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# **The Business Analysis Process of New Product Development**

- a study of small and medium size enterprises

**PREFACE**

When we started this thesis journey we did not have any idea of where we would land. Now after 10 weeks we have landed this, and we are pleased with the result. It has been a lot of fun but also hard work involved in completing this thesis. Last but not the least we learned a lot about both our subject and how to conduct research on this level. During these 10 weeks we have gotten help from a lot of people but most of all from our supervisor Gert-Olof Boström. We would like to thank him for helping us completing this journey. We would also like to thank all the people that we have interviewed, without you there would not have been a thesis.

We hope that this thesis will get you interested in the many small and medium size enterprises in our world, and to not neglect their importance of the global economy.

Umeå, April 2008

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**ABSTRACT**

The world is a very competitive place, every day companies from all over the globe try to be on the edge of their fields in order to keep a good distance from competitors. They have found in the new product development process or NPD the leverage they needed to build up that differentiation required to get ahead over competitors. When looking inside the NPD we decided to focus on a very critical and interesting stage, the business analysis process. The purpose sought with our research is to provide a better understanding of how small and medium size enterprises (SMEs) carry out their business analysis stage in the process of new product development (NPD), this purpose was first obtained by stating a main problem and to facilitate the answer to this main problem we proposed two research questions that were later used to review all of the related literature, which resulted in a conceptual framework employed to guide this study's data collection. We decided to use the inductive approach and the use of primary data collected with the help of interviews with companies representing SMEs using a qualitative case study approach through all interviews. It is important to mention that the interviews were also designed with the help of the research questions.

The results allowed us to develop a model that shows how the business analysis process looks like in the companies studied as well as to highlight the most relevant factors for the two companies studied when performing the business analysis. Finally the research let us establish some suggestions for future researches regarding the business analysis process such as the differences between small and medium enterprises and larger firms, and the cross-functional activities involved in a business analysis process in larger firms.

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## 1. INTRODUCTION

*This chapter will introduce the background of the area that is researched. This will eventually lead to a problem discussion about the business analysis stage in new product development process. The chapter will end with an overall purpose and specific research questions.*

### **1.1 Background**

Today's business environment is rapidly changing, therefore to survive and stay competitive; a company would definitely benefit from knowing that product innovation is one of the key concepts for surviving and staying competitive (Gagne and Discenza 1995). Chen, Kang, Lee, Xing and Tong (2007) mentioned in their article concerning American and British companies that more than 50% of the sales in successful companies were coming from new products and that the percentage was even over 60% in the most successful overall company.

Over the past two decades, several studies have shown that product development has become an increasingly important medium in developing and sustaining a strong position in an increasingly competitive business arena. (Duysters, van Weele, Wynstra and van Echtelt, 2008). Axarloglou (2004) added to this statement by saying in his research that product innovation and new products also intensify the market competition. Intense competition in many industries forces firms to develop more products in less time. (Lin, Chai, Wong and Brombacher, 2006)

Cross and Sivaloganathan (2007) however claimed new product development (NPD) is a very complex process that requires industry-specific knowledge to produce commercially feasible solutions. This specialist knowledge is what enables cooperation to develop competitive advantage in their marketplace (ibid). Duysters, *et al.* (2008) continued by stating that because of the increased importance of specialist knowledge, the demands on product development performance, in terms of speed, accuracy, and cost, have become higher. De Toni and Nassimbeni (2003) further suggested that effective NPD has become the central point of competitiveness in many industries, particularly those where product life has shortened, competition increased on a global basis, and customer demand for greater product variety has grown (ibid). Chen, *et al.* (2007) stated another important issue, the selection of the right set of NPD. This is critical to a company's long-term success, a company must respond quickly to dynamic customer needs, increased complexity of product design and rapidly changing technologies.

According to Lin, *et al.* (2006) product development undergoes new trends such as scattered product development, cross-functional team, and simultaneous product development because of fragmented and demanding markets, increasing technical intensity, and short product life cycles. These new trends have increased the complexity and uncertainty of product development (Lin, *et al.*, 2006). New product introductions are of course common in most markets (Hitsch, 2006). However because of the complex NPD process, many of these new products fail, and the high failure rate of new product development projects suggested that NPD is a challenging pursuit (Shahrul-Yazid and Nooh, 2007).

De Toni and Nassimbeni (2003) claimed that there is a general agreement that new product development process and planning process is not sufficiently researched in small and medium size enterprises and models and tools specifically focused on these organisations are lacking.

The most common obstacle to innovation in small medium size enterprises (SMEs) is according to De Toni and Nassimbeni (2003) the excessive cost of product development projects. The uncertainty of market acceptance is the second major difficulty. The innovative process in SMEs is also more informal and less structured, the base of managerial competencies is limited, the availability of financial resources is lower, and the attraction towards skilled labour weaker. De Toni and Nassimbeni (2003) also listed other problems SMEs have; they may for example have difficulties to recruit, train, and retain highly qualified competent personnel. Since they are often unable to match the wage opportunities, career development opportunities or job security given by large firms. SMEs also have a limited access to finance and supposed equity gaps are very often cited as barriers to innovations in small firms. (ibid) Therefore, SMEs are disadvantaged in financial support and the market for skilled labour, resources which is essential for successful innovation particularly during the early stages of product development. Developing successful new products requires systematic planning to coordinate the many decisions, activities, and functions necessary to move the new-product idea to commercial success. (De Toni and Nassimbeni, 2003)

Cravens and Piercy (2005) developed the new product development planning process. The process includes such stages as, need analysis, idea generation, screening and evaluation, business analysis, product and marketing strategy development, and finally testing and commercialization. The business analysis stage components are *sales forecasts, cost estimation, profit projections, risks assessments* and finally the possible *cannibalization of sales*. The business analysis components should be used to estimate the commercial performance of the new-product concept. Before going any further this assessment is crucial for moving on in the product development process. (Cravens and Piercy, 2005)

The business analysis stage have many important components, therefore we see it as a crucial part of the whole process. The emphasis of this thesis will be in the business analysis stage, because of its importance in the new product planning process. Cravens and Piercy (2005) said for example to stress the importance of the business analysis stage that “business analysis is the final assessment before deciding whether to develop the concept into a new product or not.”

### ***1.2 Problem Discussion***

According to Fader, Hardie, and Huang (2004) there has always been an interest shared by academics and practitioners in the matter of forecasting new product sales. However estimations are not straightforward, according to Shahrul-Yazid and Nooh (2007) the common traits of business analysis issues (e.g. sales projections) are their high uncertainty, high ambiguity and their risky characteristics.

As earlier stated, new product introductions are common and an essential part for many businesses. Many of these new products fail, for example exit from the market soon after product launch. These product failures are costly, as the development costs and marketing costs during the launch period can no longer be recovered. (Hitsch, 2006) A possible explanation for these facts could be related to what has been stated earlier by Cross and Sivaloganathan (2007), De Toni and Nassimbeni (2003) and Lin, *et al.* (2006) who all argued that (NPD) is a very complex process and that firms are often uncertain about the demand and profitability of their new products, and therefore they launch products that could fail. For Hitsch (2006) this raised the question of how firms should optimally learn about the true

profitability of their products, and how the decision to launch or scrap a product is affected by demand uncertainty.

Hitsch (2006) stated in his article that many firms use the market as a laboratory to attain information from observed sales to know the true demand for their products. Cravens and Piercy (2005) claimed that obtaining an accurate financial projection depends on the quality of the sales and cost forecast. Hitsch (2006) points out that if uncertainty is reduced it will result in the form of increased expected profits.

Business analysis issues are about predicting the success of a product or technology in the market, predicting reaction of competitors, suppliers and customers, and predicting how a product plan and strategy will work out based on limited information about the future and market dynamics (Shahrul-Yazid and Nooh, 2007). This limited information about the future and past experience is only able to give some guidance to a limited extent. Shahrul-Yazid and Nooh (2007) stated that this explained why we see more intuition than empirical analysis employed in making decisions when dealing with NPD business analysis issues. According to Fader, *et al.* (2004) this intuition phenomena enables the business analysis stage to anticipate the complete set of market dynamics that surround a new product launch.

