding of which industry one is competing (or should compete in) is a prerequisite for developing a corporate strategy. This section discusses the evolution within and between industries, in terms of intra-industry consolidation and fragmentation ("within industries"), as well as inter-industry merger and forkation ("between industries"). Probably the most important findings in this respect are that one pattern of change drives another, e.g. inter-industry merger drives intra-industry consolidation and intra-industry fragmentation drives intra-industry forkation, and that corporate strategy drives and is driven by such patterns of change in value chains. In other words, different patterns of change on a value chain level are reciprocally interrelated as is corporate strategy and such patterns of change.

INTRA-INDUSTRY CONSOLIDATION AND INTER-INDUSTRY MERGER: There is a continuous process both in the telecom and in the construction industry in terms of the developing competitive and cooperative strategies. This strategic process drives and is driven by corporate strategy (e.g. M&As and outsourcing), and drives and is driven by the industry in terms of intra-industry consolidation and inter-industry merger. The industry cases show that it is possible that the competitive scope is quite different in down- and upstream corporations. While downstream corporations seem to engage in direct intra- and inter-industry competition, upstream corporations seem to engage in direct intra-industry competition and indirect inter-industry competition. As will be discussed, due to the differences in the competitive scope among down- and upstream corporations, intra-industry consolidation and inter-industry merger may be affected differently by down- and upstream corporations, e.g. inter-industry merger may originate from corporations downstream in the value chain. Intra-industry consolidation and inter-industry merger are discussed next.

Intra-industry consolidation: The telecom industry has shown that horizontal cooperation within an industry (i.e. between competitors) in terms of sharing know-how (e.g. in the standardization process of GSM) and costs (e.g. Telia and Tele2 when acquiring and

deploying the 3G system in Sweden) has resulted in industry consolidation that is likely to benefit industry development and end-users. According to Telia, the cooperation between Telia and Tele2 increased the speed of site acquisitions and network roll-out, and consequently, made 3G services availability to end-users more rapidly compared to if these two companies would have acted on their own (i.e. deployed one network each). In addition, because Telia and Tele2 were able to share the network investment and deployment costs, end-user prices for services have the potential to be lower compared to if no cooperation would have been established, provided, however, a continued strong competition for end-users. For the same purposes 3G Infrastructure Services (3GIS) was established, a joint venture between Hi3G Access ("3"), Vodafone and Orange. Similar results as the ones described above have been obtained through vertical cooperation (e.g. cooperation between operators and system suppliers), e.g. in terms of standardizing technology and developing systems. According to Ericsson, vertical cooperation for standardizing technology and developing systems has lowered the technology risk across the industry, and consequently lowered the costs and end-user prices for services and PDAs. Industry consolidation that benefited industry development and end-users includes e.g. the cooperation between Ericsson and Telia when developing the AXE switching system.

A standardization process through a formal agreement on industry standards such as through a standardization organization may result in a potentially slower industry consolidation. However it also involves a lower risk and potentially smaller benefits for the innovative corporation driving such a standardization process. A standardization process through *de facto* standards may lead to potentially faster industry consolidation; however, it also represents a higher risk as well as potentially larger benefits for the innovative corporation driving such a standardization process. The perceived risk may thus determine if a cooperative or competitive strategy is applied. It seems evident from the examples above and from the analysis in Chapter 5 that the telecom industry has developed more through cooperation, e.g. in terms of standardization, compared to the datacom industry which has developed through competition and *de facto* standards. It also shows that industry consolidation through cooperation may lead to increased competition which benefits end-users. The probable reason is that cooperation, which implies lower risk, enables far more companies to survive the initial phases of creating a dominant design.

Over time, competition creates cooperation (and vice versa as discussed above) and intra-industry consolidation. The (cellular) telecom industry shows that industry maturity led to the saturation of high-end segments and consequently the targeting of low-end segments for continuous growth and economies of scale. As a result, the price levels of e.g. PDAs and cellular services, on an industry average, decreased (due to the development of low-end PDAs and differentiated pricing on services to fit the lower purchasing power of the low-end segments) and costs increased due to e.g. product development to satisfy a more heterogeneous demand (i.e. high- and low-end PDAs) as well as market development. This resulted in increasing efforts to cooperate in development (e.g. Ericsson and Sony) as well as marketing (e.g. Telia and Swisscom), and eventually in industry consolidation.

Consolidation and fragmentation occur simultaneously as industries grow to maturity. This means that absolute industry consolidation increases (e.g. in absolute terms of turn-over, corporations get larger) while at the same time relative industry fragmentation also increases (e.g. in relative terms of market share). In addition, there is often a consolidation of ownership, as well as an increase in the number of brands. Industry consolidation may also be analyzed in terms of the creation of a dominant technology. Industry disintegration may be created by disruptive innovations, those that are not compatible with old technology and that

are disruptive to established relationships/transactions between suppliers and their customers unless a migration path is offered to its customers by the supplier. Cooperation between corporations representing the new and the old technology enables the development of a migration path to the new technology while enabling the corporations representing the old technology to tap into the new technology. This was the reason for Ericsson to discuss cooperation in the area of IP technology with Cisco. Consequently, disruptive innovations have the potential to disintegrate consolidated industries. Disruptive innovations may be resisted or result in the increase of the rate of innovations that allows for migrating between old and new technology. In the latter case, industry consolidation is supported by the development of a technological migration path (e.g. Ericsson and the development of ENGINE).

"This is how I structure and understand this industry...up here we have the "old" telecommunication industry...what characterized it...well...the systems are very robust...they deliver high quality services, that means that every time you pick up the telephone you will have a dialing tone...you also have a guaranteed delivery, because you will always get through to the other end...nowadays it's once in a lifetime that this doesn't work... it's also a matter of..."real time"...telecom systems are also optimized to take care of voice...in this industry we have companies like Telia, Deutsche Telecom, France Telecom...NTT, AT&T...only to mention a few...these companies are served by Ericsson, Nokia, Lucent, Siemens, Alcatel, NEC and so on... The computer industry is diametrically opposed to this...it's optimized for data of course...but what is it that characterize it...if it works it's great...but it's only a best effort...if it doesn't work today let's try tomorrow...then of course "tomorrow" may be a millisecond later...but anyway... If you put this into a coordinate system you may say that up here you are more alike a telecom operator and down here a computer company or ISP... I dare to say that IP is far more cost effective...so you would like to have the best of both worlds... reach where these to meet...this is what I call carrier class, real time, IP-networks... at that time, in 1998, nobody had reached this point...today Ericsson is there through ENGINE... The entire work presented by Lennart Grabe, Ericsson 2005, was changed [during Ericsson's strategic conference in 1996 Lennart Grabe suggested to move into IP technology]...Ericsson's main strategy during the next 10 years was to focus on proprietary systems...but...further down in the same [strategy] document it said that we also should focus on open standards and architectures...this should go to Swedish history of mismanagement...Ramqvist said..."well, well, I don't understand this Internet thing...my successor will have to deal with it"...unfortunately it took 3 years before someone else came in...we lost three years [Sven-Christer Nilsson, CEO Ericsson, 1998-1999]..."

According to Skanska (see Mats Williamson), performance measures at corporate level (rather than at industry or project levels) have shown to contribute to an industry recipe that includes competitive tendering, distrust, and opportunistic behavior. Intra-industry fragmentation in this respect often leads to increased costs and lead-times, and lower quality (e.g. in the construction industry). According to Skanska, performance measures at industry or project levels (in which several companies agree to cooperate) have shown to contribute to an industry recipe that includes cooperative tendering and trust. Different ways of implementing such performance measures in cooperation are illustrated, at industry level, by Skanska's participation in the British organization Rethinking Construction and similar efforts in Sweden through the Construction Commission established in 2003, and, at project level, the Öresund bridge project. According to Skanska, intra-industry consolidation in this respect leads to decreased costs and lead-times, as well as to increased quality. Thus, industry integration through cooperative value constellations at industry level (in the long-term) or consortiums at project level (in the short-term) enables the development of standardized process and procedures based on cooperative frame agreements. This can be compared with competitive value chains which have developed standardized process and procedures as well as frame agreements based on competitive tendering. Consequently, performance measures in terms of what is measured (e.g. life cycle costs rather than price) and where it is measured (e.g. on a corporate in contrast to project or industry level) are factors that are able to drive the

creation of intra-industry competition and disintegration as well as intra-industry cooperation and consolidation.

Expanding the network horizon may lead to increased intra-industry cooperation, e.g. in terms of risk- and profit-sharing. Change from informal to formal profit sharing agreements across the value chain may require to change the business logic including expanding the network horizon, i.e. to have more than two actors in a dyad (i.e. the seller and the buyer) assessing value creation, price, risk, etc. in a transaction, e.g. by also including the end-user. By an informal risk- and profit-sharing agreement is meant a purchase and sale agreement based on the price mechanism. At the dyadic level, informal profit-sharing is based on competition and power. From a value chain perspective revenues are generated from end-users and distributed upstream. How such revenues are distributed across the value chain emerges over time organically, through a bottom-up and atomistic process. Each agreement is often negotiated without considering other purchase and sale agreements across the value chain. The combination of each purchase and sale agreement across the value chain will, however, determine the overall distribution of revenues across the value chain. On the other hand, a formal profit-sharing agreement is based on cooperation, an open book approach. These agreements are often based on a mechanistic, top-down process by taking more of a holistic perspective on the value chain, or rather the value constellation. Revenues are distributed according to the value contribution of each actor to the value constellation and from the perspective of the end-user (see Skanska with regard to the Öresund Bridge). Consequently, value is estimated from the end-user perspective rather than from the perspective of the immediate customer or the customer's customer. Formal profit-sharing agreements in value constellations have, however, the possibly to increase (the perception of) risk because a larger portion of the entire value chain needs to be coordinated (as opposed to managing suppliers/customers relationships through e.g. power). Value constellations have the potential to serve end-users better and have also the potential to compete more effectively with other value chains.

Increased pressure to lower costs, through e.g. economies of scale in purchasing, has increased cooperation between competitors and resulted in intra-industry consolidation. This has particularly been noted in the construction industry. One example is the creation of AEC Venture, an electronic marketplace for construction goods and services. AEC Venture was established as a joint venture between Skanska and German Hochtief for the sole purpose of lowering costs by increasing purchased volumes.

The development of a dominant design may reduce cost over a shorter period of time but may also, however, increase costs over the longer period of time. There is both a social as well as an economic rationale for this occurring. The social dimension has to do with risk aversion, established know-how, and the perceived risk of failure while opting for a new technology, and the potential negative consequences that that may bring at the individual level (see e.g. Södra when trying to introduce wooden technology to replace concrete technology). The economic dimension has to do with large investments in existing technology (R&D, manufacturing, etc.). As industries develop a dominant design industry consolidation increases and entry barriers become higher particularly in systemic industries such as the telecommunication industry where high initial investments are required. Consequently, competition becomes lower which may result in higher costs and prices. In addition, higher entry barriers may hinder the establishment of innovative, higher quality, and lower cost solutions. This has been noted both in the telecom (see e.g. Ericsson with regard to TDMA and CDMA technology or traditional telephony and VoIP) as well as in the construction

industry (see e.g. NCC when trying to replace existing asphalt recipe with a new low cost recipe that reduces noise).

A consortium (sometimes formalized in an equity joint venture) may be an embryo to a value constellation as they both are very similar. Cooperation in new constellations is taking place and being formalized at both Skanska and NCC. New ways of coordinating value chain activities have developed through working in cooperation with customers (e.g. Skanska with their American customers), working in cooperative consortiums or projects (e.g. based on Skanska's positive experiences gained during the Öresund Bridge project), and research (e.g. British "Rethinking Construction" and the Swedish "Construction Commission", see the Skanska case). Cooperative efforts are now increasingly being formalized, e.g. in Skanska's "Our way of working". According to Skanska, the difficulty is probably that cooperative arrangements in consortiums or value constellations need, to some degree, be detached from the traditional corporate governance or line management. Skanska's experience is that a successful consortium needs to be allowed to act independently of the parent companies (e.g. in terms of purchasing decisions) and to create an independent identity or culture. In addition, it cannot have a dominant actor among the partner companies in order for the partner companies to be able to share competencies, resources, risks, costs and profits. In essence, these criteria for establishing a successful consortium seem equally valid for value constellations.

A last finding (or hypothesis) with regard to intra-industry consolidation refers to the external industry enablers and drivers at macro level for changing a competitive value chain towards a cooperative value constellation. Changes in the institutional frame at national and international levels (e.g. enabling free trade, liberalization, and privatization) are one enabler. Internationalization as well as liberalization and privatization in Sweden and internationally have enabled capital, and customers, as well as competence to move across borders more freely thereby increasing competition in general, e.g. competition within industries. It is also reasonable to think that the increased ability for capital, customers and competence to move across borders has also increased the ability to move cross industries more freely. Consequently, changes in the institutional frame have created increased international competition, intra-industry competition and inter-industry competition in customer, capital and competence markets. An increase, or the perception of an increase, in inter-industry competition, particularly during inter-industry merger (such as in the case of the telecom and datacom industries), may drive intra-industry consolidation, including moving from value chains towards value constellations. Inter-industry merger is discussed next.

Inter-industry merger: The telecom industry in particular shows that complementary industries (voice/tele communications and data communications) may result in merger between industries while substituting industries often result in competition between industries (e.g. the substitution/competition between analog and digital technology, between FDMA/TDMA or TDMA/CDMA digital standards, between video conferencing and air travel, etc.). An example of complementary industries and the creation of a value constellation across two industries is the horizontal cooperation between NCC and IKEA. The horizontal cooperation between NCC and IKEA was created in order to fit the scope of the value constellation or cooperative scope to the scope of offering (e.g. total package concepts such as Schäfergarten-project including apartment building, kitchen and bathroom fittings, floor and wall coverings, etc.) Shared technologies across different industries and cooperation across industries for developing common standards or a "dominant design" enables the merger between different industries. As was the case with Ericsson, the inventor of a specific technology will still benefit through a business logic based on developing the technical design and capitalizing on licensing agreements of IPRs.

Inter-industry merger results in inter-industry rivalry with regard to the industry recipe, e.g. the establishment of a dominant business and product design or logic. Rivalry and competition for dominant design may include a battle between different product logics for value added services such as in the telecom/datacom industries; centralized at the network level or decentralized at the level of network nodes. Competition for a process logic may include how to establish such product logic or dominant design; through competition and the creation of de facto standards, such as in the datacom industry or through cooperation, in e.g. standardization organizations, and the creation of industry standards, such as in the telecom industry.

A vital capability to allow a corporation to develop, as inter-industry rivalry increases, is a core competence in systems integration, including technology from the two merging industries. Other important capabilities which need to be developed are migration paths; both a technological migration path (e.g. the development of an enabling technology to migrate from one to another technology), and financial and business migration paths (e.g. the development of new sources of revenue streams or new price carriers and a business model that enables such migration path).

The merger process between industries may, for several reasons, be initiated by downstream companies in an industry. The scope of offering of down stream companies is often broader and they often engage in inter-industry competition and/or cooperation with adjacent industries, e.g. in order to provide proprietary and/or total solutions (see e.g. the Telia case with regard to business networks). According to Ericsson, downstream corporations have often the invoicing relationship with end-users (i.e. the main source of revenues for the entire value chain) which enables them to command the value chain to a larger extent than other corporations further upstream. Consequently, as shown by the Telia case, mergers between adjacent industries often commence in very specific segments, often down-stream.

The increased requirements for economies of scale have lead industries to consolidate, e.g. in terms of ownership of manufacturing facilities and distribution channels (e.g. through Flextronics in the telecommunications industry). As a consequence, differentiation based on core technologies becomes less viable and differentiation based on marketing, branding, and design increases. As a result, closeness to end-users becomes more important in order to be able to differentiate and to be able to manage the value chain. A change occurs in who and what consolidates the industry; from the corporations driving technology development and consequently through technology development or R&D to the corporations driving the market, and consequently marketing. These are some of the reasons why Ericsson found a joint venture partner with Sony for their mobile phone business. There is also evidence that requirements for economies of scale upstream have lead industries to consolidate downstream. Requirements for economies of scale often mean that major system integrators change their supply strategy, e.g. by reducing the number of suppliers. Supplier selection is based on various criteria (e.g. track-record), not the least price and size. The latter means that a large supplier or growing supplier is expected to have the lowest price or the largest potential to lower prices. This means that the supplier segments in the value chain need also to consolidate (because size is often one of the selection criteria). In order to create economies of scale and in order to be selected by the systems integrators, suppliers merge or acquire one another. One example is when Ericsson reduced the number of suppliers for cellular phone antennas and did not select Allgon as one of their suppliers. Few years later, in 2003, Centurion acquired Allgon Mobile Communications, i.e. the business unit responsible for terminal antennas. Thus, requirements for economies of scale in upstream segments send a

merger wave and consolidate the industry down-stream. As shown by the Allgon case, consolidation downstream also increases entry barriers.

As industries mature, marketing becomes increasingly important for other reasons as well (see above). Technology development that enables end-users to take part in the value creation process, it may change the distribution channels and marketing. In the cellular phone business, technology enabled consumers to activate a subscription (e.g. a pre-paid subscription). As a result, the phone manufacturers had to rethink both their distribution and marketing of cellular phones. Cellular phones were increasingly distributed through retailers (rather than through the operators) and the marketing efforts were targeted accordingly. Consequently, downstream companies need to be concerned with not only their customer or customer's customer requirements but with the requirements of consumers. As a consequence, the importance of measuring share of customer, such as "share of wallet", rather than market share increases. This development may drive cooperation (e.g. through cooperative ventures) and inter- as well as intra-industry consolidation/merger between non-competing and complementary corporations. The Ericsson case shows that Sony and Ericsson were perceived to be non-competing corporations because they originated from different industries, i.e. consumer electronics and telecommunications. Sony and Ericsson were also complementary corporations as Ericsson specialized in technology development and Sony in consumer marketing and distribution (see Jan Wäreby, Vice President, Sony Ericsson).

As industries mature an industry recipe develops. As a result, similar corporate cultures among competitors develop and increase the likelihood for intra-industry competitors to cooperate or to merge. As a result, industries consolidate in terms of brand and/or ownership structure.

As intra-industry competition increases, e.g. between supplier and customers, shorter business relationships develop. Examples are shorter lease contracts in the real-estate segment of the construction industry or more volatile end-user segments due to churn, in other words that telecom subscribers leave for another operator or service provider, in the telecommunication industry. This increases the costs for the supplier; in the construction industry, e.g. due to vacancies and remodeling costs for adapting the premises to the requirements of the new tenant and, in the telecommunication industry e.g. due to increased marketing and customer care activities. In order to lower costs, suppliers may try to increase their bargaining power, and increase economies of scale as well as to lower risks, e.g. through increasing market concentration, e.g. in certain country/regional markets according to local know-how and estimated risk exposure (see Skanska and NCC). Industries consequently consolidate through the creation of a dominant "local" position in order to increase competitiveness. Thus, increased competitiveness through a dominant local position means increased economies of scale, increased value for customers (e.g. increase rental options for customers in a local market), and increased bargaining power towards customers as well as the local capital market.

Inter- and intra-industry competition (and eventually inter-industry merger and intra-industry consolidation) may increase due to unrelated horizontal and vertical diversification into new product areas and/or market segments. It should be noted that unrelated vertical diversification here means that new and old product and/or market segments differ in terms of driving forces, e.g. differences in what drives demand and when demand is expected to increase/decrease, what drives prices and when prices are expected to increase/decrease. Examples in the construction industry are the segments of apartment and commercial buildings, as well as the sub-segments of commercial buildings such as retail, office and hotel

buildings. It is recognized, that these segments are to some degree related, e.g. in terms of the basic competencies required to satisfy such demand, in the construction industry i.e. being able to manage the construction work. Diversification as mentioned above may be driven by dynamic risk management, i.e. to over time offset the volatility of demand and prices in different product and market segments through the creation of balanced product and market portfolio. Consequently, risk associated with certain segments may drive inter- and intra-industry competition, and eventually inter-industry merger and intra-industry consolidation.

Both industry cases show that corporations have changed their strategic target from focusing industry-wide or focusing on particular segments only, to world-wide competition in segments of one. In the telecom industry (e.g. cellular) corporations are targeting not only the high-end segment in developed countries but also low-end segments in developed as well as in developing countries. Customers are also increasingly able to customize their cellular phones as well as their cellular services. One example of such customization is the color of cellular phones. Initially cellular phones were offered in few colors and consumers were only able to choose one color. Then consumers could choose a variety of colors and change color by changing the plastic cover of the cellular phone. Today consumers are able to design their own plastic cover over the internet. Specialization and the targeting of smaller segments in the construction industry (e.g. from civil engineering and building construction to a variety of different smaller sub-segments) has put additional requirements on the marketing and sales functions. In addition, it has increased business risk. Skanska's Gåshaga project provides an example of the above. Gåshaga targeted the high-end customers of apartment. In Gåshaga, Skanska allowed individual families to choose the interior design for their apartments. This type of one-to-one marketing in segments of one, required detailed information about the preferences of each individual customer. Smaller segments, such as the one Gåshaga targeted, particularly high-end segments, are shown to be more volatile and sensitive to economic fluctuations. Thus, specialization and the targeting of smaller segments increases business risk.

Different industries that are able to begin using common technological or products platforms are also able to increase economies of scope/scale. Such common platforms may also create inter-industry competition as well as inter-industry merger. As former CEO of Ericsson, Sven-Christer Nilsson put it "mobile phones...will those be a Nokia with 'cam' or a Nikon with 'com'?" This is particularly the case when such common platforms provide product features that blur industry boundaries and when they enable one industry to increase sales by targeting new customers from other industries. Another example is blue-tooth technology. According to Ericsson, the cost for blue-tooth technology and blue-tooth components has decreased dramatically during the last few years as such components, once developed for the telecommunication industry, are now increasingly being used and integrated in computers as well as in a variety of products from the consumer electronics industry.

Standardization of products, components, and business processes is generally recognized to lower costs and reduce risks. The repetition of standardized processes contributes to learning and experience that in turn enhance competencies and skills. Across industries this has resulted in an increased demand for cooperation. If cooperation does not take place (in order to standardize products and business processes) by proactively creating value constellations for example, it is likely that this development will be identified as a business opportunity (see Skanska). To reactively await standardization and coordination means that new entrants are given the opportunity to take a coordinating role in the industry.

In low margin industries such as the construction industry, particularly with regard to the systems integration segment (e.g. Skanska and NCC), it is highly important to reduce or share risks in order to lower costs and increase margins (assuming risk is associated with cost). Consequently, corporations are trying to move away from short-term competitive transactions towards the creation of long-term strategic partnerships with a few selected suppliers/customers, e.g. high volume suppliers or suppliers of critical components (see Skanska and NCC). As such partnerships become expanded to all the suppliers that all together develop a system, value constellations are established, i.e. to formally establish cooperative risk-sharing agreements between several parties in delivering system solutions. It seems that theoretically in a perfect market it is possible to establish risk-sharing through the price mechanism, i.e. the price mechanism should reflect the risk taken by a party. Nonetheless, perfect markets, including perfect information, seem, however, to be a theoretical assumption and in practice non existent.

Change from value chain towards value constellation and implications for corporate strategy in general (from competitive to cooperative): As a value chain develops into a value constellation, corporate strategy changes from being competitive to becoming cooperative. This means that the value creation process is not only integrated by the price mechanism. In addition, transactions are not only coordinated by the price mechanism based on intra-industry competition from suppliers and customers. Integration and coordination is handed over to (internal or external) intermediary functions and organizations, e.g. consultants, key account management organizations, partner joint ventures, equity joint ventures, consortia, partner agreements. As cooperative strategies are developed, the business logic changes from competitive tendering based on specified technology (primarily focused on price), through “coopetitive” (cooperation and competition) tendering, based on functionality as well as price, to cooperation and partnering (see e.g. Skanska, Telia).

Change from value chain towards value constellation and implication for corporate strategy in general (from competitive to cooperative) and M&As in particular: Industry fragmentation often makes it difficult to coordinate the industry evolution path, e.g. in terms of product and business logic. This means that industry fragmentation increases competition e.g. in creating a de facto standard through a dominant product design or a dominant industry recipe e.g. in terms of the price carrier. As a result, cooperation may eventually increase. This is, however, not always the case. The difficulties in agreeing on an industry evolution path in cooperation may, however, also result in problems such as patent disputes and the non-development of a dominant design or standard technology (see Ericsson with regard to TDMA and CDMA technology for digital cellular communications). The technological uncertainty will mean increased risk in e.g. R&D which may increase costs and slowdown product development (see Telia). M&As, rather than cooperation, may be the solution. Thus, M&As may be the path towards industry consolidation, the creation of a dominant design or a standardized technology, reducing technological certainty and lower risk and costs in e.g. R&D. Ericsson’s acquisition of Qualcomm in 1999 was a result of patent disputes over CDMA technology. Although CDMA technology had existed in parallel with TDMA technology, it was not until the patent disputes between Ericsson and Qualcomm had been resolved that CDMA was accepted as the standard technology for 3G systems. In November 1999 ITU established CDMA as the standard for 3G named IMT 2000 Direct Spread. The first version of the 3G standard based on CDMA was released in December 1999 by 3GPP, the standardization organization for 3G technology including ITU, ETSI and ARIB. Thus, competition may lead to consolidation through M&As and eventually cooperation across an industry.

Both industry cases show that new construction and telecom projects are capital intensive and require a broad range of competencies. The very nature of such projects requires industries to consolidate through e.g. M&As. The perception is that this development increases entry barriers and lowers competition. Nonetheless, the very nature of such projects (e.g. in terms of capital requirements) has never allowed minor players to compete effectively with larger players with regard to large turn-key systems and solutions. However, in refurbishing projects including maintenance, which are less capital intensive and require a narrow range of competencies, entry barriers are lower and industry fragmentation and competition higher. Consequently, one industry may develop in different segments towards consolidation and fragmentation, simultaneously. Different and simultaneous developments within an industry (e.g. consolidation and fragmentation) are likely to create different and specialized industry segments, e.g. in new construction projects and refurbishing projects.

The latest developments in the telecommunication and construction industries have shown that rather than acquiring suppliers (backward integration) that represent a competitive force, corporations integrate the value chain by developing cooperative strategies towards suppliers based on e.g. the partnership concept (see Telia, Skanska, NCC). In addition, rather than acquiring customers (forward integration) that represent a competitive force, corporations integrate the value chain by developing cooperative strategies towards customers based on e.g. BOT-projects (see Ericsson, Skanska, NCC).

Change from value chain towards value constellation and implication for corporate strategy in general (from competitive to cooperative) and outsourcing in particular: The empirical cases show that as industries mature (e.g. the cellular business in the telecom industry), two important developments occur; know-how in technology for example is diffused and competition for more price sensitive segments increases. The diffusion of technology enables alternative manufacturers to emerge and the competition for more price sensitive segments increases the requirements for economies of scale. The availability of alternative manufacturers and companies e.g. providing O&M and the requirements for economies of scale increases outsourcing to only a few corporations specializing in manufacturing and O&M (an example is Ericsson's outsourcing of manufacturing and Telia's outsourcing of O&M services, both to Flextronics). As a consequence, industry concentration increases. Consequently, unbundling at the corporate level enables bundling at the industry level and economies of scope and scale as well as intra- and inter-industry synergies. Customers' outsourcing and their increasing requirements for total solutions have also been noted as important trends in both the telecom and construction industries. Suppliers' have responded by adapting to such requirements through horizontal integration into unrelated business (e.g. telecom companies investing in content providers, construction companies investing in telecom companies). As a consequence, industries merge.

Change from value chain towards value constellation and implication for functional strategy in general (from competitive to cooperative) and functional bundling/unbundling in particular: The industry cases show that industry consolidation through cooperation (vertical and horizontal) has enabled risk-sharing as well as specialization in e.g. marketing (by different cooperating partners focusing on marketing towards different stakeholders in order to attract customers/tenants and financing/capital). Cooperation has been established through cooperative agreements or equity joint ventures. Standardization of products, such as the standardization of apartment buildings, modularization and industrial manufacturing has required cooperation between end customer, construction companies, supplies, architects, local authorities, etc. This means an industry consolidation in value constellation and a division of work based on the solutions level,

systems level, modular level, product level, and component level (and the integration of all of the above). Despite the fact that standardization, modularization and industry consolidation may lead to lower costs in the short-term, one should, however, remember that this kind of development may hinder innovations and a further reduction of costs in the long-term.

The analysis with regard to intra-industry consolidation and inter-industry merger across the telecommunication and construction industry, including sub-suppliers, system suppliers and operators, is summarized in Table 5:12 and Table 5:13.

