



TURUN KAUPPAKORKEAKOULU
Turku School of Economics

**DEVELOPING PRICE COMPETITIVENESS IN
PROJECT-BASED BUSINESS**

Case international industrial company

Master's Thesis
in International Business

Author
Karno Tenovuo 9796

Supervisors
Ph.D. Esa Stenberg
Ph.D. Peter Zettinig

2.12.2018
Turku

Turun kauppakorkeakoulu

Tutkielmatiiivistelmä

Aine	Kansainvälinen liiketoiminta	Aloittamisvuosi 2003
Tekijä	Karno Tenovuo	Matrikkelinumero 9796
Otsikko	Developing the price competitiveness in project business Case: International industrial company	
Ohjaaja	KTT Esa Stenberg ja KTM Hanni Candelin-Palmqvist	
Sivumäärä	72	

Yhteenvedo ja tutkimustulokset

Tutkimuksen tarkoituksena on selvittää keinoja hintakilpailun parantamiseen projektiliiketoiminnassa ennen projektikaupan sopimuksen allekirjoitusta. Aihe on tärkeä, koska se tuo uusia näkökulmia hintakilpailun konseptiin ylipäätään ja tutkimusta voidaan käyttää referenssinä teollisessa hintakilpailututkimuksessa ja varsinkin projektiliiketoimintaan liittyen.

Tutkimusongelma jaettiin osiin ja selvitettiin ensin mitkä ajurit vaikuttavat yleisesti kilpailukykyyn, sitten tarkemmin hintakilpailukykyyn, tämän jälkeen tutkittiin mitkä niistä vaikutuspiirissä ennen kaupan solmimista. Lopuksi tutkittiin, miten näitä ajureita voitaisiin parantaa tai kehittää hintakilpailukykyyn nostamiseksi.

Tutkimuksen teoriaosassa käydään läpi malleja ja tekijöitä, jotka vaikuttavat hintakilpailukykyyn. Yhteenvedossa näistä kehitettiin uusi malli hintakilpailukykyyn analysoimiseksi projektiliiketoiminnassa. Malli on laajennus Kim ja Maubourgnen 2004 luomasta geneerisestä mallista. Uusi malli ottaa laajemmin kantaa mitkä tekijät vaikuttavat nimenomaan hintakilpailukykyyn ja kertoo esimerkkejä miten eri tekijöitä voi kehittää. Uusi malli menee myös syvemmälle projektiliiketoiminnan tapauksessa mitkä tekijät ovat linkissä toisiinsa ja avaa myös teoriaa niiden taustalla. Teoriaosaa voivat yritykset käyttää muistilistana mitä tekijöitä pitää ottaa huomioon kilpailukykyisen liiketoiminnan rakentamisessa ja miten koko prosessi voidaan miettiä uudestaan.

Tutkimuksen empiirinen osa toteutettiin esimerkkiyrityksen sisällä haastatteluilla. Teoriaosan perusteella oli valittu suuri joukko tarkentavia kysymyksiä. Myös kirjoittajalla itsellä oli hyvä ymmärrys ja tausta kysymyksiin, koska hän johti tutkimusta tehdessään itse laajamittaista projektiliiketoimintaa ja on toiminut projektiliiketoiminnan kehitystehtävissä koko työuransa ajan.

Tutkimus osoittaa mitkä ovat hintakilpailukykyyn vaikuttavat tekijät ylipäätään. Näistä selvitettiin myös projektiliiketoiminnalle ominaiset tekijät. Projektiliiketoiminnassa korostuvat toimittajien rooli, hinnoittelumallit ja kehitystoiminnan merkitys sopimuksen ja oikean hinnan saantiin. Näissä kolmessa osa-alueessa tutkimus tarjoaa ison kokoelman keinoja parantaa hintakilpailukykyä.

CONTENTS

1	INTRODUCTION	5
1.1	Project business	5
1.2	Current situation and trends in the project businesses.....	6
1.3	Theoretical positioning of the study	7
1.4	The purpose and structure of the research	10
2	PRICE COMPETITIVENESS	12
2.1	Factors determining the success or failure of the companies.....	12
2.2	Blue ocean view to competitiveness.....	14
2.3	Factors determining the price competitiveness	15
2.4	Pricing Innovation Model adapted to project business.....	18
3	DEVELOPMENT IN THE PRESALES PHASE	21
3.1	Project process and the effect of the early stages	21
3.2	Engineering development	23
3.2.1	The role of product development.....	23
3.2.2	Product lifecycle management	23
3.2.3	Value engineering	24
3.3	Supply chain development	26
3.3.1	Purchasing development	26
3.3.2	Operating locations and joint development in the supply chain.....	28
3.4	Stakeholder development	29
3.5	Productivity development	30
3.6	Business model development	31
3.7	Pricing methods development	32
4	RESEARCH DESIGN.....	39
4.1	Research setting.....	39
4.2	Selection of the Case relationship	40
4.3	Data collection and analysis of the research data.....	40
4.4	Reliability of the research	43
5	ANALYSIS OF THE RESULTS - CASE INTERNATIONAL INDUSTRIAL COMPANY.....	45
5.1	Identified key drivers influencing the price competitiveness	45
5.2	Price competitiveness of the suppliers.....	47
5.2.1	Key cost factors	47

5.2.2	Standardization and Industrialization	48
5.2.3	Role of the suppliers in product development.....	49
5.2.4	The use of price clauses	50
5.3	Development of the pricing methods.....	51
5.4	Developing the product, production and processes.....	53
6	CONCLUSIONS AND DISCUSSION.....	55
6.1	Theoretical conclusion and discussion	55
6.2	Managerial recommendations	57
6.3	Suggestions for further research.....	58
7	SUMMARY	60
	REFERENCES.....	63
	APPENDIX 1: THE CONTENT OF THEME INTERVIEWS	70

1 INTRODUCTION

1.1 Project business

Project business is about making complex transactions for a predefined period of time. Projects itself have always goals related to time, cost and scope as do any other type of business as well. Scope correlates with the benefit to the customer which determines the price the customer is willing to pay for the project which finally determines the targeted costs and profit of the whole project (Arto, Martinsuo & Kujala 2006). Project can be defined as “*complex transaction covering a package of products, services and work, specifically designed to create capital assets that produce benefits for a buyer over an extended period of time*” (Cova, Ghauri & Salle 2002).

The characteristics of project business are uniqueness, complexity, there are limitations to financial commitments and there is a predetermined lifecycle (Cova, Ghauri & Salle 2002). Research and development activities have normally a high importance in project business as well as the collaboration needs between multiple organizations and team within the company. Key for successful development is efficient knowledge transfer between project team members and learnings that can be passed on to next projects (Arto & Wikström 2005).

Every project can be considered one of a kind even if the processes and development are similar from project to project. Uniqueness means variations in project sizes, customer types and also the other stakeholders involved in the project can vary (Cova, Ghauri & Salle 2002). The other stakeholders that determine the uniqueness of the project are the end users, suppliers, authorities, investors, media and competitors (Arto, Martinsuo & Kujala 2006).

Project business can have technical, financial, political and societal dimensions if a standard PEST model is considered. The more there are technical elements, number of participants, political connections or societal impact, the more complex the project is (Cova, Ghauri & Salle 2002). Complexity brings the elements of uncertainty and risks which demand higher risk management processes than in other types of businesses (Arto, Martinsuo & Kujala 2006).

Financial consequences, business relationships and strategies are all focused on single projects and not split across many solutions and customers. This means lack of continuity in business and financial interactions which causes a growing uncertainty between the business parties involved until they start the next project together (Cova, Ghauri & Salle 2002). Companies can identify themselves as operating in the project business as they for example produce big and tailored solutions for one customer at a time. But what they don't realize is that, when selling only slightly unique projects to the same customers

from year to year, they are actually closer to continuous production than they think. Maybe management practices and strategies are optimized for a wrong type of business. The level of uniqueness and discontinuity should be carefully examined for every project business-based company to identify which parts of the business operations are continuous and which are based on projects (Jalkala, Cova, Salle & Salminen 2010).

As stated, companies can have parallel business operations, for example mass production and project deliveries. Projects can be viewed as strategic management implementations and therefore project business can be defined as “*the part of business that relates directly or indirectly to projects, with a purpose to achieve objectives of a firm or several firms.*” (Artto, Martinsuo & Kujala 2006; Artto & Wikström 2005). Project business can be seen from two different perspectives. It can mean supplying value adding solutions to the customer which is called a supply project or on the other hand developing the company’s own business solutions to bring added value to the company itself which is called an investment project. Projects are a good way to fulfill company’s strategic targets if the projects targets are aligned with the company’s business targets. This point of view looks at projects itself as prioritized strategic steps towards a specified vision for the company (Artto, Martinsuo & Kujala 2006).

1.2 Current situation and trends in the project businesses

The world slowly recovered from the financial crisis which started around 2008 and companies in project business were no exception. New project orders fell globally for many years in a row but there are of course exceptions in the so-called low-cost countries and also differences between industries. For example, in shipbuilding industry newbuilding orders fell over 90 % suddenly (telakkateollisuustyöryhmä 2009). Six to eight years later we started to see positive growth in niche markets. The risk is in all project businesses that when a downturn has lasted for many years, specialized knowhow disappears permanently.

Complexity and dynamic nature are increasing in construction projects. Project team members from example multiple engineering disciplines need to use increasing amount of risk quantification and modeling methods to improve communication and team work. (Tah & Carr 2001)

There are megatrends that have a huge effect on the project business. Probably the biggest megatrend is the so-called Great Convergence and the relative power distribution. Emerging powers and populations are taking bigger roles in defining new competitive advantages. Increasing protectionism is another megatrend raising from the challenging economic times and general feeling of powerlessness. People want to protect their own home base and business environment at the same time the competition is increasing.

Environmental efficiency is another trend due to new regulations and concerns over the increasing consumption rates. Everyone is expecting new innovations in materials, clean energy, nanotechnology, biotechnology etc. to the extent that companies are hesitating to make investments into one solution because another may be just around the corner (Trendwatching.com Trend Report 2012).

As the new orders for supply projects have gone down, many companies have been moving into the service business. As the new product orders are pushed to the future, many end-clients are putting their money to updating and maintaining their old products. This has created a real trend for the traditionally manufacturing companies to expand their role upstream in the whole value chain (Andrésen, Holma, Karvonen, Saurama & Westerholm 2009). The trend of service sector growth is also driven by the fact that productivity of the assets is becoming more and more important due to high material and energy prices. At the same time, the trend of companies outsourcing the maintenance work and focusing only on their core competence pulls producing companies to move to service business. The infrastructure in Europe and North America is ageing which will also create demand for lifecycle services. (Eloranta 2008).

New trends in project business according to Jalkala, Cova, Salle and Salminen (2010):

1. Project business suppliers are more and more becoming system integrators
2. Buying behaviors are becoming more dynamic which causes actors to change rapidly
3. Buying processes are changing more towards risk-sharing partnerships
4. Companies have to move from discontinuous project transactions to continuous customer relationship management due to the of increasing the role of services and modularized project solutions

1.3 Theoretical positioning of the study

Non-financial factors of competitiveness have been studied widely over the last 40 years as all the strategic research have been focused on the question *what determines the success or failure of the companies* (Porter 1991). There are very important studies explaining the competitive advantages, core competences, dynamic capabilities and forces that shape the strategies. This have been studied by Ghoshal 1987, Porter 1991, Barney 1991, Berggren 1995, Lasser & Kerr 1996, Dyer & Singh 1998, Eisenhardt & Martin 2000, Krogh & Cusamano 2001, Hansen & Birkinshaw 2007. Price competitiveness can be viewed as a result of being successful in the other competing factors (Kim & Mauborgne 2005). Therefore, this study examines the current knowledge of competitiveness in general and investigates in more detail the factors determining the price competitiveness but puts everything to the project businesses perspective.

Price competitiveness can be defined as the “*ability to stay in the market and price the products or services competitively in the market*” (Yli-Kyyny 1989). Most of the earlier studies found related to the price competitiveness are from the banking sector or the studies are concentrating on comparing the price levels of different countries. As this study focuses on the project business and developing its price competitiveness, banking related studies and national comparisons are not assessed.

The earliest studies on industrial price competitiveness can be found in the shipbuilding industry late 1980’s (Nallikari & Yli-Kyyny 1988; Yli-Kyyny 1989). These studies aimed to determine the factors influencing the price competitiveness of the shipyards worldwide. The results were a good framework of determining the price competitiveness which can be now extended to the current pricing processes and the dynamic market environment of the 20th century. Ideas about competitiveness have been extended by strategic research for the past 20 years and so the late 80’s framework should be also updated as they are also developed further in this study to pinpoint what the case company should do to them. One good starting point is the findings of 2009 TEKES project “Responding to Globalization: Strategies and Management for Competitiveness” which focused on the identifying the impacts of globalization on the Finnish companies’ competitiveness and companies’ response strategies. There are some elements in that study which can be used to analyze the project business price competitiveness.

Rinta-Jouppi (2003) studied the price competitiveness of the offshore wind power, but focusing on the electricity prices and cost structures of the wind power production. As the research produced a very detailed offshore project cost structure, one could find some elements to be taken to more generic surroundings of the project business.

Price competitiveness is related to the cost competitiveness as the cost can be considered to be the price minus the profit (Kim & Mauborgne 2005). If the offerings are identical and entry barriers and other factors distorting the competitiveness are not considered, then price competitiveness equals cost competitiveness. As cost competitiveness comes for example from productivity, quality and modularized solutions, they should be addressed in this study also. There is a study about the cost competitiveness of the major airlines by Oum and Yu (1998). The study identified the sources of airline cost competitiveness which depends on input factor prices and productive efficiency. This study does more than identify the sources of competitiveness as it attempts to develop the pricing process related issues in the project business environment. Halevi (2006) wrote about the cost reduction to increase industrial competitiveness and focused on the continuous production plant’s ways to reduce costs. There are common boundaries to this study in e.g. managing the suppliers.

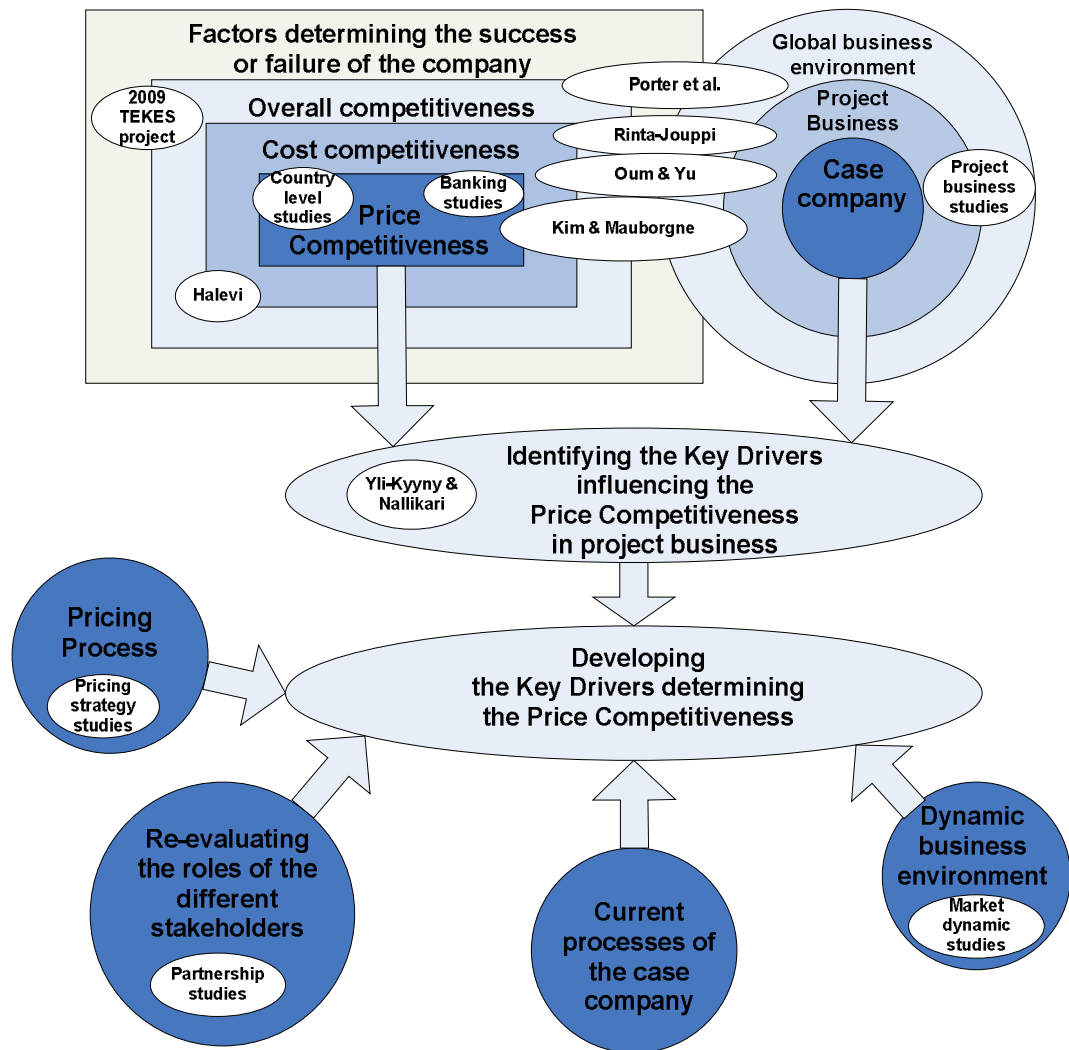


Figure 1. Theoretical positioning of the study

This study extends previous pricing process studies to different market situations' effects and to project business. Also, this study focuses on the effects of different project business stakeholders to the price competitiveness.

Figure 1 shows the relation of the earlier studies to this study. The previous studies are mapped to the show which theoretical field they have deal with. For example, the Oum and Yu (1998) focused on the costs on airlines which are also in some parts operating in project business. Kim and Mauborgne (2005) focused on the competitiveness of the companies in general but touched the project business area with examples of the companies operating in project business.

Therefore, it can be concluded that this study brings new perspectives to the concept of price competitiveness from project-based businesses' view point and presenting how can key drivers of price competitiveness be developed before the actual sale is closed.

1.4 The purpose and structure of the research

This study focuses on developing the price competitiveness of the case company operating in project business by assessing the different stages of the pricing process and other processes before the actual sale. As the study will point out that there are many ways to improve price competitiveness, but the focus is only on the most significant factors.

The purpose of the research is to determine:

How can the price competitiveness of project businesses be further increased by developing the key drivers of the presale period?

This can be divided into three sub-research questions:

1. What are currently the key drivers influencing the price competitiveness in project businesses?
2. Which drivers can be developed before the actual sale?
3. How should the key drivers be developed in order to increase the price competitiveness?