Shahrul-Yazid and Nooh (2007) mentioned two driving concepts of the new product planning area in their research. The first one is *time-to-market*, if there is too much scrutiny then the time-to-market can be compromised. The second is *evaluation accuracy*, if you speed things too much you will not know what you have and you will not know if what you are offering is demanded. Therefore launching a product too fast will lose certain evaluation criteria. Corporations need to decide between “evaluation accuracy” versus “speed-to-market”. Corporations have to decide how much scrutiny or evaluation accuracy, for example the accuracy of revenue estimation analysis that they have concede in order to save time to be ahead in developing and launching a new product. Making that decision is a delicate balancing act. There is a risk to the product launch schedule if the development of the product is delayed or slowed down by excessive scrutiny of evaluation accuracy. (Shahrul-Yazid and Nooh, 2007)

Fader, *et al.* (2004) mentioned in their research the difficulty to get an accurate read on a new products long-term potential based on only a few initial weeks or test-market sales data. Common problems that were found include the artificial skew of initial sales level caused by significant promotional activity. Also the fact that early buyers may not exhibit typical purchasing rates due to the promotional activity and repeat-purchasing patterns might be difficult to sort out from the large amounts of first purchase data. Fader, *et al.* (2004) therefore suggested the essence of relying on formal models of new product sales so that practitioners can understand the underlying factors of sales forecast and in the end produce a valid sales forecast.

Making new product development projects successful has been a major challenge for the companies in the past, and will definitely continue to be a major challenge for tomorrow’s companies. (Shahrul-Yazid and Nooh, 2007)

To be able to stay competitive in today's business environment corporations need to be innovative, but all corporations do not have the same essential factors for successful innovation. SMEs have a more difficult task when it comes to innovation with their restrains related to limited competencies and the lack of financial resources. Due to these restrains,



SMEs will face many difficulties in conducting their business analysis stage in the new product planning process.

### ***1.3 Problem Statement***

Based on the problem discussion above this leads to the following problem statement:

*Study and describe small and medium size enterprises' business analysis stage.*

### ***1.4 Purpose and Research questions***

The purpose of this thesis is to explore the nature of the small and medium size enterprises product development planning process. The thesis seeks in particular to deepen understanding of the distinctive nature of the business analysis stage of the planning process. Also we will establish a richer insight into the factors and the description of the SMEs business analysis stage than the one that is possible with current lacking theory that is mostly grounded in the experience of much larger enterprises.

The problem statement above is a wide question and therefore the following specific questions have been taken forward:

**RQ1:** Which are the important factors for the SMEs in their business analysis?

**RQ2:** How does the business analysis process look like in the two SMEs studied?

### ***1.5 Delimitations***

Our study will only investigate two companies with the aim to establish an understanding of how small and medium size enterprises (SMEs) carry out their business analysis stage in the process of new product development (NPD) and to answer the above mentioned problem statement. We will also limit our empirical data collection to the vicinity of Umeå, and it might be difficult to generalise the conclusions made from this study to the whole of Sweden. It is however not our purpose since the study is of interpretivistic epistemology.

The data collection will only be done within the SMEs and no larger firms, this is a conscious choice and we will not be able to draw any parallels from how SMEs carry out their business analysis process with how larger firms carry out their business analysis. Any conclusions that will be made will be drawn from our empirical findings and the theoretical framework.

## ***1.6 Disposition***

### ***2. Theoretical methodology***

The chapter starts with a short presentation of the choice of subject and followed by an explanation of the chosen approaches used in the research. This chapter is presented to create an understanding of the different methodological choices and to increase the transparency of this study.

### ***3. Theoretical framework***

In this chapter an overview of previous research related to our research will be presented. There are a number of theories and concepts which we found relevant for this study which will be presented and introduced. The chapter will conclude with a conceptual framework where we grasp and arrange the previous research in a graphic model.

### ***4. Practical methodology***

In this chapter we will present how we have collected our data required for this study. This chapter will cover such areas as choice collection method and choice of respondents, interview issues and collection of empirical data. Finally, we will conclude with discussing the criticism of the primary sources.

### ***5. Empirical findings and analysis***

In this chapter we will present the empirical data collected from the interviews. We have also chosen to include the analysis in this chapter. The chapter will start with a short introduction to the companies. Then each subject has been divided into their own section. Each subject has the empirical data collected and the analysis included in each section. The analysis of each sector will provide a thorough analysis of the empirical findings and is interpreted with the help of the theoretical framework developed and the conceptual framework.

### ***6. Conclusion and discussion***

In this chapter we will start by presenting a model we have constructed. This model will be used to answer the research questions and problem statement which will thereby fulfil the overall purpose. Finally we will suggest some ideas concerning future research.

### ***7. Criteria of truth***

The following chapter and the last chapter of this thesis we will consider the scientific relevance of the study. This will be performed by looking at the validity and the reliability of the study.

## **2. THEORY METHODOLOGY**

*In this chapter the methodology related to the theory is presented. The chapter starts with a short presentation of the choice of subject and followed by an explanation of the chosen approaches used in the research. This chapter is presented to create an understanding of the different methodological choices and to increase the transparency of this study.*

### ***2.1 Choice of subject***

The discussion of finding a suitable subject for us was a short process. We both have an interest for product development and since we both study the Master's Programme in Marketing we decided to look into the new product planning process. The specific choice of researching the business analysis stage in the planning process came to us from working with the marketing strategy simulation program MarkStrat. When using that simulation program we found that the most difficult part for our team was to predict and estimate product sales, product volume and make profit projections. Therefore we decided to research more in depth about those complicated and complex factors surrounding business analysis. We both had a strong interest in this subject and we both wanted to learn more about these specific processes, therefore the motivational and learning value issues were satisfied to a great extent.

The choice of focussing on the business analysis stage of the new product planning process came from the fact that it is close related and in our scope of our education. It was also what we could find within our scope of education the least studied one.

The idea of concentrating on SMEs came from the article written by De Toni and Nassimbeni (2003) that said; SMEs are disadvantaged in resources (e.g., financial support and skilled labour) which are essential for successful innovation. These resources are particularly important in the early stages of product development such as the planning process, in particular the business analysis stage. SMEs are consequently more challenged than larger corporations when it comes to NPD. We decided that SMEs should be our aim for this study and to research how they carry out their business analysis stage successfully with their limited resources.

### ***2.2 Theoretical and practical preconceptions***

There is a big concern for any researcher about influences that might compromise the objectivity of the research in development. We also shared that concern and especially about those influences coming from our own theoretical and practical preconceptions, because one might not notice them which are even more harmful. Preconception is the authors' previous understanding which derives from the authors' education, environment and personal experiences. (Ingeman and Bjerke, 1994) These preconceptions can influence the way data is collected and interpreted during the writing of the thesis. The preconceptions will also influence the approach to the research and the final result (ibid).

In order to keep our research as far away as possible from our own theoretical and practical preconceptions we had first to recognize them to be able to know where they could jeopardize most our research. Among our own preconceptions we highlighted estimation models, validity of estimations, and regression techniques. Summarizing and putting all together we began the research with a previous knowledge of estimation models, regression techniques but lots of doubts about the validity of such models within the business analysis process.

### ***2.3 Epistemological considerations: Interpretivistic approach***

According to Bryman and Bell (2005) and Lacity and Janson (1994) an epistemological problem deal with what is, and what could be considerate as an acceptable knowledge within in a subject field. It is a theory about what knowledge actually is and what should be accepted as knowledge. There are three possible distinctions to be made within the subject field, positivism, realism, and interpretivism. Positivism advocates that studies in the social reality should be applied with natural science methods. According to positivism a researcher should make a clear distinction between scientific and normative statements, also it is important that the science is objective. Realism has common traits with positivism, for example realism also has the understanding that natural science and social science should have the same approach when it comes to data collection and analysis. Interpretivism is based on the understanding that a strategy is needed to considerate the difference between people and natural science objects and therefore demand that social science researcher should capture the subjective significance of a social action. It is also important to mention not to confuse that in some literature the interpretivism is also mentioned as hermeneutic. (Bryman and Bell, 2005: Lacity and Janson, 1994)

To attain this study's aim to understand how small and medium size enterprises (SMEs) carry out their business analysis stage, to fully embrace the situation we also need to gather the subjective in-depth organisation's point of view. Their subjective point of view is perceived to be essential for this study and to attain our aim to understand, the interpretivistic approach will be embraced for this thesis.

### ***2.4 Scientific approach: Inductive***

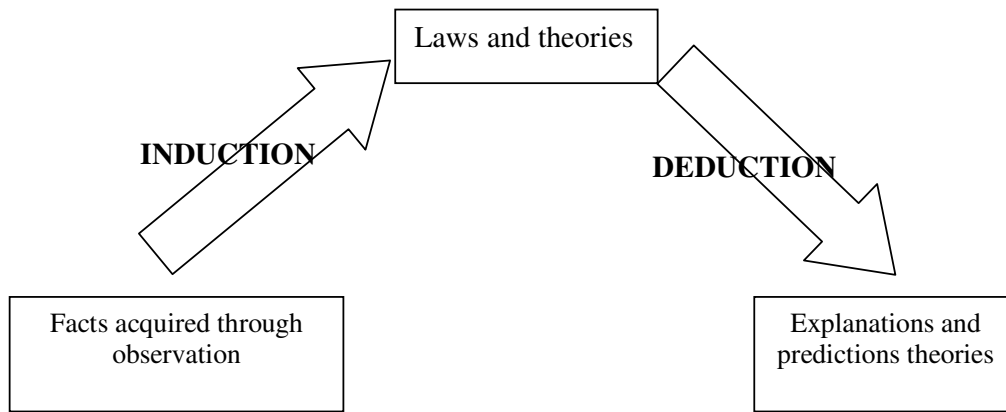
There are basically two approaches to science, deductive and inductive approach, and at this point of the thesis is very important to differentiate one from another to determine which one will rule our study.