Table 5:12 Summary of identified RoF: intra-industry consolidation and inter-industry merger (telecom)

INDUSTRY LEVEL		
Sub-supplier	Systems supplier	Operator (cont.)
<p>unbundling at corporate level →</p> <ul style="list-style-type: none"> • (enables) bundling at industry level → economies of scope and scale as well as intra- and inter-industry synergies <p>requirements for economies of scale →</p> <ul style="list-style-type: none"> • industry consolidation → increasing differentiation based on marketing, branding, and design → closeness to end-users becomes more important in order to be able to differentiate and being able to manage the value chain <p>supply strategy e.g. in terms of single sourcing based on suppliers track-record, size, etc. →</p> <ul style="list-style-type: none"> • high entry barriers and industry consolidation through M&As <p>industry maturity →</p> <ul style="list-style-type: none"> • change in what and who consolidates the industry; from the corporations driving technology development and consequently through technology development or R&D to the corporations driving the market, and consequently marketing <p>merging industries →</p> <ul style="list-style-type: none"> • leading corporation(s) will be the one(s) with established and solid relationships (something that may be more important than being able to deal with complex R&D and rapid pace of industry development) 	<p>industry maturity →</p> <ul style="list-style-type: none"> • know-how (e.g. manufacturing) is diffused and prices decrease → alternative manufacturers emerge and requirements for economies of scale increase → industry outsourcing increases to a few corporations specializing in manufacturing for economies of scale (e.g. CEMs) → intra-industry consolidation <p>industry maturity →</p> <ul style="list-style-type: none"> • absolute industry consolidation, i.e. in terms of turn-over the dominant corporations get larger; relative industry fragmentation, i.e. in terms of market share the dominant corporations get smaller • consolidation of ownership → potential consolidation of brands <p>industry consolidation in terms of gathering around a dominant technology (e.g. GSM) →</p> <ul style="list-style-type: none"> • disruptive to established relationships/transactions between suppliers and their customers (e.g. sales of D-AMPS systems went down as Ericsson decided to discontinue sales of D-AMPS phones) unless a migration path is offered by the supplier <p>technology enabling migration path →</p> <ul style="list-style-type: none"> • intra-industry consolidation (e.g. fixed and cellular) or inter-industry merger (e.g. telecom and datacom) <p>targeting of low- and high-end segments for economies of scale →</p> <ul style="list-style-type: none"> • decreasing average prices (lower purchasing power of low-end segment) and increasing costs for R&D (heterogeneous demand) and market development → cooperation in R&D and marketing (e.g. Sony Ericsson) → inter-industry merger 	<p>(cont.) of sharing know-how and costs as well as finding capital and financing →</p> <ul style="list-style-type: none"> • intra-industry consolidation <p>complementary core competencies among competitors rather than similar corporate cultures →</p> <ul style="list-style-type: none"> • horizontal cooperations between competitors (e.g. Tele2 to obtain license, i.e. a core competence related to marketing, and Telia to implement the terms and conditions for the license, i.e. a core competence related to technology operations) → intra-industry consolidation <p>value chain position →</p> <ul style="list-style-type: none"> • competitive scope of down-stream corporations includes to engage in direct intra- and inter-industry competition while upstream corporations engage in direct intra-industry competition and indirect inter-industry competition → down-stream corporations have broader scope of offering, up-stream companies have narrower scope of offering → merger between adjacent industries often perceived in down stream markets • down stream corporations have often the invoicing relationship with end-users enabling them to command the value chain <p>merging industries →</p> <ul style="list-style-type: none"> • importance of measuring share of customer (e.g. "share of wallet") rather than market share for estimating intra-industry competitive success <p>technological migration path through enabling technology to new technology, financial and business migration paths, i.e. enabling migrating to new sources of revenue streams or new price carriers, migrating path to new core competencies →</p> <ul style="list-style-type: none"> • enables inter-industry merger
	Operator	
	horizontal cooperations e.g. between competitors in terms	

INDUSTRY LEVEL		
Sub-supplier (cont.)	Systems supplier (cont.)	Operator (cont.)
	<p>enabling end-users to take part in the value creation process (e.g. activating a subscription) → • change in distribution chain (e.g. cellular phones distributed through retail stores rather than operators) → suppliers need to understand consumer marketing and distribution → cooperative ventures between non competing and complementary corporations (often corporations from different industries, e.g. Sony for consumer marketing and distribution and Ericsson for technology) → inter-industry merger</p> <p>shared technologies across different industries and cooperation across industries for developing common standards or a “dominant design” (e.g. Bluetooth) → • inter-industry merger • new business logic based on IPRs and licensing technical design</p> <p>disruptive innovations (e.g. VoIP) → • new entrants (e.g. datacom in telecom industry) • evolutionary innovations allowing migration between old and new technology → opportunity for system supplier to capitalize on old and new technologies while defending against new entrants by “protecting” operators investments</p> <p>inter-industry merger → • small specialized niche players (e.g. in segments of communications, computing and content) and large players targeting mass market through branding and economies of scale for low cost</p>	<p>inter-industry merger (e.g. datacom and telecom) including both segments of system suppliers and operators → • competition for the industry recipe including product logic (e.g. value added services centralized at the network level or decentralized at the level of network nodes), and business logic (e.g. price carrier) → competition for process logic in how to create such product logic (through competition to create dominant design and de facto standards as in datacom or through cooperation in standardization organizations to create industry standards as in telecom) • core competence in systems integration (including technology from the two merging industries) becomes vital</p> <p>merger between adjacent industry segments (e.g. the operator segment merge content from media and entertainment industry and the system supplier segment merge HW and SW from telecom and datacom industries) → • inter-industry merger</p> <p>complementary rather than substituting industries including both segments of system suppliers and operators (e.g. telecom brings robust real-time technology while datacom brings innovative value added services) → • intra-industry merger</p>

Table 5:13 Summary of identified RoF: intra-industry consolidation and inter-industry merger (construction)

INDUSTRY LEVEL		
Sub-supplier	Systems supplier	Operator
<p>low margin industries → • particularly important to reduce or share risk in order to lower costs and increase margins (assuming risk is associated with cost) → creation of long-term strategic partnerships with a few selected suppliers/customers (e.g. high volume suppliers or suppliers of critical components), creation of value constellations, i.e. to formally establish cooperative risk-sharing agreements (Note: in a perfect market it is possible to establish risk-sharing through the price mechanism, i.e. the price mechanism should reflect the risk taken by a party, perfect markets, including perfect information, seems, however, to be a theoretical assumption and in practice non existent)</p>	<p>change from informal (informal agreements, e.g. through the price mechanism, is based on competition and have often an organic, bottom-up and atomistic perspective on the value chain) to formal profit sharing agreements (formal agreements is based on cooperation and have often a mechanistic, top-down holistic perspective on value constellations and cooperation) across the value chain → • change in business logic including: expanding network horizon, i.e. to have more than two (i.e. the seller and the buyer) actors in a dyad, e.g. also including the end-user → value is estimated from the end-user perspective rather than from the perspective of the immediate customer or the customer's customer → possibly increased (perception of) risk as a larger portion of the entire value chain need to be coordinated (as opposed to managing suppliers/customers through power) → intra-industry consolidation</p> <p>strategic target → • from industry-wide or focus on a particular segment to world-wide competition in segments of one → increased cooperations across industry → intra-industry consolidation</p> <p>economies of scale in e.g. purchasing → • cooperation (e.g. e.g. creation of equity JV between competitors) → creation of mega suppliers and intra-industry consolidation</p> <p>established know-how and large investments in existing technology (R&D, manufacturing, etc.) → • industry consolidation and higher entry barriers (e.g. for innovative solutions) → lower competition → higher costs and prices</p>	<p>shorter business relationships (e.g. shorter lease contracts in the real-estate segment) → • increase costs (e.g. through vacancies) → market concentration (e.g. in certain country/regional markets based on local know-how and risk exposure) → industry consolidation and dominant "local" position → increase competitiveness (e.g. rental options for customers and increased bargaining power towards customers as well as the capital market)</p> <p>customers' outsourcing and requirements for total solutions → • suppliers' adaptation through horizontal integration into unrelated business (e.g. construction industry and telecom industry) → industries merge in terms of ownership (companies from the construction industry invest in telecom industry to gain control)</p> <p>industry consolidation through cooperation (vertical and horizontal) → • enables risk-sharing as well as specialization in e.g. marketing (e.g. by different cooperating partners focusing on marketing towards different stakeholders in order to attract e.g. customers/tenants and financing/capital</p>

INDUSTRY LEVEL		
Systems supplier (cont.)	Systems supplier (cont.)	Systems supplier (cont.)
<p>consortium or equity JV → • “value constellation” provided the consortium is allowed to act independently of parent companies (e.g. in terms of purchasing decisions), create an independent identity/culture, no dominant player among the partner companies, share competencies, resources, risks, costs and profits</p> <p>standardization of products/components as well as in business processes (e.g. in order to minimize risk and enhance competencies) → • increased demand for cooperations → proactively create value constellations or reactively await new entrants to take a coordinating role in the industry → intra-industry consolidation</p> <p>standardization of products (e.g. apartment buildings), modularization and industrial manufacturing → • requires cooperation between end customer, construction companies, supplies, architects, local authorities, etc. → consolidation of industry in value constellation and division of work on solutions level, systems level, modular level, product level, and component level</p> <p>intra-industry consolidation through standardization → • lowers costs (in the short-term), however, hinders innovations and further lowering of costs (in the long-term)</p>	<p>unrelated horizontal and vertical diversification (unrelated in terms of driving forces, i.e. what drives demand, and when demand is expected to increase/decrease, related however in terms of the core competence required to satisfy such demand) into product areas and market segments → • balanced product and market portfolio → dynamic risk management (volatility in different product and market segments offset each other over time) → inter-industry merger and intra-industry consolidation</p> <p>common technological/products platforms (often perceived as an increased importance/sales of/to “new” customers from “other” industries) → • economies of scope/scale between industries → inter-industry merger</p> <p>creation of value constellations → • may require cooperation up- and downstream, as well as horizontally (e.g. as the cooperation between NCC and IKEA) in order to fit the scope of the value constellation or cooperative scope to the scope of offering (e.g. total package concepts such as Schäfergarten-project including apartment building, kitchen and bathroom fittings, floor and wall coverings, etc.) → intra- as well as inter-industry consolidation</p>	

INTRA-INDUSTRY FRAGMENTATION AND INTER-INDUSTRY FORKATION: In this section, intra-industry fragmentation and inter-industry forkation are discussed.

Intra-industry fragmentation: Several indicators and drivers to intra-industry fragmentation have been identified, both in the telecom industry and in the construction industry; development of proprietary standards, industry maturity resulting (or opportunistic behavior as discussed below) in lower profit margins and changes in corporate strategy (e.g. from national focus to international focus, from portfolio management and diversification to core competence) and performance measures (e.g. from net profit to ROA).

Industry fragmentation may be created by the development of proprietary standards or patents which increase uncertainty and risk among customers (e.g. fewer suppliers and risk of getting stuck with an obsolete technology/solution). This has the potential of slowing down the industry evolution. Industry maturity and lower profit margins may increase competition between sellers and buyers. However, it should be emphasized that the opposite is also valid; increase in competition between sellers and buyers creates lower profit margins. In the latter case, competition may be driven by the search for abnormal profits, i.e. profits that do not reflect the value creation of one corporation but rather are based on opportunistic behavior and power (resulting in value transfer rather than value creation). The results are that one actor tries to push risk and costs onto the other, and as a consequence, costly control mechanisms have to be established due to distrust, etc. As a result, industries disintegrate, the pace of industry evolution towards increased industry competitiveness (i.e. competitiveness towards other industries) is slowed down, and transaction costs increase. As pace and sequencing become more important in product development, corporations need to integrate their efforts in product and market development. This enables rapid industry evolution through incremental innovations targeted at niche segments as well as temporal monopolies in niche segments as well as temporal intra-industry fragmentation in particular segments. Changes in corporate goals (e.g. by focusing on profitability or ROA rather than net profits), changes in strategies (e.g. increased focus on core business), and internationalization may lead to industry disintegration. Strategic efforts mentioned have often required the divestment of equity shareholdings across the value chain and divestment of fixed assets. Consequently, industries disintegrate in terms of ownership (i.e. shareholdings) across the value chain and in terms of value creating activities. In the construction industry this has been noted in that the construction companies have divested their real-estate companies and industrial manufacturing companies (windows, floors, etc) in order to be able to enhance ROA, internationalize constructions operations, as well as to develop services such as facility management.

The construction industry, and in particular the telecom industry, are showing a change in how industries consolidate. Initially, an industry may be consolidated by one company spanning over the entire value chain with regard to activities such as manufacturing, research and development. This was often possible in small, emerging industries such as the cellular business in the beginning of the 90's. In such cases, volumes are low because only one particular segment is targeted (e.g. high-end segment in the cellular business), competition is low, there is little know-how across the industry, and products are highly integrated (as opposed to modularized). As all these indicators change, the industry becomes increasingly specialized and disintegrated. In order to lower costs, the industry will eventually begin to integrate by increasing its competence and willingness to coordinate market transactions through e.g. supply chain management. If a corporation is unwilling or unable to do so (e.g. Ericsson) its only option is to withdraw from the traditional supply chain and establish a new business logic in a "parallel" supply chain. In the telecom industry, Ericsson created a new

business logic based on design and licensing of IPRs. In such a case, economies of scale in R&D for example can be created despite a corporation becoming more specialized. The result was a consolidation of core technologies and a diversification of brands.

Inter-industry forkation: As will be discussed below, industry maturity does not necessarily lead to industry consolidation, but instead often leads to disintegration, specialization and eventually industry forkation (spin-off industries are created).

“When we [Ericsson] started to look for a potential partner, we instantly turned to Asia...having a western partner would only result in “more of the same”...all the large consumer product giants are from Asia... We looked at some different options...Sony suited us perfectly because of a number of parameters...number one, they are the largest and the best within consumer electronics...they were established on the telephone market and although they were not the largest they had a presence in Japan...that’s another important parameter...third, they were not competing with Ericsson...if you look at Panasonic and NEC they have certain business on the systems side...then you need to decide what systems you will support and so on...with Sony it was easier to see how we complemented each-other without having to consider other businesses in the portfolio...it was a clear cut...the last part was that Sony had an entire portfolio of content...gaming, movies and music...they are one of the world’s largest content providers...Sony was definitely our first option... I usually say that we have two value chains, technology and content, and we are in the middle...we cooperate for instance with Ericsson Mobility World in order to develop content [Jan Wäreby, VP Sony Ericsson]...”

As industries mature, intra-industry fragmentation through specialization increases to such a degree that it eventually creates several parallel industries (industry forkation) as spin-off industries (e.g. cellular in telecom industry). According to Porter (1980, p 185), the mainstream view is that industries consolidate as they mature although this may not be supported by empirical evidence. Thus, in current theory the industry forkation process is often described as an intra-industry consolidation process while in fact one industry forks into several industries, sometimes as parallel industries and sometimes as industries completely detached from each-other. As discussed below, both industry cases in this thesis support this finding as they have developed very similarly.

In the beginning of the 90’s, telecommunication was considered to be one industry (in fact the general perception among stock owners and analysts was that telecommunication was a non-industry, e.g. in the Stockholm exchange there was no listing of “telecommunication companies” or anything alike; Ericsson was listed among the “engineering/manufacturing” companies; Sw. “verkstadsindustri”). The increasing number of cellular subscribers resulted in a market pull for cellular systems equipment (as the cellular systems became saturated, operators needed to expand coverage and capacity) and cellular phones. In the mid 90’s both operators and suppliers organized their operations in at least two different business units; fixed and mobile (later some corporations, particularly the operators, created separate companies for their fixed and mobile telecommunication businesses). The telecommunication industry became two; the fixed telecommunication industry (often including systems equipment and services) and the cellular telecommunication industry (often including systems equipment, services and cellular phones). The cellular industry was often measured by (increasing) number of subscribers and market share in the installed base (in systems) as well as by how much of the growth each company could capture. A relatively long product life cycle (PLC) also enabled market share of phones to be measured in “installed base” as new phones were sold mostly to “new” subscribers; few subscribers changed one cellular phone for another.

As the cellular industry matured, the PLC for cellular phones shortened and the increasing number of cellular subscribers stagnated, operators and supplier focused their attention on the

repurchase of phones (e.g. allowing subscribers to “upgrade” their cellular phones with new features) and subscriptions (e.g. allowing cellular subscribers to “upgrade” their subscriptions with new value added services). To support this new strategy, suppliers/operators often reorganized into three business units; cellular equipment/services, fixed equipment/services and cellular phones (including development and manufacturing among suppliers and distribution among operators). Due to the slower growth in number of subscribers and the relatively short PLC, new phones were mostly sold to “old” subscribers as upgrades/replacement or as a complement; “old” subscribers changed one cellular phone for another. Consequently, the “installed base” for cellular phones was no longer good for measuring market share and it became important to measure the number of sold (replacement) phones per year (resulting in no additional subscribers but existing subscribers changed to new phones or bought additional phones). The market share for cellular subscriptions and cellular phones was no longer the same. As a result, the cellular industry could not be considered as one industry; it became two; the cellular phone industry (including Sony Ericsson) and the cellular systems and services industry (including Allgon, Ericsson and Telia). Today, the cellular phone industry is developing more and more as fixed phones; it is becoming more integrated with consumer electronics (one example is the Sony Ericsson JV). The current trend among new entrants in the (cellular) operator’s segment is to create a fourth industry, which it can dominate. Hi3G aims at establishing itself as the leading “mobile video company”, including not only video communications but also e.g. mobile video broadcasting (including MTV, sports events, etc.).

The same development has been noted in the construction industry. What is often termed the construction industry has in fact developed into several parallel industries, e.g. building construction and civil engineering industries. An erroneous assumption with regard to industry maturity and consolidation among construction companies may lead to failure in attempting to consolidate companies from different industries. One example is Skanska’s acquisition of an equity interest in the cellular operator Orange in order to develop know-how in intelligent buildings.

In conclusion, industry maturity does not necessarily lead to industry consolidation, but may also lead to disintegration, specialization and eventually industry forkation (spin-off industries are created). Telecommunication has developed from the telecommunication industry through the fixed telecommunication industry and cellular telecommunication industry to the fixed telecommunication industry (fixed systems and services), cellular systems and services industry, and cellular phone industry.

The analysis with regard to intra-industry fragmentation and inter-industry forkation across the telecommunication and construction industry, including sub-suppliers, system suppliers and operators, is summarized in Table 5:14 and Table 5:15.

Table 5:14 Summary of identified RoF: intra-industry fragmentation and inter-industry forklift (telecom)

INDUSTRY LEVEL		
Sub-supplier	Systems supplier	Operator
<p>changes in product perception (e.g. how to define a cellular phone) → • changes in focus e.g. in terms of R&D and marketing → • industry disintegration</p> <p>development of proprietary standards or patents → • increased uncertainty and risk among customers (e.g. fewer suppliers and risk of getting stuck with an obsolete technology/solution) → slowdown in industry evolution</p> <p>industry maturity → • increased competition between sellers and buyers (e.g. push risk to the other party, establish control mechanism due to distrust) → industry disintegration → slowdown in pace of industry evolution and increased transaction costs</p>	<p>industry fragmentation (e.g. in terms of patent disputes or the non-development of a dominant design or standard technology → • technology uncertainty and increased risk in e.g. R&D → slow and costly product development → M&As → industry consolidation → the creation of a dominant design or standard technology → technology certainty and lower risk in e.g. R&D → quick and cost effective product development</p> <p>change in industry consolidation (e.g. through one company spanning over the entire value chain; possible only in small industries, e.g. in an emerging industry where only the high-end segment is targeted, low competition and little know-how across the industry, as well as high degree of product integration) to industry specialization → • industry disintegration → increase competence in coordinating market transactions through supply chain management • withdraw from traditional supply chain and establish a new business logic in a “parallel” supply chain (e.g. a business logic based on design and licensing of IPRs) → economies of scale in R&D (despite specialization and disintegration) → consolidation of core technology and diversification of brands</p>	<p>industry fragmentation → • difficult to coordinate in a formal process industry evolution path, e.g. in terms of product and business logic → increased competition (for creating a de facto standard through a dominant product design or a dominant industry recipe e.g. in terms of the price carrier) → increased cooperation</p>

Table 5:15 Summary of identified RoF: intra-industry fragmentation and inter-industry forkation (construction)

INDUSTRY LEVEL		
Systems supplier	Systems supplier (cont.)	Systems supplier (cont.)
<p>pacing and sequencing in product development → • integration of product and market development → rapid industry evolution through incremental innovations targeted at niche segments → temporal monopolies in niche segments → intra-industry fragmentation</p> <p>new construction projects capital intensive and require a broad range of competencies → • intra-industry consolidation through M&As → high entry barriers → less competition</p> <p>refurbishing projects less capital intensive and require a narrow range of competencies → • → new entrants → intra-industry fragmentation through low entry barriers → higher competition</p> <p>new construction projects and refurbishing projects → • industry consolidation and fragmentation are simultaneous developments within the same industry → simultaneous and different intra-industry developments → creation of different and specialized industry segments</p> <p>focus on ROA, increased focus on core business, internationalization → • divestments of equity shareholdings across the value chain and divestment of fixed assets → industry disintegration in terms of ownership (i.e. shareholdings) across the value chain and in terms of value creating activities</p>	<p>industry disintegration in terms of ownership (e.g. divestments of real-estate companies in the construction industry) → • industry integration at functional level and in terms of value creating activities (e.g. in FM services in the construction industry)</p> <p>performance measures at corporate level (rather than at the project level) → • industry recipe including competitive tendering, distrust, opportunistic behavior, illegal actions → intra-industry fragmentation → increased costs and lead-times, decreased quality</p> <p>performance measures at industry or project level (in which several companies are required to cooperate) → • industry recipe including cooperative tendering, trust → intra-industry consolidation → decreased costs and lead-times, increased quality</p> <p>industry integration through cooperative value constellations (in the long-term) or consortium (in the short-term) → • enables the development of standardized process and procedures, cooperative frame agreements (just like competitive value chains have developed standard process and procedures as well as frame agreements, e.g. based on competitive tendering)</p> <p>increased focus on shareholder value creation → • increase focus on (what is believed to be) core competence → transfer of assets to shareholders (instead of increasing dividends) which increases liquidity of shares → industry fragmentation in terms of ownership</p>	

5.5 Final remarks

Both industry cases show that several different indicators provide the same very specific effect and that one indicator often provides a variety of different alternative effects. This allows for two important contributions in this thesis; one relates to the explicit subject matter of this thesis (dynamics of corporate strategy from a value chain perspective) and the other to the methodological approach. With regard to the first issue, it seems possible to generalize about change processes, particularly with regard to strategic change processes. The processes of change in corporate strategy, industry dynamics (i.e. the change process of industry structure) as well as the reciprocity between corporate strategy and industry dynamics in both industry cases show that the patterns of change are best described and understood by using a complex non-linear approach, i.e. to combine and make use of theories within the life cycle perspective, dialectic, evolutionary and teleological perspective of change. The complex nature of change requires all of the above perspectives to be considered to some degree. The four different perspectives complement rather than substitute each-other. The complex non-linear perspective on change strongly relates to having a systems perspective and considering the relationships of multifinality and equifinality among indicators/drivers of change as well as considering the reciprocity and non-linear relationship between drivers and outcomes (i.e. a driver produces an outcome; turning the outcome to a second degree driver to the initial driver, etc.); the operation of different change processes “at a given time are a function (at least in part) of the same process at an earlier time” (Garud, Van de Ven, 2000, p 26 with reference to Koput, 1992). The second issue allows, once again, emphasis to be put on the importance of using a systems approach in a longitudinal study that aims at finding the “relationships of finality” between indicators. Consequently, the extended analytical model suggested in the frame of reference has proven to be useful for analyzing and understanding the change process of the content of strategy (at industry, corporate and functional level) both in the telecom and in the construction industry. For practitioners, the extended analytical model may serve as a useful tool in the process of defining the content of strategy and, thus the strategic planning process.

A final remark refers to the findings regarding the industrial and financial logics, and how these logics contribute to driving strategic change. Implicitly, one may argue that the findings in this respect suggest that the dominant logic during the 1990's was financial, while in the early 2000's it was industrial (in part driven by industry growth stagnation and decline). It would, however, be possible to explain the shift in logics by arguing that the financial logic itself has changed from “growth” to “profitability”. The research design does not allow for making this distinction with regard to the shift in logics. These two explanations, however, do not necessarily act as substitutes for each other. It would not be unreasonable to think that both explanations complement each other and that a shift has occurred between logics, i.e. from financial to industrial, as well as within logics, i.e. from a financial logic based on growth to a financial logic based on profitability.

6 CORPORATE LEVEL CONCLUSIONS



The conclusions reached in this chapter summarize the most important findings in the analysis. The conclusions are structured according to the purpose of this thesis (see Figure 6:1). Thus, the first section focuses on describing strategic change from a value chain perspective. The first section summarizes three descriptive patterns. The second section focuses on understanding the content of strategic change, i.e. the dynamics of and between mergers and acquisitions, outsourcing, modularization and system sales and summarizes eight explanatory patterns. The third section focus on understanding industrial and financial drivers to strategic change both from an outside-in as well as an inside-out perspective on strategy, i.e. how an industrial and a financial logic drive strategic change, and how value is created towards customer markets, capital markets, and competence markets. Thus, the third section summarizes one additional explanatory pattern. The fourth and final section of this chapter considers the descriptive and explanatory patterns found during the 1990's and the early 2000's in order to suggest what to expect during the next decade with regard to corporate strategy from a value chain perspective and summarizes five predictive patterns.

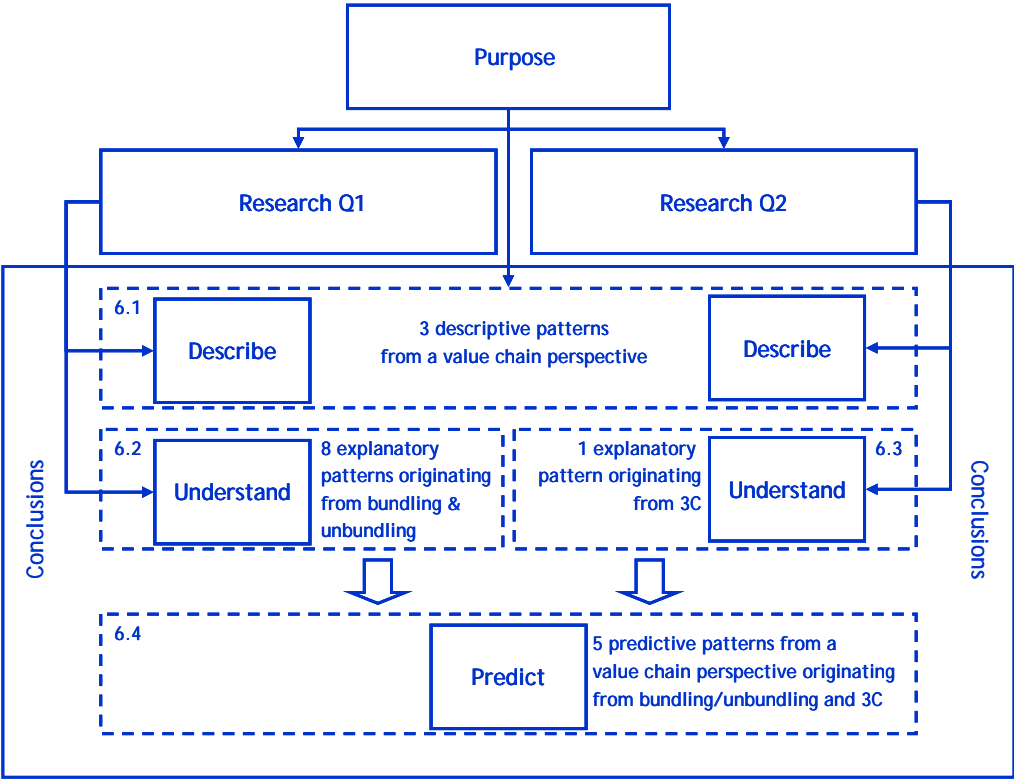


Figure 6:1 Relationship between purpose and conclusions

Two comments are important to bring forward. First, the patterns are interrelated and, thus, their contents are not entirely descriptive or explanatory. There are descriptive elements in the explanatory patterns and vice versa. Just like the predictive patterns need to build upon the descriptive and explanatory patterns, the descriptive patterns need to build upon the explanatory patterns and vice versa. I believe that this may be, for some readers, confusing to a certain degree. To those readers, I would like to suggest viewing the descriptive elements in the explanatory patterns as putting the explanatory pattern in a context (and vice versa for the

descriptive patterns). A clear cut between descriptive and explanatory patterns would possibly generate more confusion as both the descriptive and explanatory patterns would be presented out of context. Presenting a pattern within its context also increases the validity and reliability of this study. Second, the term “explanatory” may seem odd in trying to “understand”. The term “understanding” rather than “explaining” has been used in the purpose. The reason for this is discussed under chapter 3 “Research Methodology”. An explanatory pattern should thus be understood as a pattern that provides a better understanding and not one that fully explains one or several descriptive patterns. As such they are a source of explanation and not the explanation itself.