Structure of the study is presented in figure 2. The tree structure describes how the research problem is divided into two problem areas which instead can be divided into different theoretical areas. Key drivers influencing the price competitiveness are discussed in chapter 2. According to the author's hypothesis the influences are rising from: (1) strategies making the companies activities unique, (2) competing forces also known as the Porter's five forces, (3) capabilities including the company's own core capabilities and complementary capabilities from the suppliers, (4) advantages of different types as described by the eclectic paradigm. The ways the price competitiveness can be developed are described in chapter 3. They are divided into six categories: (1) pricing methods development with pricing strategies and tactics, (2) supplier management through different sourcing levers (3) stakeholder's development in pre-contract phase including contract development and incentives towards different stakeholders, (4) product developments role in providing competitive offerings, (5) value engineering that finds ways to sustain the added value and lowering the costs at the same time, (6) productivity development in general including execution models and other processes.

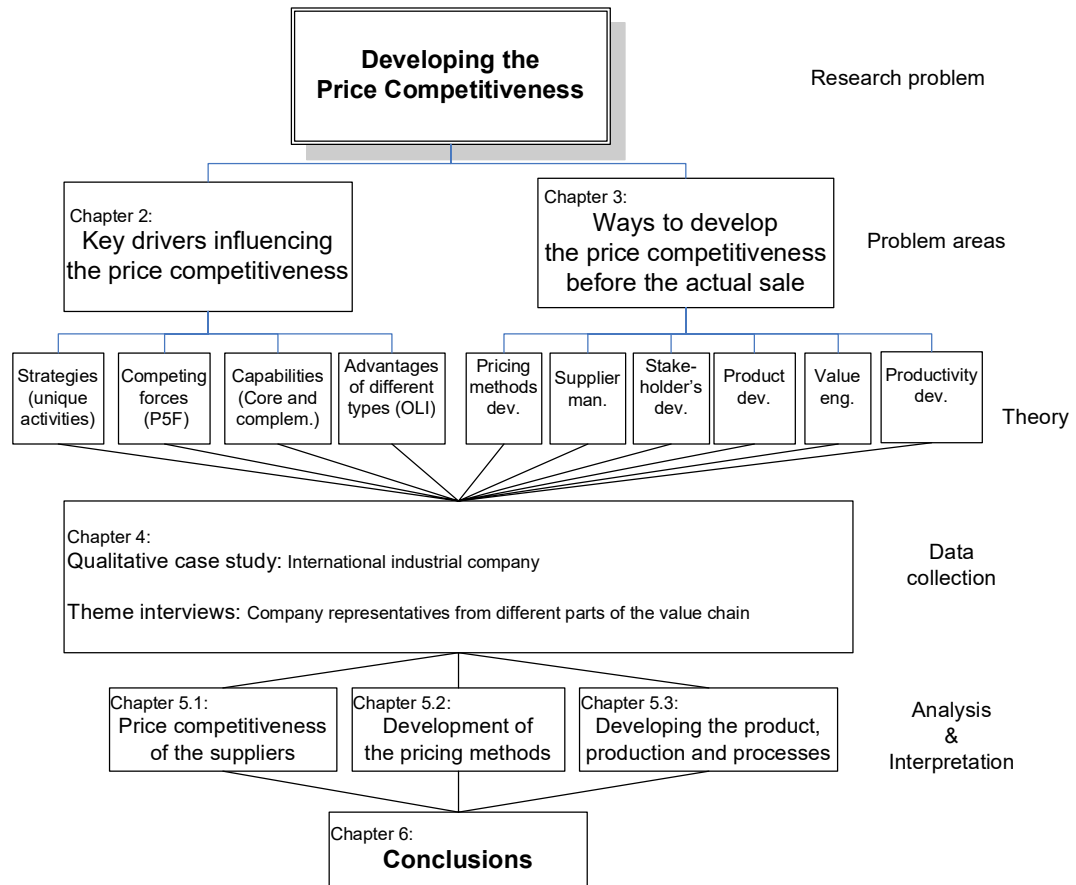


Figure 2. The structure of the study

Chapter 4 describes the link between the theories used in the study and data collection. As this study is a qualitative case study from one international industrial company, the theme interview focuses on the theoretical groundwork of the previous chapters. Chapter 5 holds the analysis and interpretation of the empirical results focusing on three areas: (1) suppliers price competitiveness, (2) pricing method development and (3) development of the product, production and processes.

2 PRICE COMPETITIVENESS

2.1 Factors determining the success or failure of the companies

Peter Drucker wrote an article called *The Theory of Business* in 1994. This was a result of studying many big companies that had tried downsizing, total quality management, economic value analysis and many other “how to do” tools. All the big companies that had experienced success for a long time faced a similar challenge: “What to do”. His theory of business was that there are three types of assumptions: environmental, mission specific and core competences related. Environmental assumptions related to organizations can be viewed from society, market, customer and technology point of view. Mission specific assumptions determine how the company plans to make a difference in the environment and core competence assumptions define where the company needs to be good at. A company cannot just do this definition of the assumptions and its theory of business once, but it should do it every 3-5 years to test if the assumptions have changed and to study the noncustomers if a market or industry will change. (Drucker 1994)

When a company has a clear and measurable vision (a target that it is aiming for), that vision can be translated into activities and factors that the customers value in their decision making. These activities and factors vary in every industry and depends in their role in the value chain. Companies overall success or failure determines the following themes: core competences, unique activities or advantages and controlling the borderline activities. (Porter 1991)

Companies success or failure can be linked to core competences. Competitive advantage can be achieved through improved routines related to corporate culture and processes. They are also called dynamic capabilities (Eisenhardt and Martin 2000).

On top of these core competences, company needs to have some form of competitive advantage or in the best scenario unique activity/offering. Possible advantages are can be grouped using the OLI-model (Ownership, Location and/or Internalization advantages). A good ownership in companies can be considered to be an advantage in companies because it is related to for example good leadership, brand building, effective decision-making and controlling equity. Location related advantages are access to resources and skills, closeness to customers and cost level. Internalization related advantages are for example synergies and internal transaction advantages. (Chowdhury 2015)

Porter highlighted already over to decades ago that on top of core competences, company needs unique activities related to its market position in order to be successful. Blue Ocean strategy theory gives more focus to making clear choices where to be unique and what activities must be let go. Porter called this “stuck in the middle” approach when

a company is trying to focus on everything or too many activities. (Kim & Maubourgne 2005, Porter 1991)

Success factors have been studied by Ghoshal 1987, Porter 1991, Barney 1991, Berggren 1995, Lasser & Kerr 1996, Dyer & Singh 1998, Eisenhardt & Martin 2000, Krogh & Cusamano 2001 and Hansen & Birkinshaw 2007. Factors arising from these studies can be summarised into a single figure.

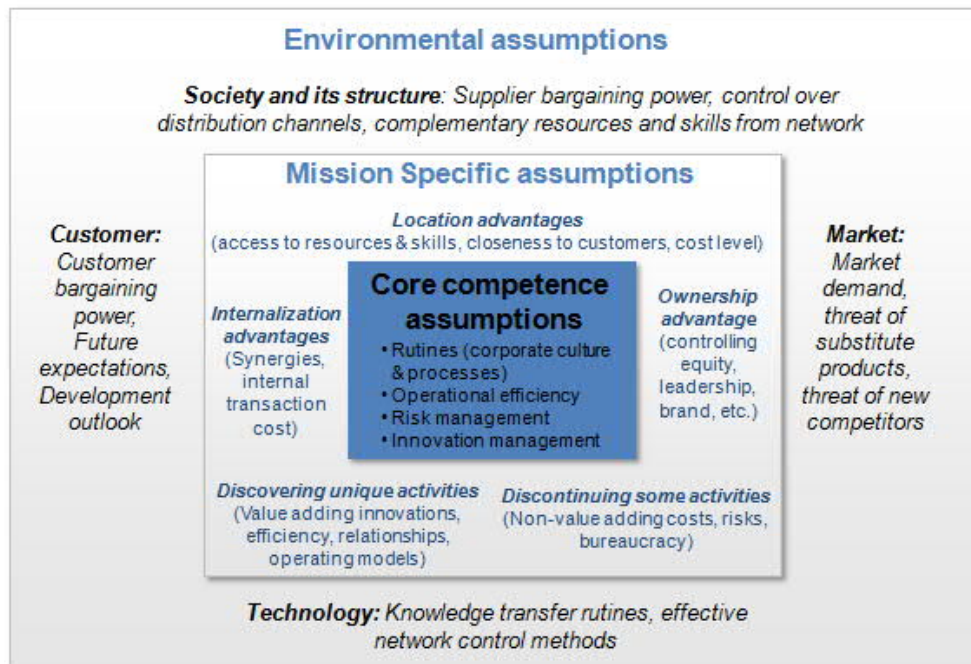


Figure 3. Factors determining the overall competitiveness of the company. Theoretical framework of modern thinking which factors guide the company strategy. Applied by the author by combining different theories from different sources

Every time companies are making their strategies they are asking: which strategy is the right one to choose and what is the best way to achieve the vision and the set financial targets. Situation of the company, industry, competitors and other stakeholders correspond to what is the right type of strategy to choose. When Juha Torniainen (1993) compared the Porters generic strategies to Porters five forces in Finnish and Swedish metal industry, he found out that at that time at least machinery industry companies that had chosen specialization strategy were more profitable than companies chosen any other type of generic strategy. (Torniainen 1993)

2.2 Blue ocean view to competitiveness

Although the term blue ocean strategy is relatively new, the concept and way of thinking behind it is not. According to Kim and Mauborgne (2004) companies cannot sustain high margins and performance in general in overcrowded industries or market places. Blue ocean means industries and market places that do not exist today whereas red ocean represents today's industries and market places. The key insight Kim and Mauborgne had was that one needs to study the industry boundaries and competitive rules of the game. Blue ocean strategy is "*about creating new land, not dividing up existing land*". By doing this companies can turn unattractive markets into attractive and become many times more profitable. Blue ocean strategy urges to reinvent the business by raising a completely new industry or altering the boundaries of an existing industry. If we look at the history how industries work, we will see many new industries in the next 20 years that are still unknown today. To find a blue ocean industry or situation within the market, companies must step back and analyze how to drive down costs and drive up the customer value at the same time until they achieve a leap in value for both itself and its customers. (Kim & Mauborgne 2004). It is really crucial to find customers value factors that they truly care about. These can be for example lifecycle performance, lifecycle cost, cost of finance, track record and experience, ongoing and planned development, flexibility to changes if needed during the project, reliability to do what is promised, credibility of the supply chain and partners and of course buyer-seller relationships.

Each customer or customer group can weigh the value factors differently when determining where and when to buy. Blue Ocean approach makes us think that price competitiveness is a result of being competitive in non-price issues. Company that can create uncontested market space does not have to choose whether to focus on added value to the customers or cost of doing so. Every leader in every company should constantly think how to free the company from current competition as part of the annual strategic planning cycle as minimum. According to Blue Ocean theory, there are many ways to approach this. Most companies tend to focus on only competitors within the same industry. Many companies who have found their blue ocean market space, have realized that their true customer choose between few industries when making certain buying decisions. By taking the positive value factors (decision making criteria) and eliminating the negative ones, they can create unique offering to their true customers. Company can adapt to trends or create them. Being the frontrunner and innovator requires a lot of investments, but if a company's solution becomes the industry standard and platform others build their business, the possibilities are endless. Companies can also redefine who their customers really are or what the offering should be that maximizes the customer experience. (Kim & Mauborgne 2004).

2.3 Factors determining the price competitiveness

Competitiveness as a concept can be complex and company's competitiveness can be understood in many different ways. Best indicator in the end might be market share. The best definition found from the literature (Hast, Koppinen, Suonne 1994) splits the company's overall competitiveness into real and price competitiveness. Real competitiveness has two parts: 1) Cost competitiveness is related to company own activities such as efficiency, 2) Non-Price competitiveness is related to qualitative value factors such as culture, brand. Price competitiveness is related to demand factors. Real competitiveness considers all the factors such as product quality, marketing, etc. These factors are very important in international business and explain a lot of the behaviors. Real competitiveness and price competitiveness have a certain relationship (Hast, Koppinen, Suonne 1994)

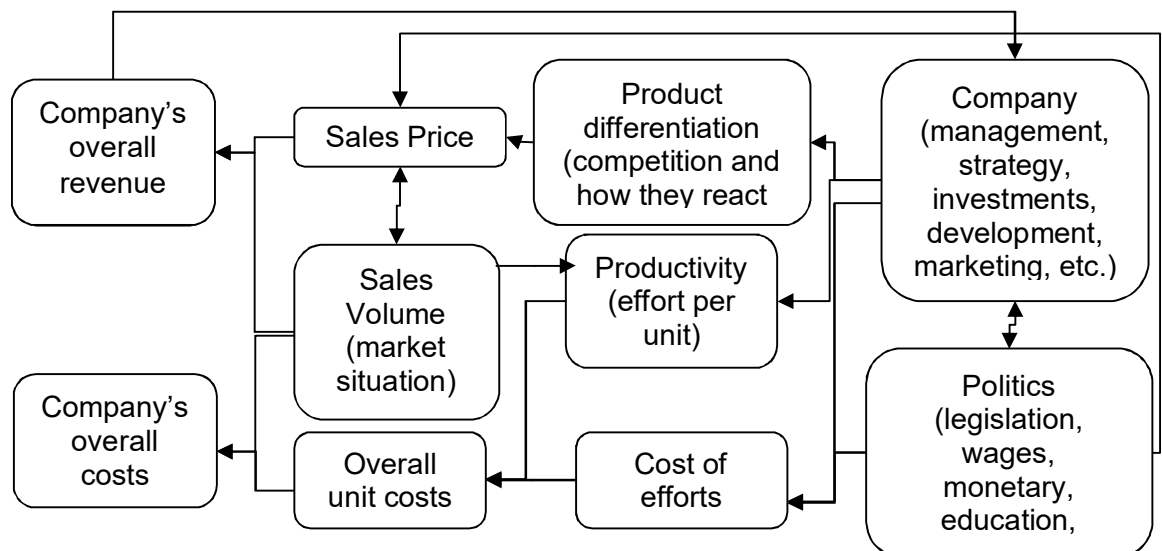


Figure 4. Factors affecting overall competitiveness (Hast, Koppinen, Suonne 1994)

Profitability and investments also determine the company's overall competitiveness. Investments can be targeted for example to new product introduction, product upgrades, manufacturing efficiency, cost reduction, etc. (Hast, Koppinen, Suonne 1994). Company that is more profitable than its competitor can invest relatively more into development and become even more competitive in the future.

Sales price is relating to the price competitiveness, overall unit cost is related to cost competitiveness and sales volume can be related to non-price competitiveness. Price competitiveness should be measured such as ROI (return on investment). Sales price (solution value for the customer) divided by investments/costs related to the sales such as labor, material, capital and services. These costs also include marketing costs, distribution costs, Understanding the customers' price sensitivity is important (Nallikari 1990)

The term “price competitiveness” have been used mostly in economics when comparing different countries price and cost levels in the same industry. When using the terminology in discussions, not much attention is paid to its theoretical background. Price competitiveness is closely linked to purchasing power parity theory when comparing different countries, but it also much more than that. A good way to understand what is price competitiveness is to specify how to measure it. A good model can be found from study made by Jukka Pekkarinen and Tapio Peura in 1984 for the Finnish National Bank (Pekkarinen & Peura).

Table 1: Price competitiveness indicators. When interpreting the price competitiveness indicators, the four different indicators can give slightly different result depending on the situation. (Pekkarinen & Peura).

	Competition requirements	Competition success
Price setter	Relative prices	Market shares
Price taker	Relative costs	Relative profitability

Price competitiveness describes the competitive situation related to prices, cost levels, competition requirements and competition success. If the company is a price setter, that can transfer the increased production costs to the prices, a good indicator is the prices (for example export prices or factory standard margin) related to competitors. Price competitiveness of the price setter can be also viewed from competition success point of view. In this case the market share is a good indicator (Pekkarinen & Peura).

Market shares are varying over time when demand reacts to changes in price levels. For the price setter this means that changes in price competitiveness are related to demand price elasticity when we are expecting the price setter to be willing and capable to deliver a certain amount of the commodity. In the case of a price taker, when the company cannot affect the global price levels, profitability is the closest and a good short-term indicator stating if a company is successful or not. Supply demand elasticity is determining the effects to price competitiveness in the case of price taker. This means that if you are a price taker, it is justified to talk about cost competitiveness instead of price competitiveness, because the prices are given. These different views can lead to different interpretation to if a company if competitive or not (Pekkarinen & Peura).

It is an old saying that “In the end, price is all that matters” but price leadership is not the only strategy. It can be very difficult to analyze how much can the gap be between being better in non-price issues and having higher prices. There needs to be an understanding of what the right price is, what are competitors’ prices, how to agree it within the company that is selling, how to flow it through all the other processes in selling the company and how to actually/concretely sell it to the customers. These are all suggesting that pricing process is a core capability and can be a competitive advantage.

Companies should invest in developing their pricing process and knowledge related to the questions above do not appear without it. (Dutta, Zbaracki, Bergen 2003)

There is no single price for an offering and the price competitiveness of a company depends much on the pricing range it has in the market. The freedom to choose a price for products and services becomes easier as the offering is more differentiated from competitors. Brand can create a customer expectation that they are willing to pay more or product can be accompanied by a service to create the premium. The more company competes in commodity markets the more it has to reduce its product unit cost and other cost factors to get the premium needed (Anttila & Foggerholm 1999). In the newly emerged gaming companies, price competitiveness comes from getting people nearly obsessed about the games and when they want to increase the speed or win more battles, they have to pay a small fee. This type of free business model and paying only to get more would be new in any other industry.

Analyzing the competitive factors in construction business in 1987, there were five factors valued by the customers: price, technology, delivery methods, financing and relationships. These can be divided into several factors determining the company's competitiveness in a project. Customers have a great influence and decision power in projects. When analyzing this the supplier should consider: customers investment needs, customers decision tree/structure, customers options to solve their investment needs, competitors and other suppliers, what customers can do on their own. (Heikkilä, Huovinen, Silventoinen 1987)

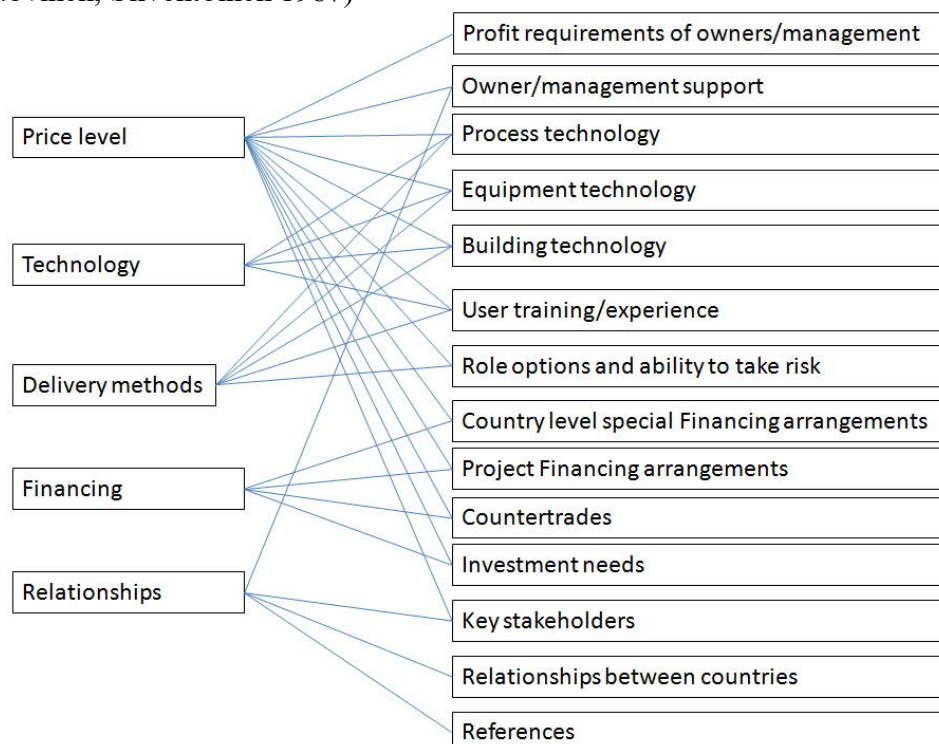


Figure 5. Competitive factors in construction business in 1987 (Heikkilä, Huovinen, Silventoinen 1987).