In order to establish the basic differences between the inductive and the deductive approach a theory review from several authors will be conducted, later according to the objective of the study the best approach will be selected.

According to Ghauri and Grønhaug (2002) induction is based on empirical evidence while deduction is based on logic. Furthermore they state that induction involves drawing general conclusions from empirical observations; passing from assumption to conclusions. On the other hand they consider deduction as drawing conclusions through logical reasoning.

When reviewing the statements of Ghauri and Grønhaug (2002) one can notice the key point of these approaches; their dynamics, which can be resume in their model:

Figure 2.1: The dynamics of induction and deduction



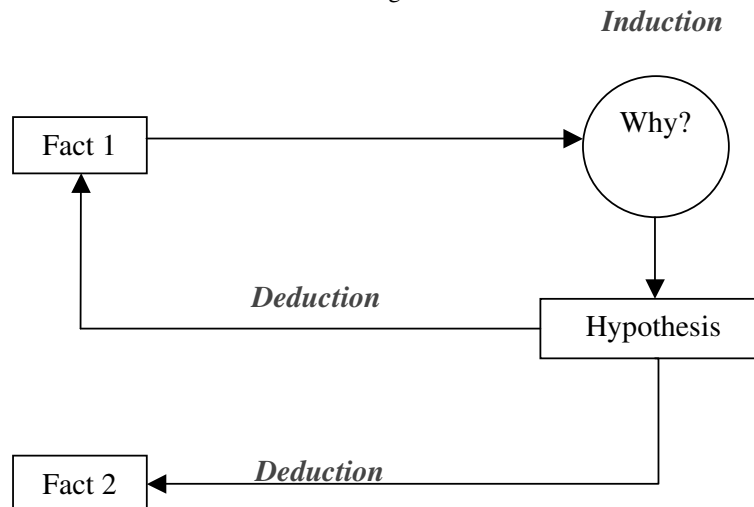
Source: Adopted from Ghauri and Grønhaug (2002)

It is important to mention that the process for induction goes from facts to propositions and later from prepositions to theories or laws. This means that even if the researcher does not end up in a theory or law, but only end up in propositions he or she could have used the inductive approach.

Another complementary opinion about induction and deduction is presented by Cooper and Schindler (2003); deduction is regarded as a form of inference that claims to be conclusive but must fulfil two requirements; truth and validity. Meanwhile induction is defined as drawing a conclusion from one or more facts or pieces of evidence.

The most important support from Cooper and Schindler (2003), deals with the thin line between induction and deduction that can confuse a researcher. The manner in which the inductive and deductive approach works can be seen in a simpler way with the help of following model.

Figure 2.2: The location of induction and deduction during research



Source: Adopted from Cooper and Schindler (2003)

In the model it is observed that with deduction the hypothesis is tested to confirm if it is capable of explaining the facts. On the other side for induction it is noticed that its conclusion is only a hypothesis.

Finally as a summary it can be said that deductive approach is about testing and assessing existing theory, but inductive approach is about where theory, laws, propositions or hypotheses are generated from the practice.

Since the main objective in our research will not be testing any particular theory the deductive approach will be set aside and instead the inductive method will take the principal role, with this approach we are going to be able to test the data collected analyze it and pursue a new knowledge contribution.

**2.5 Research approach: Qualitative**

When reading about the different research approaches it becomes more and more obvious about our approach. There are two different approaches quantitative and qualitative. Quantitative approach can be regarded as an approach that emphasizes the quantification of data. Whereas the qualitative approach usually emphasizes the importance of words in the data. It is also important to mention that qualitative research is more focussed on theory creation and not on assessment of existing theories (Bryman and Bell, 2005). In Table 2.1 Bryman and Bell (2005) show the fundamental differences between quantitative and qualitative.

**Table 2.1:** Differences between quantitative and qualitative research approaches

	Quantitative	Qualitative
Principal direction when it comes to which part the theory should play in relation to the research	Deductive, assessment of theories	Inductive, theory creation
Knowledge theoretical direction	Natural science model, above all positivism	Interpretivistic approach
Ontological direction	Objectivism	Constructivism

*Source:* Adopted from Bryman and Bell (2005) p. 40

With the importance of the subjective in-depth view of the business analysis stage among SMEs the qualitative approach is therefore vital. The choice of qualitative research is based on our stated purpose.

The data that we collected cannot be generalized since it is not covering the whole population but it will give us an opportunity to gain an understanding of what the population that is covered thinks and decides about how they carry out their business analysis. One thing that comes up when working with qualitative research is the problem to connect information from different sources since they could be too specific. (Saunders, Thornhill and Lewis, 2000)

**2.6 Choice of theories**

The numerous theories needed for the research can be classified in basically two types: one will cover the explanatory needs for the readers of the research. This type of theory will consist of basic background concepts to help readers to “perform” in the same frequency as the authors. We can mention as example of this first theory, the basics supplied about small and medium size enterprises, and the general theory of the new product development process.

The examples mentioned will help the readers to locate themselves in a better position to assimilate the development of the thesis.

The second type of theory will help through the data analysis and resolution of the stated problem and corresponding research questions presented in the beginning. This second type consists of theory surrounding the business analysis process specially those related with forecasting methods, estimation models and their minimal requirements to provide a valid analysis tool within the process. Among the concepts cover in this type of theory we can mention the theory involving the business analysis process and its components such as sales forecasting, profit projection, risk assessment, cost estimation, as well as, the theory covering the analysis of the data gathered during the research.

### ***2.7 Secondary data collection***

The theoretical framework on which this thesis will be based on will be collected through an extensive literature research. The main focus of interest lies on peer-reviewed scientific articles. However some usage of books has been necessary to explain and define reoccurring concepts. It is required to use peer-reviewed articles in the theoretical framework, which we also did.

The peer-reviewed articles will be retrieved from the database search at the Umeå University library website. The search for articles will be conducted with Emerald and EBSCO search engines. The few books we will use will be searched through LIBRIS (a library database) easily accessible from Umeå University library.

### ***2.8 Criticism of secondary data collection***

We are aware of books low validity because of the lack of peer-reviewing. However we have taken that into consideration when doing our research. The use of books has been limited to the explanation and definition of concepts and use of models. The usage of books is obvious in the methodology chapters, but we consider their sources to be valid and they are widely acknowledged across social science researchers.

The criticism of the scientific articles reliance will be challenging. The search engines Emerald and EBSCO both feature the function of only searching through peer-reviewed articles. This fact in combination with the renowned search engines for scientific articles they are, it produce high credibility.

### 3. THEORETICAL FRAMEWORK

*In this chapter an overview of previous research related to our research will be presented. There are a number of theories and concepts which we found relevant for this study which will be presented and introduced. The outline of the chapter is to start with the definition of SMEs and of new product development, then to introduce and define the concepts used in the research, and finally the introduction of business analysis theory. The chapter will conclude with a conceptual framework where we grasp and arrange the previous research in a graphic model.*

#### 3.1 Small and medium size enterprises

Different organizations have developed different definitions for firm size. The following definitions have been used for this study: According to the European Commission the definition of small and medium size enterprises (shown in Table 3.1) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EURO 50 million, and/or an annual balance sheet total not exceeding EURO 43 million.

Table 3.1: SMEs definition

Enterprise category	Headcount	Turnover	or	Balance sheet total
medium-sized	< 250	≤ € 50 million		≤ € 43 million
Small	< 50	≤ € 10 million		≤ € 10 million
Micro	< 10	≤ € 2 million		≤ € 2 million

Source: Official Journal of the European Union 20<sup>th</sup> of May 2003

According to the European Commission the micro, small and medium size enterprises are socially and economically important, since they represent 99 % of all enterprises in the European Union and provide around 65 million jobs and contribute to entrepreneurship and innovation.

The relevance of innovation orientation to smaller businesses is a reflection of the transformation of modern market environments in which new product development and differentiation have become important aspects of the business development of many firms (Appiah-Adu and Singh, 1998). However SMEs do not conform to the conventional marketing characteristics of marketing textbook theories (Tomes and Phillips, 2003).