6.1 Describing strategic change from a value chain perspective

As shown in the previous analysis, a description of the content of strategic change across value chain incorporates strategic decisions of bundling and unbundling at corporate and functional level through mergers and acquisitions, outsourcing, systemization and modularization. From a value chain perspective, the division of work and the execution of value adding activities has become more specialized e.g. with regard to research, development, manufacturing, marketing and sales of hardware, software and services. The increasing degree of specialization has augmented the need for value chain coordination and integration from a value chain perspective. Thus, the increasing degree of specialization and the need for coordination and integration has created new opportunities for new entrants as well as for incumbents and a new scope for competition is emerging in e.g. systems integration. A new competitive arena has emerged in the field of value chain coordination and inter-organizational systems integration. New entrants such as CEMs (e.g. Flextronics) are actively seeking to take this role as well as incumbents such as the traditional turn-key suppliers (e.g. Ericsson, Skanska, NCC) by turning into virtual integrators in the business of PDAs and inter-organizational project managers and/or BOT-suppliers in the field of telecommunication systems and constructions. The process of transformation in order to increase coordination and integration capabilities across the value chain requires the re-bundling of the corporate scope (e.g. Hagel III, Singer, 1999) through strategic decisions at the corporate level including M&As and outsourcing. At the functional level, the process of transformation includes bundling and unbundling of the offering through systemization and modularization.

Descriptive pattern no 1: The degree of specialization and the need for inter-organizational coordination across the value chain increases over time through outsourcing and modularization of systems. Specialization and outsourcing is often driven by an increased effort to focus on core competencies as well as to lower costs. Modularization of systems lowers entry barriers in systemic industries allowing specialized niche players to enter the value chain.

Specialization, as found in the empirical cases, refers to areas such as systems research, systems development, modules and value added services, and marketing and sales of end user products and services. Specialization is often achieved through outsourcing. This research confirms the two basic approaches to the outsourcing decision; the core competence (e.g. Quinn, Hilmer, 1994) and the transaction cost perspective (e.g. Ellram, Maltz, 1995; Cox 1996). From a value chain perspective, however, specialization also increases with the increasing modularization of systems, lower entry barriers and the entrance of niche players in value added modules and services. Technology development, including modularized and standardized subsystems contributed to increasing competition and the number of specialized subsystem suppliers for e.g. voice mail systems and data applications. One example was the modularization of the AXE and the development of standardized interfaces between the

modules within the AXE as well as between the AXE modules and other external modules. This enabled specialized subsystem suppliers, e.g. of voice mail systems, to develop and market stand-alone subsystems that could be integrated with the AXE. The descriptive pattern of specialization across value chains confirms existing theory (e.g. Hagel, Singer, 1999). However, it also complements such theories by emphasizing outsourcing and modularization as two contributing factors to such development as well as to specific areas of specialization, e.g. systems research, systems development, modules and value added services, and marketing and sales of end user products and services.

While the core competence perspective on e.g. outsourcing assumes core competencies to be rather static, this research has shown that the value of core competencies may be eroded over time and consequently that corporations need to build new sustainable core competencies. It has been argued that “unlike physical assets, competencies do not deteriorate as they are applied and shared. They grow.” (Prahalad, Hamel, 1990, p 91). This study has shown that, indeed, some core competencies do deteriorate both as they are applied as well as when they are shared. This is particularly the case when competitors learn by doing or as corporations compete for competence and people move from one corporation to another. Specialization in marketing and sales of end-user products and services has been achieved through e.g. the outsourcing of value activities previously considered to be core. The reason has been an erosion of such core activities. Telia’s decision to retain installation services was initially based on the rationale that mobile coverage was a source of competitive advantage. Eventually the decision to outsource installation services was based on the rationale that mobile coverage was no longer a source of added value creation, differentiation and competitive advantage. In addition, as price was increasingly becoming a source of competitive advantage, to lower costs became increasingly a source of competitive advantage. By focusing solely on the marketing and sales of services and end-user operations, such companies were usually called service providers.

While previous research on outsourcing R&D has implicitly assumed that research and development are outsourced together (e.g. Howells, 1999) this research has shown that corporations are more subtle in their outsourcing decision. Outsourcing research and/or development is considered. This research has shown that specializing in systems research (and the outsourcing of development) or specializing in systems development (and the outsourcing of research) are separate issues that incorporate considerations both related to core competencies and costs.

Corporations that are not able to build end products from their core products are likely to specialize in research (and to outsource development). The core competence of these corporations is likely to be within technology development and design. Corporations that are not able to build or sustain a competitive advantage in end products lack core competencies in areas such as supply chain management, manufacturing, distribution, and marketing. These corporations are not necessarily pushed upstream in the value chain as they may assume the role of a virtual integrator. As a virtual integrator they transform research results into product designs that generate revenues through technology licensing and IPRs. One example is the creation of Ericsson Mobile Platforms. Through Ericsson Mobile Platforms and Ericsson Technology Licensing, Ericsson offered complete 2.5G and 3G technology platforms to manufacturers of mobile phones and other mobile devices (e.g. Sony Ericsson, Samsung). The platforms consisted of complete component specifications, printed circuit board layouts and software. In addition, Ericsson offered support and customization services. Through Ericsson Mobile Platforms, Ericsson had thus become a virtual integrator of cellular phones. The rationale for the outsourcing of development activities is to focus on core competencies and

core products while lowering development costs. In addition, virtually no capital is tied up, e.g. in manufacturing plants.

Corporations that are not able to build and sustain a core competence to build core products are likely to specialize in development (and to outsource or to buy research). The core competence of these corporations is likely to be within e.g. marketing. These corporations are able to understand customer needs, transform such needs to end product specifications, and to develop end products accordingly. The rationale for the outsourcing of research activities is to focus on core competencies in development of end products while lowering costs for research. This development is evident in Allgon's (R&)D strategy from 2001 and onwards.

Major construction companies have noticed the difficulty in capitalizing on innovations embedded in processes and products that have been developed in projects, and as a consequence, have outsourced and pushed R&D activities upstream in the value chain.

With regard to the increased need for inter-organizational coordination across the value chain, some corporations have begun to specialize in manufacturing as well as in systems integration due to the outsourcing of suppliers, turn-key suppliers and operators. Turn-key suppliers are increasingly outsourcing R&D and manufacturing of strategic components (e.g. Ericsson's central and regional processors in the AXE). As a consequence, components manufacturers, OEMs and CEMs are increasing their scope of supply by moving into systems (e.g. Allgon from antennas to antenna near part system) and systems integration (e.g. Flextronics). The turn-key suppliers, on the other hand, are increasingly becoming Build Operate and Transfer (BOT) Suppliers, including operations and maintenance of telecom systems.

Descriptive pattern no 2: In order to increase value, corporations tend to increase their scope of offering through systemization or even BOT-projects. The horizontal boundary of the firm and scope of offering has increased through M&As (sometimes beyond the industry scope) while the vertical reach or scope has been narrowed through outsourcing. The result is often that corporations move away from their initial core competence as they integrate forward in the value chain.

The dynamics and interdependencies identified are that strategy both drives and is driven by increased value chain specialization and the need for coordination, thereby creating a new competitive arena, inter-organizational systems integration. Corporations have increased their scope of offering, by moving into system sales. This research has found both industrial (e.g. to increase the value offered to customers) as well as financial drivers to this development (e.g. increase turn-over, sales, profitability or enter into business segments that appeal to the capital market). At the corporate level, the consequences have been twofold; corporations have moved away from their initial core competence or been forced to redefine their core competence; the horizontal boundary of the firm has broadened (sometimes beyond the initial boundary of the industry) while the vertical reach (or scope) of the corporation has been narrowed.

During the mid 1990’s, it seems that major telecommunications and construction companies had developed a core competence well “centered” within their scope of offering as well as their corporate scope. The corporate scope also fitted well within the industry scope (see Figure 6:2).

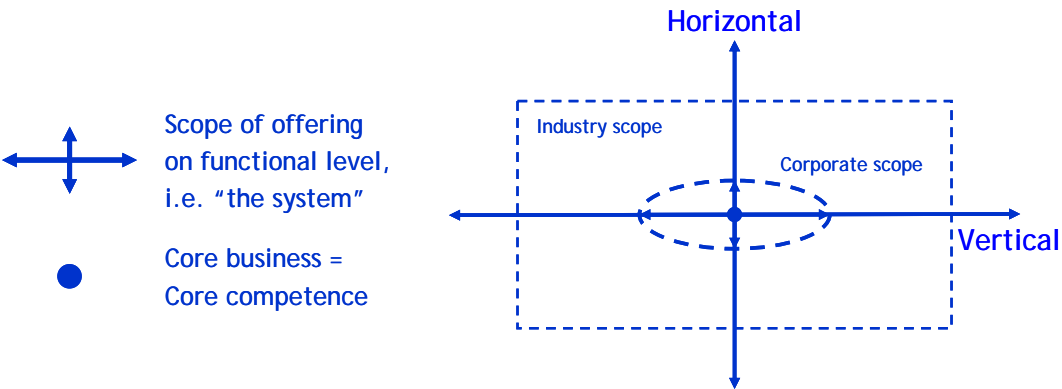


Figure 6:2 Industry positioning among system suppliers

Eventually, in the construction industry, major construction companies have increased their scope of offering to include BOT-projects and FM services including sometimes corporate telecom management services, an example of a scope that is beyond the initial boundary of the industry (see Figure 6:3).

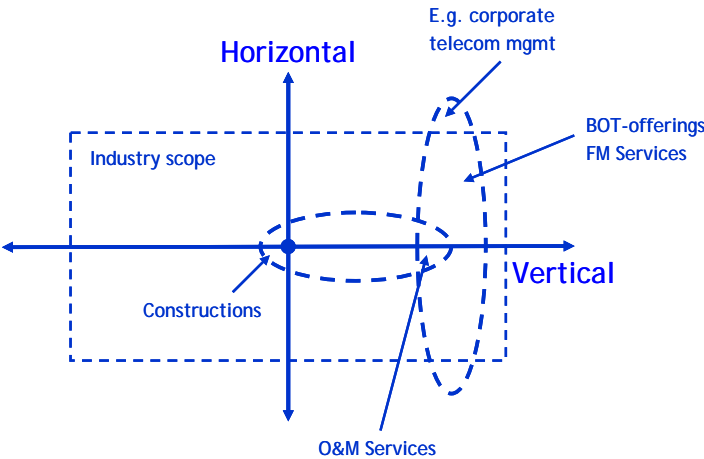


Figure 6:3 Industry positioning among system suppliers (construction industry)

Similarly, in the telecom industry, major telecommunication companies have increased their scope of offering to include BOT-projects, O&M services and, sometimes, content development and management, e.g. gaming, entertainment, etc. In other words, an example of a scope that is beyond the initial boundary of the industry (see Figure 6:4).

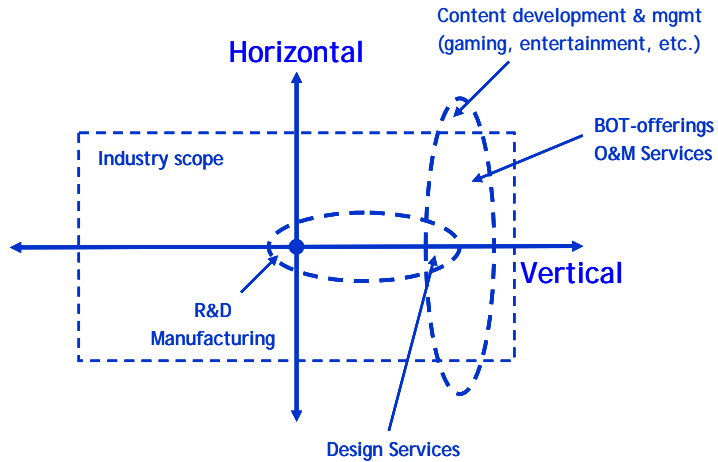


Figure 6:4 Industry positioning among system suppliers (telecom industry)

The widening of the horizontal scope has often been achieved through M&As, particularly in cases when the value added incorporated in the broadened offering requires competence not found within the firm. Due to industrial as well as to financial factors (e.g. “lightening” the balance sheet and increase ROA) the broadening of the scope through M&As has required corporations to outsource activities upstream in the value chain. The result of M&As targeted at downstream value activities followed by outsourcing targeted at upstream value activities has been a vertical movement forward in the value chain. This pattern confirms the descriptive pattern of corporations moving down stream in the value chain (e.g. Wise, Baumgartner, 1999). To some extent, the descriptive pattern also confirms three of the four business models suggested by Wise and Baumgartner (1999) when corporations move down stream; to create offer embedded services, i.e. to build down stream services into products, to offer comprehensive services, e.g. financing, and to offer integrated solutions, i.e. the combination of products and services to address specific customer needs. However, the descriptive pattern cannot entirely confirm the reason for moving down stream, i.e. to increase sales, profitability, and shareholder value (Wise, Baumgartner, 1999). As discussed, there are both financial and well as industrial incentives for moving down stream. Equally important is the fact that moving down stream is a consequence of moving into system sales, total solutions or BOT-projects, and not always and end in itself.

Descriptive pattern no 3: Intra-industry consolidation, inter-industry merger and inter-industry forklift may develop in parallel, blurring the boundaries of industries and making it difficult to determine current and future customers segments and competitors.

The telecom industry has shown that horizontal cooperation within an industry (e.g. between competitors) in terms of sharing know-how (such as in the standardization of e.g. GSM), cost sharing and financial capital (for example the case of Telia and Tele2 when they acquired and deployed the 3G system in Sweden) may have resulted in industry consolidation that benefit industry development and end-users. The same results have been found in vertical cooperation

(for example cooperation between operators and system suppliers) e.g. in terms of standardizing technology which has lowered costs and risks resulting in industry consolidation that benefit industry development and end-users (e.g. Ericsson and Telia when developing the AXE switching system). Another example in the (cellular) telecom industry shows that maturity led to the saturations of high-end segments and consequently the targeting of low-end segments for continuous growth and economies of scale. As a result, on an industry average, the price levels decreased (due to lower purchasing power of low-end segment) and costs increased due to e.g. product and market development (to satisfy a more heterogeneous demand). This resulted in increasing efforts to cooperate in development (e.g. Ericsson and Sony) as well as marketing (e.g. Telia and Swisscom), and eventually in industry consolidation.

The telecommunications industry in particular shows that complementary industries (voice/tele communications and data communications) results in merger between industries while substituting industries often result in competition between industries (e.g. the substitution/competition between analog and digital technology, between FDMA/TDMA or TDMA/CDMA digital standards, between video conference and air travel, etc.). An example of complementary industries and the creation of a value constellation across two industries is the horizontal cooperation between NCC and IKEA. The horizontal cooperation between NCC and IKEA was created in order to fit the scope of the value constellation, or cooperative scope, to the scope of offering (e.g. total package concepts such as the Schäfergarten-project including apartment building, kitchen and bathroom fittings, floor and wall coverings, etc.) Shared technologies across different industries and cooperation across industries for developing common standards or a “dominant design” enables the merger between different industries.

An inter-industry merger often results in inter-industry rivalry with regard to the industry recipe, e.g. the establishing of a dominant business and product logic. For example, inter-industry rivalry (e.g. between the telecom and datacom industries) may develop into a battle between different product logics for value added services; centralized value added services at the network level (the product logic in the telecom industry) or decentralized value added services at the level of network nodes (the product logic in the datacom industry). Competition for a process logic may include elements such as how to create a product logic or a dominant design, e.g. to create de facto standards through competition (the process logic in the datacom industry) or to create industry standards through cooperation in e.g. standardization organizations (the process logic in the telecom industry).

A vital capability which a company needs to develop as inter-industry rivalry increases is a core competence in systems integration, including technology from the two merging industries. Other important capabilities which have to be developed are migration paths; a technological migration path (e.g. the development of an enabling technology to migrate from one to another technology), as well as financial and business migration paths (e.g. the development of new sources of revenue streams or new price carriers and a business model that enables such a migration path).

The construction industry, and especially the telecom industry, shows a changing pattern in how industries consolidate. Initially, an industry may be consolidated by one company spanning over the entire value chain. This is often possible in small, emerging industries such as the cellular business in the beginning of the 90's. In such cases volumes are low because only one particular segment is targeted (e.g. the high-end segment in the cellular business), competition is low, there is little know-how across the industry, and products are highly

integrated (as opposed to modularized). As all these indicators change, the industry becomes increasingly specialized and disintegrated. In order to lower costs, the industry will eventually begin to integrate by increasing its competence and willingness to coordinate market transactions through e.g. supply chain management. If a corporation is unwilling or unable to take this step, as Ericsson was, its only option is to withdraw from the traditional supply chain and establish a new business logic in a “parallel” supply chain. In the telecom industry, Ericsson created a new business logic based on design and the licensing of IPRs. In such a case, economies of scale in e.g. R&D can be created despite the corporation becoming more specialized. The result will be a consolidation of core technologies and diversification of brands

Industry maturity does not necessarily lead to industry consolidation; it often leads to disintegration, specialization and eventually industry forkation (spin-off industries are created). As industries mature, intra-industry fragmentation through specialization increases to such degree that it eventually creates several parallel industries (industry forkation) as spin-off industries (e.g. the cellular segment in the telecom industry). According to Porter (1980, p 185), the mainstream view is that industries consolidate as they mature although this may not be supported by empirical evidence. Thus, the industry forkation process is often described in current theory as an intra-industry consolidation process, while in fact one industry forks into several industries, sometimes as parallel industries and sometimes completely detached from each-other. As discussed below, both the industry cases studied in this thesis support this finding as they have developed very similarly.

In the beginning of the 90's telecommunication was considered to be one industry. In fact, the general perception among stock owners and analysts was that telecommunication was a non-industry. For example, on the Stockholm exchange there was no listing of “telecommunication companies” or anything similar. Ericsson was listed among the “engineering/manufacturing” companies, in Swedish, “verkstadsindustri”. The increasing number of cellular subscribers resulted in a market pull for cellular system's equipment because cellular systems became saturated and operators needed to expand coverage and capacity. The increasing number of cellular subscribers also resulted in a market pull for cellular phones. In the mid 90's both operators and suppliers organized their operations in at least two different business units; fixed and mobile. Later some corporations, particularly the operators, created separate companies for their fixed and mobile telecommunication businesses. The telecommunication industry became two; the fixed telecommunication industry, often including systems equipment and services, and the cellular telecommunication industry, often including systems equipment, services and cellular phones. The cellular industry was often measured in the (increasing) number of subscribers and market share in the installed base (in systems) as well as how much of the growth each company could capture. A relatively long product life cycle (PLC) also enabled market share of phones to be measured in “installed base” as new phones were sold mostly to “new” subscribers; few subscribers changed one cellular phone for another.

As the cellular industry matured, the PLC for cellular phones shortened and the increasing number of cellular subscribers stagnated, operators and suppliers focused their attention on the repurchase of phones (e.g. allowing subscribers to “upgrade” their cellular phones with new features) and subscriptions (e.g. allowing cellular subscribers to “upgrade” their subscriptions with new value added services). To support this new strategy, suppliers/operators often reorganized into three business units; cellular equipment/services, fixed equipment/services and cellular phones (including development and manufacturing among suppliers and distribution among operators). Due to the stagnating in the increase in

number of subscribers and to the relatively short PLC, new phones were mostly sold to “old” subscribers as upgrades/replacements or as a complement; “old” subscribers changed one cellular phone for another. Consequently, the “installed base” for cellular phones was no longer good for measuring market share and it became important to measure the number of sold (replacement) phones per year (resulting in no additional subscribers but in existing subscribers that changed to new phones or bought additional phones). The market share for cellular subscriptions and cellular phones was no longer the same. As a result, the cellular industry could no longer be considered to be one industry; it became two; the cellular phone industry (including Sony Ericsson) and the cellular systems and services industry (including Allgon, Ericsson and Telia). Today, the cellular phone industry is developing more and more like the fixed phones industry and is becoming more integrated with consumer electronics (one example is the Sony Ericsson JV). The current trend among new entrants in the (cellular) operator’s segment is to create a fourth industry, which it can dominate. E.g. Hi3G aims to establish itself as the leading “mobile video company”, including not only video communications but also e.g. mobile video broadcasting (including MTV, sports events, etc.).

The same development has been noted in the construction industry. What is often termed the construction industry has in fact developed into several parallel industries, e.g. building construction and civil engineering industries. An erroneous assumption with regard to industry maturity and consolidation among construction companies may lead to failure in attempting to consolidate companies from different industries. One example is Skanska’s acquisition of an equity interest in the cellular operator Orange in order to develop know-how in intelligent buildings.

In conclusion, industry maturity does not necessarily lead to industry consolidation, but may instead lead to disintegration, specialization and eventually industry forkation (spin-off industries are created). Telecommunication has developed from the telecommunication industry through the fixed telecommunication industry and cellular telecommunication industry to the fixed telecommunication industry (fixed systems and services), cellular systems and services industry, and cellular phone industry.

Existing theory often describes industries as a clearly defined linear and sequential process of value adding, i.e. the value chain (e.g. Porter, 1985) or from a blurred and non linear reciprocal process of value creation, i.e. value constellations (Norman, Ramírez, 1994). Implicitly, however, both theories assume that industries, and the division of work, are structured in one of these ways, i.e. a static perspective is applied. From a theoretical perspective it seems reasonable to argue that this descriptive pattern confirms the latter description of value constellations. However, it also shows that there is a dynamic pattern of change from value chains to value constellations, and possibly back again. This proposition is further discussed in Chapter 7, “Industry level propositions and suggestions for future research”.

6.2 Understanding the content of strategic change

As shown in the previous analysis, an understanding of the content of strategic change across value chains incorporates strategic decisions of bundling and unbundling at the corporate and functional level through mergers and acquisitions, outsourcing, systemization and modularization. These decisions are often driven by an industrial as well as a financial logic.

Explanatory pattern no 1: Strategic decisions of bundling and unbundling at the corporate and functional level through mergers and acquisitions, outsourcing, systemization and modularization are guided by an industrial as well as a financial logic (see also “understanding the drivers to strategic change”).

This explanatory pattern is grounded in various empirical examples (refer e.g. to Explanatory patterns 8 and 9). Thus, only one example will be provided here. In general terms the content and rationale for mergers and acquisitions have changed from financial acquisitions, i.e. financial drivers e.g. portfolio management as a result of shareholder requirements to industrial acquisitions, i.e. industrial drivers e.g. creation of synergies, economies of scale. The content and rationale for financial acquisitions have been to gain time and to satisfy the capital market in the short-term. Focus has been on the income statement and growth; increased turn-over and sales. Corporate performance has been measured in absolute terms. The content and rationale for industrial acquisitions have been to gain time and to satisfy the customer market as well as the capital market (in the long-term). Focus has been on e.g. economies of scale/scope. Corporate performance has been measured in relative terms or profitability such as ROA. Empirical evidence is found both in the telecom industry (e.g. Telia, Ericsson) and in the construction industry (e.g. Skanska). Some of the examples found in the corporate cases are acquisitions made to gain access to new capital markets (e.g. Telia), to access competence and new technology particularly during rapid pace of technology development (e.g. Ericsson), satisfy shareholder's demands for growth (e.g. Telia) or to make organic growth strategy visible to shareholders (e.g. Ericsson).

Explanatory pattern no 2: M&As strategy may be used as a strategic brand in order to attract the capital market.

Probably the most surprising finding is that an articulated M&A strategy may be developed as a “strategic brand” in order to make the corporation's current and future businesses (developed through organic growth and internal investments) visible towards outsiders such as the capital market, including institutional investors and shareholders. M&As as a strategic brand may satisfy the capital market's demand for rapid growth into specific business segments. In other words, M&As as a strategic brand, facilitates the communication of the strategic direction of the corporation (rather than actually executing major M&As). In the Ericsson case, the “string of pearls strategy” was launched for such purposes. Previous research has shown that M&As often have a negative effect on R&D intensity at the corporate level and are often a substitute for managerial commitment to innovation (e.g. Hitt, Hoskisson, Ireland, 1990). Ericsson's “string of pearls” shows that there is probably a more subtle relationship between M&As and the intensity of R&D activities as well as between M&As and management's commitment to innovations.

Explanatory pattern no 3: The make or buy decision may be a reactive strategic decision in order to provide added value or to minimize cost, according to a changing competitive environment, e.g. activities that provide added value relative to competitors change, or cost pressure increases.

In contrast to existing theory on the make or buy decision, such decision may be closely related to Porter's (1980) generic strategies. The make or buy decision may be based on providing added value or on minimizing cost. The content and the rationale for the make or buy decision in the telecom industry has changed from being based on increasing value to being based on decreasing cost. Telia's decision to retain installation services was initially based on the rationale that mobile coverage was a source of competitive advantage.

Eventually, the decision to outsource of installation services was based on the rationale that mobile coverage was no longer a source of added value creation, differentiation and competitive advantage. In addition, as price increasingly was becoming a source of competitive advantage, to lower costs became an increasing source of competitive advantage. This development is intimately related to the change in outsourcing manufacturing activities to outsourcing R&D activities. As illustrated by the Telia case, outsourcing may occur as the value of certain activities is eroded and as technology know-how is diffused, making competence for supplying such activities available in the market.

Explanatory pattern no 4: The make or buy decision may be a proactive strategic decision made in order to create a suitable competitive environment in order e.g. to lower costs.

It is worth noting, however, that outsourcing is not only a reactive measure to the changing environment. As mentioned, environmental changes may e.g. drive changes in what activities that provide added value relative competitors and/or increase the cost pressure, and thus reactively drive outsourcing. But as the Telia and Allgon cases show, outsourcing has been a strategic and proactive decision taken in order to create competitive segments in order to eventually, lower costs. An example of this is Telia's use of outsourcing in the installation services segment to newly established companies in such segment.

Explanatory pattern no 5: Outsourcing may be used to avoid the complexity of internationalizing (e.g. in order to lower costs).

Existing theory describes internationalization as either a step-by-step process to increase learning and commitment (e.g. Hammarkvist, Håkansson, Mattsson, 1982; Johanson, Vahlne, 1990) or something carried out through a direct and rapid entry mode such as mergers and acquisitions (e.g. Hennart, Reddy, 1997; Andersson, Johanson, Vahlne, 1997). In contrast to these findings, this research has shown that outsourcing may be used in a step-by-step process in order to avoid the complexity of internationalizing and to lower costs. Ericsson's decision to locate R&D as well as manufacturing activities for cellular systems in Sweden was based on the rationale that competence in mobile technology was available in Sweden and provided a competitive advantage in product features. The outsourcing of manufacturing as well as R&D activities to low wage countries was based on cost minimization. Ericsson's domestic outsourcing to Flextronics and Solecron in Sweden was in part, intended as an international outsourcing to low cost countries such as China. Not only did Ericsson outsource its manufacturing in e.g. Norrköping, it also "outsourced" the troublesome process of moving such manufacturing out of Sweden, including the troublesome process of negotiating with labor unions. Consequently, sourcing has moved from highly skilled labor markets to low cost labor markets as competence has diffused globally. In essence this means that the content of the outsourcing decision in the telecommunication industry, in part, has changed from being based on the core competence of the corporation (e.g. Quinn, Hilmer, 1994) to being based on cost, including transactions costs (e.g. Ellram, Maltz, 1995; Walker, 1988). It also shows, however, that core competencies are not static; the value is relative the core competence of other competitors and consequently changes over time. Thus, the outsourcing decision needs to include an evaluation of the internal context (e.g. internal costs and core competencies), the external context (e.g. transactions costs and competitors core competencies) and how such contexts change over time. With this regard, empirical evidence supports Fill, Visser (2000) in that the outsourcing decision needs to consider contextual factors, strategy and structure as well as costs. It also supports the view that globalization and outsourcing to low wage countries are important driving forces (Deavers, 2001).

The construction industry is similar in this respect and encompasses e.g. the outsourcing of industrial components such as windows among the larger construction companies. Despite the fact that the construction industry has “mobile manufacturing facilities and fixed products”, the construction industry has recently also been able to outsource to low wage countries although this is a recent and “small” phenomenon. Multilateral agreements on free trade and competitive legislation (including liberalization and privatization) have enabled the competence market to move freely across borders and enabled outsourcing (e.g. a local construction company outsourced to a low wage country and workers move to the local construction site).