On top of these five competing factors also intensity of the competition is significant. This is determined by the number of competitors, their investments and relationships with the customers on top of references and workload. Suppliers have also a great impact to the competitiveness. There are certain suppliers that are needed to deliver the projects but companies should analyze continuously the number and quality of alternative suppliers. A lot is determined by if the suppliers have been working with competitors in the past. According to Porter's five forces model there is also the treat of new entries and changes in the competitive landscape. These kinds of changes can be related to scope changes or alternative delivery models where for example customers do part of the solutions themselves. Or then customers can decide to invest in competing projects to solve the same challenge. (Heikkilä, Huovinen, Silventoinen 1987)

High level factors on the left of Figure 5 seem to be the same in all project-based businesses no matter what the industry is. When going one level deeper there starts to be differences due to industry setup or other reasons.

2.4 Pricing Innovation Model adapted to project business

Pricing innovation model developed by Kim and Mauborgne (2004) explains how strategic pricing determines the target profit which determines the target cost levels. This is all standard strategic pricing process until this point. What Kim and Mauborgne focused was how to achieve the target costs: rationalization and cost innovations or by strategic alliances. This is basically development done inhouse or then outsourcing to partners that can bring cost levels to targeted levels. Changing these relationships and innovating what can be done inhouse and through partners can be summarized as pricing innovation. (Kim & Mauborgne 2004)

The special feature of project business is that companies have to adapt their offering in the decision-making steps of a project process. There are three phases: (1) Independent from any project, (2) pre-tender and (3) tender phase. Phases are shown in Figure 7. Setting the pricing strategy and translating that to an actual price of the offerings and also being able to convince the customers they are the right prices are key parts of the process (Cova, Ghauri, Salle 2002).

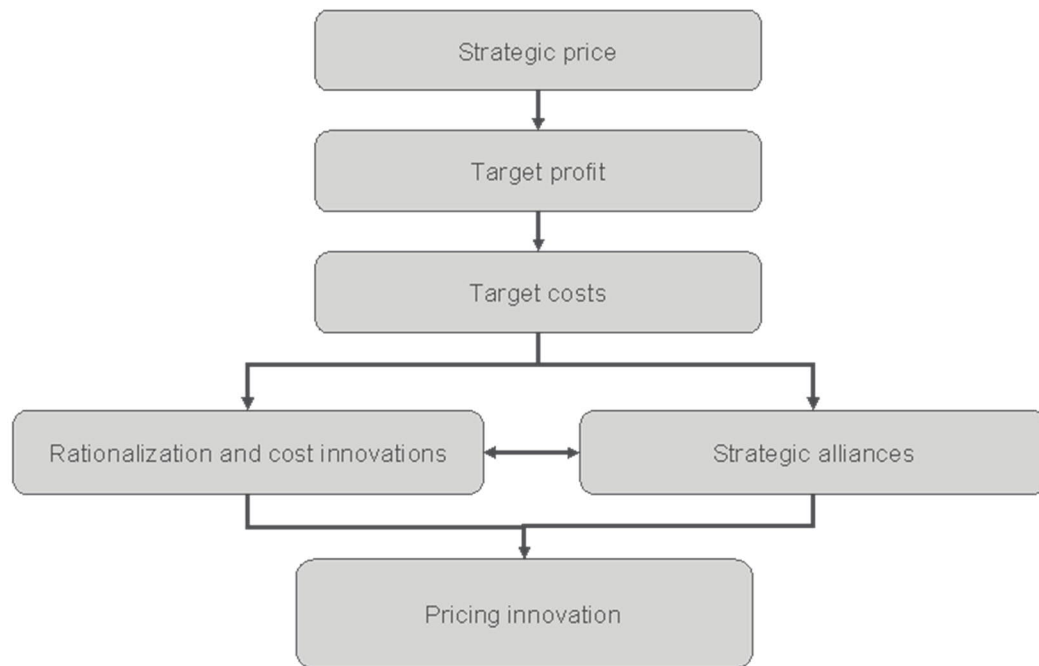


Figure 6. Pricing innovation model by Kim & Mauborgne 2004.

To the pricing innovation model this means the negotiation part should be highlighted. As an innovation is not an innovation before a customer buys the innovation, a pricing innovation is not a pricing innovation before customer accepts the price. To be successful in setting right prices there are three elements needed: people who understand all the variables and forces, a system to capture the data and use it efficiently, and thirdly a well-functioning social mechanism to glue all parts together (Dutta, Bergen, Levy, Ritson, Zbaracki 2002).

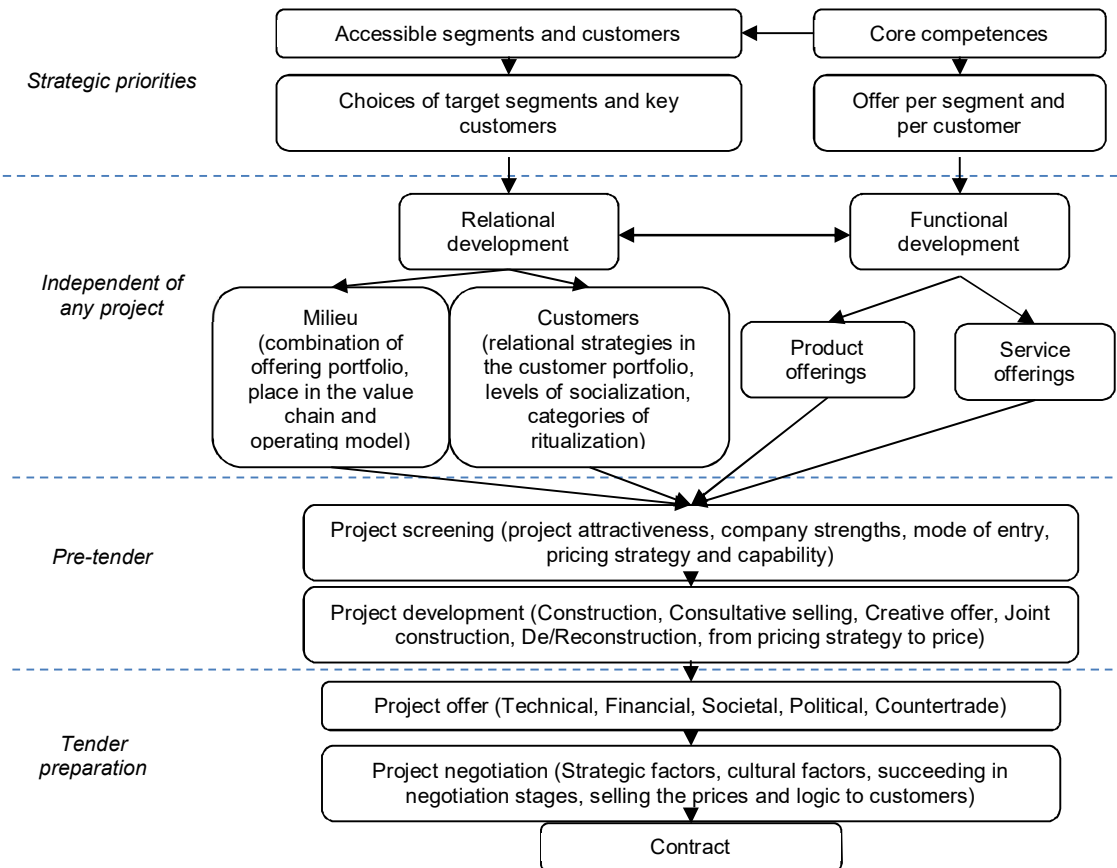


Figure 7. Steps in project business as described by Cova, Ghauri and Salle (2002)

It is important to understand how project marketing process works so that the pricing innovation model can be applied to it. Strategic priorities are a prerequisite for the rest of the process. First the companies need to understand what they are good at (core competences) and to whom can they sell and also what is the offer per segment. Normally there are also choices that need to be made because the company cannot serve everybody or at least not well. After strategic priorities are set, company needs to position itself (relational) so that it can detect projects far upstream and put together offerings (functional) taking characteristics of each project. In the pre-tender phase the projects are screened to see which ones are attractive and fit to company strategy but also the company is able to entre, deliver and make profit. Once there is green light to go ahead, the sales team starts consultative selling phase where final construction is created together which then gives what the final price is or needs to be. Tender preparation phase is putting together the technical, financial and other details what was created by the consultative selling team. Then the project negotiations can have multiple rounds before the contract is awarded to the seller.

3 DEVELOPMENT IN THE PRESALES PHASE

3.1 Project process and the effect of the early stages

Most of the costs are defined and locked at the very early stages of the project process. This is similar to manufacturing processes in non-project businesses as well. Typically, 80-90% is defined and locked during concept and design phases (Hannus 1993). Project sales and execution can be parallel activity. Preparing for project tenders, making the actual tenders, negotiations and contract preparations can all happen at the same time as the project is being started, concept defined and designed. Initial project plan can guide both the sales and design processes before the contract negotiations are concluded and project plan finalized and locked. (Artto, Martinsuo & Kujala 2006)

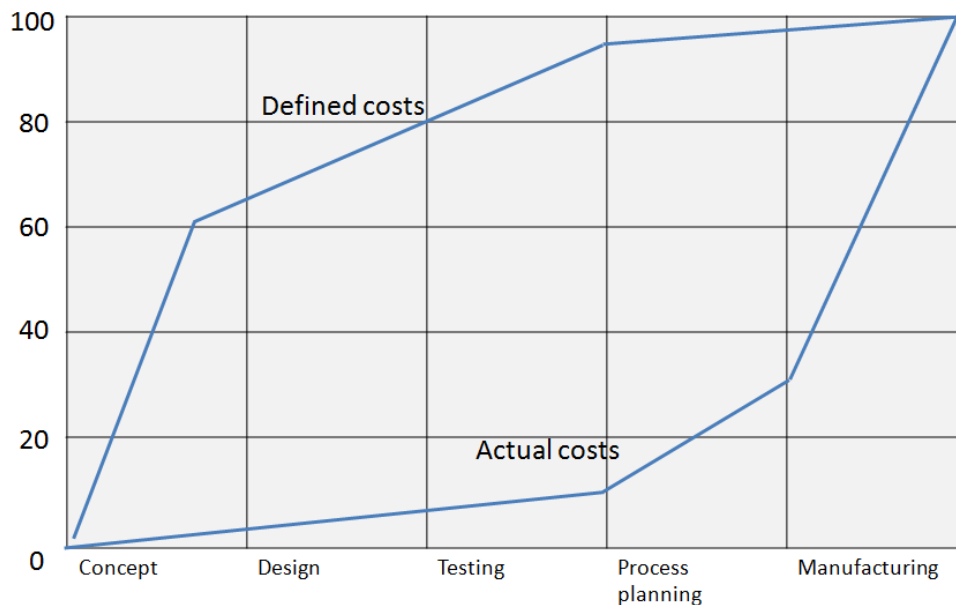


Figure 8. Normal product cost development over the lifecycle (Hannus 1993)

Every sales project needs a good foundation to build on. Company strategy creates that foundation and also determines where the sales efforts should be focused. From the sales opportunities the key opportunities are selected. From the sales process point of view, it is important to continuously analyze where to focus the sales efforts because *“winning a deal is important but winning a customer to become a key customer is crucial”*. During the process companies should analyze can they compete with others and is the opportunity worth winning. (Roune, Joki-Korpela 2008)

Even before the concept or project definition phase the companies are in most cases doing their own research and development activities that are leading to the concept or influencing the concept. It is also before the concept phase or during it that supply

chain, productivity, business model should be done before they start to influence the project costs and profitability. Most part of the development should be done when its 'quiet' before the project starts but that is usually when the companies are lacking financial support to do so and forced to delay the improvement activities. Solutions that are a success in the market are either a result of market pull or technology push. Also, production improvements can lead to market success. Identifying the right market pull (market opportunities at the right time) might be the most probable way to success. Success is based on identifying customer needs, cooperating with customers as much as possible, technical defects are corrected before the solutions is fully launched to the market and the company's top management is actively involved. In order to be successful in projects, the company needs product development expertise, customers' needs must be well understood and marketing of the project or solution needs to fit the capabilities of the marketing team. Also, it is important that product development is well planned and driving for results but it is equally important the company's size and cost structure fits the project or solution. (Jaakkola & Tunkelo 1987)

In order to create competitive advantage either from commercial or technical starting point, companies must make many choices what fits best the business idea, market opportunity, production capability, product development capability and what affects profitability the most:

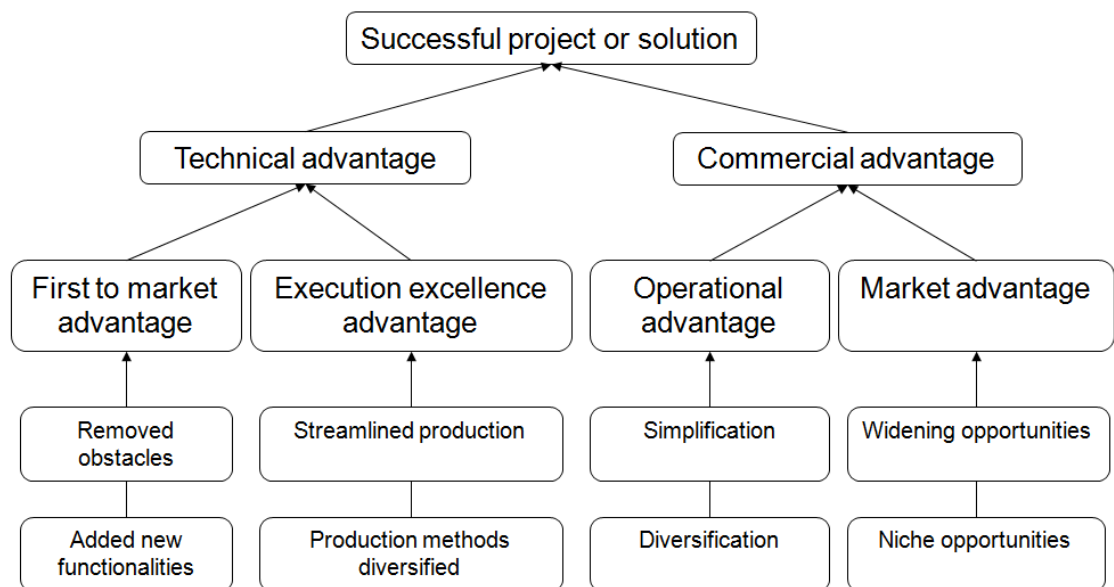


Figure 9. Competitive advantage map (Jaakkola & Tunkelo 1987)

Technical advantage can raise from being first to market or begin better at project execution. Just to give few examples, the first to market advantage can come from removing some market obstacles (e.g. rules, regulations) or adding new functionalities (e.g. using new types of materials or using new type of software making the user experience a superior one). Advantage in execution can either come from removing waste throughout the supply chain and streamlining the supply chain better than competition, or

it can come from diversification of production methods that lead e.g. to increased mass tailoring and flexibility. Commercial advantage can arise from something that happens at the market or within the company. Inside the company operational advantage can be achieved on a high level by either simplifying all businesses to focus on the core (streamlining the non-value adding elements) or then by diversifying to wider portfolio while seeking synergies and balancing the market cycles of different solutions. Market advantage can be achieved by going after wider goals than before when the time and place is right or then by going after a niche market at a right time and place. (Jaakkola & Tunkelo 1987)

3.2 Engineering development

3.2.1 The role of product development

Product development is bringing ideas from multiple sources: innovation portals, suppliers, patents, innovation workshops, conferences & seminars, literature, end users and outside inventors. Although most product development processes are not linear, it is easier to draw them that way. Process can jump back and forth multiple times and unpredictably. The role of the product development is to understand the market needs, develop a technical solution for a specific problem and make sure the solutions are ready when the market needs them. (Welin 1982)

When start-up mentality is applied, it is not relevant that in product development all steps are followed to the letter and minimizing the risks along the way. On the contrary, one should proceed in the project step-by-step and experimenting. A new solution development that is aiming to a completely new technology or industry is vulnerable during the whole lifecycle. Credibility is low before the first early adopting customer. During the product development phases, it is important to understand how innovations happen and the process related to them as a whole. The same end goal can be reached with different means. (Fogelholm 2009)

3.2.2 Product lifecycle management

Product lifecycle can be described by a simple curve that has time on the x axis and sales value on the y axis. The height and length vary significantly between different solutions and industries. Lifecycle is traditionally explained with four stages: introduction, growth, maturity and decline. In the introduction stage there is usually little competition, prices

are higher to cover the development costs, customers are early adopters and strategies are focused to market entry. The competition begins in the growth face. Margins are usually good because of the high price and demand. Marketing is adapted to widening the customer base and getting them to experience the solution and strategies are focused to capturing market share. Realizing the maturity stage is the next phase, the company should start to invest into new growth areas and solutions already at this stage. In the maturity phase the owners can consider selling the solution or business as they would get the best price then. Margins are becoming smaller, companies are focusing more on price competitiveness and differentiation e.g. with branding. Strategies are focused to protect the market shares. In the last stage, decline, competition is trying to get others out from the market, prices are low and margins are poor. Strategies are focused on exiting the solution or business. By making a regular analysis on where the solutions are, companies can determine the right measures how to increase competitiveness. These measures can be for example: increasing sales to existing areas, selling to adjacent markets, developing new solutions or businesses. When competition is getting closer or got ahead, companies tend to launch initiatives to increase sales volumes. They could achieve that by either lowering the cost base so that they can compete on costs, developing new value factors for the solutions or increasing sales and marketing efforts. Many times, all these methods are applied at the same time. To increase volumes, company could also try to find adjacent markets by identifying new customer niches, offering solutions to other industries or establishing the business in new countries. (Welin 1982)

In the introduction stage or as early as possible the solution or system architecture should be made modular. This includes definitions of the interfaces between modules. There are many companies that hurry to bring the solution to the market without standardization and modularization. This may mean that the company needs to redesign the solution later Lindstedt & Burenius (2003). Target for product modularization is to have as wide product portfolio as possible with as few modules as possible. This will result into an ability to respond quickly to customer needs and be cost-efficient (Tuominen & Lahti 2012).