According to Tomes and Phillips (2003) it is well documented that SMEs have distinctive characteristics that differentiate them from conventional marketing in larger firms. These characteristics may be determined by the inherent characteristics and behaviours of the entrepreneur or owner/manager; and they may be determined by the inherent size and stage of development of the enterprise. Such limitations can be summarised to be:

- limited resources (such as finance, time, and marketing knowledge);
- lack of specialist expertise (owner-managers tend to be generalists rather than specialists); and
- limited impact in the marketplace



Appiah-Adu and Singh (1998) stated that small- and medium size enterprises are usually characterised by a relatively simple organisational structures and more unified cultures. In addition, small- and medium-sized businesses are characterized by a limited range of products and customers, thus, minimising the requirement for formal procedures developed to gather and process customer or market information for decision making. Additionally smaller firms are also often characterised by informal and short-term decision-making tactics (De Toni and Nassimbeni, 2003: Appiah-Adu and Singh, 1998). For our research it would be interesting to investigate what Appiah-Adu and Singh (1998) argued about the requirements for formal procedures in NPD that would be minimized in small size enterprises.

Lack of planning and under capitalization has frequently been advanced in the relevant literature, as the most critical determinants of small firm success or failure (Appiah-Adu and Singh, 1998). Having the planning determinant in mind it would therefore be interesting to see how accurate and how the planning process is performed.

Appiah-Adu and Singh (1998) reviewed the marketing management literature and found that an overwhelming majority of product planning process studies have been based on large firms. In spite of the important contribution that smaller businesses make to the economic development and growth in many countries, there is a scarcity of new product planning process related empirical research based on SMEs (ibid). The fact that large multinational firms dominates as the basis of many analyses and studies (Tomes and Phillips, 2003: De Toni and Nassimbeni, 2003: Appiah-Adu and Singh, 1998) proves that there is not that much interest in studying this field. Consequently, this gap gives us an opportunity for this study to focus on small- and medium-sized firms in the Swedish business environment which also coheres with the purpose and research questions of this study.

### ***3.2 New product development***

Before one can start to discuss new product planning process, one should first determine what defines a new product. In this part a definition will be argued resulting in the development of a definition and a path for this thesis. The following argument define “new product”, which is the final objective for a new product planning process.

According to Rudder (2003) practitioners and researchers used the term new product development to describe a range of product developments. However we think there is little agreement as to what actually is a “new product”. Rudder (2003) continued with believing that a broad definition is the most useful and should include either the development or introduction of a product new to the manufacturer or the introduction of an old product into a new market. The types of introduction innovations that can be undertaken are:

- Brand reformulations: When a brand product have been largely unchanged over the past years. The company can reformulate the brand strategy.
- Line extensions: When a company decides to extend a successful product through for example a new flavour or colour
- New markets: Find new market for old ideas.
- New products: Find new product ideas for new markets or old markets.
- Imitation products: Produce a product similar to an existing one.

To quote Rudder (2003) who stated “only 10 per cent of the entire new products introduced over the last five years were truly innovative or new to the world”. If these numbers are true, then in actual practice the introduction of “new” products is rather rare to the world, this

would suggest that 90 per cent of the “new” products are not new. However they are in the most cases new to the manufacturer and probably went through both a planning process and a development process. The conclusion argues for the purpose of the study to look at the business analysis process in SMEs without making any distinction between new to the world product or new to the manufacturer.

### ***3.3 Define concepts***

In this section we will be talking about concepts like prediction, forecast, estimation, revenue, earnings and so on, it is necessary to clarify them previously to avoid any possible misunderstanding.

Forecasting is estimating some future event or condition which is not controlled by an organization and provides a basis for managerial planning (Herbig and Milewicz, 1994). According to this, forecasting is not really so far away from estimation and we can think about them more as synonyms.

Forecast are good tools because represent a major component of the business decision making process. (Herbig and Milewicz, 1994) In addition to this input and according to Waddell and Sohal (1994) forecasts are not only critical modelling tools in strategic and tactical decision making but also an essential part of efficient and effective management. Nevertheless one has to be careful because as Waddell and Sohal (1994) also said forecasting even when used correctly, gives a margin of error and in the end has to be considered as a guide for decision making. Consequently Waddell and Sohal (1994) finally stated that forecasting is not indeed a replacement for management judgment in decision making, but merely a support to that process. Summarizing forecasts are excellent tools but one has to be careful, they do not do the job for anyone and the most perfect tool may become totally useless if there is no one to give it the proper use.

#### ***Predicting versus forecasting***

According to Saffo (2007) the fundamental difference between predicting and forecasting has been expressed and based around the word certainty, this is linked directly with the definition of predictions. While forecasting is defined in a direct relationship with uncertainty and its use for instances such as decision making, like we have mentioned before.

#### ***Planning versus forecasting***

In order to see how different or similar are planning and forecasting we should first answer the question: How do they affect each other? When we begin to answer it we can see that forecasting is a crucial input for planning in almost all companies. (Herbig and Milewicz, 1994) In a similar thinking Waddell and Sohal (1994) considered that planning involves the use of forecasts to help in making good decisions about the best alternatives for an organization. Waddell and Sohal (1994) also supported this way of thinking in that forecasting is generally used to predict or describe what will happen given a set of circumstances or assumptions. Following the process he described we observed that these outcomes of such forecasts are precisely the inputs to the planning process.

On the other hand when planning, one should consider not only to put in the results from a specific forecast but, like Cassar and Gibson (2007) also stated, understanding forecasting rationality is crucial given the linkages between forecasts by managers inside firms and subsequent planned and actual output, eventual investment and the entry or exit of goods and services within industries.

Planning not only takes what comes out of the forecasts because when finished it can give such important feedback for forecasting in accordance with Waddell and Sohal (1994) when stated that forecasts may need to be adjusted to reflect the impact of planning actions.

### ***Accuracy of forecasting***

The first question at this point is why is forecast accuracy important? The answer seems very logical according to Herbig and Milewicz (1994), when forecasts of future economic activities are accurate associated with specific courses of action, they can correctly guide corporate strategy in an uncertain environment, but when they are inaccurate they can bankrupt any organization.

Herbig and Milewicz (1994) also stated that forecasts are almost always wrong. The only real question is, how much? We rather disagree with him and share the point of view of Waddell and Sohal (1994) where one has to be aware of forecasts has to be seen as a guide and not as the ultimate rigid policy. Herbig and Milewicz (1994) continued stating: “Why then should anyone forecast bad numbers? A forecast is better than no forecast” like saying the worse is to have nothing at all, we rather be conscious of forecast limitations.

A common approach for investigating the accuracy of business forecasts is to compare forecasts with time series models. Business managers should provide superior forecasts to time series models as they can incorporate contextual information such as market conditions and business strategies. (Cassar and Gibson, 2007)

After knowing the importance of accuracy for forecasting it is necessary to control the degree of accuracy obtained, and to do so testing is mandatory According to Waddell and Sohal (1994) testing of forecast accuracy uses indirect processes like laboratory tests of constructed expectations or direct like survey-based processes. The next question is which process is better? One has to consider that indirect processes may present disadvantages as lack of domain knowledge (Cassar and Gibson, 2007); and second the presence of goal-setting pressures (ibid).

Later on the process then we can say how well or how bad are our forecasts but we can not stop here, we must try to improve them using more than one forecasting method or forecast and then combining their predictions. This has proved to be an extremely effective way of increasing forecasting accuracy and decreasing the variance in errors according to Waddell and Sohal (1994). The theories agree on the importance of accuracy and that is why we wish to include it in our research as well.

### ***Forecasting techniques***

When talking about techniques for forecasting we must distinguish two possible paths the formal and the informal techniques. If formal, another two paths enter in the equation these methods of forecasting are the qualitative and quantitative. (Waddell and Sohal, 1994) The path taken by the forecaster depends upon the availability and type of data. According to Waddell and Sohal (1994) for a forecast method to be called quantitative, that is “a method that relies on mathematical models and assumes that past data and other relevant factors can be combined into reliable predictions of the future”, historical quantitative data must be available; if not the method is called qualitative, technological or judgmental / subjective and depend upon managerial judgment and experience. [0]This means that different persons can obtain different results from the same information. (Waddell and Sohal, 1994) In a way

similar to informal methods, those are basically intuitive and depend on individual experience and abilities. These methods are used when there is insufficient time or data to use more formal means. As said by Waddell and Sohal (1994) this is confirmed when companies that possess large amount of quantitative data take some decisions based on time limitation.