Explanatory pattern no 6: A new business logic based on competence and intellectual property rights rather than product development, manufacturing and sales may drive outsourcing.

As shown in the Ericsson case, the creation of a new business logic or a major repositioning may be the strongest driving force to outsourcing. By business logic is simply meant the logic that determines the offering’s price carrier. Major outsourcing activities took place as Ericsson moved away from a business logic based on product sales, i.e. mobile phones, towards licensing agreements and IPRs, i.e. the “mobile platform” including “rules”, “tools” and “reference design”.

Explanatory pattern no 7: Added value through systemization and total solutions may be created by expanding the scope of the offer and the time of engagement, i.e. incorporating the customer’s customer into the offer and increasing the engagement in time by adopting the customer’s life cycle perspective.

Increasing the scope of offering has traditionally focused on a solution including hardware, software and services which can be provided to the customer. Empirical evidence indicates that bundling into total solutions such as BOT projects creates real value rather than expected value, the latter often based on e.g. a business case. The expected value referred to here is often pitched by means of a theoretical calculation on the return on investment with regard to the system solution being offered, including the scope of the hardware, software and services. Real value or a stream of revenues is often offered through a combination of hardware, software and services and includes the customer’s customer. Thus, value creation for customers may be interpreted and put into practice in two quite different ways. Value creation for customers may either be interpreted as the expected value, which means that the seller needs to understand what creates value for the customer and to deliver a product or a service that both parties (seller and buyer) expect to generate a certain value, e.g. profit for the buyer. In this case, however, the business risk is the buyer’s since the expected value (i.e. the profit) may not materialize. Value creation in terms of real value, on the other hand, means that the seller not only understands what creates value for the customers, but also that the seller has been able to put such knowledge into practice. In this case however, the business risk is the seller’s since the real value needs to materialize before the actual purchase and sale agreement between buyer and seller occurs. Building constructions provide a good example of real value creation. The price for a building is often below the construction costs unless reputable tenants with long lease contracts are included in the offer for the building. An offer including the building and the customer’s customer (i.e. the long lease contracts) is able to generate a “certain” stream of revenues.

Thus, BOT-projects offers customers added value. BOT-projects imply a partial change in the business logic of suppliers; often the price-carrier changes from hardware and software (e.g. a building or telecom equipment) to a grade of service and actual revenues generated. Examples include BOT-projects offered both by telecom system suppliers such as Ericsson and major construction companies such as Skanska and NCC. In addition, BOT-projects often require building new core competencies. Competence in areas such as risk assessment, operations, and marketing often need to be developed or enhanced.

Risk assessment is vital in order to calculate and offer the right price levels that reflect the (new) risk exposure. As illustrated by the Ericsson case, when they introduced U.S. based Harris equipment for wireless transmission in their system offering, the process of initiating system sales in general, and the implementation of such strategic decision in particular, is very much concerned with a company's ability to assess and manage risk, e.g. risk associated with third parties. The Ericsson case showed that liquidated damages triggered by the equipment supplier Harris could become the responsibility of the system supplier Ericsson. Risk assessment and management is a difficult issue no matter how well coordinated and the agreed division of responsibility between system vendor and equipment sellers. The importance of risk assessment and management in system- and BOT-projects is also found in the construction industry. During 1999, Skanska implemented a model, Operational Risk Assessment (ORA), which assisted managers to identify, quantify, and limit business risks in construction projects in general and in privately financed BOT-projects in particular. The model assisted the analysis of risks connected to the construction portion of the project, as well as an analysis of the risks associated with an ownership role and responsibility for management of the facility. NCC implemented similar procedures between 1998 and 1999.

Increasing the scope of engagement in time often means adopting the customer's life cycle perspective e.g. on costs and revenue streams. Empirical examples for creating value through adopting the customer's life cycle perspective of an investment and increasing the time of engagement can be found in BOT-projects both in the telecom and in the construction industry and is supported by existing theory (e.g. Gadiesh, Gilbert, 1998).

Explanatory pattern no 8: Strategic decisions that change the boundary of the firm and the scope of offering (such as M&As, outsourcing, systemization and modularization) are, over time, interrelated.

M&As, outsourcing and systemization are not entirely independent strategic decisions. Understanding what drives these decisions helps to understand the dynamics in value chains and value creation. In addition, understanding how these decisions affect each-other further helps to understand the dynamics in value chains and value creation. This section discussed the interdependencies between such strategic decisions.

The identified interdependencies between the dynamics in M&As and outsourcing include internal management and capital costs and external transaction costs, the relative importance of profits and profitability, and marketing (or lack of marketing) as a tool for communicating with the capital market (or the creation of market imperfections through lack of information).

This study has shown that over a longer period of time, companies that engage in substantial mergers and acquisitions, sooner or later, engage in substantial outsourcing (e.g. Telia, Ericsson). One explanation is that internal management costs as well as capital costs increase through M&As and eventually such costs exceed the alternative transactions costs. Consequently, management and capital costs are lowered by outsourcing. The relative

importance of bottom line profits in the income statement and profitability (e.g. ROA) in the balance sheet also change the importance of conducting M&As or outsourcing. In this respect, M&As create a heavy balance sheet while outsourcing enables a “lighter” balance sheet.

In addition, this study has shown that in times when the shareholders’ capital exceeds what a company needs for investments in its core businesses for growth, increased competitiveness or any other strategic reason, it is likely that such surplus capital is invested, e.g. through mergers and acquisitions, in unrelated businesses rather than being returned to the shareholders as e.g. dividends (e.g. Skanska). Successful marketing as a tool for communicating with the capital market may have contributed to the allocation of abnormal amounts of capital to certain companies as shareholders do not claim such surplus capital. Nonetheless, the lack of information may also have contributed to this development through the creation of market imperfections and information asymmetries. Shareholders may not have been provided with information regarding how the capital would be used, e.g. to be invested in core business or non-core business. The lack of information implies that shareholders have not been given the opportunity to invest their money directly in the target-company (e.g. SKF in which Skanska had a substantial shareholder interest) of the acquiring company that they in fact invested in (e.g. Skanska). As such market imperfections are corrected divestments or the outsourcing of non-core businesses takes place in order to return such invested capital to the shareholders or in order to be invested in core business. This has been the case in e.g. Skanska. Successful marketing implies that shareholders have been given the opportunity although they have not been willing to invest directly in the target company (e.g. SKF in the Skanska case). The reason could be that some companies have been better at attracting capital through marketing towards the capital market.

Evidence is found in both industry cases that these explanations for the reason why a wave of mergers and acquisitions is followed by substantial outsourcing is closely related to costs, profit and profitability as well as to marketing. It also shows that there is both an industrial and financial logic to such interdependency between M&As and outsourcing. The “do’s and don’ts” in business and particularly among investment agencies and among institutional investors may change (e.g. the relative importance of profitability and ROA in the balance sheet and bottom line profit in the income statement may change). Consequently, the importance of mergers and acquisitions (including vertical integration) and outsourcing (including vertical disintegration) may change.

In both industries, such a development (mergers and acquisitions, and outsourcing) has implied a vertical movement towards the end-users and away from the corporation’s core competence. In addition, it has implied a horizontal movement, sometimes into adjacent industries. As a result, the scope of supply has been broadened.

The identified interdependency between the dynamics in M&As and system sales is primarily the expansion of the scope of supply through M&As. Both industry cases show that M&As have been one way forward to combine (or obtain) competencies and to expand the scope of supply towards systems, functional and total solutions. In addition, customers’ outsourcing has enabled total solutions to be introduced to the market “easier” and faster.

The development of “total solutions” has been easier and faster through customers’ outsourcing because it has been customer driven rather driven by the seller. The result is a shift in the division of work across the value chain. Developing the offering towards total solutions may have great implications for the corporate strategy; it may require corporations to develop core competencies (e.g. systems integration, risk management, marketing, etc.), it

may require to focus on the entire value chain and end-user rather than the immediate supplier and the customer or the customer's customer, and it may require the corporation to change its business model (e.g. price carrier, mode of interaction). As mentioned, Ericsson has become a "virtual bundler" by retaining the responsibility for project management and design; turning competence into design and design into IPRs. Ericsson is now engaging in licensing transactions rather than standard transaction (i.e. sales of cellular phones). Consequently, total solutions may require new performance measures to be developed. With regard to marketing and the mode of interaction, total solutions often imply a change in the tendering and bidding process, i.e. a change from technical specifications to functional specifications in the tendering process and a change from a technical statement of compliance to a functional and financial statement of compliance. This implies a change in the role of marketing, e.g. the responsibility for estimating value for money changes from buyer to seller. It seems that forward integration through M&As has been a common solution for combining or obtaining competencies (rather than backward integration) and for broadening the scope of offering, e.g. telecom and datacom solutions (e.g. Allgon).

The identified interdependencies between the dynamics in outsourcing and system sales are the separation of design and manufacturing that enables the outsourcing of manufacturing (e.g. Allgon and Ericsson), the separation of R&D into research and development that enables the outsourcing of research (e.g. Allgon) or development activities (e.g. Ericsson with regard to mobile phones), and product modularization that enables the outsourcing of manufacturing (e.g. Ericsson with regard to billing systems, voice mail systems, etc. in the AXE) and/or research activities (e.g. Ericsson with regard to the CPs and RPs in the AXE).

The separation of design and manufacturing as well as the separation of R&D into research and development has taken place as corporations have increasingly focused on cost minimization and on increasing immediate revenues. Both the telecommunication companies (e.g. Ericsson, Allgon) and the construction companies (e.g. Skanska, NCC) have shown this. One finding in this respect is that research is based on an inside-out (market creation), long-term strategy. Development, on the other hand, is based on an outside-in (customer/market adaptation). This kind of functional separation is found in both the telecom and in the construction industry. In the construction industry, research and development has traditionally been separated due to the large extent of project organizations; research has been a corporate or SBU function in the line organization and development has been, informally, a function of the project organization. As previously discussed, development activities at the project level has not always been very successful. Title of innovations can be unclear (several companies including the customer are often involved in a project and hence the product development process), innovations are not defined, documented and priced and thus used in other projects without being formally sold. Consequently it is difficult to capitalize on innovations embedded in products that have been developed in project organization. As a result, R&D has been pushed upstream in the value chain, e.g. through outsourcing, to companies such as Södra.

6.3 Understanding the drivers to strategic change

As shown in the previous analysis, an understanding of the drivers of strategic change across the value chain incorporates changes in the scope of target markets, i.e. value creation towards customer, capital and competence markets, interdependencies between strategic decisions at various strategic levels, and industry level drivers, i.e. changes in industry scope the boundary of industries.

Explanatory pattern no 9: Expanded network horizon in value creation, i.e. a strategy that aims, on a global scale, not only to create value for customers in customer markets but also for shareholders in a capital market and for employees, potential employees or consulting or outsourcing partners in a competence market. To do so, corporations may need to re-position themselves in the value chain accordingly and to adapt the boundary of the firm and the scope of offering through mergers and acquisitions, outsourcing, systemization and modularization.

Porter (1980) argues that industry competitors, suppliers, buyers and substitutes drive industry competition and determine the profit potential in an industry. In coping with the five competitive forces, Porter (1980) suggests three generic strategies; cost leadership, differentiation and focus. Value chains and value systems represent the relevant activities for understanding costs as well as the potential sources for differentiation. As such, value activities are the key source of competitive advantage. According to Porter (1985), “creating value for buyers that exceeds the cost of doing so is the goal of any generic strategy” and “value is the amount buyers are willing to pay for what a firm provides them” (Porter, 1985, p 38). Value activities include support activities such as technology development and HR management. Consequently, employees in the competence market are seen as means to create value for customers and not as an end in itself, i.e. a market that need to be attracted by offering some sort of added value. In addition, shareholders in the capital market are not part of the value chain or system (the mean) and not a direct target of firms (the end). Thus, implicitly shareholders cannot create value for the firm and the firm should not target its value creating activities directly towards the shareholders (indirectly through customers, profits and dividends). Empirical evidence in this study shows, however, that firms do target their value creating activities directly towards customers as well as to shareholders (e.g. through activities that drives the stock price) in the capital market and employees in the competence market. The expanded network horizon in value creation reflects the corporation’s aim, on a global scale, at not only creating value for customers in customer markets but also for shareholders in a capital market and employees, potential employees or consulting or outsourcing partners in a competence market.

The rationale for such an expanded network horizon in value creation depends on two important factors. First and foremost, the increasing globalization of customers, capital and competencies (e.g. diffusion of know-how) due to e.g. multilateral free-trade agreements, has increasingly created competitive and global customer, capital and competence markets. Secondly, an industrial logic for value creation is complemented by a financial logic for value creation, i.e. value creation towards customers has been complemented and sometimes even substituted by value creation towards the capital market, e.g. shareholders. In this process it became common to create value towards the competence market by turning employees (including management) into shareholders and offering them financial incentive packages.

In summary, any successful corporation needs to continuously develop three basic core competencies, i.e. to continuously develop its ability to create value towards the customer, capital and competence markets. The means for doing this is to continuously define and redefine boundaries at different strategic levels, in particular the boundary of the corporation and its offering at functional level, through strategic decisions including M&As, outsourcing and systemization and modularization. The continuous process of redefining the boundary of the corporation reflects the corporation’s need to adapt to a changing environment and its ambition to change the environment to suit its purposes, in other words a continuous process of balancing the outside-in and the inside-out perspective of strategy.

6.4 Corporate strategy from a value chain perspective in the future

Considering the descriptive and explanatory patterns found during the 1990's and the early 2000's, what is reasonable to expect during the next decade with regard to corporate strategy from a value chain perspective? The five suggested predictive patterns are based on the descriptive and explanatory patterns found during the 1990's and the early 2000's. The predictive patterns have been developed in an effort to apply our understanding (gained through this thesis) of the underlying structures of corporate strategy from a value chain perspective to its future revelations. Because an idea of the underlying structures can only be developed through logic and thinking, the predictive patterns have been developed by logic applied to the descriptive and explanatory patterns (for more on this way of thinking, see Chapter 3, "On the philosophy of science"). The logic and thinking applied to the descriptive and explanatory patterns for the purpose of developing predictive patterns may be seen as a qualitative deduction of such descriptive and explanatory patterns, something that basically corresponds to what is known as extrapolation in a quantitative study. The predictive patterns deals with strategy, at the industry, corporate and functional levels, and are related to bundling/unbundling (M&As, outsourcing, systemization, modularization), customer, capital and competence markets, as well as industry (value chains in contrast to value constellations) and corporate structures (discrete in contrast to embedded organizations).

Predictive pattern no 1: Corporate strategic planning will become a more difficult and complex task due to an increasing blurriness of industry boundaries.

At the industry level, one should expect an increasing blurriness of industry boundaries over the next years. Thus, in the future, corporations may find it more difficult to define which industry they belong to, which customers they should target, and which competitors they are, or should be, competing with. As a consequence, strategic planning will become more difficult and complex.

Predictive pattern no 2: Competition in systemic industries will increase, particularly from small niche entrants, due to decreasing entry barriers as a result of an increasing degree of modularization.

The reason for the increased blurriness of industry boundaries can be found at the functional level of strategy. As a result of the liberalization of markets and diffusion of know-how and consequently of increasing international competition, economies of scale and scope are likely to drive specialization and an increasing focus on modularized core products or multi-purpose modules that fit into a variety of systemic end products within various industries. As the degree of modularization increases, entry barriers, particularly in systemic industries, will continue to decrease. As a consequence, competition will increase even further, particularly from small niche entrants.

Predictive pattern no 3: Corporations may increasingly be required to re-position in the value chain and to change the boundary of the corporation as well as the scope of offering as corporate strategy increasingly will focus on creating added value not only for customer markets, but also capital as well as competence markets (3C).

The increasing network horizon in strategic value creation is likely to continue to be an important driver for corporate strategy. M&As, outsourcing, systemization and modularization will probably be important strategic tools for re-positioning in the value chain, changing the boundary of the corporation as well as the scope of offering in order to create added value in customer, capital as well as competence markets (3C).

Predictive pattern no 4: The virtual and competence based organization will emerge among corporations that base their strategy on a business model that focus on core products (patents and IPRs) rather than end products.

For some corporations targeting the 3C may lead to the emergence of the virtual organizational structure. The virtual organization will focus on research targeted at developing core products packed as patents and IPRs. Its products will probably be co-branded with manufacturers of end products (e.g. “powered by”). Consequently, the virtual organization will have to compete fiercely for competence; it will attract the capital market through a light balance sheet; and will promote its products through a market push and pull strategy, the former targeted at end product manufacturers (core products that are virtually impossible to imitate because of patents), and the latter targeted at end-users in a co-branding arrangement with manufacturers of end products. This development is beginning to occur among those corporations that are mostly concerned with products but may also begin to be seen among corporations specializing in manufacturing, e.g. developing and licensing manufacturing processes and technology.

Predictive pattern no 5: In contrast to competitive strategies planned and executed within industries, corporate strategy will increasingly include cooperative strategies, i.e. to include cooperation in value constellations between e.g. core and end product developers and manufacturers, and competition between other similar value constellations.

As industry boundaries get blurred, intra-industry competition and market share will lose its importance. Cooperative strategies will develop and include cooperation in value constellations between e.g. core and end product developers and manufacturers, as well as competition between other similar value constellations. The success of each value constellation may be measured such as the share-of-wallet in end user markets, and growth measured as the increase turn-over for a value constellation relative GDP.

7 INDUSTRY LEVEL PROPOSITIONS AND SUGGESTIONS FOR FUTURE RESEARCH



During the writing of this thesis several propositions regarding strategy, primarily at the industry level, came to mind and were developed. This is not surprising since the purpose of this thesis lies in between the corporate and industry level of analysis. Nonetheless, as these propositions did not directly fit into the purpose of this thesis such propositions were not theoretically elaborated. The first sections of this chapter focus on industry level strategy, including cooperation as intra-industry cooperation and inter-industry competition. In addition, the development of competitive value chains into cooperative value constellations is discussed. The propositions may be seen as suggestions for future research and include:

- **Proposition 1:** Competition and competitive forces may be found between industries in value constellations.
- **Proposition 2:** Industries organized in value constellations may be able to compete in global markets for competence, capital and customers.
- **Proposition 3:** Competitive strategies may derive from inter-industry competition, i.e. competition between industries in value constellations, and include global target markets in segments of one.
- **Proposition 4:** Cooperative strategies may derive from intra-industry cooperation, i.e. cooperation within industries in value constellations, and include sharing risk, profits, scope and scale.
- **Proposition 5:** The reciprocity between corporate strategy and industry dynamics may evolve and may change over time according to a complex non-linear process in which cooperative strategies create, and are created by value constellations and competitive strategies create, and are created by value chains.

Some of the propositions above include a discussion about the context of the corporate and functional level of strategy, i.e. on changes at both the industry level as well as the macro level. The discussion at the industry level focuses on intra-industry consolidation (vertical bundling) and inter-industry merger (horizontal bundling) as well as intra-industry fragmentation (vertical unbundling) and inter-industry forkation (horizontal unbundling).

7.1 Propositions regarding industry level competition and strategy

As discussed earlier in this thesis, one perspective of corporate strategy has to do with establishing a corporate position in the “right” industry, e.g. a growing industry. Often, but not always, corporations have an outside-in or industry adaptation perspective on strategy. Establishing a corporate position in the “right” industry can be done through e.g. M&As. It is common for such corporations to define their business as “being in the business of making money”. These corporations are constantly looking for business opportunities in a wide range of different industries in which to invest. In this case, corporate strategy has to do with portfolio management and developing a business portfolio. Nevertheless, establishing a corporate position in the “right” industry can be done through internal development of core capabilities. It is common for corporations to define their business in terms of its core competence. These corporations are constantly looking for business opportunities in a wide range of different industries in which its core capabilities can create additional value. In this case, corporate strategy has to do with core competence and developing its portfolio of core competencies. In the most extreme cases, such corporations develop entirely new core competencies, such as when a rubber boot company became one of the world leading suppliers of telecommunication equipment and services. An entirely different perspective to finding the right industry for investments or for deployment of core capabilities is to create a new industry or to create the right industry conditions, e.g. to create growth in a particular

industry. Often, but not always, corporations have an inside-out or industry creation perspective on strategy. Often these industries are created by corporations developing internal core competencies.

Having an outside-in or industry adaptation perspective on strategy, it seems relevant for corporations to understand when a competitive industry is being created. This seems relevant with regard to finding the right industry to create a position in, either through M&As or through the internal development of core capabilities. On the other hand, having an inside-out or industry creation perspective on strategy, it seems relevant to understand how corporate strategy, at the industry level, may create a competitive industry. Note that “competitive” here relates to the competitiveness of an industry towards other industries. Based on the analysis of the telecom and the construction industry, below are the main indicators that a competitive industry is being created and what corporate strategy needs to consider if the intention is to create a competitive industry. The propositions are developed to some degree by analogy with Porter’s Competitive Strategy (1980) and Competitive Advantage (1985). In contrast to Porter’s intra-industry perspective on strategy (within industries), however, the propositions take an inter-industry perspective (between industries). Thus, competitive forces (Porter, 1980), generic strategies (Porter, 1980, 1985), industry evolution and generic industry environments (Porter, 1980), the industry structure in terms of a value system as well as the ability to identify value activities and the competitive (as well as the cooperative) scope in value systems/chains (Porter, 1985) are issues discussed from an inter-industry perspective.

Proposition 1: Competition and competitive forces may be found between industries in value constellations.

Industries may need to recognize that rivalry also exists between industries. The main competitors may be other industries, and the main threats originate from the collective competitiveness of corporations in other industries, i.e. the competitiveness of other industries. “Collective” here refers to the contribution of individual corporations to the industry’s competitiveness as well as to “industry embedded competitiveness”, i.e. the competitiveness that is created as corporations within an industry interact with each-other. By contrast with Porter (1980) thus, because suppliers and buyers in the vertical dimension, and sometimes even traditional competitors in the horizontal dimension, belong to the same industry or value constellation they are not seen primarily as competitive forces. Thus, in understanding the competitive forces, industry rivalry, i.e. rivalry between industries, may complement corporate rivalry, i.e. rivalry between corporations in the same industry (see Figure 7:1). Corporate rivalry means that corporations from within the same industry compete with each-other. Thus, competition may also have to focus on other industries, i.e. at the industry level, as well as at the corporate level between corporations from within the same industry. Cross industry competition is noted particularly in merging industries (e.g. the telecom and datacom industries). Competition between industries in such cases becomes a matter of creating a dominant design in terms of product, business and process logic. In addition, in merging industries, the underlying logic for creating strategic value and competitive social structures and cost structures in terms of product, business and process logic of competing industries are usually exposed (see Figure 7:1). An example of a social innovation that also represents a low cost substitute is telemeetings. Through telemeetings rather than face-to-face meetings the telecom industry is able to compete with corporations and industries linked to air, train, and auto products and services. Social innovations and low cost substitutes are further discussed under Proposition 4.



Figure 7:1 Inter-industry competitive forces

Proposition 2: Industries organized in value constellations may be able to compete in global markets for competence, capital and customers.

Increasingly all industries compete on a global scale for the “3Cs”, i.e. (compare to Swedberg, 1994):

- competence,
- capital, and
- customers.

The 3Cs are all required for long-term corporate and industry success. Competing for competence refers to attracting human resources that contribute to enhancing existing core competence or creating new core competencies. Competing for capital refers to attracting shareholders and venture capital that contribute to expanding scope/scale as well as spreading risk, and competing for customers refers to attracting end-users and revenues that contribute to generating profits as well as expanding scope/scale (see Figure 7:2).

Because industries seem more stable than corporations in terms of competitiveness (e.g. computer hardware industry has been growing for many years, although it has been dominated by different corporations, e.g. IBM, Apple, Compaq, Dell, etc.), I hypothesize that it is virtually impossible to become a world wide market leader in these three markets at the corporate level over a longer period of time. However it is more likely to be possible at the industry level. Because each market (customer, capital and competence) needs to be targeted differently, corporations within an industry are more or less specialized in attracting one or two different markets, seldom all three. Ericsson has not been successful in attracting end-users. With this regard, however, Sony has been successful with terminal equipment and Telia with telecommunication services. Successful industries are able to share competencies (e.g. formally through training or informally through the interaction between people in, for example, joint R&D projects within the value constellation), venture capital (e.g. formally through equity joint venture or informally by cross ownership between corporations within the value constellation) and profits (e.g. formally through profit sharing or informally through the price mechanism and market transactions within the value constellation). Competence, capital and customers are intimately related in a sense that one usually attracts the other two, i.e. competence attracts customers and capital, customers attract capital and competence, capital attracts competence and customers. Consequently, there is an incentive for corporations to share what they are able to attract the best. As corporations specialize in attracting one particular market (one particular “C”), the ability for one “C” to attract the other two “Cs” develops a reciprocal relationship and an incentive to cooperate, and share “Cs”, among corporations in a value constellation.

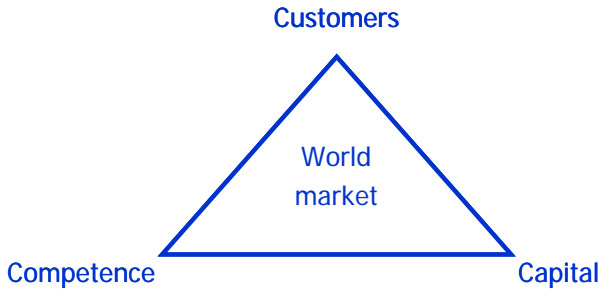


Figure 7:2 Global markets Customers, Capital and Competence

These three markets seem to be unique in that they have their own specific set of economic and social dimensions as well as different intermediaries that corporations need to understand and act upon.

Customers: According to Frenzen, Hirsch and Zerrillo (1994), from a traditional business perspective, customers have been attracted to purchase a certain product or service by a set of product/service features, or characteristics, available per dollar. Such characteristics can be mapped in Lancaster's C-space. The different dimensions in Lancaster's C-space represent how much of a certain feature is offered per dollar. Consequently the proximity in this space indicates the degree that products/services share common characteristics, serve as substitutes and compete with each other.

The D-space, initially developed by Blau in 1977 and further elaborated by Blau and Schwartz in 1984 (Frenzen, Hirsch and Zerrillo, 1994), on the other hand indicates social actors' demographics. Proximity in D-space indicates the homophily in terms of buyer demographics and brand preference, density of social ties or structurally equivalent positions in a network, the incidence of contacts and therefore the likely speed consumer habits, preferences and ideas diffuse through the population. In other words, proximity in D-space indicates increased *probability* that actors share social ties and the frequency and scope of social exchange as well as the *desire* to interact. Consequently the D-space establishes a multidimensional link between actor characteristics and social structure (Frenzen, Hirsch and Zerrillo, 1994). Mapping the D-space allows not only research into existing communities but also into communities that are likely to emerge in the future as its actors have a desire to interact. According to Frenzen, Hirsch and Zerrillo (1994), Veblen (1953) found that products and services can serve as markers for social class distinction. Social classes have strong demographic correlates, so a link can be established between distinctions among products and services in C-space and distinctions among social actors in D-space. Thus, combining the C- and D-space allows the combination of a business perspective on sociology as well as a sociological perspective on business, and consequently a more solid theory of networks, because it illustrates the embeddedness of business in general and the customer market in particular in a social setting.

Two dimensions are suggested for understanding the perception of value and for successfully competing (by means of creating value) in the market for customers, (i) value perception and creation in terms of product/service features (C-space) and (ii) value perception and creation in terms of actor characteristics and social structure (D-space). Both dimensions are potentially rational, the former based on economic rationality and the latter on social rationality.

Potential intermediaries between the corporation and the market for customers are marketing, advertising, logistics firms, etc. These firms have traditionally been considered exogenous to the business network. However, in a network setting, these actors also need to be considered, particularly since the introduction of outsourcing solutions, e.g. third-party logistics and brand management.

Capital: The uniqueness of the capital market is that, unlike other transacted resources, firms exchange capital for itself (Mizruchi, Stearns, 1994). An economic perspective on capital, and money in particular, has been quite well elaborated. From this perspective the capital market has enabled greater specialization, and consequently greater efficiency, and lower transaction costs. As money has no “use value”, only “exchange value”, there is also a sociological dimension to money. Members of an exchange community need to agree and believe that money in fact has an exchange value, i.e. that money will be readily acceptable for products and services. In addition, the members of an exchange community need to trust that others will honor the agreement (Mizruchi, Stearns, 1994). Inflation in general and panics in particular, are examples of exchange communities losing faith in money and in capital (e.g. stocks). Hence, corporations need to understand the social dimension of value creation towards the capital market, e.g. stockholders. Thus, combining both perspectives allows the combination of a business perspective on sociology as well as a sociological perspective on business, and consequently a more solid theory of networks because it illustrates the embeddedness of business in general and the capital market in particular in a social setting.