3.2.3 Value engineering

Customer value can be defined as the relationship between perceived benefits and total expenditure (time, money, efforts). It can also be described as the relationship between satisfaction of needs (e.g. function the customer wants in a solution) and use of resources. As this formula means the customer value is relative and depends much how well customer needs and expectations are met. Also, the formula means development, production and delivery costs has little impact on actual customer value. The word

'perceived' means each solution should be tailored for each customer in order to maximize the value. The perception of mass tailoring can be achieved with high degree of modularization and flexible processes. All companies must continuously drive to increase the perceived customer benefits and drive down the cost at the same time. Companies will fail if they focus on either one alone. The customer value adding functions can be grouped into main functions that the solution must deliver, additional optional functions increasing potentially the value over cost, supporting functions that are necessary for e.g. the main functions and also unwanted functions that potentially are damaging the solution, customer or environment. According to Lindstedt and Burenius (2003) value engineering is focusing on increasing the performance of or creating new main functions and additional functions while reducing or eliminating unwanted functions and support functions Lindstedt and Burenius (2003). Making a prototype is different than productionizing the solution. After the prototype the company has to productionize the solution to match end user expectation. It should not be over or under engineered. This means for example selecting production methods and suppliers considering longer series, selecting distribution channels and documenting features fully Fogelholm (2009).

Value engineering is used much in system integration. System integration is a capability that combines subsystems, components, software and knowledge to produce a solution which can be a product, system, network or a service. System integration is not a functional discipline but a strategic business capability to manage high-technology projects. It has become a competitive advantage in many sectors including aerospace, marine, software, automotive, etc. Systems engineering and project management are the two main capabilities giving competitive advantage to companies such as GE, ABB, IBM, BAE Systems, Rolls-Royce, Nokia, Boeing and Thales. (Davies & Hobday 2005)

Another engineering capability that is contributing to company's competitiveness and uses value engineering methods is called design capability. It can be divided into capabilities related to core business (differentiation of products and services with user experience and superior functionalities, superior products or product platforms), dynamic capabilities (Identifying future trends and user knowledge) and strategic foresight capabilities (Design thinking, design-based prototyping and simulations). Design should not be a separate function in a company but part of all activities, innovations and development. (Gabrielsson 2009)

3.3 Supply chain development

3.3.1 *Purchasing development*

Purchasing function is focusing to get the agreed solution at the right cost, time, place and quality. It is increasingly important finding competitive and capable suppliers and matching them with the company's own processes that together are completing the strategic purpose. Purchasing function purpose is to guarantee solutions availability, manage the delivery risks, improve cost efficiencies and work closely with product development teams to increase standardization across the portfolio (Huuhkala 2016). Since most part of the project costs and deliveries comes from supply chain of project-based businesses, it is important to understand how can the competitiveness of the supply chain be developed.

Getting the partner suppliers involved in new solution development early enough in the process is likely to increase the added value to end customers and speed to market. Also, joint branding and marketing can be considered. Creating added value to both companies is closely linked to lowering the costs associated with the purchasing of the solutions. Ways to increase the competitiveness include according to Huuhkala (2016):

- Decreasing the number of suppliers (bundling). In larger companies it should be possible to share best practices and increase standardization between different sites and units.
- Standardization of solutions so that solution can be modularized and industrialized better. This can also be related to value engineering as standardization should match the customer requirements as well as possible.
- Outsourcing or insourcing (changing make/buy settings) decisions should be continuously assessed to ensure optimal circumstances in the dynamic markets.
- Moving parts of the solution to be done in lower cost countries or closer to end customer of other parts of the value chain. Also, middlemen should be avoided if possible and trying to get directly to the source.
- Managing the contracts and making sure they are dynamically optimized for dynamic circumstances. Planning and sourcing cycles need to be matched to the business cycles. This may require redefinition of the policies and processes governing the relationship and transactions.
- Making the interfaces between parties simpler for example through electrical and automated systems instead of manual systems. Also, it is vital that the information is being shared with all the relevant stakeholders throughout the value chain.

Purchasing has to also manage the risks meaning avoiding single source situations, making sure there are incentives to continuous improvements, audit the suppliers, ensure quality and financial stability of the suppliers and protect intellectual property rights

(Huuhkala 2016). Purchasing function is continuously changing more from operative to strategic purchasing. One main development direction is decreasing the buying company's own processing times for purchase orders. This can be done for example eliminating routines and automating some activities. Total cost of purchase is driving the decisions and development activities more than the cost of the solution itself. The other main development direction is creating added value for the end customer through purchasing activities. This can mean for example increases in service levels or partnerships throughout the value chain to increase flexibility and quality. (Aminoff & Pajunen-Muhonen 2002)

Purchasing function needs to segment the suppliers based on the business criticality and strengths into key suppliers, development phase suppliers and opportunistic suppliers. The relationships to key suppliers need to be developed just like the relationship to key customers. Purchasing function is making sure the selected supplier's solution has a long lifecycle, delivery project is addressing the risks and supplier is stable for continuous business. Different tier suppliers have different opportunities for margins. There are component/product providers with normally good margins. These products are integrated by system integrators which are taking most of the risks but margins are smaller. On top of this there is the prime contractor that are coming to the project first and are guiding the end customer buying process so that the delivery responsibility remains in the hands of the prime contractor. (Roune & Joki-Korpela 2008)

There are several development directions for the purchasing activities. They are commonly known areas in automotive and electronics businesses but not so much in project-based businesses. The development directions are according to Koskinen, Lankinen, Sakki, Kivistö and Vepsäläinen (1995): Lean production, fast response time, mass tailoring, focusing on core activities, just in time, right first time, sustainability of deliveries and automating operative purchasing. Lean production is about simplifying the processes, removing wastes and removing process steps. Fast response times means fast market introduction and delivery times. It is about finding ways to saturate the market and capture market share fast. Mass tailoring can be achieved by integrating the customers in the design process and delivery processes. When companies focus on their core activities, integrated information networks and purchasing activities tend to become more important. Just-in-time principle applied in production means for example minimizing inventories. Right first time demands very high quality of deliveries. Sustainability in deliveries means considering environmental aspects in materials and production techniques. Automating operative purchasing is a good development direction because manually done operative purchasing is slow and expensive. Process excellence and ability to develop partnerships can give competitive advantages while the company can focus on its core competences. Companies need to drive values where every employee feels responsibility about quality, cost level and lead times. (Koskinen, Lankinen, Sakki, Kivistö, Vepsäläinen 1995)

3.3.2 Operating locations and joint development in the supply chain

In order to secure the price competitiveness, some governments have started to use export subvention. Finance through public funding can be used to offer longer loan periods. Equity investments by the government can be used to lower the prices. Tax lease systems can offer possibilities to make extra depreciation. Also, there are countries that have big enough internal markets to secure orders to local supply chain to keep them operational during economic downturns. Exchange rates have always been a big factor in price competitiveness in global markets. Euro-dollar relationship has been crucial in many project businesses. Some of the currencies in Asia that have become cheaper giving companies operating there a significant advantage. (Telakkateollisuustyöryhmä 2009)

Many times, the communication is the biggest improvement point throughout the supply chain. For example, understanding of the risks varies significantly in the value chain. Projects have external risks related to economic, physical, political and technical factors. There are also internal risks that can be local (labor, plant, sub-contractor, materials, site) or global (client, construction, contractual, design, environment, financial, location, management, pre-contract, timeframe). (Tah & Carr 2001)

To design the optimum supply chain the whole chain needs to consider control principles, time compression, information transparency principles and eliminating unnecessary links. The truly successful, order winning, supply chain can be designed by first defining the order winning criteria for the solution (quality, features, delivery speed, delivery reliability, variants, etc.) and information (data, availability, scheduling, accuracy). It is important to weight some of these criteria more than others and not try to be best in everything. After weighting the criteria and understanding the as-is and to-be situation, purchasing managers can define what can be done in different stages of the value chain to improve them. Competitive advantage rises from cooperation (partnerships) along the supply chain. Right type of partnership needs to be established. This can be transactional, strategic or exclusive depending on the situation. Cooperation decreases cost transfers between the supply chain because every part is not trying to optimize their own silo but the total chain instead. This means shared risks and rewards, openness and mutual trust. One very effective way to develop better supply chains and increasing joint development is starting from value stream mapping. This means applying the lean thinking and recording all activities from selected part of the process in a visual way. First each as-is stage of the process is mapped, then studied how much waiting or processing time they take and finally all need to be analyzed how to remove waste in all its forms. After defining the current state, the ideal future state value stream should be sketched. Finally, there needs to be a plan how to get to the ideal future state. (Sadler 2007).

3.4 Stakeholder development

Everything starts by understanding what the end goal is what the project is trying to achieve. After that stakeholder mapping can reveal who are supporting it and who are against it and also who can influence the results and who cannot. It is important to get to know the stakeholders and work out the roles and responsibilities. Clear ground rules help how everybody will work together. By getting to know the stakeholders, it is key to success to define what do they each want from the project, from work or life in general. Their experience and background will affect their interests and how they want to get involved. Customers can mean different things to different people. They can be final solutions users, their managers or customers' customers. They can also be distributors, brokers or even people in your company who are implementing the solution forward. To manage customer satisfaction, which should be the main key performance indicator for all companies, companies can develop four main areas: Customer value, cost, communication and convenience. Customers are mainly focused on total cost of purchase and ownership over the lifecycle. The features and benefits of the solution must be communicated to the customer in a meaningful way so that they understand the messages in the right way. The project or any type of solution should be delivered to the customer in a convenient way and receiving the solution can be made a value adding experience as well. (Inwood & Hammond 1993)

Good customer relationships are the most common reasoning for the won deals. Factors related to customer management giving competitive advantage can be reliability when dealing with supplier, getting answers to questions, getting service quickly and abilities of the sales people to create solutions to customers. There might be buyers from the customer side with financial or technical focus or purely buying professional that is meant to squeeze everything out from the deal. The process to close the deal with either of these three types of buyers is very different and the sales person should understand who is the true buyer and approver on the customer side and what factors they care about. Customers should be continuously developed and worked with in order for them to become key customers. It cannot be just one person e.g. key account manager and randomly few senior leaders meeting the customer before they progress to other roles or companies in their career. One should have a plan for developing key customer relationships just as there are plans for developing products. (Roune & Joki-Korpela 2008)

There are factors that influence how well customers are served. Koskinen, Lankinen, Sakki, Kivistö and Vepsäläinen (1995) studied these can came up with nine factors: trustworthiness, service attitude, competence, availability, friendliness, communication, credibility, security and understanding customers' needs. Many times, these are packages to just one factor "customer relationship" but there are many

subfactors. Trustworthiness means promises are kept at all levels. Service attitude is about fast response times and willingness to serve. Competence means knowledge and resources needed to do the work. Availability is that customer can easily approach the company whenever needed. Friendliness is taking care of the customers with kind attitudes. Communication means listening to the customers and informing them clearly. Credibility comes from the company's brand image, reputation and characteristics of the people needed to convince the customers that company can be trusted. Security in this area means that there are no danger, risks or suspicion in the solutions or service. Understanding the customers' needs means knowing what the customer wants and making them as key customers. (Koskinen, Lankinen, Sakki, Kivistö, Vepsäläinen 1995)

Projects are becoming more complex and have many intangible requirements that are hard to describe. As the technical scope increases, the outsourcing increases and this increases the need for trust between the parties to make the project successful. There is empirical evidence that show that building trust contributes to financial value. This is caused by lowered risk premiums, reduced perceived risk and in the end a reinforcing spiral of repeat business expectations. (Smyth, Gustafsson, Ganskau 2010)

3.5 Productivity development

Increasing production automation is may be the most traditional way of increasing productivity. This may lead to big investments that cause challenges to profitability. Companies have therefore implemented Design for manufacturing and Design for assembly methods. Main idea is to design the solution so that it more efficient to manufacture and assemble. Besides these two methods there are several more options according to Huhtala and Pulkkinen (2009): Concept evaluations, failure modes and effect analysis where cause and effect relationships are being determined, design quality improvements that literally means increases in design drawings so that production becomes cheaper or easier, design to cost that looks how production and assembly options effect the costs and that is considered in design, manufacturing simulations that are closer to digital twinning and testing different production models. (Huhtala & Pulkkinen 2009)

The number of product variants is affecting the profitability of the businesses. As variants increase the productivity decreases due to the number of parts, work stages and methods increase while the low sizes decrease. There is more waiting time in the process and quality can become inconsistent. When variants increase, the unit costs increase as well. This is caused by increasing purchasing of smaller quantities, inventory and warehousing costs. In the end the breakeven point rises. Normally companies increase the people in controlling roles to manage the complexity and fixed cost rises. Normally in

machine intensive businesses, different variants mean different manufacturing methods which mean increasing capital cost. (Tuominen & Lahti 2012)

In order to understand the big picture in productivity, one must look at the product, process and network as whole how they are linked together. Process is defining how to do and network where to do. In the interface of product and network, companies need to determine their make/buy strategies for the main components and who to partner with. In the interface between process and network, companies need to determine their make/buy strategies for the whole processes and also who to partner with. In the interface between the product and process, companies are exchanging information between the technologies and production methods before selecting the right production methods. (Huhtala & Pulkkinen 2009).

Productivity is influencing price competitiveness heavily. Productivity is the relationship between inputs and outputs and key to success is to combine inputs to create as big output as possible. One of the best ways to increase productivity and therefore price competitiveness is reducing product lead time. Also, interest rate has a significant meaning to the production costs. In shipbuilding case, reducing the lead time to half has the same impact as reducing interest rates to half. Of course, reductions in labor, material and capital costs have a big influence to overall production cost as well. (Nallikari & Ylikyyny 1989)

3.6 Business model development

Project-based companies are increasing their service business side in order to get new customers, offer additional value to existing customers, differentiate from competitors, make solution deliveries leaner and more cost-effective, get good profits from selling services and get the feedback from customers to boost innovations & learning. (Artto, Wikström, Hellström, Kujala 2008)

Project based companies are in many cases in a maturity path in delivering services. The changes from product dominance to customer focused and finally to business dominance all require significant steps in organizations and business models. Research has shown that if a company is highly innovation and technology driven, that type of orientation in the organization was actually many times a barrier for changing towards service dominant company. At the same time a strong technology knowhow can enable the company to solve complex problems for the customer as a larger service offering. (Wikström, Hellström, Artto, Kujala, Kujala 2008)

In order to grow the business, many companies are actively trying to get market shares from specialized niche markets. These types of markets are possibly not that sensitive to global market downturns and the profit levels are better than in bigger and commoditized

markets. Sometimes companies may want to follow their customers that have decided to move up in the value chain or specialize in niches. (Telakkateollisuustyöryhmä 2009)

Business model describes the value proposition to the customer and can also explain what the firm's architecture is. "*Business model is a conceptual tool that expresses the business logic of a firm*". Operative processes and support systems are guided by the business models set. Where strategies are telling where the company is going to be and how to get there, business models are explaining how the company is making money. Time perspective is usually present or near future and main purpose is to guide concept and process development. Business models include according to Kettunen, Ilomäki and Kallikoski (2007): Value proposition stating and offerings and benefits to customers, core capabilities, cooperation network especially partners, cost structure in short and long term and revenue/pricing models. Business models can be grouped in to three generic value creation models: Value chain (output alone to the customer is the focus), value shop (solving customer's problem is the focus) or value network (connecting parties who wish to be interdependent). Revenue models can be classified into two categories: Product-based models or loss-leader models. In the product-based model the offering is the source of revenue itself (ownership and usage-based models or performance-based models) and in the loss-leader model the solution may be provided free of charge (linked transactions of related offerings, sales of related offerings while core product free or promotion of other offerings while revenues from ads and time). Ownership and usage-based models are the most commonly used. These are typical ownership and right to use such as renting. Performance based models are starting to emerge in many industries but they are not used much in project-based businesses. For example, availability where the fee is proportional to downtime of the solution is called "guaranteed availability" model in the marine industry. There are some system providers that have started to offer that model. Production based model where the fee is proportional to the produced amount or other operational results is perhaps difficult to use in project-based business because the projects are by nature one off events. Financial models such as revenue sharing (fee is certain percentage of the generated sales), cost saving based (fee based on verifiable cost savings) or profit based (fee relative to customer's incomes) have been experimented in project-based businesses and there are continuously discussions ongoing to try these models more. (Kettunen, Ilomäki, Kalliokoski 2007)

3.7 Pricing methods development

There are four basic pricing models according to Kettunen, Ilomäki and Kalliokoski (2007): Cost-based, market-based, value-based or brand-based. Cost-based pricing is where the asking price is based on production cost and targeted margin. Market-based

pricing reflects the corresponding offerings and price is then set according to the company strategy (down in cost leadership and potentially upwards in quality leadership). Value based pricing sets the price between customer value and production costs so that both parties are benefitting from it. Brand-based pricing is an average market price of corresponding non-branded offering plus the solution's brand value. (Kettunen, Ilomäki, Kalliokoski (2007)

We see partnerships between customers and suppliers increasingly emerging in many markets. Purpose of the partnership agreements is solving the real customer issues and optimizing/innovating the customer processes. For the supplier it is also about moving in the value chain to those business areas where they can make more revenue and profit (Kaario, Pennanen, Storbacka, Mäkinen 2003). Then the next question is how to find potential projects and customers. Sales efforts must be aimed where the expected business potential is the biggest. If the relationship value is low, the supplier should focus on standard product and solution sales. Also, if the relationship value is high but customer does not want to partner, the supplier should focus on the product and solution sales. It is only when there is enough relationship value (big enough business potential) and customer is willing to partner, value-based sales is the right way to proceed. In value sales, supplier's sales are talking to the entire customer organization and all functions. This includes strategy, finance, business development and sales & marketing. Aligning strategic goals, business drivers, understanding the value creation of customer's customer and potentially identifying opportunities for process innovation. These links are on top the normal solution sales where links are to R&D, offering and service development and manufacturing departments for solution specifications and improving operations. Value sales requires the sales person to understand the overall industry, customer's position in the industry, suppliers' position in the industry and changes affecting the whole industry. Value sales person needs to understand the drivers of the customer's business which are according to Kaario, Pennanen, Storbacka and Mäkinen (2003): Customer's vision and strategy, customers business functions, organization and decision-making process, financial situation, nature of the relationship and customer's customers. Customer's future vision, goals and strategy should be towards the same direction as the seller's plans. Customer's business functions and processes should be understood so that opportunities can be found. Organization and decision-making process should be understood so the sales process is targeting the right individuals. Financial situation and key performance indicators must be understood so that the offer has the desired impact. Nature of the relationship should be open and sharing. Customer's customers are ultimately getting the benefits and therefore need to be assessed together which segments to target, setting the goals and what are the differentiating factors. (Kaario, Pennanen, Storbacka, Mäkinen 2003)

Price is the quantity of money or goods and services received by the seller divided by the quantity of goods and services received by the buyer. Prices can be managed in three levels: (1) Understanding the economic and competitive environment, (2) Developing product and market pricing strategy, (3) Administering the pricing process. Level one is mostly referring to Porters 5 forces and how they affect the prices. Level two is linking the pricing strategy to the overall marketing strategy. Level three is making the actual pricing decisions such as discounts, rebates and price changes. (Monroe 2003)