Among the qualitative methods we can find the Delphi method which consists of three to six rounds of answers to progressively refined questions that are taken anonymously from an expert panel. (Waddell and Sohal, 1994) The scope of this method is to turn pinpoint numbers into ranges on the project timeline supplemented by reliable corporate data, and apply the program evaluation review technique (Wheatley, 2004). We must however remember that no technique is the absolute and final word and we need to let the people responsible make the decisions that need to be made.

Waddell and Sohal (1994) mentioned another qualitative method, market surveys which are statistically designed surveys using consumers, prospective consumers or expert observers. The purposes of these are to gather information on market conditions.

Among quantitative methods there are; *auto projection*, which is, patterns of past demand projected into the future. Within this method we found moving average the simplest auto-projection method where the average demand for instance, is the arithmetic average of demand from a number of past periods. This method is some times made more sensitive adding a weighting factor related with each period (Waddell and Sohal, 1994)

Another quantitative method is the causal method which develops *cause and effect* relationships between variables. According to Waddell and Sohal (1994) “Causal methods help in predicting turning points in time series data and therefore are most useful in medium-to-long range forecasts.” Techniques and tools of forecasts are an important factor in forecasting method and will also be included in our further study of SMEs’ business analysis process.

### ***Considerations of forecasting***

According to Wheatley (2004) “probabilistic techniques create resource ranges, but they are not the whole answer” and consider them to be the first consideration any forecaster must have in mind.

We have to agree with the affirmation of Cassar and Gibson (2007) about smaller firms tending to have a higher degree of subjectivity in the forecasting process, and used simpler, less quantitative and more qualitative forecasting techniques. It was in concordance with Waddell and Sohal (1994) which paper presents a relationship between information contained in the data available, time and resources allowed for preparing the forecast.

“The less formalized forecasting approaches, lower levels of resources available, and less sophisticated processes for information gathering and analysis may lead to small business managers exhibiting less rational forecasting behaviour than those in larger firms” (Cassar, and Gibson, 2007) this affirmation is in direct relationship with the previous point where we found the mutual support findings between Waddell and Sohal (1994) and Cassar and Gibson, (2007) the quality of the forecast will be directly related with its rationality.

***Principles of forecasting***

Within the principles we count the factors affecting forecasting's accuracy first we have those that affect it in a direct way like the *number of people involved*, when this number goes up the accuracy of the forecast goes up. Another direct factor is *barriers to enter the market*. (Herbig and Milewicz, 1994)

The other group of factors that affect the accuracy in an inverse way, when they go up the accuracy goes down. Among them we have; the length on the time horizon of the forecast, the rate of technological change, the speed of the dissemination of information, elasticity of the demand, and the aggregation of forecasts for families or groups of products (Herbig and Milewicz, 1994)

***Importance of forecasting***

The importance of forecasting has become greater due to many factors, among them we can mentioned a few such as; more and more complex decisions has to be made, the magnitude and importance of individual decisions have grown, the key relationships are no longer stable, the only thing stable is that there are changes everyday, more systematic decision making have come to the scene, and forecasting methods are getting so easy that can be applied directly by practitioners and not only than by technical experts. (Waddell, 1994) Important factors in the business analysis process for SMEs are covered in our research questions, and therefore the importance of the forecasting concept is considerable.

***Limitations of forecasting***

The purpose when talking about the limits of forecasting is to highlight some of the practical concerns any forecaster must bring into account about the process of forecasting.

According to Saffo (2007) the limits can be checked by a tool called cone of uncertainties that serves as a space that covers all the possible results in the future from our present time. This asseveration meets the opinion of Waddell and Sohal (1994) about the failure of forecasting to caution of forthcoming events and changes.

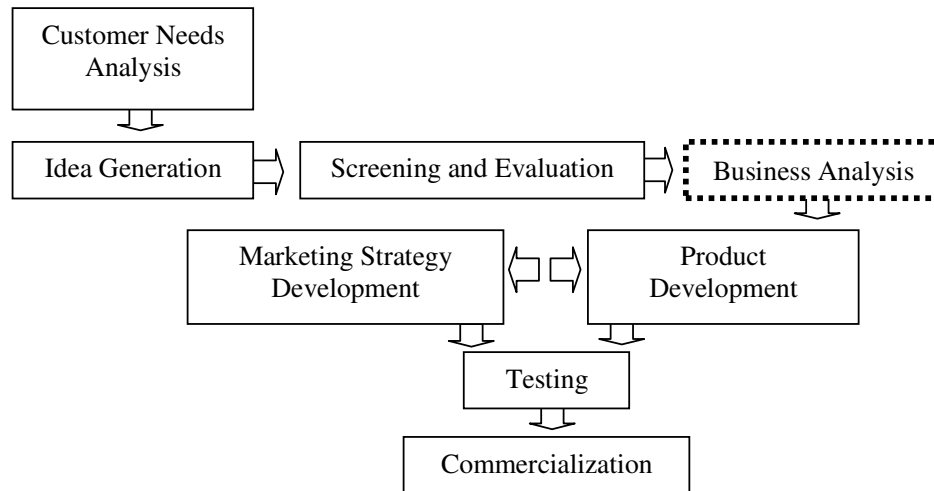
Other limitations of forecasting are also mentioned by Waddell and Sohal (1994) among them; longer times in the horizon makes accuracy to go down, and may caused planning and decision making go wrong. Forecasting is more difficult to implement, more sophisticated, in chaotic environments. Forecast work well only when the future is similar to the past patterns they based their forecasts on. In a similar way the judgmental methods have the same limitation. Nevertheless they count with the advantage that human-based forecasting approaches can identify changes more quickly and also can interpret the effect of these changes on the future. (Waddell, 1994)

Wacker and Lummus (2002) mentioned other limitations for forecasting like ambiguity referring to it as not being able to clearly state the events and how likely they are to occur but they seemed to forget that forecasting is merely a tool and that is up to the forecaster to use it and interpret their outcomes. Another limitation according to them is the irrelevance, meaning that forecast are not custom made for a specific company. We consider this to be true but again is the forecaster who applies the results present in forecasting. Finally they mentioned a limitation which we totally agree with; not recognizing the limits of the forecast. We believe that it is the worst mistake a forecaster can commit.

### 3.4 New product planning process

Figure 3.1 presents the major stages in the new product planning process according to Cravens and Piercy (2005). This will introduce the reader to the new product planning process and it will also make it easier for the reader to get a general idea of the process

**Figure 3.1:** New Product Planning Process



*Source:* Adapted from Cravens & Piercy (2005), p.227

The first stage is *customer needs analysis*, to find and identify customer needs and fulfil them. The second stage *idea generation* involves the starting point of finding promising new ideas. The third stage *screening and evaluation* is used to eliminate unpromising ideas as soon as possible while keeping the risks of rejecting good ideas at acceptable levels. The fourth stage *business analysis* is the final assessment before deciding whether to develop the concept into a new product or not. The business analysis stage will be the emphasis of this thesis. The fifth stage *product development* includes product design, industrial design, manufacturing process design, packaging design, and outsourcing decisions. The last stages are *marketing strategy*, *market testing* and *commercialization* which involve developing a strategy, testing the product and finally coordinating market entry activities, implementing marketing strategy and monitoring and control of the product launch. (Cravens and Piercy, 2005)

### 3.5 Business analysis

The business analysis stage has many important components; therefore we see it as a crucial part of the whole process. The emphasis of this thesis will be in the business analysis stage, because of its importance in the new product planning process. Cravens and Piercy (2005) said for example to stress the importance of the business analysis stage that “business analysis is the final assessment before deciding whether to develop the concept into a new product or not.”

Shahrul-Yazid and Nooh (2007) mentioned two driving concepts of the new product planning process, first is *time-to-market*, if there is too much scrutiny then the time-to-market can be compromised. Second *evaluation accuracy*, a company decides to spend more time evaluating the opportunity than rushing their entrance to the market. Shahrul-Yazid and Nooh (2007) argued that corporations have to decide how much scrutiny an analysis should have and set a time limit for the business analysis process. Time is always a factor and it would be

interesting to find what our respondents in SMEs companies feel about time-to-market and evaluation accuracy.