Two dimensions are suggested for understanding the perception of value and for successfully competing (by means of creating value) in the market for capital, (i) value perception and creation in terms of economic efficiency and (ii) value perception and creation in terms of socially constructed exchange value. Both dimensions are potentially rational, the former based on economic rationality and the latter on social rationality.

Potential intermediaries between the corporation and the market for capital are central banks, private banks (e.g. commercial banks, savings and loans associations, investment banks) as well as insurance companies (e.g. life insurance companies), credit unions, private pension funds, finance companies, real estate investment trusts, investment companies, etc (Mizruchi, Stearns, 1994). These firms have traditionally been considered exogenous to the business network. However, in a network setting these actors also need to be considered, particularly since the separation of ownership and control (sometimes termed “managerial capitalism”, “corporate governance”, etc.) and the increased complexity of financing through retained earnings, borrowing, or equity.

Competence: The uniqueness of the market for competence and labor is its direct, although seldom explicitly discussed, relationship with ethical and moral values, because it involves humans. From an economic perspective, one could argue that the labor market is like any other market, i.e. it is created by supply and demand, and commanded by the price mechanism as illustrated by Marshall’s G-space, i.e. goods-space. Assuming perfect markets, the G-space depicts the market price when the demand and supply curves intersect (Frenzen, Hirsch and Zerrillo, 1994). Nonetheless, ethical and moral values have a strong influence on the labor market, and those are often, not to say always, socially defined. In contemporary western societies for instance, labor markets including direct trading of people, or parts of people (e.g. selling and purchasing kidneys), is generally not accepted. However, trade with products produced in developing countries under “slavery-like” conditions exists in western societies and trade with human genes is or may become accepted under certain regulations. The “right”

or wrong” of these markets is socially constructed and based on e.g. moral values. Other important social dimensions of the market for competence is the development of people increasingly describing, and even defining, themselves in occupational terms (different occupations may or may not provide status) as well as the creation of “professions” through which workers “collaborating with governmental authorities, exercise collective control not only over employment but also over dispensation and consumption of a whole class of goods and services” (Tilly, Tilly, 1994, p 289). These developments may be triggered both by a sociologically as well as an economically (from the perspective of the “profession” in the latter case) constructed rationality. With reference to Miller (1988), Tilly and Tilly (1994) argue that employment changes people and that people change their employment reciprocally. This has not only to do with economic rewards; routines and social relations built into jobs alter knowledge, skill and personal style. Of course there are countless other examples. The examples above serve only to illustrate that western society relies on both economic as well as social rationality in order to explain the creation and existence, as well as the functioning and control, of the markets for labor and competence. The issue here is not if certain labor and service markets should be accepted or not. There is in fact no one single objective criterion for judging the functioning of the competence or labor markets, but at least two, sometimes conflicting ones; one from an economically rational perspective and the other from a socially rational perspective. Not surprisingly, and in more general terms, the concept of a “moral economy” was developed in 1971 by Thompson (Granovetter, 1994). Clearly, more research is needed in the field of “moral economy”, particularly in specific markets such as the market for labor and competence. Thus, combining the both perspectives discussed above allows the combination of a business perspective on sociology as well as a sociological perspective on business, and consequently a more solid theory of networks, because it illustrates the embeddedness of business in general and competence and labor markets in particular in a social setting.

Two dimensions are suggested for understanding the perception of value and for successfully competing (by means of creating value) in the market for competence and labor, (i) value perception and creation in terms of economic rationality, e.g. by offering competitive remuneration packages and (ii) value perception and creation in terms of socially constructed values, e.g. based on corporate citizenship, socially valued employment opportunities, etc. Both dimensions are potentially rational, the former based on economic rationality and the latter on social rationality.

Potential intermediaries between the corporation and the market for competence are employment agencies, school placement offices, head-hunters, etc. (Tilly and Tilly 1994). These firms have traditionally been considered exogenous to the business network. However, in a network setting these actors also need to be considered, particularly since corporations increasingly turn to external (those who hold an employment in other firms or are unemployed) rather than internal (those who hold an employment in the same firm) markets for labor and competence (Tilly and Tilly, 1994).

An addition to customers, capital and competence, two indicators closely related to the social dimension of economics and business are relevant for understanding the creation of, or adaptation to, markets (i) the legal frame and regulations and (ii) advances in research, including technology as well as research within the fields of economics, business, sociology, psychology, etc.

Legal system and the functioning of economic systems in networks: The sociological dimension of the legal system is closely related to what is perceived as a “fair legal system”,

one that members of society understand and support. Most people in western society understand and support the idea that killing a fellow member of society is illegal. Most have such an understanding because of a common socially constructed culture; few, however, have read law. Ironically however, several studies show the simultaneous need for regulation and the problems it creates (Mizruchi, Stearns, 1994).

Research and the functioning of economic systems in networks: With regard to research, social sciences differ from natural sciences in one very specific way; the results of research *alone* have the potential to create major changes in the research object and its behavior, provided the results are generally accepted. E.g. business theories may potentially have major effects on how business is conducted, and vice versa, provided the theoretical evidence is generally accepted among practitioners or the empirical evidence is generally accepted by researchers. It seems difficult to argue that theories *alone* can affect the “behavior” of atoms or the universe or our fauna and flora.

To summarize, I hypothesize that from a network perspective (all) industries compete in three distinct markets, Customers, Capital and Competence. I further hypothesize that being able to explain the creation and existence as well as the function and control of these markets, both from an economic as well as a sociological perspective, will create successful corporations in successful industries (see Figure 7:3). As briefly mentioned, successful corporate strategy builds on creating value in all the three markets. Nonetheless, because, all industries compete for the same customers, capital, and competence, corporate level strategy needs to focus on creating competitive industries, i.e. to focus on the industry level of strategy. Networks and corporate strategy will be further discussed in the next section.

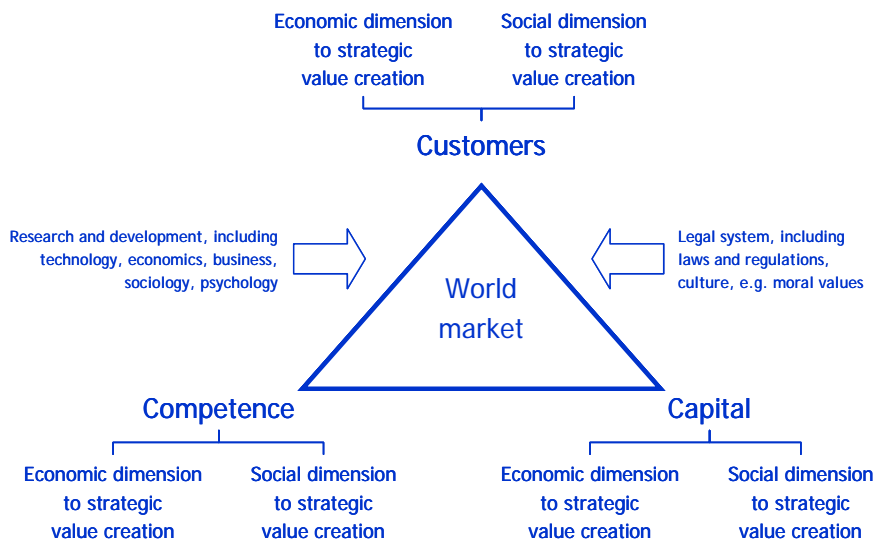


Figure 7:3 Economic and social dimension to value creation in global markets

The economic dimension and the social dimension to strategic value creation are summarized in Table 7:1 below.

Table 7:1 Economic and social dimensions of economic and social value creation

Dimension	Economic value creation	Social value creation
Basis of rationality of value	Based on economic rationality	Based on social rationality
Objective value/subjective value	Objective value, easily measured	Subjective value, not easily measured
Content of value and its relationship to process and context	Content of value less sensitive to the process and context	Content of value more sensitive to the process and context
Value transfer/value creation	Value transfer in competition, e.g. transfer of risk (win-lose)	Value creation in cooperation (win-win)
Delivered value/expected value	Delivered value	Expected value

The main issues discussed next concern how industries in value constellations, or networks, compete, i.e. generic strategies in value constellations, drivers for creating industries in value constellations, and performance measures for industries in value constellations. The discussion is based on the theoretical discussions above as well as on the empirical observations from the telecommunication and construction industry.

Proposition 3: Competitive strategies may derive from inter-industry competition, i.e. competition between industries in value constellations, and include global target markets in segments of one.

The generic strategies developed by Porter (1980) focus on “outperforming other firms in an industry” (Porter, 1980, p 35). By definition, none of the generic strategies “differentiation”, “overall cost leadership” and “focus” can be pursued at an inter-industry-wide level (i.e. between industries). It seems that, however, at the inter-industry level, industries are able to develop a common industry strategy to outperform other industries.

Competition between industries does not allow for “differentiation” in any meaningful way because it is a matter of entirely different products/services, i.e. a large distance in Lancaster’s C-space. Nonetheless, industries may still create what the customer or end-user perceives as uniqueness, a uniqueness that has more value than other entirely different products/services and consequently, that end-users are prepared to prioritize over such products/services. Customers do prioritize between e.g. telecommunication services and other entirely different products/services. Between 1994 and 2001, end-users in Sweden increased their spending in fixed and cellular telecommunications by 27% in terms of industry turn-over/GNP (1.5% of GNP in 1994 and 1.9% of GNP in 2001). Competition between industries based on creating a unique value vis-à-vis the value created by other industries, or value constellation, is a matter of creating social innovations as well as technological innovations, e.g. for people to value telemeetings more highly than face-to-face meetings, thereby increasing their total spending on telecommunication services rather than on air, train, auto, etc products or services. Social innovations usually require product innovation for developing an enabling technology (e.g. the development of broadband access, transport and switching networks allowing for videoconferences). In addition, social innovations require education, through marketing towards end-users, in order for them to adopt new ways of socializing. The Ericsson slogan “it’s about communication between people, the rest is technology” clearly focuses on the social rather than on the technological dimension of innovation. It seems, however, that competition between industries may allow for a “low cost position” similar to the generic strategy termed as “overall cost leadership”. The low cost strategy will, however, only be realized through low cost substitutes. This means that the low cost products or services from

one industry are able substitute the products or services from another industry (see Figure 7:4).

These two strategies, based on the uniqueness perceived by the customer or the low cost position, need to be pursued at the global level in competition with virtually all other industries within “segments of one”, i.e. with tailor-made products and services to fit individual end-user preferences (see performance measures in value constellations). As opposed to finding traditional market segments by finding similarities among customers in a process of aggregation, segments of one, and one-to-one marketing, means finding the differences among customers in a process of disaggregation (Feurst, 1999). Examples of global competition in segments of one can be found in the telecommunications industry both in the operator and the turn-key supplier segments. Corporations in the telecom industry have increasingly targeted more and smaller segments; from high-end (e.g. Ericsson and Europolitan) OR low-end users (e.g. Tele2) in developed countries/regions during the period 1990-1995, through high-end AND low-end users (e.g. Ericsson, Europolitan and Tele2) in developed/developing countries/regions during the period 1996-2000, to competing on a global scale (developed/developing/underdeveloped countries/regions) in segments of one during the period 2001 and onwards. Ericsson and Nokia are competing on a global scale in “segments of one” through the creation of a technological platform to suit virtually all cellular phones (i.e. Ericsson Mobile Platform) and by allowing end-users to order over the internet tailor-made cellular phones according to their individual and personal design (i.e. Nokia). “Mega operators”, (e.g. the merger between Telia/Sonera, Vodafone/Europolitan/Airtouch, etc.) are competing in “segments of one” by creating and allowing end-users to order tailor-made cellular services over the internet (e.g. Telia/Sonera). This development has been enabled by developing manufacturing and communications technology, i.e. the internet and different internet applications.

Strategic Target	Strategic Advantage	Uniqueness Perceived by the end-user	Low Cost Position
	World target across industries	Market share through social innovation, (e.g. telemeetings vs. face-to-face meetings)	Market share through low cost substitutes (e.g. mobile platform vs. air, train, auto products/services)
Segment of one	Share of wallet through tailor-made products and services (e.g. phones and telecom services)	Share of wallet through low cost substitutes (e.g. phones and telecom services)	

Figure 7:4 Generic strategies in value constellations

Proposition 4: Cooperative strategies may derive from intra-industry cooperation, i.e. cooperation within industries in value constellations, and include sharing risk, profits, scope and scale.

As corporations become more specialized (i.e. through unbundling, modularization and the outsourcing of components from products and the outsourcing of functions from corporations) and because industries increasingly deliver total solutions to end-users (i.e. through bundling

products and services into systems), it becomes increasingly important for industries to cooperate in value constellations, thereby coordinating the value and supply chain activities that are increasingly sourced through market transactions rather than carried-out in hierarchies. Cooperation may be formally or informally arranged. Informal cooperative arrangements are often based on social relations and trust. Formal cooperative arrangements, on the other hand, do not produce trust but are rather a substitute for trust. As long as formal cooperative arrangements are mistakenly assumed to create trust, there is a great risk of damage should one party behave opportunistically. The more complete the trust (possibly through formal arrangements) the greater the gain from opportunistic behavior (Granovetter, 1985). Consequently, both types of cooperative arrangements are important, however, neither is able to safeguard against opportunistic behavior. It seems that the benefits of formal cooperative arrangements are related to whether (or not) corporations are able to successfully cooperate in various functions in order to attract and develop the markets for customers, competence and capital. Intra-industry cooperation in order to attract and develop the markets for customers, competence and capital is discussed next.

- **Cooperating in attracting/developing customers:** Cooperation in industrial value constellations has successfully been carried-out in e.g. marketing, through co-branding (Ericsson and GE), market intelligence (e.g. Telia and KPN and SwissCom), etc. All of the above contribute to attracting and developing customers within the value constellation. In addition, cooperation allows for risk sharing, profit sharing and economies of scale/scope (see below).
- **Cooperating in attracting/developing competence:** Cooperation in industrial value constellations has successfully been carried-out in e.g. joint R&D projects (e.g. between Ericsson and Telia in the development of the AXE), standardization organizations (e.g. the GSM Association) and through, what I term, a “patent pooling mechanism”, through which patents are put to the disposal of every member of a value constellation (e.g. the Special Interest Group). All of the above contribute to attracting and developing competence within the value constellation. In addition, cooperation allows for risk sharing, profit sharing and economies of scale/scope (see below).
- **Cooperating in attracting capital:** Cooperation in industrial value constellations has successfully been carried-out in e.g. equity joint ventures and by encouraging industry-wide financing and venture capital e.g. through industry funds and lobbying activities towards governments. All of the above contribute to attracting and developing venture capital within the value constellation. In addition, cooperation allows for risk sharing, profit sharing and economies of scale/scope (see below).

In addition, there are areas for cooperation that encompass all three of the above. These areas for cooperation have primarily to do with creating incentives for corporations in value constellations to participate in an industry-wide cooperation. As mentioned earlier, there is an embedded logic for corporations to cooperate as the “3Cs” attract each-other. Additional incentives may however be created through a common understanding as to how cooperation can be carried-out through (see Figure 7:5):

- Sharing risks
- Sharing profits
- Sharing economies of scale/scope

Cooperation in e.g. R&D, manufacturing and marketing allows for “risk sharing” in value constellations. This is particularly important as technological and market uncertainties increases. The former provided the rationale for the cooperation between Ericsson and Harris in the development and the deployment of cellular systems and the latter can be illustrated by the cooperation between Telia and KPN and SwissCom with regard to market intelligence.

In a sense, “profit sharing” across value constellations has always existed. End-user revenues have been distributed across the value chain according to a well established business logic, one in which the distribution of revenues has been based on the price mechanism and the power position of the different actors across the value chain (suppliers and customers are seen as competitive forces). If, however, industries increasingly engaged in competition with other industries, it would be fair to think that their main concern would be to generate reasonable profits across the value constellations so that R&D and marketing activities for example are carried-out for the benefit of the value constellation as a whole. The distribution of revenues is based on the value creation capabilities, from an end-user perspective, rather than on the price mechanism and the power position of different actors in the value chain, i.e. suppliers and customers are cooperative forces. Formal or informal cooperation needs to be created for “profit sharing”.

Cooperation in e.g. R&D, manufacturing and marketing allows for sharing economies of scale/scope in value constellations. With regard to R&D, the development of cross industry components that several industries and corporations are able to include in their offering, such as Bluetooth, has shown to contribute to economies of scale. In 1998, the consortium Bluetooth Special Interest Group (SIG) consisting of Ericsson Components, IBM, Intel, Nokia and Toshiba was formed to support Bluetooth. The specifications were open, and by the end of 1998 some 400 companies in the telecom and datacom industries had joined SIG. By 1998, Bluetooth had become the global standard for radio communications between different devices over short distances. In addition, the development of cross industry and multi purpose manufacturing facilities both vertically and horizontally has shown to contribute to economies of scale. One example is the cooperation in manufacturing and network operations between Flextronics and Ericsson as well as between Flextronics and Telia. Another example is the cooperation between Telia and Tele2 for their 3G network roll-out in Sweden. By cooperating in network deployment and network operations, Telia and Tele2 were able to share investments costs as well as operational costs in their “manufacturing facility”, i.e. costs related to the 3G network.

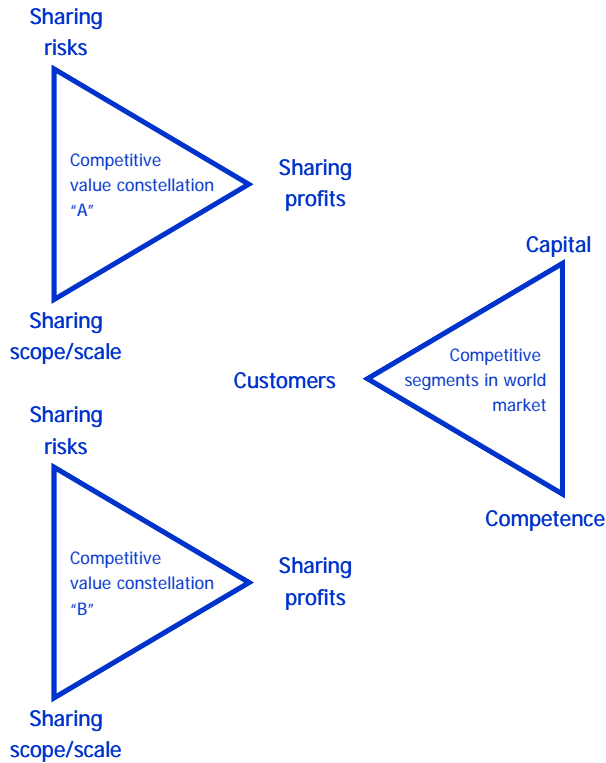


Figure 7:5 Value constellations in competition for customers, capital and competence

Drivers for creating industries in value constellations: As mentioned earlier, the main drivers for creating industries in value constellations are the increased competition between industries (external forces) and the increased specialization/division of work and cooperation within industries, i.e. the increased number of activities within value and supply chains that are sourced through market transactions (internal forces). Nonetheless, governments play an important role (external forces). As markets are liberalized and privatized, it seems that market transactions increase. However, in liberalized and privatized markets, regulations tend to increase (Mizuchi, Stearns, 1994). Regulations may hinder cooperation in a value constellation because such cooperation may be perceived as an illegal form of cooperation, e.g. a cartel, or similar. Successful value constellations are able to cooperate with governments in order to attract capital (e.g. through development funds), competence (e.g. through cooperation with universities) etc. as well as to create a legal framework that allows for the creation of value constellations. In this respect industries compete for government attention.

Performance measures for industries in value constellations: Because industries in value constellations may see themselves primarily to be competing with other industries, “market share” and “share of wallet” are equally important performance measures. Market share refers to the number of potential end-users that have actually selected the products/services of the industry (on a global level), and “share of wallet” refers to how much of the disposable income that each individual spends on the industry’s products/services (on an individual

level). In Sweden, Hi3G claim that their focus is on the “share of wallet”. This is because they see their main competitors being within other industries than the telecommunications industry, such as the entertainment industry. In addition, growth could be measured as industry growth in relationship to economic growth in countries, regions or globally. If industry growth is higher than GDP growth (e.g. in Sweden) it means that the industry is capturing market shares and the share of wallet from other industries in Sweden.

A final conclusion is that a successful strategy probably needs to be planned and executed at a level above the industries, as well as at industry, corporate, functional and individual level. From a theoretical perspective, these levels can be integrated into the analysis of networks or value constellations.

Who or what will drive the creation of value constellations: There will probably not be one single company that will drive the creation of value constellations. Rather it will be a matter of agreement between different logics across the “value chain” meeting and blending successfully. The product logic, primarily driven by corporations upstream in the value chain originates from an inside-out technology driven culture. This logic will be driven by design (e.g. the Ericsson Mobile Platform) that develops the enabling technology for social innovations. The business logic primarily driven by corporations down-stream the value chain originates from an outside-in market/marketing driven culture. This logic will be driven by marketing and branding that develops end-users that adopt new ways of “socializing”.

7.2 Propositions regarding corporate level strategy and industry dynamics

Because it has been concluded that there exists a reciprocal relationship between corporate strategy and industry dynamics, strategic planning needs, at least, to consider how the internal context affects the external context and vice versa (i.e. the *reciprocity* between both) and how the reciprocity between the internal and the external context will change over time (i.e. the *dynamics* of corporate strategy and industry structure). Consequently, strategic planning needs to have both an inside-out as well as an outside-in perspective on strategy. In practice, this means that a tool such as the SWOT-analysis needs to consider how *internal strengths and weaknesses* are reciprocally related to *external opportunities and threats*, i.e. how internal strengths and weaknesses create external opportunities and threats as well as how external opportunities and threats create internal strengths and weaknesses. In addition, strategic planning needs to be dynamic, i.e. it needs to have a time perspective and be considered as an ongoing process. In other words, the SWOT-analysis needs to consider how strengths and weaknesses are related over time to opportunities and threats, i.e. how *today's strengths and weaknesses* create *tomorrow's opportunities and threats* and vice versa, i.e. how today's opportunities and threats create tomorrow's strengths and weaknesses. The empirical cases have shown that strengths not only develop into opportunities, but also into threats. From the Ericsson case we learned that Ericsson's strengths in R&D directed towards radio communications, developed into a great business opportunity in cellular systems (based on GSM, AMPS, D-AMPS as well as other radio standards). However, we also learned that Ericsson's strengths in developing tailor made radio systems close to their customers turned out to be extremely costly through decentralized R&D and manufacturing and because Ericsson did not charge for development work directed at customer adaptations, as this was seen as cost of sales.

Because of the *dynamics* of corporate strategy and industry structure, *timing* is essential. Timing refers to making the right strategic decision at the right time. No strategic decision is in itself right or wrong; it depends on when the decisions is made and under what contextual circumstances. Timing has to do with aligning the content of corporate strategy to its context

in general and the industry evolution in particular, and being able to continuously correct any mismatch over time. This seems to be valid both in corporations with an inside-out as well as an outside-in perspective. In its essence, timing means to make the right strategic decision at the right time. Two things seem to affect whether this is possible; the ability to predict industry and organizational developments. The former seem to be important in corporations with an outside-in perspective and the latter in corporations with an inside-out perspective. In the former case (i.e. the outside-in perspective), it seems that the time lag between changes in the corporate context and the measures taken to change and align the content of corporate strategy accordingly is an important factor to be able to evaluate. Similarly, in the latter case (i.e. the inside-out perspective) it seems that the time lag between strategic decision and strategic implementation and the impact such may have on the corporate context is an important factor to be able to evaluate. In both cases, however, it seems that the time lag between strategic decision and strategic implementation and the adoption of the new strategy by the members of the corporation is an important factor to be able to evaluate. Several cases support these conclusions, e.g. Ericsson in explaining that there is an unexpected discrepancy between the planned strategy and the realized strategy not only in content but also in time (e.g. Kurt Hellström, CEO Ericsson; Sven-Christer Nilsson, CEO Ericsson, 1998-1999).

Proposition 5: The reciprocity between corporate strategy and industry dynamics may evolve and may change over time according to a complex non-linear process in which cooperative strategies create, and are created by value constellations and competitive strategies create, and are created by value chains.

With regard to the dynamic relationship between corporate strategy (indicator) and industry structure (effect), the conclusion is that corporate strategy contributes to creating an industry structure that leans towards a competitive value chain. On the other hand, a cooperative strategy (at the industry level) contributes to creating an industry structure that leans towards a cooperative value constellation. The relationship of finality (indicator-effect rather than cause-effect in a causal relationship), indicates that there are other important components/indicators in creating one or the other industry structure. As mentioned earlier, other corporations' strategy within the industry/system may be equally important as well as government regulations external to the industry/system. So far, however, the discussion has been static. The dynamic relationship between corporate strategy and industry structure indicates that, over time, corporate strategy and consequently, industry structure, does not evolve in one single direction, i.e. towards competitive strategy/competitive value chain or cooperative strategy/cooperative value constellations. Instead, corporate strategy and industry structure tend to evolve in cyclical spirals (see Figure 7:6). Both the telecom industry and the construction industry are developing towards value constellations as major industry players have adopted a cooperative strategy at the industry level. It is reasonable to assume that industries that do not generate profits as they are being established will usually take off through cooperative arrangements, not the least in order to capture venture capital. Thus, such industries may take off as cooperative value constellations. On the other hand, industries that generate profits as they are being established may take off as competitive value chains. The above, however, will depend very much on the time perspective that one adopts, e.g. how one should define the period during which an industry is being established.

Inter-industry as well as intra-industry competition seem to exist at all times. However, as long as inter-industry competition is not evident, corporations will focus on intra-industry competition. Competitive corporate strategy will be developed and executed in order to compete effectively with intra-industry competitors, suppliers, and customers. However, often only when an industry is challenged by another industry (e.g. when inter-industry merger

becomes evident) will corporations focus on inter-industry competition. Cooperative corporate strategy will be developed and executed in order to compete effectively with inter-industry competitors, suppliers, and customers. The Figure 7:6 below tries to illustrate how, over time, corporate strategy (in terms of competitive and cooperative) and industry structure (in terms of value chain and value constellation) may develop over time. A cooperative strategy will create and is created by an industry structured that is based on reciprocal relationships as in a value constellation. Over time, as strategy becomes more competitive and less cooperative, the industry structure moves from a value constellation type of structure towards a value chain type of structure. Because reciprocity between strategy and industry structure is suggested, it may also be that as the industry structure moves in this direction, the corporate strategy becomes more competitive and less cooperative. In essence, it is suggested that cooperative strategies mean cooperation in targeting the customer, competence and capital markets in competition with other industries or value constellations. In addition, it is suggested that lower risk, higher economies of scale and scope and higher industry profitability drives the creation of cooperative strategies in value constellations. Some corporations, however, may believe that they can increase their corporate profits by moving towards a more competitive strategy. Thus, despite the fact that overall industry profitability may decrease by moving towards a more competitive strategy and towards a value chain type of structure, some corporations may move in this direction in order to increase corporate profits.

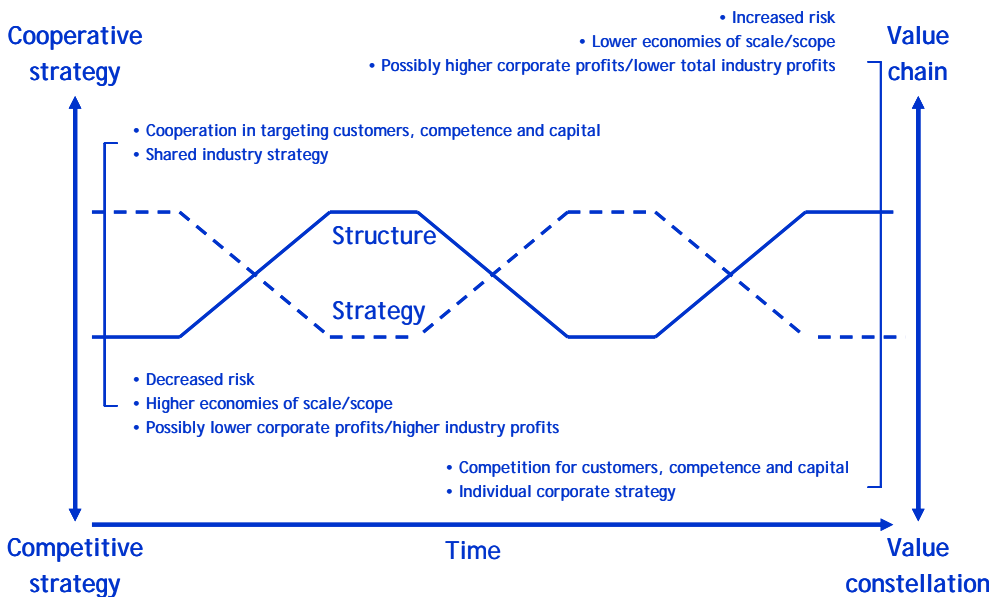


Figure 7:6 Dynamics of corporate strategy (competitive/cooperative) and industry structure (value chain/value constellation) according to a complex non-linear pattern of change in corporate strategy and industry dynamics

In perfect markets, i.e. in industries where corporate performance is related to value creation (that is to say, in markets where information asymmetries do not exist and can not increase bargaining power), the industry and the corporations (on average) within it will benefit from cooperating in for example value constellations. Cooperation (as opposed to competition) will generally generate a better performance at corporate (on average) and industry level and industries will develop towards cooperative (intra-industry) value constellations. However, in imperfect markets, i.e. in industries where corporate performance is not perfectly related to

value creation, e.g. in industries where abnormal corporate profits are created in comparison with corporate value creation, some corporations may benefit from competition within the industry. Competition (as opposed to cooperation) will generate a better performance for some corporations (in the short-term) while there will be a poorer performance at the industry level (average corporate performance and industry performance will be lower). Competition and abnormal performance and profits are thus related to e.g. opportunistic behavior and bargaining power. In the latter case of imperfect markets, industries will develop towards competitive (intra-industry) value chains. The dynamics of corporate strategy and industry structure as discussed above is illustrated in Figure 7:7.