Project negotiations have generically six phases that follow each other in order. First phase is the “Search” phase where parties are scanning the environment for project opportunities and the client has decided to invest. In the second “Preparation” phase client issue a call for tenders or request for proposal (RFP) and potential contractors can decide to bid for it. Usually there is a feasibility started at this point to gather information from the client and improve competitive position in the coming stages. (Murtoaro, Kujala, Artto 2005)

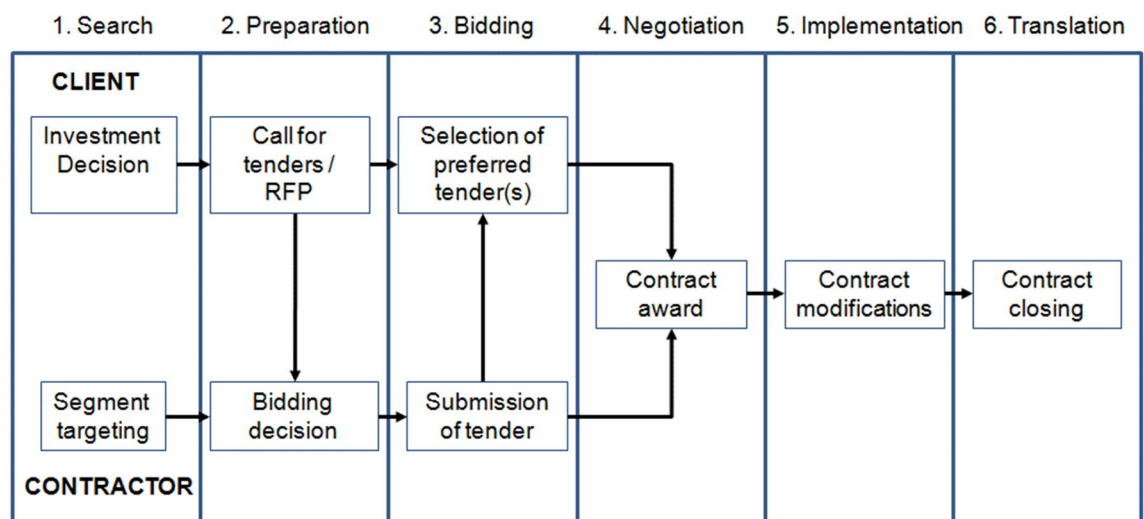


Figure 10. Stages of project negotiations (Murtoaro, Kujala, Artto 2005)

After contractors receive the invitation to bid (Bidding phase), contractors prepare the necessary documents and pricing decisions. In the “Negotiation” phase, there can be multiple rounds for presenting offers until the contract is awarded to one party and signed. During the project (“Implementation” phase) there can be modifications to the contract as challenges are encountered and resolved. There can also be additions to the contract such as after-sales part. In the final “Translation” phase, the whole project is evaluated and knowledge is built up for future projects (Murtoaro, Kujala, Artto 2005). During the negotiation process the seller is trying to get a good profit (selling price minus actual costs) from the project. To increase profits there are several ways what the seller can try to do according to Halevi (2006): Increasing sales price, increasing sales volume,

decreasing employee salaries, decreasing cost of inventories, decreasing processing costs or get government support (Halevi 2006).

Risk bearing capability is depending on various factors between the agreeing parties such as general attitude to risk, perception of project risk, ability to bear the consequences, need to obtain work and opportunity to pass the risk to another party. These factors will influence the premium put to the agreement and if the contractor is able to calculate the value of these risk factors, they will likely be put to the price. Sometimes there is no time to gather all relevant information and analyse the risks when preparing the tenders, then that is done on gut feeling. Only the major risks should be covered and valued in projects, not all the small details of risk elements should be linked to pricing. (Ward, Chapman & Curtis 1991).

It is important to anticipate price levels correctly early during the product development phases so that concepts and costs can be tailored accordingly. Customers cannot know or understand the value if that has not been communicated to them. Finance must focus that the profitability is developing correctly and anticipate changes in costs and other factors. Therefore, pricing is a close cooperation between marketing, sales, finance and product development. Prices determine the solution's unit cost because unit costs change with volume. One big mistake manager can make in pricing is not to understand the effects of price on volume and what volumes do to cost levels. There can be a business death spiral when prices are risen to cover higher fixed costs but this will reduce the sales which will rise the fixed costs more. Managers need to understand what kind markets they operate in. If there is strong pull from the customers, a strong market, cost plus pricing leads to underpricing which lowers profitability. If there is a weak market, cost plus pricing leads easily to overpricing. Focus should be in developing value-based pricing where customers determine the value of the solution which determines the price of the solution which then determines what the cost of the solution need to be and finally what the solution itself need to be. (Nagle & Hogan 2006)

Price reductions are the quickest way to achieve revenue targets but causes easily permanently lower margins if the competitors can match that. If competitors cannot match the price reductions, pricing can be a competitive advantage in the longer term. The goal of pricing strategies is to make informed trade-offs between prices and volumes in order to increase and maximize profitability. (Nagle & Hogan 2006)

Pricing strategy five levels that must be done in sequence to ensure effective approach to the market. This can be described as a pyramid:

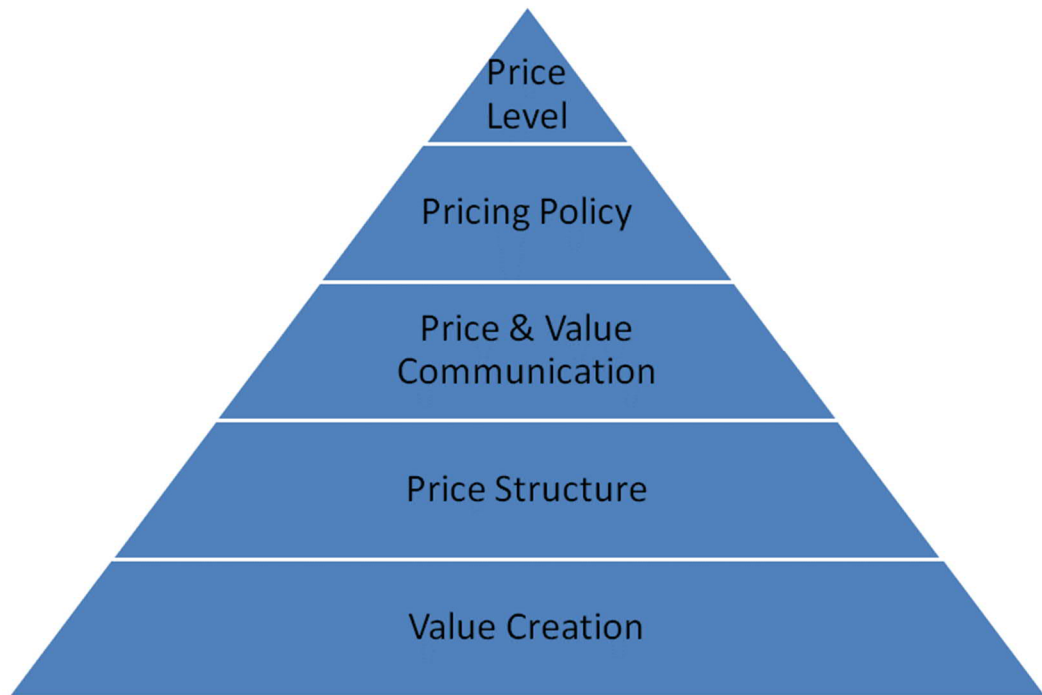


Figure 11. Strategic pricing pyramid (Nagle & Hogan 2006)

Pricing strategy starts from defining how the solutions create value for customers. Not just economic value but total experience for different segments. Once the value is defined that can be turned into a pricing structure for particular customer segment, not just one for the product. After structure is created, the marketing and communications team can develop the right marketing messages for the customers. There will be different types of customers that reach to prices differently. To manage that company can set policies to ensure messages and actions are clear no matter what the circumstances are. The final stage of the strategic pricing is a systematic process to translating customer value, competitor info, costs and strategies into the right price level. When some of these factors change, that should be affecting the prices as the process describes. (Nagle & Hogan 2006)

When making pricing decisions in companies, marketing and finance have to meet the strategy and together figure out the pricing limits, method of calculating key figures, cost structure and price setting against competitors, rules in special offers and related services and bundling sales. When bringing new offerings to the market some companies use skimming prices and some penetration prices. By using skimming prices companies try to cover their R&D costs quicker. (Anttila, Fogerholm 1999).

Many companies are using Cost plus pricing because it's simple and done systematically. Value-based pricing is seen as a possible source of competitive advantage is done properly, but one needs to understand the customers' value perceptions and expectations in depth. (Reen, Windischofer & Wikström 2009)

Some companies are offering lower prices in early stage services or solutions while expecting more of the work in other parts of the value chain when the initial deal is finished (Arto, Wikström, Hellström, Kujala 2008).

In project business the customers are often offered a solution to a challenge, not just a product or service. The solution includes bundle of products, services, tools and applications. Benefits need to be shown to the customers both from technical and from commercial point of view. Pricing industrial services include steps such as stating why to sell that particular service in the first place, defining service characteristics related to content, cost, modularization, standardization, customization etc., decision on pricing methods (strategic intention, service characteristics, business environment, customer needs, customer perceived value), designing the pricing methods, implementation and feedback data collection, pricing management. Reen, Windischofer and Wikström (2009) have identified what are the main obstacles when trying to price industrial services for manufacturing companies in project business. Main reasons are that people in charge don't know enough about service business and complexity of services, about the how to change the strategies, business models and competences, about how to include the customer in the change process and customize service deliveries. Traditional manufacturing companies have to change many mechanisms and policies that support service pricing strategies. (Reen, Windischofer & Wikström 2009)

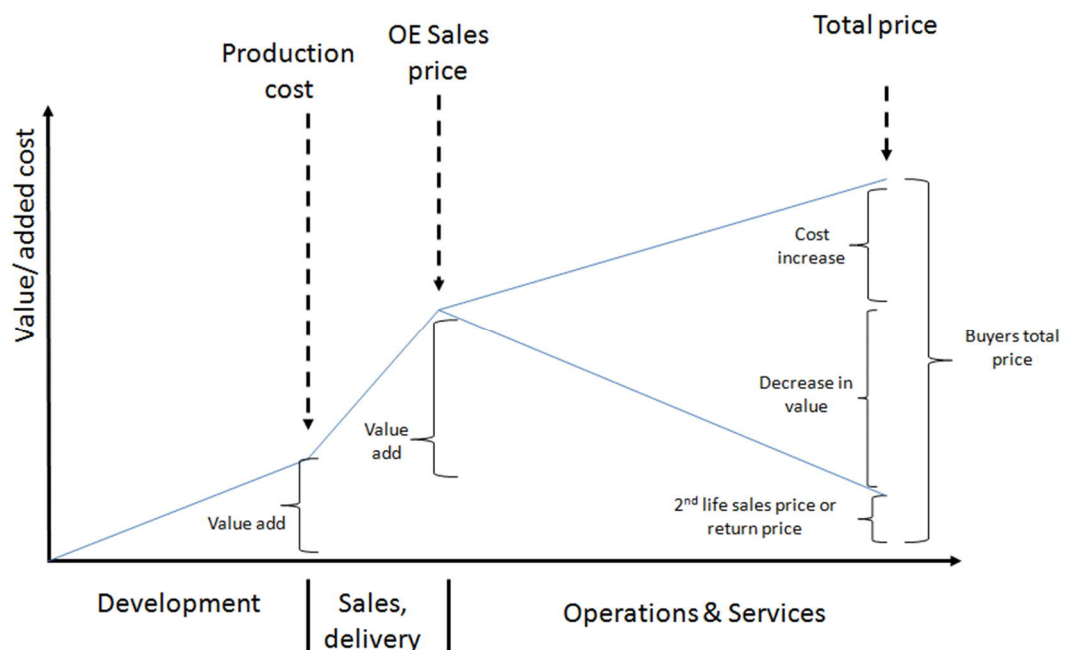


Figure 12. Value added in different stages (Anttila & Fogelholm 1999)

End customer/user is paying a total price that is including all operational and service costs throughout the lifecycle. Depending how technology and businesses are developing there are a different level of reselling or return value. (Anttila & Fogelholm 1999)

Lifecycle calculation model is one kind of investment model that tracks economic results throughout development, delivery and operations. X-axis is the end-to-end phases in months and y-axis is costs and returns represented in logarithmic scale. After the original idea starts the proof of concept or early concept study phase starting to cumulate costs. When that proves to be viable case, starts the actual development phase that lasts for certain months. Development ends to operational/production release. Critical point determines when profits equal all the invested money so far starting either from proof of concept or then when the solution has entered the market. (Anttila & Fogelholm 1999)

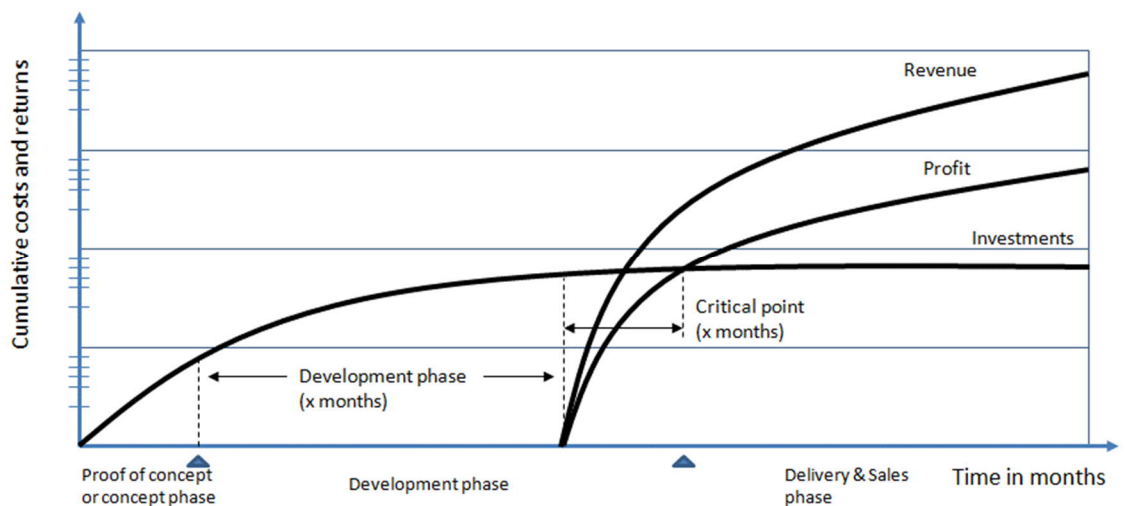


Figure 13. Cumulative costs and return in different phases (Anttila & Fogelholm 1999)

4 RESEARCH DESIGN

4.1 Research setting

To answer ‘why’, ‘how’ and ‘what’ qualitative research is needed that is giving an understanding of what are the human behaviors and the reasons for the behaviors. Therefore, only small but focused samples are needed to answer the questions. (Denzin & Lincoln, 2005). The competitive situation (especially price competitiveness) of different companies in project-based business tend similar in nature which also mean that qualitative research approaches is the right choice.

Because the author had an extensive experience from building and leading project-based businesses over 14 years, this research is done by autoethnography and interviews. To support self-reflection, five interviews were made for this study to gather information for main research question:

How can the price competitiveness of project businesses be further increased by developing the key drivers of the presale period?

Saturation point cannot be stated to have been reached as the potential for new ideas can be limitless so conducting additional interviews could have revealed new information. This research was carried out using as constructive research approach which means trying to solve real problems in real life and supporting the company in that subject area development. Dialogue between the theories and practices are typical features of constructive research approach. Also, interventions by the researcher is part of the approach. (Kasanen, Lukka & Siitonen, 1993). As the research problem of this study focuses on developing key drivers of the presale period to increase price competitiveness of project businesses and the emphasis were on identifying what can actually be done in real industrial case, the constructive research approach was seen as the best method.

A case study approach is used in this research because it is a good way manage a complex issue such as price competitiveness and the research can build on the previously done researches. Case studies tend to highlight certain events and interactions in a given context. It is really an empirical inquiry to test if the theory matches the real-life and what makes it particularly interesting is that the boundaries of the two are not always obvious. (Yin, 1984). As the purpose of this study is to understand how key drivers can be developed to increase price competitiveness particularly in project-based businesses, a

company operating in project-based business was selected with use case methodology. Multiple sources of evidence are used as this study investigates the theory, interviews' information and documents provided by the interviewees.

4.2 Selection of the Case relationship

Case studies should be selected so that they increase our understanding about the research phenomenon. First selecting the target population (firms, individuals) and then determining which part of that is possible to have access and finally out of the accessible population selecting one or few cases. (Marschan-Piekkari & Welch 2004)

There are several project-based businesses in Finland for example shipbuilding, construction companies, nuclear power plants and also almost all industries have project-based companies. Software companies can be project based, not just hardware companies. As the author of this research has been working about 14 years in the marine business which is mainly project based and this research is using autoethnography method also, it is natural to focus on marine industry. Marine projects are either full ships (e.g. cruise ship or container vessel), systems (e.g. integrated automation system) or subsystems (e.g. propulsion system, power system or LNG system). Projects can be e.g. newbuilds or retrofits to existing vessels.

In the interviewed project-based business, there were new solutions being developed to the market which were not launched yet. Therefore, it was a good time to analyze the price competitiveness as there are no reference systems in the market and what can be done now before the actual sales period begins. In order for the new business to be successful and not tumbling on the same mistakes that are potentially made in setting up previous businesses, this study aims to investigate how the key drivers of price competitiveness can be developed in right way when doing it first time at the same time.

4.3 Data collection and analysis of the research data

Selected people interviewed were in the leading positions of the project-based business. They were responsible for overall business, sales, development and supply chain. It was

obvious before the meetings that this type of data collection (could not be done by email so face to face meetings were arranged between the managers and researcher. Interviews were conducted in the case company's office. Two cases limited the data collection to phone meetings. All interviews were recorded and also written notes were taken during the interviews. Even before the meetings, it became clear that research in this issue was needed and therefore access to the material from the developing price competitiveness which was easily obtained.

The empirical data was collected from several sources. The primary sources were the interview and secondary information were the documents from the previous activities focusing on price competitiveness improvements. These documents included presentations, action lists, follow-up lists, summaries and final reports. The contents of these documents were compared with the answers received from the interviews complementing the information used in the analysis. One source of information was also the models, recommendations and other companies' actions found in the literature. These were compared with the answers and documents received from the interviews to realize whether there are best practices that should be taken into consideration in case company's businesses

The interview method was a theme interview. In this method the interview did not follow a detailed list of questions but instead focused on the specific theme and only used the listed questions as guidelines. Theme interview is more structured than open interview where the topics and themes were selected after studying the literature. The themes were the same in every interview even though the flow of the questions were not the same in every interview. There was room for peoples' interpretations and free speech (Hirsjärvi & Hurme 2001, 47-48, 66)

The interview template was formulated before the interviews and it was done so that the themes answer the research problem. Operational chart was established to clarify this issue. Table 2 describes the design of the research and the relationship between the problems and the questions. The frame of the interviews was design so that people interviewed answered the first sub-research problem first in a dialogue format to establish and common understanding of the subject. Focus there was to identify what the currently the drivers and inductive content analysis was used to analyze the answers. The second sub-research problem was approached by studying the previous research and models found in the literature. As the third sub-research problem focuses how the key drivers can be development to increase price competitiveness, the interview focused on these themes.