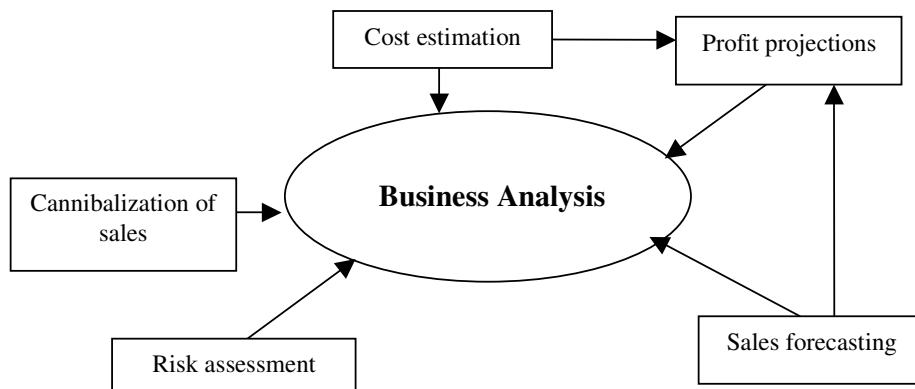
According to Proehl (1996) cross-functional activities have increased in popularity, and Proehl's (1996) article described how organizations use cross-functional activities to nurture their success. Cross-functional activities are used increasingly in organizations to:

- develop new products
- re-engineer organizational processes
- improve customer relationships
- improve organizational performance

For our thesis we will consider the cross-functional activities used to develop new products. We believe that cross-functional activities could be an important factor for SMEs in their business analysis process. Lin, *et al.* (2006) also mentioned that product development undergoes new trends such as, increased usage of cross-functional activities. In our research question we want to determine the different important factors for the business analysis process in the companies studied, so this concept will be included in our theoretical framework.

As mentioned earlier according to Cravens and Piercy (2005) business analysis stage include such concepts as, *revenue forecasts, cost estimation, profit projections, risks assessment* and finally the possible *cannibalization of sales*. The following Figure 3.2 presents the including concepts in the business analysis stage. Our aim is to break it down in to more manageable concepts and to make it easier to apprehend. Every concept has been given their own part. This model was not adapted from the Cravens and Piercy (2005) it was developed by us to help the visualization of the different components that are involved in the business analysis process. The connection between cost estimation and profit projections, and the connection between sales forecast and profit projections illustrates the relation between those three and how they are presented in the theory as something that comes hand in hand. We will however find more information about this relation in our study.

Figure 3.2: Including concepts in the business analysis stage



- **Sales forecasting** consist of different elements such as,
  - estimation of a feasible market share
  - forecasting the demand
  - agree on one forecast among departments
- **Profit projections** include
  - break-even analysis, it is particularly useful to show how many units of the new-product must be sold to make profit
  - it is a product of cost and sales
- **Assessing the amount of risk** associated with the venture
  - Internal or external risk
  - High or low risk
  - Future risks
  - Risk identification
- **Cannibalization of sales** two general definitions:
  - the process by which a new product gains sales by diverting sales from an existing product – Heskett 1976
  - the extents to which one product’s sales are at the expense of other products offered by the same firm – Copulsky 1976
- **Cost estimation**
  - Is best facilitated by categorizing the estimations for each stage in the new product planning process. The costs increase rapidly as the product moves through the planning process. Cravens and Piercy (2005)

The important components in business analysis process have been summarized and presented. However we will here present more in-depth about the different components and the related theory that we have found.

### *Sales forecasting*

The definition of forecast includes either two words predict and/or calculate, the term more appropriate for this kind of research is calculate since, the material studied comes from the calculation of some data previously collected and that allow calculators to present it in the form of a “prediction”.

There are several ways to classify sales forecasting depending on several factors if we look into the model used for the forecast this could be stationary or dynamic. This is particularly important since non-stationary elements are a characteristic of new product purchasing (Fader, *et al.*, 2004). In the other hand if we look at the time projected for the sales forecast there are long range, medium-range and short-term forecasting (*ibid*).

There are a numerous possibilities where a forecast may be use, why then mention sales forecasting before any other? The reason is that sales forecast is the basic planning and forecast for every other department (Reichard, 1966). Wacker and Lummus (2002) presented an example which emphasizes on the importance to agree on one forecast among departments:

*“The president of the company was expecting a certain increase in sales, marketing was planning on another level of sales, production was producing something other than what marketing needed, and the pro forma statements for the year were budgeting resources based on another forecast. The forecasting method was not the problem at all, but the problem was the lack of basic agreement on which was the correct forecast, resulting in excess inventories*



*in some products and shortages in others. They used too many forecasts; each functional department used the forecast for their own different purposes.”*

Wacker and Lummus (2002) claimed that the believability of the sales forecast is linked to the strength of the theory underlying the forecast. The forecast must include an explanation of how and why it was constructed as well as an estimate of the accuracy of its predictions, if it is expected to be more accurate. The high cost of complex forecasting models suggested that managers expect greatly improved accuracy and are relatively dissatisfied with the models when they are not more accurate. (ibid)

Empirical studies on the level of satisfaction with sales forecasts indicate that forecast users are generally more dissatisfied with complex forecast methods compared to simple forecasting techniques. A second conclusion from empirical studies is that combining several simple techniques improves forecast accuracy. However little theoretical work has focused on why this is true. Wacker and Lummus (2002) suggested several hypotheses on why combining forecasts improves forecast accuracy. These reasons include:

- Measurement errors always exist and combining makes them smaller;
- Unstable or changing patterns or relationships cause single models to be unreliable, but combining several models improves their accuracy; and
- Models usually minimize past data errors that were poor predictors of future sales.

Issues regarding the forecast of demand should be included in the sales forecast. Demand forecasting has always been a major issue in product management. Many decisional processes such as product development require forecasts. In recent times however, demand has tended to become more variable and uncertain. Managing such uncertain demands has created significant problems for managers. (Kalchschmidt, Verganti and Zotteri, 2006) The authors mentioned lumpy demand; it can be defined as a variable, and therefore characterized by relevant fluctuations, sporadic, because the demand series is characterized by many periods of very low or no demand.

Cassar and Gibson (2007) claimed that the study of sales forecasting within small firms is important because forecasts and expectations have a vital influence on many commercial decisions and the subsequent growth, profitability, and survival of the firm. For example, sales forecasts are pivotal in relation to acquisition and replacement activities, scheduling and capacity issues, and capital investment and financing decisions. Potential consequences of inaccurate forecasts include higher inventory costs, poor customer services, and inefficient utilization of production resources (Cassar and Gibson, 2007).

According to Tomes and Phillips (2003) the need for ‘value for money’ is important for many SMEs; they generally have relatively modest budgets for investment in new product development. Therefore we believe that Wacker and Lummus (2002) theory regarding low satisfaction for complex forecast methods would be interesting to examine on SMEs. It would also be interesting to see what SMEs do to increase the forecast accuracy and how they deal with the uncertainty that Kalchschmidt, Verganti and Zotteri (2006) mentioned concerning demand forecast, especially lumpy demand.

### ***Profit projections***

Considering the accounting definition of what profit is; the sales of the firm subtracted with the costs we get to see the importance once again of the sales forecasting and cost estimation.

Profit projections are a major signalling device used by management to convey information regarding the valuation of their companies (Cheng and Firth, 2000). Regarding investment prospects the investors have shown to attach great importance to these forecasts (ibid). While historical profits are important, they are not as useful as management's forecast of next year's profit. Historical profit numbers cannot reflect current changes in business conditions (ibid).

Cheng and Firth (2000) in their study argued a lot about investment issues regarding profit projections. Our aim according to our purpose is not to assist investors or anything similar to that. We want to see how the profit projections are conducted as a part of the business analysis process. Therefore we will only use the following arguments by Cheng and Firth (2000), for profit projections to be credible or useful they need to be accurate. Accuracy is something of a theme for this study an underlying factor for the business analysis process which is also illustrated in the Figure 3.2. Cheng and Firth (2000) also stated that in their research of the United Kingdom showed that actual profits differed quite markedly from the forecasts made.

According to Cravens and Piercy (2005) profit projections are a product of cost estimation and sales forecasting. Therefore when considering what Cravens and Piercy (2005) stated and the lack of profit projection theory in the aspect of business analysis process the emphasis of this study will be in cost and sales forecasting instead. However, profit projections will still be a part of the business analysis process.

### ***Risk assessment***

According to Frosdick (1997) there are many expressions for the concept. Expressions such as "risk assessment", "risk evaluation" and "risk analysis" are used in a rather interchangeable way to describe a variety of the techniques and processes involved in the overall management of risk.

Frosdick (1997) described risk assessment to comprise identification of the outcomes and estimation of both the magnitude of the consequences and the probability of those outcomes. In addition to what Frosdick (1997) found, Ammar, Berman and Sataporn (2007) defined the function of risk assessment to determine the influence of risk factors to the planning process as a whole. According to Ammar, *et al.* (2007) risk is measured using two parameters – risk probability and risk consequence. Risk probability or likelihood indicates a chance of a risk event happening while risk consequence; obviously constitutes the severity of an outcome generated from the risk event. To measure the extent of a risk, probability and consequence of risk, events must be determined which represent the risk assessment function.