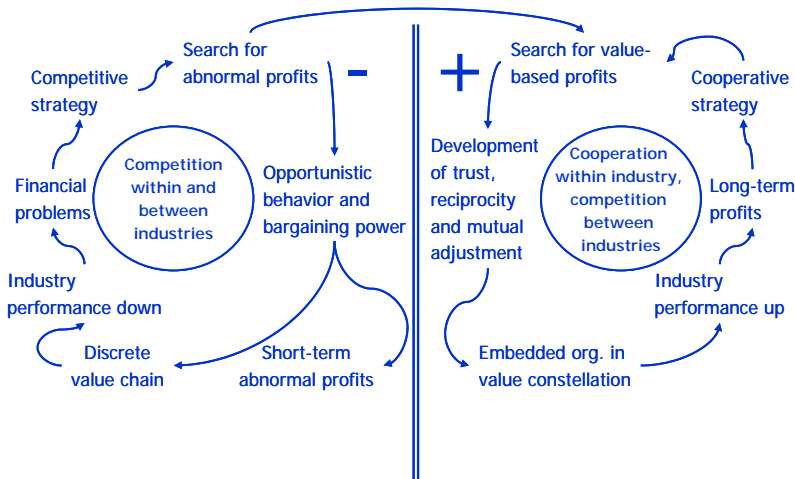


Figure 7:7 Dynamics of corporate strategy (competitive/cooperative) and industry structure (value chain/value constellation) according to a complex non-linear pattern of change in corporate strategy and industry dynamics

With regard to the change processes of corporate strategy, industry dynamics (i.e. the change process of industry structure) as well as the reciprocity between corporate strategy and industry dynamics in both industry cases (i.e. telecom and construction industries) show that the pattern of change is best described and understood by using a complex non-linear approach, in other words by combining and using theories within the life cycle, dialectic, evolutionary and teleological perspectives of change. The complex nature of change requires all of the above perspectives to be considered to some degree. The four different perspectives complement rather than substitute each-other. The complex non-linear perspective on change strongly relates to having a systems perspective and to considering the relationships of multifinality and equifinality among indicators/drivers of change as well as considering the reciprocity and non-linear relationship between drivers and outcomes (i.e. a driver produces an outcome; turning the outcome to a second degree driver to the initial driver, etc.); the operation of different change processes “at a given time are a function (at least in part) of the same process at an earlier time” (Garud, Van de Ven, 2000, p 26 with reference to Koput, 1992). As will be discussed, according to Garud and Van de Ven (2000), the complex non-linear dynamics perspective on change contributes to explaining change in such a way that it (i) acknowledges the embeddedness and the connections between economic and social agents (as well as economic and social rationality), (ii) explores temporal interconnections between processes, (iii) provides a role in explaining context and action, i.e. actions occur and unfold within an overall landscape that represents the residuals of prior actions and actions are embedded in the structures that they generate, (iv) is holistic rather than linear, i.e. it

acknowledges the systems perspective, and institutionalized rules and routines accumulated over time, and (v) links process analysis to the location and explanation of outcomes, i.e. it acknowledge that the actual process and the outcomes of such process are not easily separated (“strategy as bricolage”) just like the process of building, construction or work (i.e. verbs) cannot be separated from the finished products it creates, i.e. the building, construction or work (i.e. substantives).

Life cycle change in the telecom and in the construction industry: The processes of corporate strategy, industry dynamics (i.e. the change process of industry structure) as well as the reciprocity between corporate strategy and industry dynamics in the telecommunication and construction industries show patterns of change which follow the life cycle perspective. The change process can, thus, in part, be described from a life cycle perspective.

The industry cases show that change is immanent and that there is an underlying logic, program and code based on an economic as well as on a socially constructed rationality. From an economic perspective, the logic, program or code are often perceived as rational and “objective truths”. These are manifested in e.g. societal institutions (including government institutions such as KKV and private institutions, such as the concept of corporations, ABs in Sweden or PLCs in the UK), legislation (e.g. competitive legislation), and economic systems (e.g. based on free trade). From a sociological perspective, the logic, program or code are often perceived as irrational, “subjective truths”. These are manifested in e.g. cultures and codes of conduct at the societal, industry (e.g. the concept of “industry recipe”), corporate, and project levels. Irrational, “subjective truths” can however become driving forces as long as these are shared by a large enough group of people and the irrationality is analyzed “within the group”, thereby becoming rational “objective truths”.

Dialectic change in the telecom and in the construction industry: The processes of corporate strategy, industry dynamics (i.e. the change process of industry structure) as well as the reciprocity between corporate strategy and industry dynamics in the telecommunication and construction industries show patterns of change which follow the dialectic perspective. The change process can, thus, in part, be described from a dialectic perspective.

The dialectic perspective on change assumes that forces in a pluralistic world, internal or external to the developing unit, compete for domination and control. The different forces represent contradictory values. As the ruling force (the thesis) is challenged by an emergent force (the antithesis), a new ruling force emerge (the synthesis) as a result and balance of the bargaining power and propensity to mutual adjustment. In terms of strategic change, this perspective relates to the importance of consensus or conflict (in terms of means and/or ends) for change. Both industry cases show such patterns of change, particularly with regard to the conflict between corporate strategy and industry dynamics (e.g. the outside-in perspective based on corporate adaptation and adaptation of corporate strategy to industry structure and the inside-out perspective on strategy based on industry creation). In addition, it touches on the literature on the organizational purpose, shareholder versus stakeholder value, managerial capitalism, etc. In this respect, the industry cases show at least two different strategies; financial driven strategies driven by short-term shareholder-value creation and industrial driven strategies driven by long-term customer-value creation, as well as the reciprocity between both strategic approaches.

Evolutionary change in the telecom and in the construction industry: The processes of corporate strategy, industry dynamics (i.e. the change process of industry structure) as well as the reciprocity between corporate strategy and industry dynamics in the telecommunication

and construction industries show patterns of change which follow the evolutionary perspective. The change process can, thus, in part, be described from an evolutionary perspective.

The evolutionary perspective on change describes the process in terms of variation, selection and retention. It assumes that variation and the creation of novel units emerges by random change. Selection occurs in competition between units for scarce resources in an environmental niche, and the environment selects those units that have the best fit between its resources and the environment. Retention includes forces, e.g. inertia, that maintains certain units with specific resources. In terms of strategic change, this perspective relates to e.g. random variation in technological innovations that emanate from the outside, selection environments, e.g. industry structure, etc. Both industry cases show such patterns of change, particularly with regard to competition between corporations as well as industries for scarce resources of customers (and revenues), capital (risk capital), as well as competence. Both industry cases show, however, that the change process is not a random one. By expanding the network horizon and the scope of the system under analysis, "random change" is replaced by "rational change" explanations (may these be economically or socially constructed).

Teleological change in the telecom and in the construction industry: The processes of corporate strategy, industry dynamics (i.e. the change process of industry structure) as well as the reciprocity between corporate strategy and industry dynamics in the telecommunication and construction industries show patterns of change which follow the teleological perspective. The change process can, thus, in part, be described from a teleological perspective.

The teleological perspective on change assumes that change is guided by an envisioned and socially constructed goal. As a consensus emerges with regard to means and resources to reach the desired goal, entities cooperate. The process is described as a development cycle including goal formulation, implementation, evaluation, and modification of goals based on what was learned or intended. Variations from plans are mistakes that only by change become successful. In terms of strategic change this perspective relates to the planning school and (adaptive) learning school of thought. Thus, it is based on human rationality (i.e. thinking is separated from doing) and egocentrism, i.e. value maximization. Both industry cases show such patterns of change (both at corporate as well as intra- and inter-industry level), particularly with regard to the standardization of technologies and products (e.g. air interface technology in the cellular business or modularization of products with standard interfaces), standardization of business processes (e.g. competitive tendering, cooperative arrangements including formal and informal risk-sharing, profit, and cost sharing agreements), and the standardization of manufacturing processes (e.g. in industrial manufacturing of building constructions). Such efforts have been guided by an envisioned common goal. As a consensus emerges with regard to the means and resources needed to reach the desired goal, entities cooperate both informally as well as formally.

Complex non-linear change in the telecom and in the construction industry: Consequently, the complex non-linear change process enables a better understanding of the patterns of change and the change processes of corporate strategy, industry dynamics (i.e. the change process of industry structure) as well as the reciprocity between corporate strategy and industry dynamics in the telecommunication and construction industries. Nevertheless, it seems that more research is required in order to understand the complex non-linear change process, particularly how the different patterns of change interact (i.e. life cycle, dialectic, evolutionary, and teleological change) so that the resulting pattern develops into a complex non-linear change process.

As mentioned in the beginning of this thesis, many pieces have been laid in the gigantic jigsaw of describing and understanding corporate strategy and the context surrounding it. I hope that the combined descriptive, explanatory, and predictive patterns of corporate strategy from a value chain perspective are important pieces. I also hope that the suggested propositions will give thrust to future research and the development of additional pieces, potentially by successfully combining economic and social rationality as well as by combining the financial and social aspects of life, business and economics. Only time will tell to what degree I have succeeded in my efforts.

REFERENCES

Theoretical references

A

Achrol, R. S. Kotler, P., "Marketing in the network economy ", *Journal of Marketing*, Vol. 63, 1999, pp. 146-163

Ahuja, G., Katila, R., "Technological acquisitions and the innovation performance of acquiring firms: a longitudinal study", *Strategic Management Journal*, Vol. 22, 2001, pp. 197-220

Alajoutsijärvi, K., Eriksson, P., Tikkanen, H. "Dominant metaphors in the IMP network discourse: the network as a marriage and the network as a business system", *International Business Review*, Vol. 10, 2001, pp. 91-107

Anderson, E., Weitz, B., "The use of pledges to build and sustain commitment in distribution channels", *Journal of Marketing Research*, Vol. XXIX, 1992, pp. 18-34

Andersson, H., Havila, V., Salmi, A., "Can you buy a business relationship? The importance of customer and supplier relationships in acquisitions", *Industrial Marketing Management*, Vol. 30, 2001, pp. 575-586

Anderson, J. C., Narus, J. A., "Capturing value of supplementary services", *Harvard Business Review*, January-February, 1995, pp. 75-83

Arbnor, I., Bjerke, B. (1994). Företagsekonomisk metodlära. Lund, Sweden: *Studentlitteratur*

Awuah, G. B., "A firm's competence development through its network of exchange relationships", *Journal of Business & Industrial Marketing*, Vol. 16:7, 2001, pp. 574-599

Azimont, F., Cova, B., Salle, R., "Solution Selling and Project Marketing: A convergence towards customer intimacy for joint construction of offer and demand", *IMP*, Vol.1, 1998, pp. 113-132

B

Baca, S. B., "Hungarian culture and management issues within foreign-owned Hungarian production companies", (ed. Gertsen, M. C., Söderberg, A-M, Torp, J. E.), *Cultural Dimensions of International Mergers and Acquisitions*. Berlin: Walter de Gruyter GmbH & Co., 1998, pp. 129-146

Baden-Fuller, C., "Strategic innovation, corporate entrepreneurship and matching the outside-in to inside-out approaches to strategy research", *British Journal of Management*, Vol. 6, Special Issue December, 1995, pp. S3-S16

Baden-Fuller, C., Volberda, H. W., "Strategic renewal: How larger complex organizations prepare for the future", *Int. Studies of Mgt. & Org.*, Vol. 27:2, 1997, pp. 95-120

Baldwin, C. Y., Clark, K. B., "Managing in an age of modularity", *Harvard Business Review*, September-October 1997, pp. 84-93

Bansard, D., Cova, B., Salle, R., "Project Marketing: Beyond Competitive Bidding Strategies", *International Business Review*, Vol. 2:2, 1991, pp. 125-141

Bengtsson, M., Kock, S., "Cooperation and competition in relationships between competitors in business networks", *Journal of Business & Industrial Marketing*, Vol. 14:3, 1999, pp. 178-193

Berggren, C., "Mergers, outcomes and innovation – the need for new research approaches", *Linköping University, Dept. of Management and Economics*, 2001, pp. 1-16

Bonaccorsi, A., Pammolli, F., Tani, S., "The Changing Boundaries of System Companies", *International Business Review*, Vol. 5:6, 1996, pp. 539-559

Borgatti, S. P., Foster, P. C., "The network paradigm in organizational research: a review and typology", *Journal of Management*, Vol. 29:6, 2003, pp. 991-1013

Brito, C. M., "Issue-based nets: a methodological approach to the sampling issue in industrial network research", *Qualitative Market Research*, Vol. 2:2, 1999, pp. 92-102

Brück, F., "Make versus buy: The wrong decision cost", *The McKinsey Quarterly*, Vol. 1, 1995, pp. 28-47

Buckles, T. A., Ronchetto Jr., J. R., "Examining an industrial buyer's purchasing linkages: a network model and analysis of organizational buying workflow", *Journal of Business & Industrial Marketing*, Vol. 11:6, 1996, pp. 74-92

C

Capron, L., "The long-term performance of horizontal acquisitions", *Strategic Management Journal*, Vol. 20, 1999, pp. 987-1018

Capron, L., Dussauge, P., Mitchell, W., "Resource redeployment following horizontal acquisitions in Europe and North America 1988-1992", *Strategic Management Journal*, Vol. 19, 1998, pp. 631-661

Cartwright, S., "International mergers and acquisitions: The issues and challenges", (ed. Gertsen, M. C., Söderberg, A-M, Torp, J. E.), *Cultural Dimensions of International Mergers and Acquisitions*. Berlin: Walter de Gruyter GmbH & Co., 1998, pp. 5-15

Chalmers, A. F. (1999). *What is this thing called science?* Buckingham, UK: *Open University Press*

Chatterjee, S., Lubatkin, M. H., "Corporate mergers, stockholder diversification, and changes in systematic risk", *Strategic Management Journal*, Vol. 11, 1990, pp. 255-268

Chatterjee, S., Lubatkin, M. H., Schweiger, D. M. Weber, Y., "Cultural differences and shareholder value in related mergers: linking equity and human capital", *Strategic Management Journal*, Vol. 13, 1992, pp. 319-334

Chen, H., Chen, T.-J., "Network linkages and location choice in foreign direct investment", *Journal of International Business Studies*, Vol. 29:3, 1998, pp. 445-468

Churchill, G. A. Jr. (1991). *Marketing research: Methodological foundations*. Fort Worth, USA: *The Dryden Press, Saunders College Publishing*

Churchman, C. W. (2002). *Systemanalys*. Stockholm, Sweden: *Norstedts Akademiska Förlag and ePan*

Coase, R. H., "The nature of the firm", *Economica*, Vol. 4:4, 1937

Coase, R. H. (1991). 1991 Nobel Lecture: The institutional structure of production. Stockholm: *The Nobel Foundation*

Cova, B., Hoskins, S., "A twin-Track Networking Approach to Project Marketing", *European Management Journal*, Vol. 15:5, 1997, pp. 546-556

Coviello, N., Munro, H., "Network relationships and the internationalization process of small software firms", *International Business Review*, Vol. 6:4, 1997, pp. 361-386

Cox, A., "Relational competence and strategic procurement management", *European Journal of Purchasing & Supply Management*, Vol. 2:1, 1996, pp. 57-70

Cyert, R. M., March, J.G. (1963). *A behavioral Theory of the Firm*. Englewood Cliffs, NJ: *Prentice-Hall*

D

Datta, D. K., "Organizational fit and acquisition performance: effects of post-acquisition integration", *Strategic Management Journal*, Vol. 12, 1991, pp. 281-297

Deavers, K. L., "Outsourcing: A corporate competitiveness strategy, not a search for low wages", *Journal of Labor Research*, Vol. 18:4, 1997, pp. 503-519

Dundas, K. N. M., Richardson, P. R., "Implementing the unrelated product strategy", *Strategic Management Journal*, Vol. 3, 1982, pp. 287-301

E

Eisenhardt, K. M., Brown, S. L., "Time pacing: Competing in markets that won't stand still", *Harvard Business Review*, March-April, 1998, pp. 59-69

Ellis, P., "Social ties and foreign market entry", *Journal of International Business Studies*, Vol. 31:3, 2000, pp. 443-469

Ellram, L. M., Maltz, A. B., "The use of total cost of ownership concepts to model the outsourcing decision", *The International Journal of Logistics Management*, Vol. 6:2, 1995, pp. 55-66

Erixon, L., "Ägande och inflytande i svensk näringsliv", *SOU*, 1998:38, pp. 7-36

F

Feurst, O. (1999). *One-to-one Marketing – Filosofi och Metod*. Malmö: *Liber*

- Fill, C., Visser, E., "The outsourcing dilemma: a composite approach to the make or buy decision", *Management Decision*, Vol. 38:1, 2000, pp. 43-50
- Fine, C. H., Whitney, D. E., "Is the make-buy decision process a core competence", 4th ISL, Florence, Italy, 1999
- Finkelstein, S., "Interindustry merger patterns and resource dependence: a replication and extension of Pfeffer (1972)", *Strategic Management Journal*, Vol. 18, 1997, pp. 787-810
- Forstmann, S., "Managing differences in cross-cultural mergers and acquisitions", (ed. Gertsen, M. C., Söderberg, A-M, Torp, J. E.), *Cultural Dimensions of International Mergers and Acquisitions*. Berlin: Walter de Gruyter GmbH & Co., 1998, pp. 57-83
- G**
- Gadde, L-E, Huemer, L., Håkansson, H., "Strategizing in industrial networks", *Industrial Marketing Management*, Vol. 32, 2003, pp. 357-364
- Gadiesh, O., Gilbert, J. L., "How to map your industry's profit tool", *Harvard Business Review*, May-June 1998, pp. 149-162
- Garud, R., Van de Ven, A. H. (2000) "Strategic change processes", (ed. Pettigrew, A., Thomas, H., Whittington, R.). *Sage Publications*
- Gertsen, M. C., Söderberg, A-M., "Foreign acquisitions in Denmark: Cultural and communicative dimensions", (ed. Gertsen, M. C., Söderberg, A-M, Torp, J. E.), *Cultural Dimensions of International Mergers and Acquisitions*. Berlin: Walter de Gruyter GmbH & Co., 1998, pp. 167-196
- Gertsen, M. C., Söderberg, A-M, Torp, J. E., "Different approaches to the understanding of culture in mergers and acquisitions", (ed. Gertsen, M. C., Söderberg, A-M, Torp, J. E.), *Cultural Dimensions of International Mergers and Acquisitions*. Berlin: Walter de Gruyter GmbH & Co., 1998, pp. 17-38
- Gioia, D. A., Thomas, J. B., Clark, S. M., Chittipeddi, K., "Symbolism and strategic change in academia: The dynamics of sensemaking and influence", *Organization Science*, Vol. 5:3, 1994, pp. 363-383
- Grabher, G., "Rediscovering the social in the economics of interfirm relations", *Routledge*, New York, 1993
- Granovetter, M., "Economic action and social structure: the problem of embeddedness", *American Journal of Sociology*, Vol. 91:3, 1985, pp. 481-510
- Greiner, L. E., "Evolution and revolution as organizations grow", *Harvard Business Review*, May-June, 1998, pp. 55-67
- Gummesson, E. (2000). *Relationsmarknadsföring: Från 4P till 30R*. Malmö, Sweden: Liber
- Günter, B., Bonaccorsi, A., "Project Marketing and Systems Selling - in search of frameworks in Insights", *International Business Review*, Vol. 5:6, 1996, pp. 531-537

H, I

- Hadjikhani, A., "Political risk for project-selling firms: turbulence in relationships between business and non business actors", *Journal of Business & Industrial Marketing*, Vol. 13:3, 1998, pp. 235-255
- Hagel III, J., Singer, M., "Unbundling the corporation", *Harvard Business Review*, March-April, 1999, pp. 133-141
- Hammarkvist, K-O, Håkansson, H., Mattsson, L-G (1982). Marknadsföring för konkurrenskraft. Malmö, Sweden: Liber
- Hart, C. W. L., "Mass customization: conceptual underspinnings, opportunities and limits", *International Journal of Service Industry Management*, Vol. 6:2, 1995, pp. 36-45
- Hedaa, L., Törnroos, J-Å., "Understanding event-based business networks", *Working paper, Copenhagen Business School, Denmark*, 1997
- Hedley, B., "Strategy and the business portfolio", *Long Range Planning*, Vol. 10, 1977, pp. 9-15
- Hellgren, B., Melin, L., "The role of strategists' ways-of-thinking in strategic change processes", (ed. Hendry, J., Johnson, G., Newton, J.), Wiley & Sons, 1993, pp. 47-68
- Henke, Jr., "Strategic selling in the age of modules and systems", *Industrial Marketing Management*, Vol. 29, 2000, pp. 271-284
- Hennart, J-F, Reddy, S., "The choice between mergers/acquisitions and joint ventures: the case of the Japanese investors in the United States", *Strategic Management Journal*, Vol. 18, 1997, pp. 1-12
- Hill, C., "Network Literature Review: conceptualizing and evaluating networks", *TriAd Research Inc. for Alberta Children's Hospital Foundation*, 2002
- Hitt, M. A., Hoskisson, R. E., Ireland, R. D., "Mergers and acquisitions and managerial commitment to innovation in M-form firms", *Strategic Management Journal*, Vol. 11, 1990, pp. 29-47
- Holmen, E., Pedersen, A-C., "Strategizing through analyzing and influencing the network horizon", *Industrial Marketing Management*, Vol. 32, 2003, pp. 409-418
- Holmlund, M., Kock, S., "Buyer perceived service quality in industrial networks", *Industrial Marketing Management*, Vol. 24, 1995, pp. 109-121
- Howells, J., "Research and technology outsourcing", *Technology Analysis & Strategic Management*, Vol. 11:1, 1999, pp. 17-29
- Håkansson, H., Snehota, I., "No business is an island", *Scandinavian Journal of Management*, Vol. 5:3, 1989, pp. 187-200

Högberg, B., "Research about interorganizational relationships. Articles in administrative Science Quarterly", *Proceedings of the 15th Annual IMP Conference*, University College, Dublin, 1999

J

Jarillo, J. C., "On strategic networks", *Strategic Management Journal*, Vol. 9:1, 1988

Jauch, L. R., Wilson, H. K., "A strategic perspective for make or buy decisions", *Long Range Planning*, Vol. 12, December 1979, pp. 56-61

Javidan, M., "Core competence: What does it mean in practice?", *Long Range Planning*, Vol. 31:1, 1998, pp. 60-71

Johanson, J., Vahle, J-E., "Business relationship learning and commitment in the internationalization process", Working paper, 2002

Jones, C., Hesterly, W., Borgatti, S. P., "A general theory of network governance: exchange conditions and social mechanisms", *Academy of Management Review*, Vol. 22:4, 1997, pp. 911-945

Jonsson, T., "Value creation in mergers and acquisitions: a study of Swedish domestic and foreign takeovers", *Uppsala University*, 1995

Jüttner, U., Schlange, L., E., "A network approach to strategy", *International Journal of Research in Marketing*, Vol. 13, 1996, pp. 479-494

K

Kabir, R., Cantrijn, D., Jeunink, A., "Takeover defenses, ownership structure and stock returns in the Netherlands: an empirical analysis", *Strategic Management Journal*, Vol. 18:2, 1997, pp. 97-109

Kleppesø, S., "A quest for social identity – the pragmatics of communication in mergers and acquisitions", (ed. Gertsen, M. C., Söderberg, A-M, Torp, J. E.), *Cultural Dimensions of International Mergers and Acquisitions*. Berlin: Walter de Gruyter GmbH & Co., 1998, pp. 147-166

Kogut, B., "The network as knowledge: generative rules and the emergence of structure", *Strategic Management Journal*, Vol. 21, 2000, pp. 405-425

Kotler, P., (1991). *Marketing Management*. UK: Prentice-Hall

Kroll, M., Wright, P., Toombs, L., Leavell, H., "Form of control: a critical determinant of acquisition performance and CEO rewards", *Strategic Management Journal*, Vol. 18:2, 1997, pp. 85-96

Krug, J. A., Hegarty, W. H., "Post-acquisition turnover among U.S. top management teams: an analysis of the effects of foreign vs. domestic acquisitions of U.S. targets", *Strategic Management Journal*, Vol. 18:8, 1997, pp. 667-675

Kuhn, T. S. (1996). *The structure of scientific revolutions*. Chicago, USA: The University of Chicago Press

L

Lamming, R., "Squaring lean supply with supply chain management", *International Journal of Operations and Production Management*, Vol. 2, 1996, pp. 183-196

Lantz, A. (1993). Intervjumetodik. Lund, Sweden: *Studentlitteratur*

Larsson, R., Risberg, A., "Cultural awareness and national versus corporate barriers to acculturation", (ed. Gertsen, M. C., Söderberg, A-M, Torp, J. E.), *Cultural Dimensions of International Mergers and Acquisitions*. Berlin: Walter de Gruyter GmbH & Co., 1998, pp. 39-56

Leek, S., Naudé, P., Turnbull, P. W., "Interactions, relationships and networks in a changing world", *Industrial Marketing Management*, Vol. 32, 2003, pp. 87-90

Lekvall, P., Wahlbin, C. (1987). Information för marknadsföringsbeslut. Göteborg, Sweden: *IHM Förlag*

Lemaire, J-P., "International buyer-seller interaction: the impact on international project process", *IMP*, Vol. 3, 1998, pp. 109-132

Lemaire, J-P., "International projects' changing patterns: Sales engineers' changing roles", *International Business Review*, Vol. 5:6, 1996, pp. 603-629

Lindberg, J. (1989) Systemförsäljning. Söderman, S. (ed.). *Exporthandboken. Exportrådet*, pp. 161-173

Long, C., Vickers-Koch, M., "Using core capabilities to create competitive advantage", *Organizational Dynamics*, Summer 1995, Vol. 24:1

Lorenzoni, G., Baden-Fuller, C., "Creating a strategic center to manage a web of partners", *California Management Review*, Vol. 3:3, 1995, pp. 146-163

Lorenzoni, G., Lipparini, A., "The leveraging of interfirm relationships as a distinctive organizational capability: a longitudinal study", *Strategic Management Journal*, Vol. 20, 1999, pp. 317-338

Low, B. K. H., "Managing business relationships and positions in industrial networks", *Industrial Marketing Management*, Vol. 26, 1997, pp. 189-202

M

Malekzadeh, A. R., Nahavandi, A., "Leadership and culture in transnational strategic alliances", (ed. Gertsen, M. C., Söderberg, A-M, Torp, J. E.), *Cultural Dimensions of International Mergers and Acquisitions*. Berlin: Walter de Gruyter GmbH & Co., 1998, pp. 111-127

Marcus, A., Geffen, D., "The dialectics of competency acquisition: pollution prevention in electric generation", *Strategic Management Journal*, Vol. 19, 1998, pp. 1145-1168

- Mattsson, L-G (ed. by Alfred D. Chandler, Jr., Peter Hagström, and Örjan Sölvell) (1998). Dynamics of the overlapping networks and strategic actions by the international firm. New York: *Oxford University Press*
- Mattsson, L-G., "Systemförsäljning och konkurrenskraft", Hägg, I., Johanson, J. (ed.). Företag i nätverk. *Studieförbundet Näringsliv och Samhälle*, pp. 179-204
- Mattsson, L-G. "Systemförsäljning", *Marknadstekniskt Centrum*, 1986
- McIvor, R., "A practical framework for understanding the outsourcing process", *Supply Chain Management*, Vol. 5:1, 2000, pp. 22-36
- Merriam, S. B. (1998). Qualitative research and case study applications. San Francisco, USA: *Wiley & Sons*
- Millman, T. F., "Global Key Account Management and Systems Selling", *International Business Review*, 1996, Vol. 5:6, pp. 631-645
- Mintzberg, H., "The fall and rise of strategic planning", *Harvard Business Review*, January-February, 1994, pp. 107-114
- Mintzberg, H., "The strategy concept I: Five Ps for strategy", *California Management Review*, Fall, 1987, pp. 11-24
- Mintzberg, H., Lampel, J., "Reflecting on the strategy process", *Sloan Management Review*, Spring, 1999, pp. 21-30
- Mintzberg, H., Waters, J. A., "Of strategies, deliberate and emergent", *Strategic Management Journal*, Vol. 6, 1985, pp. 257-272
- Mizruchi, M. S., Stearns, L. B. (1994). The Handbook of Economic Sociology (ed. Smelser, N. J., Swedberg, R. S.), "Money, banking, and financial markets", UK: *Princeton University Press*, pp. 314-341
- Morgan, R. M., Hunt, S. D., "The commitment-trust theory of relationship marketing", *Journal of Marketing*, Vol. 58, 1994, pp. 20-38
- N
- Nassimbeni, G., "Network structures and co-ordination mechanisms: a taxonomy", *International Journal of Operations & Production Management*, Vol. 18:6, 1998, pp. 538-554
- Neuendorf, K. A. (2002). The content analysis guidebook. London, UK: *Sage Publications*
- Nguyen, H., Séror, A., Devinney, T. M., "Diversification strategy and performance in Canadian manufacturing firms", *Strategic Management Journal*, Vol. 11, 1990, pp. 411-418
- Normann, R. & Ramíres, R. (1994). Designing Interactive Strategy – from value chain to value constellation. West Sussex, UK: *Wiley & Sons*

O

Oviatt, B. M., McDougall, P. P., "Toward a theory of international new ventures", *Journal of International Business Studies*, 1994, pp. 45-64

P

Palmer, J., Richards, I., "Get knetted: network behavior in the new economy", *Journal of Knowledge Management*, Vol. 3:3, 1999, pp. 191-202

Pettigrew, A. M., "Context and action in the transformation of the firm", *Journal of Management Studies*, Vol. 24:6, 1987, pp. 649-670

Pfeffer, J., "Merger as a response to organizational interdependence", *ASQ*, Vol. 17, 1972, pp. 382-394

Pfeffer, J. (2003). The external control of organizations. Palo Alto, USA: *Stanford Business Books*

Pilkington, A., Chong, D., "Mass customization: conflicting definitions", *ICMIT*, 2000, pp. 88-93

Porac, J. F. Thomas, H., Baden-Fuller, C., "Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers", *Journal of Management Studies*, Vol. 26:4, 1989, pp. 397-416

Porter, M. E., "From competitive advantage to corporate strategy", *Harvard Business Review*, 2001, pp. 43-59

Porter, M. E., "Strategy and the Internet", *Harvard Business Review*, March, 2001, pp. 63-78

Porter, M. E., "What is strategy?", *Harvard Business Review*, November-December, 1996, pp. 61-78

Porter, M. E. (1980). *Competitive Strategy*. New York: *Free Press*

Porter, M. E. (1985). *Competitive Advantage*. New York: *Free Press*

Prahalad, C. K. Hamel, G., "Strategic intent", *Harvard Business Review*, May-June, 1989, pp. 63-76

Prahalad, C. K. Hamel, G., "The core competence of the corporation", *Harvard Business Review*, May-June, 1990, pp. 79-91

Q

Quinn, J. B., "Strategic change: Logical incrementalism", *Sloan Management Review*, Summer, 1989, pp. 45-60

Quinn, J. B., Hilmer, F. G., "Strategic outsourcing", *Sloan Management Review*, Summer 1994, pp. 43-55

R

Rehme, J. (2001). Sales Coordination in Multinational Corporations: Development and Management of Key Account Programmes, Dissertation No 51 (IMIE No 51), 2001, Linköping University, Sweden.