A synthesis for the third sub-research question was made from the answers and findings from the literature.

Table 2. The research design of this thesis.

Main research problem	Sub-research problems	Theoretical framework	Chapter	Themes	
How can the price competitiveness of project based businesses be further increased by developing key drivers of the presale period?	<i>Sub-research problem 1:</i> What are the key drivers influencing the price competitiveness in the project business?	Theory of Business (unique activities)			
		Porter's Five Forces	2.1	Interview theme 1: overall competitiveness	
		Dynamic Capabilities	2.2		
		Eclectic Paradigm	2.3	Interview theme 2: price competitiveness	
		Blue Ocean Strategy	2.4		
	Competitiveness of Nations and Industries				
	<i>Sub-research problem 2:</i> Which drivers can be developed before the actual sale?	Project business			
		Pricing methods	3.1	Interview theme 3: presale process	
		Supplier management	3.2		
		Stakeholder management	3.3	Interview theme 4: engineering development	
		Productivity development	3.4	Interview theme 5: supply chain development	
		Value engineering	3.5	Interview theme 6: stakeholder and productivity development	
		Product development	3.6	Interview theme 7: business model and pricing method development	
	Product lifecycle management	3.7			
	Business model development				
<i>Sub-research problem 3:</i> How should the key drivers be developed in order to increase the price competitiveness?	All the above		5.1	Analysis	
			5.2		
			5.3		
			5.4		

Transcription of the interviews was made shortly after the interviews. This way it was possible to remember the exact ideas behind the points even though the transcription was made word by word. The secondary information from the documentations was used to verify the ideas and message in the answers.

The qualitative data analysis began with data reduction. The interviews' answers were selected, simplified and abstracted in to the transcription. The data was organized into themes that followed the operationalization chart. The data was then organized into analyzable form using the interviewer's intuition and knowledge of the subject.

To summarize, selected case company leaders responsible for its overall business, sales, development and supply chain were interviewed according to pre-determined themes and questions. The answers contained case company specific insights as well as generic insights of the market/business drivers effecting competitiveness. Interviewed leaders gave many ideas how the drivers can be developed. These insights were compared to the authors personal understanding of the subjects and answers were combined under

each theme. Since there were no conflicting answers, there was no need for choosing between the answers.

4.4 Reliability of the research

The trustworthiness of this qualitative research can be estimated by four different factors: credibility, transferability, dependability and conformability (Lincoln & Guba 1985, 290-301).

Credibility tells whether the construction of the study and results of the study correspond to the reality. It measures how well we could get the same results using a similar study construction. (Lincoln & Guba 1985) As the theoretical models were studied before the interviews, the credibility is increased. On the other hand, as this study only focused on limited number of interviews, smallness of the fieldwork decreases the credibility. There was very similar discussion on most themes with different interviewees and authors personal knowledge of the topics so extra interviews might not bring anything new to the research. It can be considered that these interviews described the relevant messages as the interviewees were selected to represent different perspectives. All the participants were highly motivated to participate on the research and could be expected telling the truth, which increases the credibility to some extent. The interviews were conducted using the interviewees own native language which also increases the credibility. The credibility of this study is increased by the fact that the author is a business development professional that has been doing this kind of work for the past 14 years and was leading the highly successful project-based business in the company. This brought instant quality but perhaps also bias to all interviews because this type of discussion is ongoing every single day. This also means there is a lot of data that has been accumulated to the authors thinking during the years which are considered in the study through the autoethnography approach besides the interviews.

Transferability means the ability to transfer relationships and results in this study to other empirical or theoretical studies (Lincoln & Guba 1985). The case selection and selection of the interviewees leads to lower transferability because the challenges, opportunities and even drivers of a particular company and understanding of the development opportunities of the drivers of limited amount of people had about the different themes are to some extent subjective. Therefore, generalization can be hard but not impossible as the discussed at a high management level. Factors determining price

competitiveness and presales phases can all be found in other cases that have similar setting and surroundings. Transferability is decreased by also the fact that the roles and the selection criteria of the interviewees are not presented in this study. Also, the background of the company interviewed is not thoroughly investigated.

Dependability describes how well the results are depending on the situation and on the circumstances of the research (Lincoln & Guba 1985). As there were no disturbing factors, there were no leading questions and secondary data was checked to complement the answers, the dependability of the research can be considered high.

Conformability tells how well other researchers can repeat the study and get the same kind of results (Lincoln & Guba 1985). As it is explained how the data was collected, others can collect the same type of data. Analysis results are arising from the autoethnography approach besides the interview data, so in order to reach the same results person doing the analysis would need to have similar background as the author of this study. Conformability is increased by the fact that the interviewees were given the opportunity to comment their answers afterwards.

5 ANALYSIS OF THE RESULTS - CASE INTERNATIONAL INDUSTRIAL COMPANY

5.1 Identified key drivers influencing the price competitiveness

According to the interviews and author's self-reflection, there are clear core routines giving competitive advantage to the interviewed industrial company. Answers from questions 1 and 3 (Appendix 1) were combined to form a list of core capabilities. More often mentioned are on the top and more seldomly mentioned on the bottom. This method was used to put the capabilities in order of priority. This was checked against the author's personal understanding of the priority and only the importance of vision has lifted upwards. These core capabilities are:

- **CUSTOMER CLOSENESS AND INTIMACY.** This is based on personal relationship of individual persons, not the company in general. Spirit is important. Marine cluster closeness in general is seen as important.
- **EXPERIENCE.** Track record of previous projects and experience in general is important. History from concepts to testing and history that proves problems are being taken care of and customers are not left on their own.
- **VISION.** Vision and concepts created have brought competitive advantage. This has been down to individuals taking it forward. Customers want to be a part of the journey. If the seller and buyer have the same future vision, it is a strong bond between them. Vision also determines the strategy of the company because it tells the target what the strategy will achieve.
- **SYSTEM INTEGRATION & SYSTEM SALES CAPABILITY.** Component level business has become a cost driven business long time ago and industry has consolidated to few bigger system integrator companies who can do the design and overall system integration. This enables system sales capability.
- **STRONG PRODUCTS.** Good solution itself is very important of course and the basis of all offerings. Strong products mean they are the best performing products in the market and also have good delivery lead times. With commodity products, only price matters. Unique value factor is perhaps the size of the solution portfolio.
- **BUSINESS AUTONOMY.** Outstanding businesses (from development to sales to delivery) that has been given autonomy to operate has had a competitive advantage. This gives faster new product introduction lead times and better integration capabilities because the concepting capability is there also.
- **SERVICE NETWORK.** Service network in all the different regions in world has taken time to build and is very hard to imitate. There is a strong competition with local service providers in terms of service lead times and cost levels. Still a wide,

cost efficient and fast service network is needed in order to offer new business models e.g. guaranteed availability.

- SAFETY CULTURE. There needs to be a company with a strong balance sheet and track record to show they can be responsible for overall safety and reliability. In case something goes wrong, they can fix things and take responsibility.
- BRAND. The brand is recognized bringing dignity in the market but also being too far away from business itself. Brand brings credibility and not having one big owner who dominates. Business environment almost expects that global brands to lead new innovations
- TECHNOLOGY DEVELOPMENT. Mastering e.g. hydrodynamics and other basic technologies that will always remain important. Developing them steadily forward and acquiring world class experts that are then in use when needed. They can e.g. provide scrutiny and checks that can validate the business and technology going forward.

It can also be recognized that there are no clear core competences bringing operational efficiencies and this could also be considered as a disadvantage. Competitive advantage can come from selling solutions that are not ready yet. This requires high risk management capabilities. This is generic in the case industry but still some companies do it better than others. Risk management costs have been high in the case company. Culture as such has been risk adverse but still many high risks have materialized. Risk management has been focusing on business risks and perhaps as a result technical risks have materialized. New businesses should create its own processes to manage risks.

It was clear that innovations are being centralized to a small team in the case company. This was highlighted by the leaders involved in development activities. This small team is not part of every businesses normal work practices and therefore can work on a more strategic level but still directly with customers. With new technical innovations that doesn't have competition and the customer really wants it, price doesn't matter much.

Right now, the interviewed persons felt there are more localization disadvantages than advantages. According to the business leaders interviewed, company should be more closer doing business in Asia and working out of many smaller cities in Europe requires much effort to attract good talents. Local competitors will rise more and more in China for example and Asia in general. Asian markets are very price focused and non-Asian companies struggle to make money selling to Asia. Only localization advantage is coming from being close to oil & gas majors home markets. In big companies the synergies can be huge. Challenge has been how to take advantage of the synergies. Footprint may be considered too wide today and more could be outsourced. Too many non-core things are done by the company itself. This is also related to the resource availability which is key for medium to long term success. It was mentioned few times during the interviews that

the capability/cost ratio is very good in Finland and perhaps the best in the world at the moment. In terms of volume, there are places where there are more talents but they are very hard to hire due to competition between many industries and salary levels are very high.

Value of data is becoming more understandable. It was mentioned during the interviews but in general still not recognized as a source of competitive advantage. A lot of new types of data is needed to create a new data-based services. There is a long road still ahead in traditional businesses towards digitalization.

Also, another key finding could be considered that business models are still very traditional. In the future business models can be a competitive advantage whereas the technology or other capabilities are considered today. Business model disruption towards a platform business will change the landscape.

Cost leadership was never mentioned as a source of competitive advantage during the interviews and material review. Still the companies are telling the market that they are improving their competitiveness by cutting all costs: R&D, overheads, cost of sales, etc. These will of course have a short-term positive effect on ROI but most likely damage the businesses in medium to long term.

In the end, any customer is only willing to pay for something that works. This is especially true in marine markets. If solutions need service, customers are willing to pay for it as long as the solutions works. Customers want a competitive advantage in their own niches. Companies developing new solutions to the market should communicate to all their customers that working with us they get a competitive advantage. After that starts negotiations with the customers e.g. how long exclusivity they want in their niches if they are can be leading it using the developed solution.

5.2 Price competitiveness of the suppliers

5.2.1 Key cost factors

Persons leading the case company's supply chain, gave a very good definition of supply chain competitiveness in the interviews. Supply chain competitiveness is

1. Delivering over the specification within the budget which should always make the customer happy or
2. Alternatively delivering within the requirements but below the budget

Since the biggest part of the cost of the solutions is coming from supply chain the best way to increase the competitiveness is to reduce supply chain related costs. Supplier

power is high when the market is booming. As the market is not booming now it is weak. In new technologies there are a greater risk becoming dependent on single suppliers. When supplier contract is established the relationship is normally long.

All interviewed felt that customers purchasing power is strong at the moment except passenger ships towards the shipyards. Offshore market was supplier's market when it was booming, now it is buyer's market. There are threats of new entries as new digital players are expected to enter the market as they open up. New digital businesses are buyer's market because no customer is forced to buy the solutions due to regulations, end customer demand, staying in the competition etc.

All interviewed people were asked to state attributes what would be an order winning supply chain. As a summary, the order winning supply chain is fast, flexible, reliable, predictable, transparent, focuses on the customer needs, cost efficient, digital and under control. It was pointed out by development and supply chain leaders that in the end customer values quality, delivery speed and reliability. All the other value factors are for the supply chain's internal improvements but the end customer doesn't care for those. Speed or lead time came as the number one item from the interviews. Best supply chain is fast. No need for inventories due to just in time deliveries. Because the chain is short, there is no room for errors and therefore quality needs to be high. The biggest improvement point in current supply chain is therefore lead time improvement. Somebody might need to carry more inventory and related cost unless there is a long order book. Supply chain leaders pointed out that many times, current supply chains are wired that they barely meet today's on-time delivery requirements. Many can consider delivery on time is needed first. Also, the word agile was used to describe the order winning supply chain. This would mean fast adaptation to changing requirements and reacts fast when needed. It should then also flex with load going up or down while deliver innovative products in either side of the cycle. High quality was mentioned by all. Technology needs to be state of the art. Other factors mentioned were cost competitive (cost seemed to be a result of other factors having the right weighting), innovative (supply chain has a lot of development capability if taken into use), reliable (does what it promised), transparent (whole supply chain stands together behind the projects), global supply chain with local presence, open (clear forecasts to suppliers when things are needed)

5.2.2 *Standardization and Industrialization*

All interviewed people stated that the solutions should be more modular and standardized. This would give better predictions for the supply chain so that they can develop towards the same and right direction. Modularization and standardization would enable automating the process. Best way is to get all suppliers together and set a common

goal regarding e.g. standards and lead time. Processes are today building slack because parties don't trust each other.

The biggest improvements in the supply chains are reliability, sharing of data and flexibility. Everybody is asking deliveries e.g. a bit earlier than they actually need them. All interviewed people felt that a culture shift is needed in order to standardize and industrialize the solutions throughout the supply chain. Common mind set is needed that a standard is better. System suppliers need to be more working together to create a common standard. A common big enough party is needed to drive the change. There can be company specific standardized systems.

Supply chain leaders gave good example how companies should limit the number of models of different components and products they have. Customizing the should only happen at the end. Otherwise the supply chain should be always the same. Many times, the customization starts today in the beginning of the supply chain or lifecycle. Then the company spends the products entire lifetime customizing. To solve that challenge the companies need to improve the closeness between purchasing and design teams. They need to have same goals and more commercial orientation instead of technical for product managers.

5.2.3 Role of the suppliers in product development

When it comes to outsourcing or insourcing, intellectual property is many times more important than cost in complex project deliveries. This statement came from the person leading the supply chain in the case company. Specializing is important so if a supplier can specialize in certain type of manufacturing or integration the supplier should be more competitive than a generalist supplier who tries to do many things at the same time.

Precise numbers were no known by anyone interviewed but all felt that the case company is investing less than competitors into new product introduction. Target has been proportional to turnover compared to competitors so that nobody can create a big technology gap in any area. The integrated solution created by big companies has also the financial backing of big companies if something goes wrong. Smaller companies or new entries don't have that possibility. This is why they could end up as license supplier for the bigger companies taking overall integration and safety responsibility.

It is difficult to get suppliers involved in the new solution development early enough as budgets are many times missing for experimental work. Companies should utilize more what their own suppliers do as R&D. Interviewed people felt that ideas are given away easily and this threat should be analyzed better. Also buying small things from suppliers (approvals) should be made very easy and experimental.

In complex projects it's important to involve partner suppliers early on in new solution development. Then in simple projects which are repetitive suppliers should not be involved in the early stages.

There is no doubt among the people interviewed, that stronger partnerships with companies in the value chain, strategic alliances, could support in price competitiveness. For example, licensing in China and development partnerships with main suppliers. Strategic alliances are bringing credibility and also enables better utilization solutions that have been created for mass markets.

Suppliers should not be given areas that compete with you as their customer but open collaboration is needed. Co-location would be beneficial in many ways. Large part of the technology development should be outsourced. Trying to do too many things yourselves slows development and causes technology risks. All that could be packaged and outsourced, should be considered to outsource to maximize flexibility and speed. One or two suppliers per package. Selecting those that are naturally experts in selected areas and yourself focus only on core.

Collaborative environment is created by always doing what you said you would, leading by an example and talking on behalf of the whole industry. Creating a common language and supporting each other regardless if there are continuous business transactions or not. Partnership commitments must work on all levels, not just on senior levels. It's relationships between people on all levels of both companies. Creating the trust and collaborative environment in all levels.

5.2.4 *The use of price clauses*

Customer should protect their suppliers from changes and change costs. This enables predictability and stops cost escalation. Once sales have sold the solution to customers, purchasing team starts the detailed negotiations with the suppliers what is possible to improve or reduce costs. Sales is done with the current best understanding but detailed supplier negotiations cannot be held before the sales are closed. Lead time improvements have the biggest impacts on profitability and therefore competitiveness

The case company doesn't go and test the market after it has given a quote to a customer. It uses a set up partners to do a customer quote, then when it wins the bid, it should test the market what is the real cost. Instead it tends to go back to the same partners in all cases. New pricing model could be risk and revenue sharing between the buyer and suppliers. Or sharing even cost reductions with a supplier. Transparency in the bidding process that the company would be able to make the final supplier selection after getting a customer contract.

Finance structure of the bigger companies are driving margin and risk factor accumulation. All parties (factories, businesses, etc.) are all putting their margins and then the accumulated price is sent to the customer. Everybody is trying to make a profit. Company should create a more collaborative environment where margin is only placed once and then shared.

Suppliers have a lot of ideas how to do things cheaper, better and faster and also using different materials but normally they are only involved after the drawings and customer contracts are done. Suppliers have more designers than RR itself. Why would companies not use that potential before the sales are done.

When volume is coming down, supplier bundling is a good way to improve supplier performance and cost level. All suppliers should have a commodity strategy and dual source as minimum requirement.

The case company cannot win customer projects if the same purchasing terms and conditions are not back-to-back with the supply chain. These are for example payment terms, delivery terms etc. Supply chain need to match the end customer terms and conditions. Outsourcing what is not core is improving competitiveness on medium to long term especially in cyclical businesses. On short terms there might be double organization in the beginning and reliability in the beginning is challenging. On three to four-year perspective, no capex investments, manning flexibility risk is with the supply chain.

5.3 Development of the pricing methods

All interviewed stated that the case company is using a lot of cost plus pricing. Target is to have value-based pricing as most other companies in the industry is trying to achieve as well. Still the case company is a price setter on few markets as it is trying to open a new market. Market shares have been following this.

Customers are not putting so much value to system integration even though everybody understands its importance. This means there is an opportunity. Perhaps proper consultative selling is missing. Sales need to calculate the business cases for the customers and customer project winning probability increases significantly when effort is really put to customer case. Also, alliances can be very beneficial. Alliances with partner companies to create the holistic concepts and economic studies. Or alliances with companies that can help with creating more holistic offerings e.g. electrical systems.

Licensing traditional product manufacturing in Asia could bring benefits. Prices and profits are dropping in Asia regardless what the case company does. It has not been analyzed thoroughly what is exactly pushing down the prices e.g. in China. Maybe it is buyer's market at the moment, maybe it is competition.

Customers have a strong purchasing power in most markets now that there are not many newbuilding projects moving. All except in Cruise ship market. This is starting to change also. Customer relationships gets you to bid, but solutions need to be competitive. One of the persons interviewed stated that there are certain regions where more are paid because of the close relationships. The smaller the company, the bigger the impact of personal relationships. Customer value propositions are not always clearly defined. Especially in system level they are not defined well. Product level definitions are good. New business models have very poor value propositions e.g. guaranteed availability. All people interviewed felt that customer value should be understood better and therefore the maximum price of the solution should be defined through that. Pricing should not start from costs and factory margins as it does too often today. Minimum price should come from evaluating competitors' costs how much they have spent to develop the solution. Third party evaluation is needed that certain KPIs that customer value is met and then pricing must be based on that. All stated that there is too little collaboration between marketing, finance, sales and product development departments to anticipate the correct price levels. In digital markets, creating new business models has a big potential. Challenges in lifecycle pricing are mainly internal. Processes and departments are different, margins are different. No clear guidelines how to operate. Customers don't want to commit to long term deals. Customers who buy the solutions are different than maintain the solutions. This means the customers should combine their budgets more than they do now.