Ammar, *et al.* (2007) believed that even though a risk assessment in a SME often is characterised as a subjective approach that could be influenced by individual bias, preferences and expertise, it provides a basis for risk assessment where it is more important to highlight risk events that are possible, rather than an exact estimation of a disastrous incident.

Frosdick (1997) stated the techniques of risk identification are facilitative tools, intended to maximize the opportunity of identifying all the risks or hazards inherent in a particular product development process. The tools may be categorized under the broad headings of:

- intuitive, (brainstorming, involving a group generating ideas)
- inductive (what if?, include hazard analysis, checklists and human error analysis) and
- deductive techniques (so how?, event and fault trees, a primary tool in risk estimation)

It is also suggested by Ammar, *et al.* (2007) that after risk events are identified their characteristics need to be assessed so that it is determined whether the risk event is worth further analysis.

Frosdick (1997) set out the risk assessment concept in seven stages as follows:

- Systematic assessment (item by item – question every part of the business analysis process)
- Identification of risks (local and global scale)
- Assessment of risks (frequencies and consequences). This may involve a number of different analyses
- Establish acceptable or tolerable levels of risk
- Evaluation of risks. Are the risks acceptable? Can they be reduced and at what cost?
- Determine whether the risks are as low as reasonably practicable
- Determine risk reduction measures where appropriate

According to the arguments made by Frosdick (1997) regarding the different concepts for risk assessment, we will use the “risk assessment” concept. The arguments regarding techniques will be used to get an insight into the SMEs different techniques for risk assessment and to further explain the business analysis process to achieve our purpose of this study.

### ***Cannibalization of sales***

There is no generally accepted definition of cannibalization. According to Srinivasan, Ramakrishnan and Grasman (2005) the concept of product cannibalization was recognized more than thirty years ago by Heskett (1976), who defined it as “the process by which a new product gains sales by diverting sales from an existing product”. Srinivasan, *et al.* (2005) also used Copulsky’s definition of product cannibalization “the extents to which one product’s sales are at the expense of other products offered by the same firm”. The same definitions are found in Lomax, Hammond, East, and Clemente’s (1997) article who also believed brand owners used existing brand names to reduce barriers to entry for the new line with the concealed theory that additional earnings will be achieved. Haunting the parent brand is the spectre of cannibalization; the line extension could be successful but only at the expense of the parent (*ibid*).

“The risk of product cannibalization is a real threat for many new product launches and the risk becomes more significant if the new product is launched under the same brand name as an existing product” (Srinivasan, *et al.*, 2005). Srinivasan, *et al.* (2005) considered “not accounting for cannibalization as one of the biggest mistakes in the decision-making process of a new product introduction.”

Srinivasan, *et al.* (2005) said that to not consider cannibalization can be disastrous. They also said that there is a lack of guidelines and research that is available to companies to assist them in their business analysis stage that exhibit cannibalization potential. With this in mind it would be an interesting approach to see which active decisions the companies studied make regarding cannibalization issues, assuming there is a cannibalization threat.

### ***Cost estimation***

The cost estimation is according to Hamilton (2004) the determination of quantity and the predicting or forecasting, within a defined scope, of the cost required to manufacture goods, or to furnish a service. To be able to determine the cost mentioned it is necessary to have a very close prediction of the units that will be sold, the sales forecast. It seems in the theory that sales forecasting is somehow the foundation of many other forecasts. It will be an additional issue to reach our research purpose.

Within cost estimation, three stages can be recognized: First the *design basis* which contains the technical content that drives the quantities in the process and the quality where they are produced. This stage includes the degree of detail which supports the type of NPD. Finally based on design basis, estimators and managers are able to decide about need of changes. Second the *planning basis* which summarizes objectives within the NPD, organization plan, as well as schedule, quality, materials, and communications. A risk plan and management of expected and unexpected occurrences should also be considered at this stage. Third *cost basis* that basically consist of the description of, estimating methods, unit quantities, and unit costs. In this stage are identified cost methods and cost tools, software tools. (Hamilton, 2004)

To estimate these costs consistently and accurately Park and Simpson (2005) proposed a production cost estimation framework based on activity-based costing (ABC), which consists of three stages:

- allocation,
- estimation, and
- analysis

In the *allocation* stage, the production activities and resources necessary to produce all products in a family are recognized and classified with an activity table, a resource table, and a production flow. To help allocate product data for production, a product family structure is represented by a hierarchical classification of products that form the product family. In the *estimation* stage, production costs are estimated with cost estimation methods selected based on the sort of information available. In the *analysis* stage, components and/or design variables possible for product family design are investigated with resource sharing methods through activity analysis. (Park and Simpson, 2005)

Appreciating how these activities are related to the resources consumed by activities is an important factor in estimating production costs according to Park and Simpson (2005). Their arguments concerned mostly product family designs and extensions, but this is also a very usual strategy (Rudder, 2003) as mentioned earlier in the chapter. The framework proposed by Park and Simpson (2005) is a good plan to use and we will use it in our research of SMEs business analysis approach.

### ***3.6 Conceptual framework***

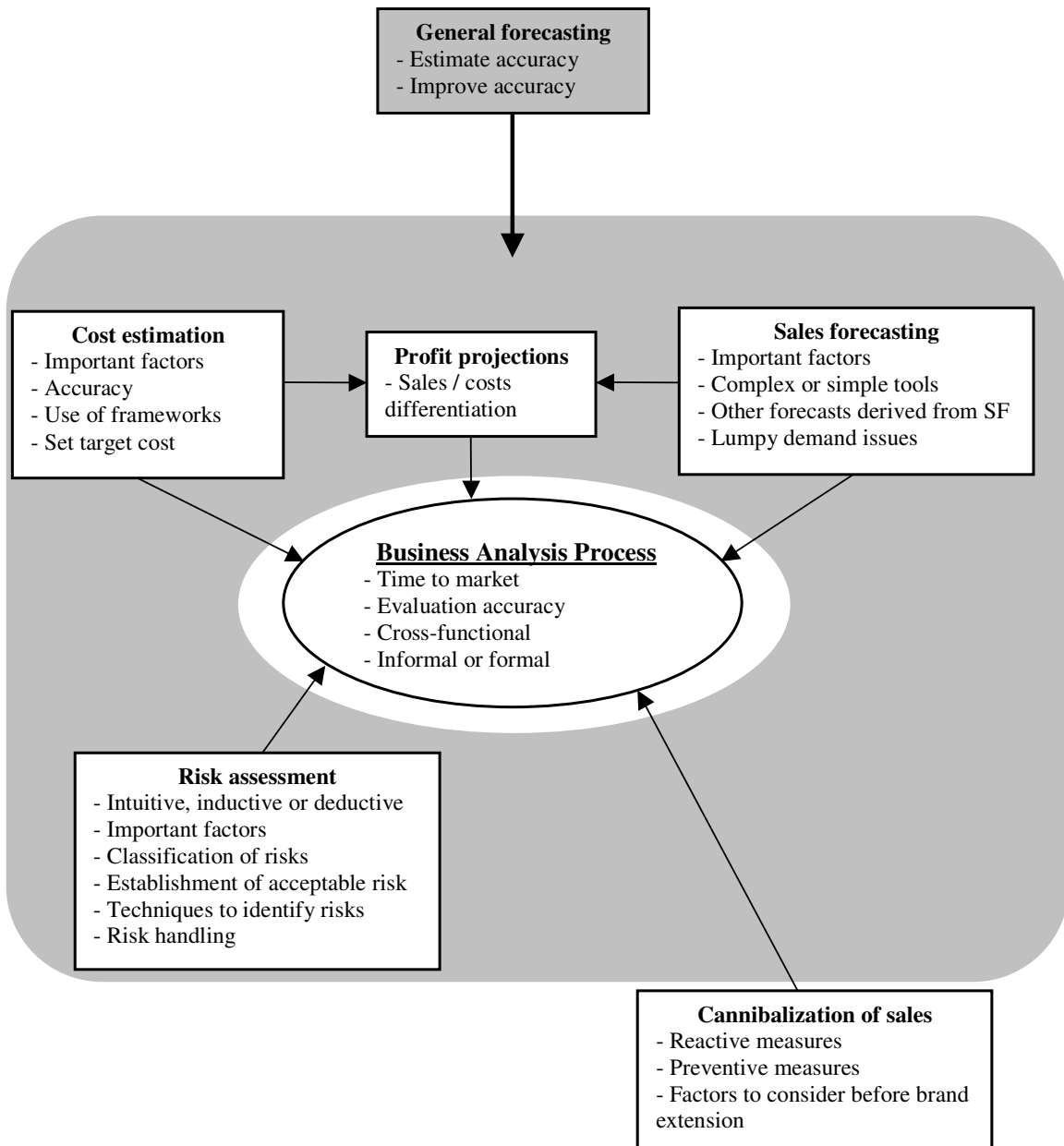
In this part the conceptual framework will be presented, it was developed from the theoretical framework presented in the earlier chapter. This framework presents the business analysis process according to the theoretical framework. The framework will also serve as a guide and will be the basis for data collection. The business analysis process as well as the different components of it will be rejected, modified or confirmed depending on the results of the empirical study. The findings of the analysis might consequently lead to a different business analysis process outline, which will be a final model.