Rehme, J. (1998). Sales coordination: development of customer teams in ABB Sweden. Department of Management and Economics. Dissertations from IMIE No. 16. Licentiate thesis. Linköping University, Sweden.

Reve, T. (1990). The firm as a nexus of internal and external contracts. London: *Sage Publications*, pp. 133-161

Robertson, M., Swan, J., Newell, S., "The role of networks in the diffusion of technological innovation", *Journal of Management Studies*, Vol. 33:3, 1996, pp. 333-359

S

Seth, A., "Value creation in acquisitions: a reexamination of performance issues", *Strategic Management Journal*, Vol. 11, 1990, pp. 95-115

Seth, A., "Sources of value creation in acquisitions: an empirical investigation", *Strategic Management Journal*, Vol. 11, 1990, pp. 431-446

Skaates, M. A., Tikkanen, H., Lindblom, J., "Relationships and project marketing success", *Journal of Business & Industrial Marketing*, Vol. 17:5, 2002, pp. 389-406

Smelser, N. J., Swedberg, R. "The Handbook of Economic Sociology", *Princeton University Press, Princeton, N.J., Russel Sage Foundation, New York*, 1994

Spender, J. C., "Some frontier activities around strategy theorizing", *Journal of Management Studies*, Vol. 30:1, 1993, pp. 11-30

Svensson, G., "A triad approach to service quality", *Journal of Service Marketing*, Vol. 16:2, 2002, pp. 158-179

Swaminathan, A., Mitchell, W., "Organizational evolution in the interorganizational environment: incentives and constraints on international expansion strategy", *Administrative Science Quarterly*, Vol. 43, 1998, pp. 566-601

Swedberg, R., "Markets and social structures", *Princeton University Press, Princeton, N.J., Russel Sage Foundation, New York*, 1994

T

Tikkanen, H., "The network approach in analyzing international marketing and purchasing operations: a case study of a European SME's focal net 1992-95", *Journal of Business & Industrial Marketing*, Vol. 13:2, 1998, pp. 109-131

Trautwein, F., "Merger Motives and Merger Prescriptions", *Strategic Management Journal*, Vol. 11, 1990, pp. 283-295

Turnbull, P., Ford, D., Cunningham, M., "Interaction, relationships and networks in business markets: an evolving perspective", *Journal of Business and Industrial Marketing*, Vol.11:3/4, 1996, pp. 1-17

U

Utterback, J. M. (1996). Mastering the dynamics of innovation. Boston: *Harvard Business School Press*

V

Vaara, E., "Mergers and acquisitions between Finland and Sweden 1981-1991", *Helsingin kauppakorkeakoulun julkaisu*, 1992, pp. 27-35

Very, P., Lubatkin, M., Calori, R., "A cross-national assessment of acculturative stress in recent European mergers", (ed. Gertsen, M. C., Söderberg, A-M, Torp, J. E.), *Cultural Dimensions of International Mergers and Acquisitions*. Berlin: Walter de Gruyter GmbH & Co., 1998, pp. 85-110

W, X

Walker, G., "Strategic sourcing, vertical integration, and transaction costs", *Interfaces*, Vol. 18:3, May-June, 1988, pp. 62-73

Walsh, J. P., "Doing a deal: merger and acquisition negotiations and their impact upon target company top management turnover", *Strategic Management Journal*, Vol. 10, 1989, pp. 307-322

Walsh, J. P., Ellwood, J. W., "Mergers, acquisitions, and the pruning of managerial deadwood", *Strategic Management Journal*, Vol. 12, 1991, pp. 201-217

Wandén, S. (1981). Ekonomiskt tänkande. Ett filosofiskt perspektiv. Lund: *Nordstedt*

Welch, D., Welch, L., Wilkinson, I., Young, L., "Network development in international project marketing and the impact of external facilitation", *International Business Review*, Vol. 5:6, 1996, pp. 579-602

Whipple, J. S., Gentry, J. J., "A network comparison of alliance motives and achievements", *Journal of Business & Industrial Marketing*, Vol. 15:5, 2000, pp. 301-322

Williamson, O. E. (1993). The nature of the firm. (ed. Williamson, O. E., Winter, S. G.), "The logic of economic organizations", Oxford: *Oxford University Press*, pp. 90-116

Wilson, L. O., Weiss, A. M., John, G., "Unbundling of industrial systems", *Journal of Marketing Research*, Vol. 27:2 (1990)

Wise, R., Baumgartner, P., "Go Downstream – The new profit imperative in manufacturing", *Harvard Business Review*, September-October 1999, pp. 133-141

Wit de, B., Meyer, R. (ed.) (1998). Strategy: Process, Content, Context. London: *International Thompson Business Press*

Woodside, A. G., "Network anatomy of industrial marketing and purchasing of new manufacturing technologies", *Journal of Business & Industrial Marketing*, Vol. 9:3, 1994, pp. 52-63

Wray, B., Palmer, A., Bejou, D., "Using neural network analysis to evaluate buyer-seller relationships", *European Journal of Marketing*, Vol. 28:10, 1994, pp. 32-48

Y

Yin, R. K. (1994). Case study research. London, UK: *Sage Publications*

Z

Zipkin, P., "The limits of mass customization", *MIT Sloan Management Review*, Spring 2001, pp. 81-87

Interviews

Apleberger, Lennart, *Professor Luleå Tekniska Universitet (former President NCC Teknik)*: December 9, 2002

Bannister, Chris, *President and CEO, Hi3G Access*: February 10, 2003

Bergengren, Ove, *President, SAS Americas*: December 5, 2002

Byfors, Jan, *Senior Vice President R&D, NCC Construction Sweden AB*: February 3, 2003

Carlsson, Peter, *President, Södra Building Systems AB*: January 14, 2003

Ekman, Mikael, *Country Manager ESD Sweden, Alcatel Telecom AB*: January 23, 2003

Fleetwood, Richard, *Vice President Group Function Legal Affairs, Financing, and Insurance, Telefon AB Ericsson*: April 20, 2005

Hellström, Kurt, *President and CEO, Telefon AB Ericsson*: February 7, 2003

Holmlund, Stefan, *Senior Vice President, NCC Property Development AB*: January 28, 2003

Karlberg, Kenneth, *Senior Vice President, Telia AB (Head of Telia Mobile)*: January 29, 2003

Karlsson, Bo, *Director of Head Office, Vodafone Sverige AB*: January 17, 2003

Larsson, Claes, *President BU Project Development and BOT – Skanska Projektutveckling Sverige AB*: February 10, 2003

Linné, Claes, *Vice President, Drott AB*: January 22, 2003

Lundgren, Klas, *Managing Director, Alcatel Telecom AB*: January 23, 2003

Markiewicz, Stefan, *Head of Strategy and Business Intelligence Telia Sonera International Carrier*: April 21, 2005

Nilsson, Sven-Christer, *Chairman Startupfactory AB (former President and CEO Ericsson)*: February 25, 2003

Rådne, Kennet, *Senior Vice President, Telia AB (Head of Telia Networks)*: February 7, 2003

Tannfelt, Magnus, *President, Allgon Mobile Communication*: January 22, 2003

Williamson, Mats, *President BU Construction Related Services – Skanska Sverige AB*: February 11, 2003

Wäreby, Jan, *Executive Corporate Vice President Sony Ericsson Mobile Communications AB*: March 6, 2003

Annual reports and prospects

Allgon, Annual Reports 1994-2002

Competition Authority, The Swedish, Annual Reports 1993-2002

Drott, Annual Reports 1998-2002

Drott, Listing Particulars (Prospect) 1998

Ericsson, Annual Reports 1994-2002

Europolitan Holdings AB, Annual Report 2001/2002

Hi3G, Annual Reports 2000-2002

NCC, Annual Reports 1994-2002

PTS, Annual Reports 1993-2002

Skanska, Annual Reports 1994-2002

Södra, Annual Reports 2001-2002

Södra Building Systems AB, Gyproc AB, 2002, *Högre hus med trästomme*, Malmö

Telia, Annual Reports 1994-2002

Books, magazines and reports

Abramowicz, I. (Öhrlings PricewaterhouseCoopers), Yngwe, T. (Öhrlings PricewaterhouseCoopers), Widmark, N. (Öhrlings PricewaterhouseCoopers), Björk, D. (Öhrlings PricewaterhouseCoopers), 1999, *Den Svenska marknaden för telekommunikation 1998*, The Swedish Postal and Telecommunications Regulatory Authority, Stockholm

Bergman, M., 2002, *Potential Competition: Theory, empirical evidence and legal practice*, Konkurrensverket, Stockholm

- Bergman, M., 1997, *Särskilda konkurrensregler för jord- och skogsbruk med kommentarer till Södra och Sydvedfallet*, Konkurrensverket, Stockholm
- Competition Authority, The Swedish, 2000, *Konkurrensen i Sverige under 90-talet – problem och förslag*, Konkurrensverket, Stockholm
- Competition Authority, The Swedish, 2000, *Konkurrensen i Sverige under 90-talet – problem och förslag (bilaga)*, Konkurrensverket, Stockholm
- Competition Authority, The Swedish, 2002, *Konkurrensen i 2002*, Konkurrensverket, Stockholm
- Competition Authority (red.), The Swedish, 2002, *The pros and cons of merger and control*, Konkurrensverket, Stockholm
- Finansdepartementet, 2002, *Kommittédirektiv 2002:24 – Konkurrensen, kvaliteten och kostnaderna i byggsektorn*, The Swedish Government, 2002
- Fridolfsson, S-O., 2002, *En ekonomisk analys av olika målsättningar för kontroll av företagskoncentrationer*, Konkurrensverket, Stockholm
- Gustavsson, P., Dadfar, H., Wahlbin, C., 1994, *Structural change and strategic behaviour within the Swedish building sector*, Swedish Council for Building Research, Stockholm
- Hedström, G. (AB Stelacon), Järvebro, A. (AB Stelacon), Lundin, R. (AB Stelacon), Norrby, A., Wedar, A. (AB Stelacon), 1997, *Marknaden för telekommunikation i Sverige 1996*, The Swedish Postal and Telecommunications Regulatory Authority, Stockholm
- Hedström, G. (AB Stelacon), Järvebro, A. (AB Stelacon), 1998, *Marknaden för telekommunikation i Sverige 1997*, The Swedish Postal and Telecommunications Regulatory Authority, Stockholm
- Lundvall, K., 2002, *Varför är byggvaror dyra i Skåne och maten billig i Västsverige?*, Konkurrensverket, Stockholm
- Nilsson, M., Delden, P., 1999, *Kommuners upphandling av bygg- och anläggningstjänster*, Konkurrensverket, Stockholm
- Postal and Telecommunications Regulatory Authority, The Swedish, Competitive Authority, The Swedish, Consumer Authority, The Swedish, 2000, *Mobiltelemarknaden 1999*, The Swedish Postal and Telecommunications Regulatory Authority, Stockholm
- Postal and Telecommunications Regulatory Authority, The Swedish, Competitive Authority, The Swedish, Consumer Authority, The Swedish, 2001, *Mobiltelemarknaden 2000*, The Swedish Postal and Telecommunications Regulatory Authority, Stockholm
- Postal and Telecommunications Regulatory Authority, The Swedish, 2000, *Svensk Telemarknad 1999*, The Swedish Postal and Telecommunications Regulatory Authority, Stockholm

Postal and Telecommunications Regulatory Authority, The Swedish, 2001, *Svensk Telemarknad 2000*, The Swedish Postal and Telecommunications Regulatory Authority, Stockholm

Postal and Telecommunications Regulatory Authority, The Swedish, 2002, *Svensk Telemarknad 2001*, The Swedish Postal and Telecommunications Regulatory Authority, Stockholm

Postal and Telecommunications Regulatory Authority, The Swedish, 2003, *Svensk Telemarknad 2002*, The Swedish Postal and Telecommunications Regulatory Authority, Stockholm

Postal and Telecommunications Regulatory Authority, The Swedish, *Teletillsyn – Uppdragsredovisning i samband med årsredovisning 1999*, The Swedish Postal and Telecommunications Regulatory Authority, Stockholm

Veckans Affärer Issue 51-52 December 1994-2001

Wigren, A. (NUTEK), Jönsson, M. (Kommerskollegium), Hammarlund, J. (Konkurrensverket), Eiriksdottir, E. (NUTEK), Marcusson, M. (NUTEK), Persson, J. (NUTEK), 1996, *Byggsektorn – spelregler för ökad konkurrens*, Konkurrensverket, Stockholm

Åsgård, L., Ellgren, C., 2000, *Ericsson*, Nordstedts Förlag, Stockholm

Öhman, C. (InterPares Management Consultants), Enocson, H. (InterPares Management Consultants), 2002, *Trä- bygg- och möbelprogrammet – en analys av insatser och resultat*, Vinnova, Stockholm

World Wide Web

http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom99.html

<http://www.scb.se/amne/boende.asp>

<http://www.scb.se/amne/naringsverksamhet.asp>

<http://www.scb.se/amne/befolkning.asp>

<http://www.scb.se/statistik/nr0102/nr0102tab4.asp>

<http://www.byggghandlarna.se/>

<http://www.forestindustries.se/>

<http://www.itu.int/aboutitu/index.html>

<http://www.kkv.se/indexie.html>

<http://www.pts.se/>

<http://www.scb.se>

<http://www.sika-institute.se/>

<http://www.stockholmsborsen.se/index.asp>

<http://www.wto.org/>

GLOSSARY

2G	First digital generation of mobile systems.
2.5G	Enhanced digital mobile systems with packet data capability, allowing connection at all times.
3G	Broadband radio technology for mobile systems.
3GPP	Third Generation Partnership Project; A global cooperative project in which standardization bodies in Europe, Japan, South Korea and the U.S. as founders coordinate WCDMA issues.
ADSL	Asymmetrical Digital Subscriber Line; A technology to increase transmission speed in a copper cable up to 6Mb/s. ADSL facilitates the division of capacity into a channel with higher speed to the subscriber, typically for video transmission, and a channel with significantly lower speed in the other direction, i.e. asymmetric.
AMPS	Advanced Mobile Phone System; The original standard specification for analog cellular systems. Used primarily in North America, Latin America, Australia and parts of Russia and Asia during the 1990's.
AR	Annual Report(s)
ASF	Application Service Positioning; A technology that facilitates downloading and purchase/sale of software over the Internet.
ASP	Application Service Provider
ATM	Asynchronous Transfer Mode; A technology for wide-band transmission of high-capacity telecommunication signals. In addition to high-capacity signal transmission, ATM provides considerable flexibility, since the individual subscriber is able to adapt the capacity of a switched connection to current requirements.
AXE	Ericsson's switching communications platform based on an open architecture. A system for computer-controlled digital exchanges that constitute the nodes in large public telecommunication networks and the basis for Ericsson's wireline and cellular systems.
BA	Business Area; An organizational unit typically responsible for a specific product/customer segment within the corporation.
Bluetooth	A radio technology for short range communications that permits wireless transmission of data between mobile telephones, portable computers and other electronic equipment up to approximately 100 m.
BOT	Build, Own/Operate and Transfer; A collective term for privately financed projects e.g. within the construction industry.
BU	Business Unit; An organizational unit typically responsible for a specific product/customer segment within the corporation.
CDMA2000	See CDMA.
CDMA	Code Division Multiple Access; A technology for digital transmission of radio signals between, for example, a mobile telephone and a radio base station. In CDMA, a frequency is divided into a number of codes. See also IS-95.
Cellular System	See Mobile Network.
CEO	Chief Executive Officer
CEPT	An international organization between European postal and telecommunication authorities. CEPTS's organization comprises CERP (postal committee), ECTRA (telecommunications committee) and ECR (radio committee).
Circuit Switching	A switched circuit is only maintained while the sender and recipient are communicating, as opposed to a dedicated circuit (Packed Switching) which is held open regardless of whether data is being sent or not.
Combiner	The combiner equipment enables several radio transmitters equipment and channels in the radio base station to use the same antenna.
CPP	Cello Packet Platform; A scalable and flexible software platform for fixed and mobile computer infrastructure.
CTI	Computer Telephony Integration; Integration of data and voice in networks and terminals.
D-AMPS	Digital Advanced Mobile Phone System; Designation of the American standard for digital cellular telephony used primarily in North America, Latin America, Australia and parts of Russia and Asia during the 1990's. D-AMPS is based on TDMA (IS-136) technology.
DBOM	Design, Build, Operate and Maintain
DECT	Digital Enhanced Cordless Telecommunications; A common standard for cordless telephony

	originally established by ETSI. DECT is primarily used in cordless business communications systems.
Duplex filter	The duplex filter enables the radio transmitter and radio receiver equipment in the radio base station to send and receive through the same antenna equipment.
DVB-T	Digital Video Broadcast - Terrestrial
EDGE	Enhanced Data-rates for Global Evolution; EDGE is a technology that enables GSM and D-AMPS similar capacity to handle services for the third generation of mobile telephony. EDGE was developed to enable the transmission of large amounts of data at a high speed, i.e. 384 kb/s.
EEA	European Economic Area
ENGINE	Ericsson packet-based switching solution for fixed telephone networks.
EPOC	An operating system for mobile terminals, developed by Symbian (a joint-venture company formed by Ericsson, Motorola, Nokia and Psion).
ERMES	European Radio Messaging System; European standard for nationwide personal paging systems.
ETSI	European Telecommunications Standardization Institute; The European standardization body for telecommunication.
EU	European Union
FCC	Federal Communications Commission; One of two regulatory authorities in the U.S.
FM	Facility Management; Value added services in the real estate market.
FWA	Fixed Wireless Access; Wireless broad band access.
GATT	General Agreement of Tariffs and Trade
GPRS	General Packet Radio Service; A packet-linked technology that enables high-speed, i.e. 115 kb/s wireless Internet and other data communications.
GSM	Global System for Mobile Communications; Originally developed as a pan-European standard for digital mobile telephony. GSM has become the world's most widely used cellular system. It is used on the 900 MHz and 1800 MHz frequencies in Europe, Asia and Australia, and the 1900 MHz frequency in North America and Latin America.
HSCDS	High Speed Circuit Switched Data or High Speed Circuit Digital System; A circuit-linked technology for higher transmission speeds, i.e. up to 64 kb/s, primarily in GSM systems.
IMT-2000	International Mobile Telecommunications 2000; A term used by the International Telecommunication Union (ITU), to describe the third generation of mobile telephony, in the 1990's expected to be commercially available in 2000. IMT-2000 can also be applied to cellular telephone standards that meet a number of requirements in terms of transmission speed and other factors.
IN	Intelligent Network; A telecommunication network, e.g. cellular system, in which certain value added services can easily be implemented and made available to end-users.
IP	Internet Protocol; The Internet Protocol defines how information travels between systems across the Internet.
IP telephony	See IP and VoIP
IPR	Intellectual Property Rights
IS-136	Interim Standard 136; A digital cellular telephony standard based on TDMA technology. See also TDMA and D-AMPS.
IS-95	Interim Standard 95; A digital cellular telephony standard based on CDMA technology. See also CDMA.
ISDN	Integrated Services Digital Network; A digital communications network in which various types of information, e.g. voice, data, images, can be conveyed simultaneously to a subscriber via a common local line.
ISP	Internet Service Provider; A company specializing in offering end-users access to the Internet. As a general rule an ISP does not have a proprietary communications network but functions as a link between the end-user and the net operator.
IT	Information Technology
ITU	International Telecommunication Union; ITU, with headquartered in Geneva, Switzerland, is an international organization within the United Nations where governments and the private sector coordinate global telecom networks and services. ITU's organization comprises ITU-R, ITU-T and ITU-D.
ITU-D	International Telecommunication Union Telecommunication Development Sector
ITU-R	International Telecommunication Union Radiocommunication Sector
ITU-T	International Telecommunication Union Telecommunication Sector
KKV	Konkurrensverket; The Swedish Competition Authority.
KoV	Konsumentverket; The Swedish Consumer Authority.
LAN	Local Area Network; A small data network covering a limited area, such as within a building or

	group of buildings.
Land Mobile Radio	Traditional mobile radio communications used by trucking firms, rescue services, etc. in which each system has its own radio base station.
LIU	“Lagen om Ingripande mot otillbörligt beteende avseende offentlig Upphandling”; The Swedish Act On Action Against Improper Practice Regarding Public Procurement.
LMDS	Local Multipoint Distribution System; American standard for high-speed transmission of voice and data using so-called “point-to-multipoint” solutions. Used to provide wireless broadband traffic to small and medium-size companies or in apartment buildings.
LOU	“Lagen om Offentlig Upphandling”; The Swedish Public Procurement Act.
M-commerce	Mobile commerce; Secure and personal commercial transactions carried out through a mobile device, including mobile banking, stock trading, mobile shopping, and mobile advertising.
MD	Marknadsdomstolen; The Swedish Market Court.
MISP	Mobile Internet Service Provider
MMS	Multimedia Messaging Services; Message containing either formatted text, graphics, data, animations, images, audio clips, voice transmissions and/or video sequences.
Mobile Network	Wireless network for mobile communications comprising switches, radio base stations, transmission equipment, servers and software.
Mobile System	See Mobile Network.
Mobitex	A system for mobile data communications developed by Ericsson for Land Mobile Radio.
Multicoupler	The multicoupler equipment enables several radio receiving equipment and channels in the radio base station to use the same antenna.
MVO	Mobile Virtual Operator
Negotiated Contract	A term used primarily in the construction industry for turn-key contracts in which the construction company takes responsibility for purchase of land, contact with architects, technical consultation, construction and maintenance.
NMT	Nordic Mobile Telephony; The common Nordic standard for analog mobile telephony as established by the telecommunication administrations in Sweden, Norway, Finland and Denmark during the early 1980’s. NMT systems were also installed in some European countries, including parts of Russia, and in the Middle East and Asia.
O&M	Operation and Maintenance; Activities usually including system monitoring, e.g. of technical system performance, and alarm report handling, e.g. issue of work orders, as well as scheduled preventive/routine maintenance, emergency maintenance and the management and coordination of the staff/organization responsible for performing such activities.
OMC	Operations and Maintenance (O&M) Center;
Packet switching	A method of switching data in a network where individual packets of a set size and format are accepted by the network and delivered to their destinations. The sequence of the packets is maintained and the destination established by the exchange of control information (also contained in the packets) between the sending terminal and the network before the transmission starts.
PBX	Private Branch Exchange; An exchange system used in companies and organizations to handle internal and external calls.
PC	Personal Computer
PCN	Personal Communications Network; Collective term for European mobile telephone services in the 1800 MHz frequency band.
PCS	Personal Communications Services; Collective term for American mobile telephone services in the 1900 MHz frequency band.
PDA	Personal Digital Assistant; Collective term for e.g. cellular phones, beepers, hand-held computers with communications capabilities (“palm pilots”), etc.
PDC	Personal Digital Cellular or Pacific Digital Cellular; A Japanese standard for digital mobile telephony in the 800 MHz and 1500 MHz bands.
PoS	Point of Sale; Collective term for retailer of private end-user products, e.g. cellular phones or apartments.
PTS	Post och Telestyrelsen
R&D	Research and Development
R&TTE	Radio & Telecommunications Terminal Equipment
RBS	Radio Base Station
Repeater	The repeater equipment enables to repeat and amplify the radio signal between the radio transmitter equipment and the mobile terminal.
Router	A data switch that handles connections between different networks. A router identifies the addresses on data passing through the switch, determines which route the transmission should

	take and collects data in so-called packets which are then sent to their destinations.
ROT	“Reparation, Om- och Tillbyggnad”; A collective term for construction projects including repair, refurbishment, maintenance, and extension
SDH	Synchronous Digital Hierarchy; A standard for digital signal transmission within transport networks.
Service Provider	A service provider is often defined as a company in the telecom industry that specializes in marketing end sales, branding, customer care and billing. Such companies, provided they operate in the cellular segments usually sell SIM-cards under their brand. A service provider is a retailer of telecommunication services.
SMP Operator	Significant Market Power Operator
SMS	Short Message Service; Available on digital networks, allowing messages of up to 160 characters to be sent and received via the network operator’s message center to a cellular phone.
STR	“Stockholms Tingsrätt”; The Stockholm District Court.
TACS	Total Access Communication System; A cellular telephone standard originally used in Britain in the 900 MHz frequency band.
TDMA	Time Division Multiple Access; A technology for digital transmission of radio signals between, for example, a cellular phone and a radio base station. In TDMA, the frequency band is split into a number of channels which in turn are stacked into short time units so that several calls can share a single channel (frequency) without interfering with one another. The IS-136 digital air interface standard as well as cellular systems based on D-AMPS technology are sometimes also called TDMA. See also IS-136 and D-AMPS.
TTE	Telecommunications Terminal Equipment
UMTS	Universal Mobile Telecommunications System; The European term for IMT-2000 and the name for the third generation cellular telephone standard in Europe, standardized by ETSI.
WAN	Wide Area Network
WAP	Wireless Application Protocol; A free unlicensed protocol for wireless communications that makes it possible to create advanced telecommunication services and to access Internet pages from a cellular telephone. WAP is a de facto standard that is supported by a large number of suppliers.
W-CDMA	Wide-band Code Division Multiple Access; A technology for wide-band digital radio communications of Internet, multimedia, video and other capacity demanding applications. WCDMA, developed by Ericsson and other suppliers, was selected for the third generation of cellular telephone systems in Europe, Japan and the United States. The technology is also the principal alternative being discussed in other parts of the world, notably in Asia.
WDM	Wavelength Division Multiplexing; A technology that uses optical signals on different wavelengths to increase the capacity of fiber optic networks in order to handle a number of services simultaneously.
W-LAN	Wireless-Local Area Network; A wireless version of the LAN. It provides access to the LAN even when the user is not in the office.
WLL	Wireless Local Loop; A wireless connection of a telephone in a home or office to a fixed telephone network.
VNO	Virtual Network Operator
VoIP	Voice Over the Internet Protocol; A technology for transmitting ordinary telephone calls (voice) over the Internet using packet-linked routes.
WOS	Wireless Office Systems; A technology that allows the user to transfer calls to a mobile telephone.
xDSL	Acronym used for various technologies for broadband communications in ordinary telephone networks, e.g. ADSL.