Volumes effect greatly on cost levels. When volumes go down, if there are buyer's market, the costs go down. Then the case company is only eating suppliers' margins. When volumes go up, the costs drop as long as there is capacity. When capacity is maxed out, delivery times goes up and cost levels up. When volumes go down and if there are seller's market, the costs go up. The suppliers go where they get volumes and good margin.

Customers need to be absolutely sure that if they have a product challenge, the supplier will take care of it and not leave them in trouble. Customers will remember for a long time if some matters were not handled well. Customers are not interested in the cost breakdown of the solution (labor, material, capital, services). Product performance and reliability are the dominating factors. Interestingly the solution should look expensive many times to reflect perceived quality.

New financing solutions could be that those with money should own more assets than they do now. Leasing companies are better owners as they are in aerospace industry. Crowd funding is still not penetrated many traditional markets. There are fewer radical changes also happening. Previously only one-time deals involved the whole supply chain. Now there are more and more long-term agreements being made (long term is more than 3-year commitments). In these agreements the customer can get a guaranteed cost level

(+/- certain % clauses). Also, effective incentives are used e.g. rebate price discounts or credit notes. If volume goes up the case company can get the products cheaper. Frame agreements can be useful if the customer can promise volume or volume percentage. Then the customer would get a price discount. A new method could also be the creation of specified service pool where suppliers could fix the old products instead of making new ones. This could be faster and cheaper for the end customer. This model could be extended to almost all products.

5.4 Developing the product, production and processes

The case company is most likely investing less than competitors to product development. Target has been 4% of turnover but that has not been reached for many years. Absolute investments to e.g. digitalization is more important than relative investments overall. The case company's processes have led to stiffness and slowness. They are not meant for project-based business. They are meant for continuous production of complex mechanical products. Of course, good products are needed for creating competitiveness in the first place. Product attributes are valued greatly by the customers. The case company is investing to new product introduction, product upgrades, manufacturing efficiency improvements and cost reduction. As many big companies, the case company seem to put many limitations to what can be done and how. Budget and people limitations especially hurt the competitiveness improvements.

Key success factor of winning a customer project is conceptual and consultative selling. Working for the end customer and not just offering products. Other important factors are track records from previous projects, how to handle services and of course solution attributes.

Product development is crucial in consultative selling that the company has the best offerings. Innovations are created together with customers that present the challenges they have. Early concept development together creates the biggest potential. Product development follows then the created concept. A bigger part of the organization should be working directly with the customer than they do today. The bigger the company the more there are internal bureaucracy and people creating work for each other. Companies should analyze do teams create value for the paying end customer or each other within the company itself. Creative work needs fostering, it doesn't happen by itself. If engineers work internally too much, they don't most likely understand the customer challenges properly. Customer closeness has been local, not global. Sales and development should be very intimate with a customer on a global level. Customers should see they want to collaborate with their suppliers at the early concept phase. End game should be to be a business partner for the customers. Not just system integration or technology provider.

Engineering can increase margins by developing cost reductions to the solutions. Consultative selling approach should also bring better margins. Engineering also needs to create new product features and functionalities that customers are willing to pay more for. Industrial design is a new approach to many traditional project-based businesses. Visuals are supporting in selling the solutions. New types of engineering methods are for example digital twinning and delivery simulations. They are also a way to increase competitiveness. Customer should have a digital twin that allows customers to test and validate deliveries. It should be connected to services and consultative business so that it is continuously up to date.

Creating a collaborative environment requires a common vision that is concrete enough. This is a very strong way to continuously increase competitiveness. Besides the vision it also requires trust and personal relationships. Trust is important and understanding that together we are stronger. Continuous relationship building also requires customer challenges to solve and data.

Reducing product lead time requires flexing in budgeting and processes need to allow resources for the work as requested. There needs to be persons that take innovations forward. Many times, critical people are busy on other activities. Internal bureaucracy should be minimal. Focus is many times the key word. Focus on things that “make the boat go faster”. Engineers are easily creating over specifications. There should be clear phases when solutions are launched and then all efforts are put to one thing at a time. Network should get clear requirements. Original solution should be cheap and make the market entry easy. Then extra features should be added later and customers can buy those if they need them.

While developing new products and processes, it is also important to invest in new business model development at the same time. Business models are created by different persons than products. Today innovations are too much products or technologies focused. There are more potential with business model innovations. Digitalization is bringing these too closer together.

6 CONCLUSIONS AND DISCUSSION

6.1 Theoretical conclusion and discussion

This study has been identifying factors influencing price competitiveness in project-based business. One of the starting was the pricing innovation model presented by Kim & Mauborgne 2004. As one of the conclusions, a new model of analyzing price competitiveness of project-based businesses is presented

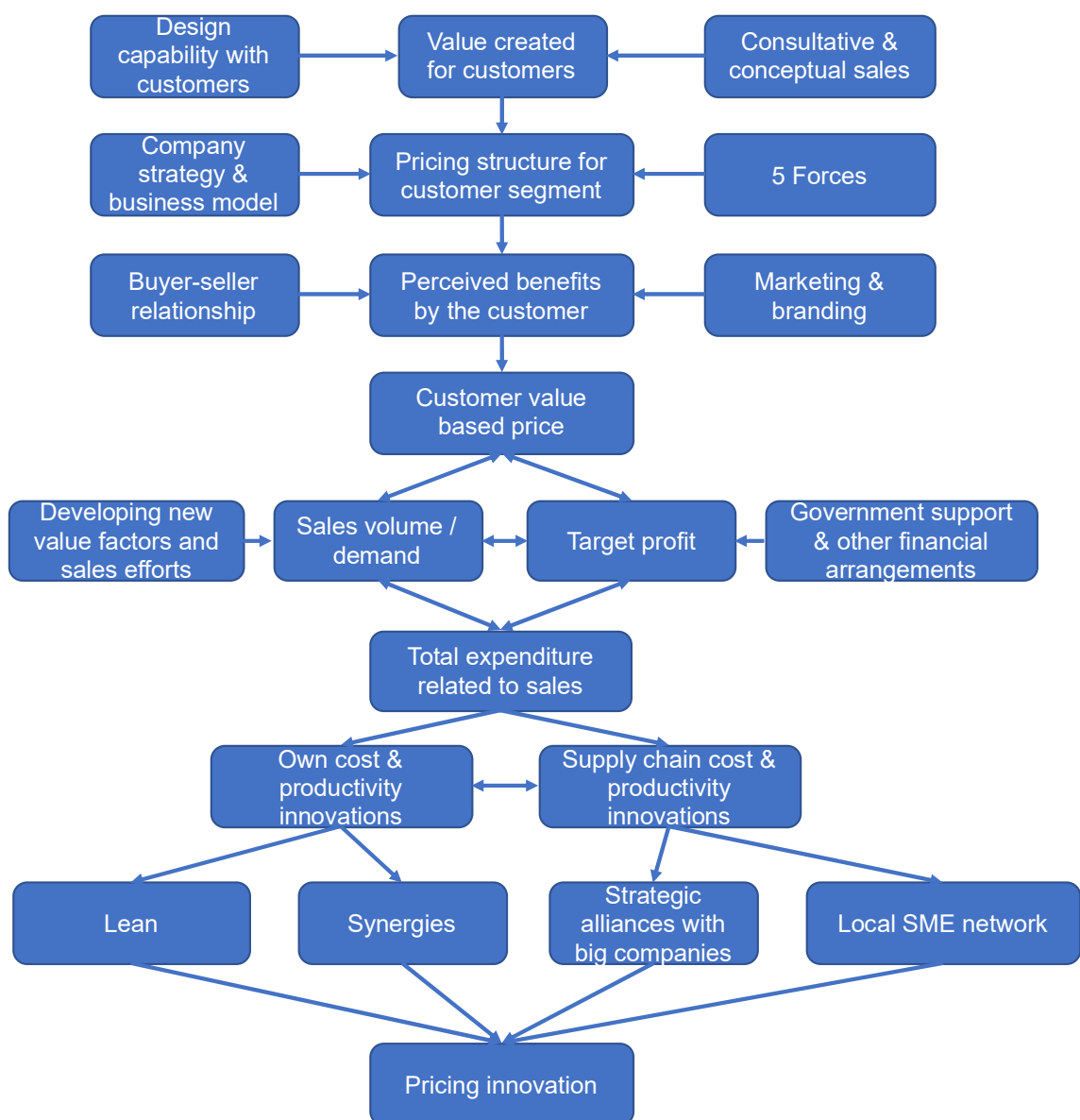


Figure 14. A new model of analyzing price competitiveness of project-based businesses. Model is the author's own theoretical conclusion and supported by empirical evidence as analyzed in 5.1-5.4

Everything starts from the value created for the customer. This is the total experience the customer has from the solution and company including the main functions the solution must deliver, additional functions that bring more value than cost and supporting functions and sometimes even unwanted functions. The best way to identify and clarify this value is through consultative and conceptual sales. This means the sales team is not actually selling a specific solution to the customer but more working for the customer understanding the real challenge and then designing a concept that solves that challenge the best. Value to the customer can be also boosted by the design capability the selling company may have. Design capability comprises of the core business user experience arising from the platform or solution functionalities, dynamic capabilities that are needed to identify key trends and user knowledge and also strategic foresight capabilities (design thinking, design-based prototyping and simulations).

Once the value for the customers is understood the next step is to develop a pricing structure for the entire customer segment and not just for that particular solution. Pricing structure means the company needs to say what does their strategy and business model mean for the pricing and how does the forces around effect the structure. The company needs to determine is it going to select a product-based model (ownership & usage-based models, performance-based models) or loss-leader models (linked transactions of related offerings, sales of related offerings or promotion of other offerings). External forces effecting that structure are called porter's five forces. In particular the competitor information is key to understand if customers have other options and if so, how they affect the company's revenue/ business models. Besides competitors, there are also many other external factors that need to be considered related to pricing structure. These are for example political factors such as wages, legislation, monetary value, education levels etc.).

Third step is to maximize the perceived benefits by the customer, the company can focus on increasing marketing and branding or it can build a better customer intimacy/relationship. In project-based business the customer relationship is the most important factor to getting a contract. Perceived benefit many times is either giving more than expected with the expected price level or giving what the customer was expecting with lower price level. Marketing can set expectations and buyer-seller relationship is also a great factor in expectations.

Based on the benefits, a customer value-based price can be determined. This is assuming a value-based price would be the optimal instead of cost plus or even brand based pricing. Normally this step will include price negotiations and potentially one-off discounts, rebates etc.). Based on literature review and interviews this seem to be the most wanted pricing model. If for example the customer is getting a 5% revenue increase from using the solution, the price should be proportional to that percentage increase. The same

way if a customer can save significant amount of money by using the solution, the price should be proportional to the saving.

Value based price is greatly affected by sales volume (demand factor). Sales volume is influenced by the generic market situation but there are ways to increase the sales volume. These are for example developing new value factors that make the customer want the solution more. The company can also increase its sales efforts by for example sending more sales people to the market. The more sales volume the company has, more it will affect the price. Usually with increased volume, the prices are expected to come down. If sales volumes are decreasing, the prices can keep maximum as they are now but normally company cannot increase the prices. The other factor the company can play with is the target profit it needs to keep the business profitable or meet other business KPIs. Target profit can be affected by for example government support or other financial arrangements (e.g. deferred payments).

Once the target profit and sales volume are determined, the company can set the total cost/expenditure target related to sales. This includes all time, money and efforts needed for the sale and solution (labor, material, capital, services, marketing, inventories, distribution, etc.). Companies make their do/buy strategy which determines what is the core they want to make themselves and what they want to outsource to the supply chain. Cost and productivity related innovations can be done either the company itself or its selected suppliers.

Lean thinking is a good way for the company to map out its value creating parts and wastes (time, inventory, material, people, waiting, over production, over processing, defects) throughout the processes. If the company is part of a bigger group or it has a particular ownership, this may create synergies in costs and productivity. On the supply chain side, the methods can be divided into strategic alliances with big companies and local SME partnerships. Global big company alliances are bringing credibility, cost efficiencies and scale for the solution itself. Local SMEs are bringing speed and flexibility to respond fast to customer demand. All these factors need to focus on minimizing lead-time while maintaining sufficient quality and reliability.

6.2 Managerial recommendations

There are several ways the case company could stimulate price competitiveness. Top five recommendations picked from the interview results are:

- 1 Increase customer closeness by increasing consultative & conceptual sales capability
- 2 Develop value-based pricing instead of taking cost plus as granted
- 3 Decrease internal bureaucracy and other work that don't directly add value to customers and move people to that kind of work

- 4 There are many markets where you need to be closer in order to get the contracts. The biggest potential is in Asia and especially in China.
- 5 Lead-time reduction is the single biggest improvement point for cost reduction

As the supply chain is carrying the most part of the cost and quality requirements, there are several ways the company could increase price competitiveness with the suppliers. There is still a tendency to do too many things inhouse so do/buy strategy should be updated and outsourcing most likely should be increased. Companies should focus on their core activities in technology, product and business development. This was highlighted by the development leaders interviewed in this study. For the rest it should set a common vision with the suppliers, together. A common vision is needed for the standardization, modularization and lead-time improvement targets. This would most likely result into limiting the number of models sold to the market and those models that are sold would be standard. There has been a tendency to tailor too many solutions which is destroying the price competitiveness of the solutions. Tailoring, if even needed, should happen right at the end of the customer delivery process instead of starting from the concept phase. From the concept phase onwards, the whole value chain should utilize the whole supply chain's R&D and engineering capability more than it is done now. One company's budget is only small compared to its supply chain's cumulative budgets and capabilities used is only a fraction of the total potential. To achieve this, stronger alliances should be formed. Alliances where companies can create the concepts together needed to win the end customer projects but work in a transparent way where final solutions can be negotiated after the bid has been won. This could be even extended to services where suppliers could offer a big part of the end customers lifecycle services if it makes the services faster or cheaper.

Managers should carefully analyze different pricing strategies for different market situations. Business models seem still too traditional for the changing markets. The transition should be from ownership & use-based models to at least performance based models. In particular risk & revenue sharing or even cost reduction sharing models should be in everyday use already now. If the company is brave enough, there should be experiments already now to loss-leader models. Managers should create trust with strategic partners so that bidding process could be re-written to maximize transparency. One way is to sign long term agreements where you win or lose together.

6.3 Suggestions for further research

There are factors effecting the competitiveness of project-based businesses not analyzed fully in this thesis. For example, business models have been developing so fast in many

industries especially once the value of data has been understood, there are likely business models not analyzed in this thesis. Another factor that could be analyzed more thoroughly is product lifecycle management. Combining original equipment manufacturing and services sales has been a topic of discussion for many years in many big and small companies. Lifecycle pricing and related topics could be researched further.

This study focused on one case company and there could be different types of project-based businesses that could give the developed models and improvement suggestions different perspectives. If platform businesses and project-based businesses are becoming closer to each other in any industry or case, that would be very interesting to analyze in detail.

7 SUMMARY

This thesis is studying how can price competitiveness of project businesses be further increased by developing the key drivers of the presale period. Theories regarding price competitiveness and development methods in the presale period were studied. Autoethnography and case company qualitative interviews were chosen as the research method.

Project business can show various example of complex transactions that are taking place for a period of time. It can be building a very complex piece of machinery or shopping center. Shipbuilding on the other hand includes almost all types of complex subproject deliveries within the ship project itself. All projects start with negotiations and agreements about scope, cost and time but sales and execution are happening in parallel. Concept is defined as the contract is negotiated and more than 60% of the costs are locked at that stage. In many projects even more. It is therefore interesting to understand how can companies develop their price competitiveness before the actual sales is closed.

Top five factors determining the price competitiveness in project-based business in particular are: (1) Customer intimacy, (2) Experience, (3) Vision, (4) System integration capability and (5) Strong products. Most of the contracts are done on personal level between the buyer and seller. The spirit and trust between the actors are important and this influences the perceived benefits for the customer that then determines the value-based price. Track record from previous projects or experience in general in complex projects showing that if something goes wrong the customers are not left on their own, is important for price competitiveness. Without it customers will put a huge risk margin on top of company's price or don't even consider it to be a viable offer. These two factors take time to build between customer but they can be destroyed very fast. In case customer closeness is lost and there is an incident causing challenges to the whole track record, whole businesses are lost very fast. The third noticed value factor is not a typical attribute nor mentioned too often in the literature about studying competitiveness factors. Customers especially in project-based business want to be a part of the story. They want to create unique opportunities in their own niches and therefore having the same vision is the glue that holds all together. This vision about the future is the first thing the consultative and conceptual sales team "sells" to the customer. Once the overall objective is determined, the rest of the process can be guided towards it. Fourth factor is system integration capability which has been the highest level of capabilities e.g. in the shipbuilding industry. The in chapter 6.1 a new model of analyzing price competitiveness of project-based businesses was presented. This fourth factor, system integration capability, can be referred to the "company strategy & business model" part of the model. Few big system integrators have dominated the marine market for the past decades by developing strategies of integrating more and more products into bigger systems and then

offering continuously wider asset management services and related business models. The fifth factor is actually crucial in all markets. Company's basic products or offering needs to be good and competitive. Project based businesses value having well performing products with good lead times perhaps even more than many other industries.

This research was designed to a qualitative case study where the author also had acquired expertise in the research questions over the years working in project bases businesses. Case company was the company the author had access to the right individuals on right levels of the company who were dealing with these kinds of questions on a daily basis in their businesses. Also, as the author was also leading a project-based business inside a big company at the time of writing this thesis, many of the research questions were something the author was thinking everyday with his management team. This research therefore offered a good way to collect these thoughts and areas in interest.

As most of the development and delivery items were coming from supply chain, it is the source of most potential in developing price competitiveness. Together with the supply chain, the company can either deliver over the specification with in the budget or deliver within the requirements but below the budget. The biggest improvement potential is reducing lead times while maintaining the quality and reliability. Supplier should be all together with the customer and a common vision set so that all are committed to it. This vision should be about lead time target and standardization & modularization. Today the processes are building slack because the parties don't trust each other and they may not have the same vision and targets. If that can be reached, companies would share their data allowing transparent processes and standards to be created. This would dramatically decrease the lead times. More trust and transparency would also allow key suppliers to come to the table when the early concepts are created together with end customers. No this is missing in most cases and suppliers R&D capabilities are not utilized. Especially in complex projects it is important to involve partner suppliers early on in the new solution development while still being able to negotiate the right cost levels after the project has been won.

This type of activities would imply some kind of risk and revenue or even cost saving sharing model to be used. Surprisingly little any kind of performance-based models (e.g. guaranteed availability or sharing models) are being used in project-based businesses. There was no sign of loss-leader models being used which may hold the biggest disruption potential in the market. Pricing is commonly cost-plus pricing in the industry and most desires are into moving to a value-based pricing. Still the focus is on ownership and use-based models. As the businesses are moving into more and more system integration markets, companies want to sell, license or outsource traditional product manufacturing. This would open the opportunity for changing the business and pricing models. Those with money should own more assets than they do now. Today's roles should be changed for the whole value chain can be more efficient and productive.

This could lead to for example leasing models, crowd funding development or at minimum long-term frame agreement on who is doing what and what volumes can be guaranteed so that more investments could be made than today. Incentives should be used in pricing e.g. rebate price discounts or credit notes.

Before the pricing methods become meaningful the products or solutions itself need to have attributes valued by customers. This mean there needs to be continuous development of the product/solution, production and processes. Innovations are created together with customers and early concept development together with customers opens the biggest potential for getting a contract. Companies should continuously develop their processes so that more people work directly with customers. Instead they do the opposite and bury people in internal bureaucracy. Creative work needs fostering, it doesn't happen by itself. Creating a collaborative environment requires first a common vision, then trust and personal relationships in different levels of buyer's and seller's organization. While developing new products, production and processes, companies should develop new business models at the same time. This has been overlooked by many companies especially in project-based businesses. Perhaps digitalization is changing this for direction for good.

REFERENCES

- Alanko, J. (1996) *Laivan yleissuunnittelu: Laivan hinnoittelu*. Opetusmonisteet, Aalto-yliopisto
- Aminoff, A. – Pajunen-Muhonen, H. (2002) *Hankintatoiminnan nykytila ja kehittäminen kysyntä- ja tarjontaverkostossa*. Liikenne- ja viestintäministeriö, Helsinki 2002
- Andrésen, A. – Holma, E. – Karvonen, T. – Saurama, A. – Westerholm, T. (2009) *Varsinais-Suomen meriteollisuusyritysten kansainvälistyminen: Meriklusteriohjelman selvitys*. PBI Research Institute ja Merenkulkualan koulutus- ja tutkimuskeskus MKK. Toukokuu 2009.
- Anttila, M. – Fogerholm, J. (1999) *Hinta kilpailuetuna teollisuusyrityksissä*, Werner Söderström.
- Artto, K. – Wikström, K. (2005) What is project business? *International Journal of Project Management* 23 (2005) 343-353
- Artto, K. – Martinsuo, M. – Kujala, J. (2006) *Projekttiliiketoiminta*. WSOY Oppimateriaalit Oy. 1. painos, 2006
- Artto, K – Wikström, K. – Hellström, M. – Kujala, J. (2008) Impact of services on project business. *International Journal of Project Management* 26 (2008) 497-508.
- Bansard, D. – Cova, B. – Salle, R. (1993) *Project Marketing: Beyond Competitive Bidding Strategies*. *International Business Review* Vol2. No 2. pp. 125-141, 1993
- Barney, J. (1991) Firm Resources and Sustained Competitive Advantage. *Journal of Management* 1991, Vol. 17, No. 1, pp. 99-120.
- Berggren, C (1995) Building a truly global organization? ABB and the problems of integrating a multi-domestic enterprise. *Scandinavian Journal of Management*, Vol. 12, No. 2. pp 123-137, 1996.
- Chowdhury, A. (2015) The Theory of Multinational Enterprises: Revisiting Eclectic Paradigm and Uppsala Model. *Business and Management Horizons* 2015 Vol 3, No.1

Cova, B. – Ghauri, P. – Salle, R. (2002) *Project Marketing: Beyond competitive bidding*. John Wiley & Sons Ltd 2002

Davies, A. – Hobday, M. (2005) *The business of projects: Managing Innovation in Complex Products and Systems*. Cambridge University Press, First published 2005

Denzin, N – Lincoln, Y. (Eds.). (2005). *The Sage Handbook of Qualitative Research* (3rd ed.). Thousand Oaks, CA: Sag

Dyer, J.H. – Singh, H. (1998) The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage. *The Academy of Management Review*, Vol. 23, No. 4 (Oct., 1998), pp. 660-679.

Dutta, S. – Bergen, M. – Levy, D. – Ritson, M. – Zbaracki, M. (2002) Pricing as a strategic capability. *MIT Sloan Management Review Spring 2002*, Vol. 32. No. 3

Dutta, S. – Zbaracki, M. – Bergen, M. (2003) Pricing process as a capability: A resource-based perspective. *Strategic Management Journal*, 24: 615-630 (2003)

Drucker, P. (1994) The theory of the business. *Harvard Business Review*: September-October 1994.

Eisenhardt, K.M. - Martin, J.A. (2000) Dynamic Capabilities: What Are They? *Strategic Management Journal*, Vol. 21, No. 10/11, Special Issue: The Evolution of Firm Capabilities (Oct. - Nov., 2000), pp. 1105-1121.

Eloranta, J. (2008) *Continues profitable growth - more speed to execution towards 2012*. Metso Capital Markets Day, September 2, 2008.

Fogelholm, C.M. (2009) *Tuoteideasta innovaatioksi*. Mediapinta 2009

Gabrielsson, M. (2009) *Responding to Globalization: Strategies and Management for Competitiveness*. Helsingin Kauppakorkeakoulu. Final report of a TEKES-project.

Ganskau, E. – Melnik, I. –Andrésen, A. (2010) *Offshore Market Review*. FIMECC PROBE program January 2010. Åbo Akademi & PBI Research Institute, St. Petersburg

Ghoshal, S. (1987) Global Strategy: An Organizing Framework. *Strategic Management Journal*, Vol. 8, No. 5 (Sep. - Oct., 1987), pp. 425-440.

- Halevi, G. (2006) *Industrial Competitiveness: Cost Reduction*. Springer 2006
- Hannus, J. (1993) *Prosessijohtaminen: Ydinprosessien uudistaminen ja yrityksen suorituskyky*. HM&V Research Oy 1993
- Hansen, M.T. – Birkinshaw, J. (2007) *The Innovation Value Chain*. Harvard Business Review June 2007.
- Hast, M. – Koppinen, J. – Suonne, M. (1994) *Industrial performance and competitiveness Finnish, Swedish and German listed groups 1982-1992*. Helsinki School of Economics, Artto project
- Heikkilä, J. – Huovinen, P. – Silventoinen, J. (1987) *Kilpailukyvyn analysointi projektiviennissä*. Helsinki University of Technology. Otaniemi 1987
- Hellström, M. – Wikström, K. (2005) Project business concepts based on modularity – improved maneuverability through unstable structures. *International Journal of Project Management* 23 (2005) 392-397
- Hirsjärvi, S. – Hurme, H. (2000) *Tutkimushaastattelu: teemahaastattelun teoria ja käytäntö*. Helsinki: Yliopistopaino
- Huhtala, P. – Pulkkinen, A. (2009) *Tuotettavuuden kehittäminen: Parempi tuotteisto useasta näkökulmasta*. Teknologiateollisuus ry. Esa Print Oy, Tampere, 2009
- Huuhkala, T. (2016) *Hankintojen kehittäminen: Tehokkaamman hankinnan työkalut*. Helsinki, Suomi: BoD - Books on Demand (2016)
- Inwood, D. – Hammond, J. (1993) *Product Development: An Integrated Approach*. Kogan Page, 1993
- Jaakkola, J. – Tunkelo, E. (1987) *Tuotekehitys - Ideoista markkinoille*. Weilin+Göös Espoo 1987
- Jalkala, A. – Cova, B. – Salle, R. – Salminen, R. (2010) Changing project business orientations: Towards a new logic of project marketing. *European Management Journal* (2010) 28, 124-138

- Kaario, K. – Pennanen, R. – Storbacka, K. – Mäkinen, H-L. (2003) *Selling Value: Maximize Growth by Helping Customer Succeed*. WS Bookwell Oy, 1st edition (2003)
- Kasanen, E. – Lukka, K. – Siitonen, A. (1993) The Constructive Approach in Management Accounting Research. *Journal of Management Accounting Research*, Vol.5, p.241-264
- Kettunen, J. – Ilomäki, S-K. – Kalliokoski, P. (2007) *Making Sense of Innovation Management*. The Federation of Finnish Technology Industries. Teknologiainfo Teknova Oy
- Kim, W. – Mauborgne, R. (2005) *Sinisen meren strategia*. Gummerus Kirjapaino Oy: Jyväskylä.
- Koskinen, A. – Lankinen, M. – Sakki, J. – Kivistö, T. – Vepsäläinen, A. (1995) *Ostotoiminta yrityksen kehittämisessä*. Helsinki: WSOY
- Krogh, G. – Cusamano, M. (2001) Three strategies for managing fast growth. *MIT Sloan management review*, Winter 2001.
- Lasser, W.M. – Kerr, J.L. (1996) Strategy and control in Supplier-Distributor Relationship: An Agency Perspective. *Strategic Management Journal*, Vol. 17, No. 8 (Oct., 1996), pp. 613-632.
- Leimu, H. – Niemelä, J. – Pusila, J. (1995) Laivanrakennusteollisuuden erityispiirteistä. Teoksessa: Leimu H. – Niemelä J. (toim.) *Tuotantotavan muutos Suomen laivanrakennuksessa*. Turunkauppakorkeakoulu. Turku. s. 9-15.
- Lincoln, Y. – Guba, E. (1985) *Naturalistic Inquiry*. Sage Publications: USA.
- Lindstedt, P. – Burenus, J. (2003) *The Value Model: How to Master Product development and Create Unrivalled Customer Value*. Nimba, NA (2003)
- Malinen, P. – Toivonen, J. – Toivonen, T.E. (1999) *Telakoiden epäsuora tuki ja liiketoimintariskit*. Series Discussion and Working Papers 8:1999. Publications of the Turku School of Economics and Business Administration
- Marschan-Piekkari, R. – Welch, C. (ed. by) (2004) *Handbook of Qualitative Research Methods for International Business*. Edward Elgar Publishing, 2004

Mintzberg, H. – Waters, J.A. (1985) Of Strategies, Deliberate and Emergent. *Strategic Management Journal*, 6:3, 257-272. <<http://www.jstor.org/stable/2486186>>, haettu 1.2.2010.

Monroe, K. (2003) *Pricing: Making Profitable Decisions*. McGraw-Hill/Irwin, 2003

Murtoaro, J. – Kujala, J. – Artto, K. (2005) *Negotiations in project sales and delivery process: An application of negotiation analysis*. Helsinki University of Technology, Laboratory of Industrial Management Report 2005/3

Nagle, T. – Hogan, J. (2006) *The Strategy and Tactics of Pricing: A Guide to Growing More Profitably*. Pearson Prentice Hall, 2006

Nallikari, M. – Nieminen, J. (1990) *Tutkimus laivan omakustannusarvoon vaikuttavista laivateknisistä tekijöistä*. Teknillisen Korkeakoulun Kirjasto, Sarjakokoelmat, Otaniemi 1990-03-19

Nallikari, M. – Ylikyyny, T. (1989) Telakoiden kansainväliseen hintakilpailukykyyn vaikuttavat tekijät. Teknillisen Korkeakoulun Kirjasto, Sarjakokoelmat, Otaniemi 1989-02-23

Okko, P. – Malinen, P. – Toivonen, J. – Nygren (1997) *Telakkatuki ja tarjouskilpailut*. Edita Publishing Oy, 1997. Kauppa- ja Teollisuusministeriön tutkimuksia ja raportteja

Oum, T.H. – Yu, C. (1998) *Winning Airlines: Productivity and Cost Competitiveness of the World's Major Airlines*. Springer US, 1998.

Pekkarinen, J. – Peura, T. (1984) *Hintakilpailukyvyyn käsite ja mittaaminen*. Suomen Pankki Julkaisuja A:58

Porter, M. (1991) Towards a Dynamic Theory of Strategy. *Strategic Management Journal*, 12:2, 95-117. <<http://www.jstor.org/stable/2486436>>, haettu 1.2.2010.

Reen, N. – Windischhofer, R. – Wikström, K (2009) *Obstacles to pricing of industrial services*. EURAM 2009 annual conference, Liverpool, UK 11-14th May 2009.

Roune, T. – Joki-Korpela, E. (2008) *Tuloksia ratkaisujen myyntiin*. Gummerus Kirjapaino Oy, Jyväskylä 2008.

Sadler, I. (2007) *Logistics and Supply Chain Integration*. SAGE Publication, 2007

Smyth, H. – Gustafsson, M. – Ganskau, E. (2010) The value of trust in project business. *International Journal of Project Management* 28 (2010) 117-129

Tah, J.HM. – Carr, V. (2001) Towards a framework for project risk knowledge management in construction supply chain. *Advances in Engineering Software Journal*, Volume 32, Issue 10-11, 10/01/2001, Pages 835-846

Telakkateollisuustyöryhmä 2009, *Mietintö* 31.12.2009, Työ- ja Elinkeinoministeriö. sivut 6-15

Torniainen, J. (1993) *Strategies and performance Finnish and Swedish metal industry groups 1982-1991*, Helsinki School of Economics Artto-project 1992-1993)

Treacy, M. – Wiersema, F. (1997) *The Discipline of Market Leaders: Choose Your Customers, Narrow Your Focus, Dominate Your Market*. Perseus Books: New York.

Tuominen, K. – Lahti, S. (2012) *Kilpailuetua tuotehallinnalla*. Benchmarking Ltd. 2012

Tuominen, K. – Lahti, S. (2012) *Competitive advantage through mass-customization*. Benchmarking Ltd. 2012

Yin, Robert K. (1984). *Case study research: Design and methods*. Newbury Park, CA: Sage, p. 23

Yli-Kyyny, Tomi (1989) *Telakoiden kansainväliseen hintakilpailukykyyn vaikuttavat tekijät*. Diplomityö, Teknillinen Korkeakoulu, Konetekniikan osasto, Kuljetusvälinetekniikan laitos. 1989.

Ward, S.C. – Chapman, C.B. – Curtis, B. (1991) On the allocation of risk in construction projects. *International Journal of Project Management* 1991, Volume 9, Issue 3, August 1991, Pages 140-147

Welin, Vilhelm (1982) *Tuotekehityksen käsikirja: Ideasta valmiiseen tuotteeseen*. Oy Rastor Ab, 1982

Wikström, K. – Hellström, M. – Artto, K. Kujala, J. – Kujala, S. (2008) *Drivers and barriers for adopting services in project-based firms*. EURAM European Academy of Management Conference, 14-17 May 2008, Published 2008

APPENDIX 1: THE CONTENT OF THEME INTERVIEWS

Main research problem	Sub-research problems	Theoretical framework	Chapter	Themes
How can the price competitiveness of project based businesses be further increased by developing key drivers of the presale period?	<i>Sub-research problem 1:</i> What are the key drivers influencing the price competitiveness in the project business?	Theory of Business (unique activities) Porter's Five Forces Dynamic Capabilities Eclectic Paradigm Blue Ocean Strategy Competitiveness of Nations and Industries	2.1 2.2 2.3 2.4	Interview theme 1: overall competitiveness Interview theme 2: price competitiveness
	<i>Sub-research problem 2:</i> Which drivers can be developed before the actual sale?	Project business Pricing methods Supplier management Stakeholder management Productivity development Value engineering Product development Product lifecycle management Business model development	3.1 3.2 3.3 3.4 3.5 3.6 3.7	Interview theme 3: presale process Interview theme 4: engineering development Interview theme 5: supply chain development Interview theme 6: stakeholder and productivity development Interview theme 7: business model and pricing method development
	<i>Sub-research problem 3:</i> How should the key drivers be developed in order to increase the price competitiveness?	All the above	5.1 5.2 5.3 5.4	Analysis

Theme 1: Overall competitiveness

1. What are your company's core competences?
 - a. Are there core routines (culture & processes) giving competitive advantage?
 - b. Are there competences bringing operational efficiencies?
 - c. Are there ways to manage risks that bring competitive advantage?
 - d. Are there ways innovations are being managed bringing competitive advantage?
 - e. Other core competencies?
2. How does your company plan to make a difference in the environment?
 - a. Can ownership bring competitive advantage (leadership, brand, efficient decision making, control, etc.)?
 - b. Are there localization advantages such as access to resources, skills, closeness to customers, cost level, etc.?
 - c. Are there internalization related advantages e.g. synergies of big group and internal transaction advantages?
3. What are your company's unique activities / value factors?

- a. Have you discovered new activities / value factors other companies are not so strong?
 - b. Have you discontinued some activities that are not adding value?
4. What is the competitive rivalry status in the industry?
- a. Supplier power?
 - b. Customer purchasing power?
 - c. Threat of substitution or new entries?
 - d. Generic competitive rivalry?

Theme 2: Price competitiveness

- 5. How is the company investing into new product introduction, product upgrades, manufacturing efficiency, cost reduction etc.? And how much should it invest relative to competitors?
- 6. How are customers valuing the labor, material, capital and services and how price sensitive is the market?
- 7. Is the company a price setter or price taker in the market? Do market shares follow that?
- 8. How do you know what the right price is, what are competitors' prices, how to agree the selling price, how to flow the price to other processes within the company and how to sell it to the customers?
- 9. How can strategic alliances support in price competitiveness?
- 10. How much of getting a contract is about the relationships to customers?

Theme 3: Presales process

- 11. What are the success factors for winning a customer project?
- 12. How could the competitive advantage be achieved either on the technical or commercial side?

Theme 4: Engineering development

- 13. What is the role of product development in creating competitiveness?
- 14. Can you describe in your own words how innovations happen in your business?
- 15. What can engineering do to increase sales or margins? Value engineering?
- 16. How system integration or design capability contribute to competitiveness?

Theme 5: Supply chain development

- 17. How important is it to get partner suppliers involved in new solution development early enough?
- 18. How does supplier bundling, outsourcing or insourcing affect the competitiveness?

19. How can purchasing activities create added value to end customers?
20. Describe the order winning supply chain criteria: quality, features, delivery speed, reliability, flexibility etc.?
21. What are the biggest improvement points in the current supply chain?
22. How much different tiers put safe margins and how to prevent risk factor accumulation?
23. Describe ways to standardize and industrialize the solutions with suppliers?

Theme 6: Stakeholder and Productivity development

24. How to create a collaborative environment?
25. What standards have been set what good is?
26. How can we create a continuous way to build customer relationships? The role of customers in product development?
27. Is digital twinning and delivery simulations a way to increase competitiveness?
28. Describe ways to reduce product lead time?

Theme 7: Business model and Pricing method development

29. How are the business models developed along with the technical solutions?
30. Are the customer value propositions and offerings clearly defined?
31. Are you using cost-based, market-based, value based or brand based pricing?
32. How are risks being considered in pricing methods?
33. How does marketing, sales, finance and product development work together to anticipate correct price levels?
34. What is the effect of price on volume and what volumes do to cost levels?
35. How to efficiently use price clauses with suppliers?
36. What are the challenges in lifecycle pricing (combining OE and service prices)?
37. What are the benefits and negative aspects of selling guaranteed availability to customers?
38. How to use effective incentives or penalties in contracts? How can frame agreements increase price competitiveness?
39. Can you suggest new financing solutions and how to apply them?
40. How should government support system be considered in different market situations?