ATTACHMENTS

Attachment 1: Empirical setting and theoretical development 1950-2000

Attachment 2: Empirical cases (complete) and first level of analysis

2:01 Tentative analytical models

2:02 Letter template (English)

2:03 Guide to interview

2:04 Interview guide (with potential answers)

EMPIRICAL SETTING AND THEORETICAL DEVELOPMENT DURING 1950-2000

EMPIRICAL SETTING 1950-2000

The 1950's through to 1970 was a period characterized by growth, particularly during the 1960's. A number of relatively highly educated workers entered the Swedish labor market and there was a strong restructuring of the economy including the movement of services from the informal to the formal economy. Free trade organizations such as the European Free Trade Association (EFTA) were established contributing to growth. Relative total GDP, the sector of agriculture decreased, the service sector increased, particularly public services, and the sector of industrial manufacturing was stable (increase in absolute terms). In regards to the latter, traditional Swedish industries such as iron-, steel- and metal works and mining and forestry showed stable growth in volumes and added value. Also industries such as the chemical, manufacturing and constructions industries showed stable growth. The "million program", i.e. the Swedish government's decision to construct one million apartments between 1965 and 1974, contributed to the upswing in the construction industry. It was not uncommon during this period to construct above 100,000 apartments on a yearly basis.

The 1970's through to 1990 was a period characterized by stagnation particularly during 1976-1985. Probably the single most important contributing factor was the change in world supply of oil and the resulting "oil crises" in 1973-74 and 1979. Such developments in the world market for oil contributed to the inflation in the Swedish economy and the devaluation of the Swedish Krona in order to stimulate exports and stabilize the trade balance/deficit. Swedish export industries relied not only on developing its competitiveness but also on government stimuli in order to retain its international market shares. Relative total GDP, the sector of agriculture was stable during this period, the service sector increased, particularly public services, and the sector of industrial manufacturing decreased. In regards to the latter, traditional Swedish industries such as iron-, steel- and metal works and mining and forestry showed stagnation or recession in volumes and added value. Increased competition from Latin America countries (e.g. Brazil and Chile) contributed. Also industries such as the textile, manufacturing and constructions industries showed stagnation or recession. As a direct effect of the oil crisis in combination with increased global competition the Swedish shipping industry, and as a consequence Swedish shipbuilding yard industry, suffered a recession. From an international perspective this was the period when Japan reentered the world of business on a global scale. Between 1960 and 1980 Japan's economy showed among the highest growth figures in the world. Japan increased its foreign direct investments primarily in the United States and Western Europe, and by the 1980's Japan had managed to enter and to compete successfully on a global scale in industries such as auto manufacturing and consumer electronics. By 1991-92, however, Japan's economic growth and competitiveness weakened.

If the 1980's was the decade of Japan, the 1990's and the beginning of the 21st century seems to be the decade of China. Short after the Tiananmen Square protests in Beijing, 1989, during the beginning of the 1990's, the economic reformist gained ground and the term "socialistic market economy" coined. As a part of the new economic policy the Chinese economy became more decentralized and foreign investments encouraged. In addition to developing traditional Chinese industries such as the food industry (e.g. cereals, meat, fruit, vegetables, wheat, and rice) and heavy industry (e.g. lead, zinc, tin, aluminum, oil, and coal), China also encouraged

the development of industrial manufacturing. China's new economic policy in combination with low labor costs attracted substantial foreign investments from around the globe, particularly from high labor cost countries such as Sweden, the United States, and Japan; the cost of labor in Sweden, including pay, social security and other benefits, has been ranked 10th among the most expensive countries in the world, the United States has been ranked 8th, and Japan 11th to mention only a few. Between 1992 and 2002 China had the world's third largest economic growth. In addition, by 2002 China had reached the world's third largest industrial and manufacturing output after the United States and Japan.

From a domestic perspective, during the 1990's through to 2002, the Swedish economy went from stagnation, particularly during 1991-93, to growth, during 1994 to approximately 2001, and back to stagnation. Low interest rates, increased lending/borrowing, the deregulation of the financial markets, tax subsidies, and speculative building constructions during the end of the 1980's and the beginning of the 1990's led to the real-estate crisis, the construction crisis and the subsequent banking crisis. One of the contributing factors to the recovery of the Swedish economy in 1994 was the depreciation of the Swedish Krona as a consequence of the decision in November 1992 to allow the Swedish Krona to float.

During the entire period and relative total GDP, the sector of agriculture decreased, the service sector increased, particularly public services, and the sector of industrial manufacturing was stable. Traditional Swedish industries such as iron-, steel- and metal works and mining and forestry showed stagnation in volumes and added value during 1990-95. Also industries such as the banking, textile, and constructions industries showed stagnation or recession during this period. The manufacturing industry, however, showed stable growth during this period. Two industries are particularly interesting from the mid 1990's and onwards; the telecommunication and construction industry. The telecommunication industry due to its extraordinary growth as a result of innovations and liberalization and privatization of markets and the construction industry due to its rebound after the "construction crisis" in the beginning of the 1990's and growth as a result of international expansion. Despite the obvious differences between these two industries, such as the level of maturity, i.e. emerging and mature, there are important similarities as well. Both industries are of major importance to individuals as well as to society and to the industrial and economic development in Sweden. On an individual level both industries aim to satisfy two basic needs of human kind, the need for shelter and to communicate with one another. From a societal perspective both industries are usually considered to be part of the country's "infrastructure" and consequently the "backbone" of industrial and economic development in Sweden. The importance of the telecommunications and the construction industry to the Swedish society cannot be overestimated and this is well illustrated by the fact that the Swedish government has had major shareholder interests in both industries. From an industrial perspective, other industries are heavily dependent on both the telecommunications and the construction industry. Some of the increase in productivity can be explained by the developments of telecommunications and IT. From an economic perspective, it is worth noting that the construction industry and the telecommunication industry represent approximately 11% and 2% respectively of total Swedish GDP.

Probably the most important trends during the 1990's and the beginning of the 21st century are the establishment of far-reaching multilateral free trade agreements, liberalization and privatization of markets, and as a result, increased growth, competition and globalization of customer markets, capital and financial markets, and labor markets. Another important trend is the growing importance of stakeholders to strategy including customers, shareholders, employees, environmental organizations, etc. These trends have occurred both from an international as well as a domestic Swedish perspective. Thus, multilateral free-trade agreements, privatization and liberalizations of markets, economic and industry growth, increased competition and globalization, and the importance of various stakeholders have been major drivers to the contents of corporate strategy and the changes thereof.

Multilateral free-trade agreements, liberalization and privatization: On an international level, some of the most important changes in the competitive environment had to do with the General Agreement of Tariffs and Trade (GATT) in 1993 (the Uruguay-round), the establishment of World Trade Organization (WTO) in 1995 and the EEA agreement in 1994. Under the EEA agreement products, services, capital and people were able to “move freely” within the member countries and corporations were able to incorporate subsidiaries freely within the EEA area. All such multilateral agreements on free trade had a major effect on Swedish domestic policy in regards to liberalization and privatization of markets; Swedish domestic policy was designed in line with such multilateral agreements. Thus, on a national level, some of the most important changes in the telecommunications and the construction industry affecting the competitive environment had to do with the regulatory scope and the Swedish legislation in the Competition Act effective in 1994, the Telecommunications Act effective in 1993, and the Public Procurement Act effective in 1994.

- The Swedish Competition Authority (SCA) was established in 1992 in order to promote effective competition in the private and the public sector. It does so primarily by supervising and enforcing the compliance of private and public organizations to the Swedish Competition Act from 1994. The Swedish Competition Authority, primarily through the Swedish Competition Act, affected corporations within the telecommunications and construction industry on a strategic level, e.g. in regards to decisions that concerned cooperative arrangements and mergers and acquisitions. Any such strategic decision needed to be designed and implemented in compliance with the Swedish Competition Act.
- The Swedish Postal and Telecommunications Regulatory Authority (PTS) was established in 1994 in order to supervise telecommunication, IT-, radio- and the postal sector and to promote and encourage competition within their area of responsibility by supervising and enforcing the compliance of private and public organizations to the Telecommunications Act from 1993. The same year (1993) Televerket was incorporated and renamed Telia AB. Telia AB (and Posten AB) became responsible for providing telecommunications (and postal) services, hence with no regulatory authority. In 2000 the Swedish government made a public offering approximately one third of Telia's shares and Telia was partly privatized.

- The Public Procurement Act and the Act on Action against Improper Practice Regarding Public Procurement, both effective in 1994, were of major importance to Swedish industry, primarily the construction industry where approximately 40% of the total purchase amount in the construction industry can be referred to public procurements.

Growth: Both on international and national level the telecommunication industry showed a staggering growth during the 1990's, particularly between 1994 and 2002. On a global basis, annual turn-over of fixed and cellular services and equipment closed to doubled during this period. The number of cellular subscribers went from 56 million to 1.2 billion million, an average increase of 47% per year. Fixed narrow band subscribers went from 643 million to 1.1 billion, equivalent to an average increase of 7% per year. The number of cellular phones sold on a yearly basis went from 23 million to 395 million. Telecom growth in Sweden between 1994 and 2002 very much reflected the global trend. Turn-over of fixed and cellular services in Sweden increased from 24 BSEK, the equivalent of 1.5% of GDP, to 43 BSEK or 1.9% of GDP. The number of cellular subscriptions increased from 1.4 millions to 7.2 millions. The Swedish construction industry also grew between 1994 and 2002, from 110 BSEK in turn-over on an annual basis, the equivalent of 6.6% of GDP, to 265 BSEK, or 11.3% of GDP. This growth occurred despite that completed construction of houses and apartments went down from approximately 20,000 in 1994 to average 12,000 during 1995-2001, rebounding back to approximately 20,000 in 2002.

Competition: Both in on international and national level the telecommunication industry showed an increased competition during the 1990's, particularly between 1994 and 2001-02. During this period Ericsson's world market share in cellular phones was cut by roughly three quarters. In Swedish fixed telecommunications service provisioning Telia's market share in number of fixed subscribers was roughly cut by half and market share in turn-over cut by one fourth. A similar development occurred in the cellular segment of the telecommunication industry. In this segment Telia's market share, both in number of cellular subscribers and in turn-over, was cut by slightly above 40%. The number of operators and service providers increased from 14 to 408. The increased competition resulted in that prices for telecommunication services went down; the per-minute price for a national long-distance call went from 0.84 SEK to 0.30 SEK. Competition in the construction industry also increased, particularly in the segment of refurbishing. The number of construction companies went up from approximately 50,000 to 55,000 (including land and foundation preparation, construction and civil engineering, installation, final treatment and machinery rentals) and the market share of the two largest construction companies, Skanska and NCC, was cut roughly between 40-50%.

Globalization: The dependency of Swedish economy to international trade has increased over the last decades. Of total GDP approximately one fourth went to exports during 1950's and 1960's. In the mid 1990's this figure had increased to 40%. Imports also totaled approximately one fourth of Swedish GDP during 1950's and 1960's. In the mid 1990's this figure had increased to close to 35%. An important trend emerges during the 1990's towards globalization, including the globalization of customer markets, capital and financial markets, and labor markets both in the telecommunications and the construction industry. This trend is

evident both in the operator and the supplier segment of both industries. Across corporations along the value chain of both industries this development is substantiated by e.g. the increase of international sales as a percentage of total sales, the increase of international shareholder's votes or capital as a percentage of total votes or capital, the increase of the number of employees in foreign countries as a percentage of total number of employees, and the increase of number of subsidiaries in foreign countries.

Stakeholder perspective: During the 1990's, particularly during the "IT-bubble", shareholders, relative customers, seem to have increasingly attracted the attention of corporate management and corporate strategy. Probably as a response to the short-term shareholder perspective on strategy, often including corporate managers as major shareholders, came the longer-term industrial perspective on strategy, focusing on customers and sustainable development, at least in theory, perhaps less so in practice. During this period the importance of delivering added value to customers through systems and total solutions increased. The increasing attention towards environmental issues and social responsibility often resulted in that the environmental policy (e.g. issues on industrial development and its impact on global warming, the exploitation of natural resources and the issues regarding recycling, etc.) of several corporations were developed into policies on social responsibility including not only environmental issues but also issues regarding working conditions for employees and ethical business behavior, etc.

THEORETICAL DEVELOPMENTS 1950-2000

The stable economic growth during the 1950's through to 1970 enabled the development of long-range planning perspective on strategy, growth strategies (e.g. growth into product and/or market areas) and analytical tools such as SWOT-analysis (e.g. Ansoff, 1965). Nonetheless, as the environment became more turbulent during the 1970's and 80's, the long-range planning perspective on strategy was eventually challenged and strategy often described as "as a pattern in a stream of decisions" (e.g. Minzberg and Waters, 1985). The increasing number of relatively highly educated workers entering the labor market during this period contributed to the recognition of the importance of learning, education and know-how among employees as a source for competitive advantage. The behavioral theory of the firm (Cyert and March, 1963) including concepts such as "organizational learning" through a "cumulative learning process", and "bounded rationality" (e.g. Simon, 1977) as well as the "resource based theory of the firm" made important contributions in this respect. From a strategic point of view it is likely, however, that the "core competence of corporations" (Hamel and Prahalad, 1990) is more widely known and discussed. This view contrasted an earlier theory of the firm, one that was based on a trade-off between transactions costs and internal governance/management costs for economizing on value adding activities (Coase, 1937); the "transaction cost theory of the firm". Transaction costs not only explained why firms were created in the first place, it also offered one explanation for corporate bundling, through vertical integration, and growth as well as its opposite, i.e. corporate unbundling through vertical disintegration. Thus, transaction costs could, in part, explain, what it is that drives "markets" to "hierarchies" and vice versa. The transaction cost theory can thus be viewed as one of the first modern approaches to corporate strategy as it offers a link between organizations/hierarchies and industries/markets. The link, according to Coase, was transaction costs. Strategy as a link between the organization and the environment is still

today a common perspective on strategy although researchers may have different perspectives on what the link in fact consists of. Despite that Coase also was able to explain “vertical and lateral integration” as he termed it back in the 1930’s (Coase, 1993), it was not until strategists during the 1960’s and 70’s, more than 20 years after Coase’s first published “The Nature of the Firm” (1937), as vertical and horizontal integration became more elaborated and theoretical available strategic choice to corporations, that the transaction cost theory became increasingly important and widely accepted for explaining such phenomena (e.g. Chandler, 1962; Williamson, 1971).

The economic volatility during the 1970’s and Japan’s growth during the 1980’s laid ground for two important trends in regards to strategy on corporate as well as on functional or operational level. On corporate level of strategy corporations developed into conglomerates through horizontal integration into unrelated businesses, and theories related to the portfolio management perspective on strategy were developed. Through portfolio management, corporations were able to e.g. diffuse risk and capitalize on growing and profitable industries, sometimes with the argument that all corporations essentially were in “the business of making money”. This development enabled the development of theories related to the portfolio management perspective on strategy, e.g. the growth-share matrix by the Boston Consulting Group in the early 1970’s, and the PIMS (Profit Impact of Market Strategy) program initiated in 1972. Still, however, the transaction cost theory could, in part, explain the strategic choice of vertical integration and the expansion into horizontally unrelated business. During the 70’s and 80’s an increasing number of researchers were attracted to research aiming at explaining vertical and horizontal integration and consequently their theories on why (and why not) firms should integrate vertically and horizontally were refined including transaction cost theory as well as other theories including other factors than just transaction costs, e.g. the dynamics of industry evolution including factors such as changes in market growth, buyer’s learning curve, reduction of uncertainty, diffusion of proprietary knowledge, accumulation of experience, changes in input costs, product innovations, entries and exists, structural change in “adjacent” (i.e. horizontal) industries, etc. (i.e. Porter, 1980). On functional or operational level of strategy, management tools and techniques such as continuous improvements in e.g. quality, productivity and logistics were developed. At the time, both practitioners and researchers often referred to concepts such as lean production, just-in-time, kaizen, total quality management and benchmarking. During the mid 90’s, however, some researchers began to argue that strategy on the functional or operational level, as developed during the 1980’s, including continuous developments in operational effectiveness was important although not strategic to corporations (Porter, 1996). It was argued that operational effectiveness could not sustain competitive advantage due to e.g. the rapid diffusion of best practices. Operational effectiveness had to do with performing similar activities better than the competitors while strategy had to do with performing different activities or performing activities in a different way. Consequently, operational effectiveness could only generate a zero sum competition and replacing strategy with operational effectiveness would result in static or declining prices, pressures on costs and the decreasing ability for corporations to invest in their business for the longer term (Porter, 1996).

The developments during the mid 1990’s and onwards including multilateral free-trade agreements, privatization and liberalizations of markets, economic and industry growth,

increased competition and globalization, and the importance of various stakeholders have been major drivers to the content of corporate strategy, including outsourcing as well as mergers and acquisitions. Contemporary research on strategy can be found both on the corporate and the functional level of strategy. On a corporate level, much research has focused on understanding the outsourcing and the merger trend during the 1990's and the beginning of the 21st century. On the functional level of strategy, modularization and systems development and sales has been an important area of research.

Outsourcing and M&As: It made sense to researchers, as large integrated corporations became less profitable and needed to cut costs during the late 80's and the beginning of the 90's, to hypothesized that the transaction cost theory not only explained vertical and horizontal integration, but also its opposite, outsourcing (e.g. Walker, 1988, Ellram and Maltz, 1995, Cox, 1996, Deavers, 1997). As researchers and practitioners turned their attention to outsourcing this "new" phenomena increasingly gained ground and culminated in the late 90's. Naturally, during this period of time the theory on outsourcing became increasingly refined, including factors such as the core competence of corporations (Hamel and Prahalad, 1990). "The core competence of corporations" (Hamel and Prahalad, 1990) was a major milestone in the theory development on strategy. Hamel and Prahalad (1990) contributed to developing the theory of the firm, and, as a result, the strategic objective of firms. Hamel and Prahalad (1990) argued that firms need to identify, build and exploit, at lower cost and more speedily than its competitors, its core competencies. The rationale for a company to focus on its core competencies is, according to Hamel and Prahalad (1990), that core competencies provide access to a variety of markets, contribute to customer benefit and are difficult to imitate. In addition, core products can lead to economies of scale and scope. Practitioners could now increasingly explained the rationale of outsourcing, as well as vertical/horizontal integration through e.g. M&As, by emphasizing the importance of focusing on the corporations "core competence" or "core business" (e.g. Quinn and Hilmer, 1994, Long and Vickers-Koch, 1995, Javidan, 1998). Some researchers even argued that outsourcing itself might be considered a core capability (e.g. Fine and Whitney, 1995). As the advantages and disadvantages of both perspectives, i.e. transaction cost and core competence, became increasingly evident, a third group of researchers came along trying to incorporate several other influencing factors or combining the existing two (i.e. transaction cost and core competence) in explaining the rationale for outsourcing (e.g. Fill and Visser, 2000) and vertical and horizontal integration. During the mid 1990's to the end of the 1990's opposite to outsourcing became an important and frequent strategic decision to Swedish and foreign corporations; M&As, in particular international M&As. This trend was particularly noticeable in the telecommunications and the construction industry. Not surprisingly, research in this area increased and focused on questions such as merger motives and merger outcomes or results. As mentioned, the resource based theory and the transaction cost theory have been frequently used not only to explain outsourcing but M&As as well.

Modularization and systems development and sales: As mentioned, during the mid 90's some researchers began to argue that strategy on the functional or operational level, as developed during the 1980's, including continuous developments in operational effectiveness was important although not strategic to corporations (e.g. Porter, 1996). It was argued that operational effectiveness could not sustain competitive advantage due to e.g. the rapid

diffusion of best practices. Operational effectiveness had to do with performing similar activities better than the competitors while strategy had to do with performing different activities or performing activities in a different way. Consequently, operational effectiveness would only generate a zero sum competition and replacing strategy with operational effectiveness would result in static or declining prices, pressures on costs and the decreasing ability for corporations to invest in their business for the longer term (Porter, 1996). Strategy on a functional level, however, regained ground during the late 1990's through the development of systems, total solutions or functions. The "development" of systems involved functions such as marketing, sales, product development, etc. on a functional level. It was believed that systems, total solutions, functions, etc. increased customer value through e.g. lowering total costs, improving quality and lead-times, increasing level of customization, etc. Consequently, increasing the scope of offering into systems, solutions and functions had the ability to take the corporation beyond competitive bidding based on price solely (e.g. Bansard, Cova, Salle, 1991).

Value chain perspective on strategy: It looks like the dynamics of strategy on corporate level during the 1990's (growth into related and unrelated business and back to focusing on the core competence) including changes in the offering through modularization and expanding the scope of offering through system sales need also to consider changes in the vertical division of work through substantial outsourcing and mergers and acquisitions. Having the corporation as the unit and level of analysis often implies that strategic decision such as outsourcing and mergers and acquisitions can be studied separately. Nonetheless, in understanding corporate strategy (i.e. the unit of analysis) from a value chain perspective (i.e. the level of analysis) it seems reasonable to assume that strategic decisions such as outsourcing and mergers and acquisitions are closely related to each-other (e.g. the outsourcing decision by one company may lead to an M&A decision by another company). Consequently, to better understand the dynamics of strategy on a corporate level the unit of analysis may have to be expanded to industry level or at least to include major parts of the vertical value chain; e.g. growth through M&As or focus through outsourcing may be interrelated and understanding outsourcing may require understanding mergers and acquisition and vice versa. In addition, corporate level strategy during the 1990's is not detached from the functional level of strategy, particularly under the assumption that the "offer" is the main carrier of value (as opposed to e.g. "relationships"). The 1990's shows that the functional level of strategy and the development of systems, total solutions, functions, etc. is intimately and reciprocally related to corporate strategy.

Linking corporate and functional level of strategy: The least common denominator, or the similarities, between outsourcing, M&As and modularization and system sales is that these are strategic decisions that have to do with bundling or unbundling (on different strategic levels). The difference is that outsourcing and M&As belongs to a higher level of strategy (i.e. often corporate or SBU level of strategy) and modularization and system sales on a lower level of strategy (i.e. often functional level of strategy); while outsourcing and M&As can redefine the boundary of the firm and its scope, modularization and system sales can redefine the boundary of the offering and its scope.

Defining and redefining the boundaries of the corporation through a continuous process of corporate bundling (e.g. through M&As) and unbundling (e.g. through outsourcing) has been suggested in order adapt the boundaries of the firm to the industry's profit structure or "profit pool" (Gadiesh and Gilbert, 1998) or to focus on the core competence of the corporation, i.e. its main "culture" in terms of customer relationship management, product innovation or infrastructure management, and to minimize the transaction cost or "interaction cost", i.e. costs for sharing ideas and information between buyer and seller (Hagel III and Singer, 1999). Defining and redefining the boundaries of the offering through a continuous process of bundling (e.g. through moving into system) and unbundling (e.g. through moving into modularization) has been suggested in order adapt the boundaries of the offering to increase customer value through e.g. lower total costs, improve quality and lead-times, and increase level of customization, etc. (e.g. Henke, Jr., 2000). Defining and redefining the boundary of the firm and the boundary of the offering through a continuous process of bundling and unbundling is hence strategy on both corporate and functional level. Linking the corporate level and the functional level of strategy through strategic positions (e.g. position in the value chain), and changes in such positions, and operational platforms (e.g. sales, purchasing, R&D, logistics, etc.), and changes in such platform, has been suggested in order to create "strategic effectiveness" as a combination of strategic and operational effectiveness (Abrahamsson, Brege, 2004).

Table 1 Developments in empirical setting and strategic research during 1950-1990

Year	Developments in empirical setting			Developments in theory
	Dynamics in macro level economics and drivers to sectors and industries	Dynamics in sectors and industries and drivers to strategy	Dynamics in strategy on corporate and functional level	
1950-70	Economic growth. Relatively highly educated workers entering the labor market.	Growth in e.g. iron-, steel- and metal works and mining, forestry, chemical, manufacturing and constructions industries. The “million program” in 1965-74.	Growth strategies e.g. into new product and/or market segments. Establishment of conglomerates through horizontal integration.	1960’s long-range planning, growth strategies, analytical tools such as SWOT-analysis (e.g. Ansoff, 1965; Chandler, 1962).
1970-90	Economic stagnation particularly during 1976-1985. The “oil crises” in 1973-74 and 1979. Inflation and devaluation of the Swedish Krona. Increased competition from Japan.	Stagnation or recession in e.g. iron-, steel- and metal works and mining, forestry, textile, manufacturing, constructions, shipping, shipbuilding yard industries.	From portfolio management on corporate level to focus on the operational dimension of strategy. Increased emphasis on the strategic process (evolution vs. planning).	1970’s portfolio management (e.g. Hedley 1977), BCG-matrix, PIMS, transaction cost theory (Coase, 1937; Williamson, 1971). 1980’s strategy as a “pattern in a stream of decisions” (e.g. Minzberg and Waters, 1985), the “value chain” (Porter, 1980, 1985), functional level of strategy including continuous improvements in e.g. quality, productivity and logistics (lean production, JIT, kaizen, TQM and benchmarking).
1990-	Stagnation 1991-93 including “real-estate crisis”, “construction crisis” and “banking crisis”. Growth 1994-01 supported by the depreciation of the Swedish Krona in 1992. Stagnation 2002 and onwards. Multilateral free-trade agreements, privatization and liberalization of markets. Increased competition from China.	Growth in telecommunications and construction industries driven by innovations and internationalization. Increased globalization, including increased international competition.	Increased importance of outsourcing (e.g. to China) and cross border M&As on corporate level of strategy and development of “solutions”, “functions” or “systems” on functional level of strategy. Growing importance of stakeholders to strategy including customers, shareholders, employees, environmental organizations, etc.	1990’s core competence (Prahalad and Hamel, 1990) based on the behavioral theory of the firm and resource based theory of the firm (Cyert and March, 1963), network theory, M&As and outsourcing, theories on “system sales”, stakeholder value perspective on strategy (e.g. Freeman and Reed, 1993).

The mid 1990's and onwards should provide further empirical evidence for describing and understanding the content of corporate level strategy (in terms of bundling through M&As and unbundling through outsourcing) and its interrelationship with the content of functional level strategy (in terms of bundling the offering through system sales and unbundling, i.e. modularization), particularly if viewed from a value chain perspective and the division of work across the value chain. Describing the linkage between M&As, outsourcing, system sales and modularization means describing the linkage on corporate as well as functional level of strategy. Understanding changes in the division of work in the value chain means understanding strategic change on corporate and functional level and the resulting changes in the boundary of the firm and the boundary of the offering.

Strategic research has had, and still has, a major impact in business life events or at least how we describe and explain business life events, and vice versa. This does not mean that strategic research and theory precede the events in real business life. Nor does it mean the reverse, i.e. that business life events precede strategic research and theory. History is able to tell us that it is probable that real business life events and strategic research and theories have evolved hand-in-hand, in parallel, and that they are closely intertwined. Nonetheless, history is also able to tell us that, from time to time, there has been a discrepancy between theory and practice. This thesis contributes to linking theory and the latest economic and business development during the 1990's and onwards by developing existing theory on corporate strategy. This is not to be interpreted as a presumptuous assumption. Any scientific research that provides recommendations to practitioners to change one thing or another is actually providing evidence that theory and practice are not in sync.

Many pieces have been laid in the gigantic jig-saw of describing and understanding corporate strategy and the context surrounding it. Given the developments and contextual changes during the 1990's; what is there to learn in regards to corporate strategy?