According to Huberman and Miles (1994) the conceptual framework is described as something that explains, either graphically or in narrative form, where the focus of the study will lay. We will show it with the following model, which will also serve as the foundation of the data collection.

The concepts shown in the model will be the basis of our data collection in providing an understanding of how the companies studied carry out their business analysis process of their new product development. One might however argue the autonomy of the concepts that all concepts are related and influence to each other. However, the model shows our interpretations of the business analysis process according to the theory. In the theory only the relation between sales, cost and profit was accounted for, the other relations might however be on a different level. We hope though that we will find answers to the linkage between concepts in our empirical research, and adapt the concluding model accordingly.

This model has not been shown to the respondents because we do not want to impose anything and confuse the respondents. However we need to explain the model for the reader of this study. The base of this model has been taken from Cravens and Piercy (2005) but we have added several new components to the process and developed existing ones. Cannibalization of sales was only briefly mentioned by Cravens and Piercy (2005) but we found it very interesting and decided to deepen the theory and include it in our model. *Risk assessment* were also a concept briefly mentioned by Cravens and Piercy (2005) but risk is always present in any business venture and we wanted to deepen our knowledge their also. According to the theory *general forecasting* issues are influencing the whole process except the *cannibalization of sales* component; therefore we have placed it outside the process.

Figure 3.3: Model of the theories



## 4. PRACTICAL METHODOLOGY

*In this chapter we will present how we have collected our data required for this study. This chapter will cover such areas as choice collection method and choice of respondents, interview issues and collection of empirical data. Finally, we will conclude with discussing the criticism of the primary sources.*

### **4.1 Choice of data collection method**

To decide in which way to collect the relevant data we first considered the research questions then looked at the possible methods and match the one that better fit them. For the first step we noticed that the same collection model would fit our research questions, after that we began looking into a theoretical framework to find the possibilities of choices initially found according to Eriksson and Wiedersheim, (2001). That data can be collected in two ways either primary data that is data collected for the very first time, or secondary data which is data that already exists in form of archives, computer files and so on. Having in mind the little research that has been done about business analysis for SMEs we decided that for this thesis we are going to make use only of collections coming from primary data.

After selecting the kind of data to be collected we needed to go deeper in to the sources that could provide such data. According to Yin (1989), data can be collected for case studies through six different sources: documentation, archival records, interviews, direct observations, participant observations and physical artefacts. In consideration to the little research done so far about SMEs' business analysis, she mentions that a major strength of collecting data by case studies is the possibility to use many different sources of evidence referring to the previously cited sources. This reduces the risk of bias and is referred as triangulation. Considering Yin's contributions we decided to carry out interviews involving all of our research questions as a source for the primary data collection. The basic conditions for such interviews included the origin of the respondents who were direct employees within each corporation, the language of the interview, which was English, the recording and typing of the interviews as support, and finally the type of interview.

After knowing that the main sources of our data collection would be interviews we went deeper into the possible types of interviews available to work with. According to Yin (1989) there are two types of interviews, the focussed interview and the formal interview. In order to take a decision about the most relevant type of interview for our thesis we considered basically two factors; first the style of each interview and second the possibility to reduce bias in each type of interview. For each factor we considered Yin (1989) contributions about the style of each interview and the way each source for primary data can be use in combination to reduce bias. These factors were precisely what made us chose the use of the focussed interview for our data collection; this type of interview would allow us to develop an interview guide that will lead to an active discussion during the interview session. The focussed interview will lead to the fact that the respondent can develop their own ideas, thoughts, and speak more comprehensively about the subject brought up by the interviewer. This will provide the opportunity to get the respondents' own ideas, richer answers, a much better understanding, and the fulfilment of questions that would be only possible with this personal contact with the respondents. Finally this way to conduct the interviews helped us to reduce the bias in the data collection process.

## 4.2 Choice of respondents

Before starting our data collection we had developed certain criteria for our respondents. The criteria were developed from the first chapter and our research questions and secondly from our own preferences. We knew that stating our selection criteria would help us narrowing down the number of candidates. We have developed the following criteria for the companies that will be interviewed:

- had to be one from SMEs (smaller than 250 employees and €50 million in turnover); SMEs are our main purpose
- had to have their own production; we did not want an outsourcing company, to facilitate the study of cross-functional activities
- had to have product development; it is also our main purpose
- had to have a variety of products and brands; those companies that fulfil this criteria tend to have new product development

The most important criteria were of course the fact that they had to fit the SMEs description. For us it was quite hard to distinguish the companies from different databases and to find the right ones. We felt we needed someone from the inside, with industry knowledge. We therefore decided to call the municipality office of Umeå, where we got to talk to Håkan Johansson from industry trade service (Näringslivsservice). He made a list for us of all the companies in Umeå region with maximum 250 employees and €50 million in turnover, additionally only manufacturing companies. This list was very helpful and we could then start screening the list and look at the companies websites to establish their chance to be a candidate. After reviewing the websites of the candidates we unfortunately found that it was a very short list. This was mostly because the manufacturing companies were so called 'lego' and OEM parts, companies manufacturing on commission and lacking their own products and therefore their own product development. Also the fact that we only needed one company with business to business focus crippled our list even further. We tried to get an interview with Indexator (a forestry equipment company) but as many small companies have a lack of time and during our possible weeks they were occupied with other tasks and could not find anytime to spare for us. Finally we however found two companies, Cranab which products include, cranes and crane-tip equipment for professional mechanised forestry and Västerbottens Kuriren that is a daily newspaper distributed in Västerbotten.

At Cranab's website we saw that they have many different products within their product line and that they had their own product development. Their focus is business to business within the forestry industry. We did not have any special preferences when it came to industry and we also knew that to be too narrow would not be beneficial for the research. Västerbottens Kuriren have many products and services, their newspaper is their main product but also the website which is a service and a product. Their focus is business to consumer, but their focus is also business to business when considering their advertisement space. We will however try to focus on the consumer part of Västerbottens Kuriren.

We called the companies up and asked them some introductory questions to find a person that could answer them, also to establish that we will not ask about the technical aspects of product development rather the marketing view of product development. For example we asked if we could talk to someone that knew about the business analysis of the product launch concerning sales forecasts and risk estimations. In Cranab we were directed to Mr. Micael Olsson Marketing Manager for Cranab products and in Västerbottens Kuriren we were



directed to Marketing Analyst Mrs. Annelie Lindström. We were fortunate with those respondents because they could meet us with a short notice.

### ***4.3 Access and collection of empirical data***

Access is concerned with how the researchers are allowed to gather empirical data to fulfil their purpose of the study. In order to fulfil this purpose the researchers need to obtain the right information from the right person, the respondent. We did not choose our respondents it was more like a mutual discussion with the company which led to a person that would be most fitting for our research of the business analysis process.

All interviews were conducted at the companies' offices, Västerbottens Kuriren's office in Umeå and Cranab's office in Vindeln. To conduct the interviews in the vicinity of the respondents was crucial, because we did not want to complicate it for the respondents. We recorded both interviews and complementally also took short notes. We thought it would be a good idea to record the interview because we did not want to lose the focus needed to conduct a good interview, follow up questions and deepening arguments that might be lost.

The interviews went fine, the respondents were very cooperative, and it was a very nice thing to have the interview guide. Not only as a guide but also as a plan to look at to be sure that we stick to the subject. Sometimes however we lost track of the interview guidelines but we feel that it helped a lot to develop good qualitative data.

### ***4.4 Interview guide and questions used during the interviews***

When we look back into the research questions we can see that we are aiming basically to define the actual status of the business analysis process within the companies studied, in order to discover those aspects that will give us the opportunity to contribute with the new knowledge which will help SMEs to begin improving that lack of research about business analysis. Under such circumstances the theoretical framework has been used as a guide to design the interview document and the questions that will make the bridge between the theory and the reality become shorter. In this same way of thinking we must clarify that we do not intend to confirm any theories used in the theoretical framework but on the contrary the use of it as a searching portfolio to find the tools and support to propose the comparison from some theories into realities regarding the business analysis process within the companies studied.

The theoretical framework mentioned above helped us to subdivide the interview questionnaire into seven different sections (see Appendix A for the complete interview guide). First section is general business analysis process questions; this section views the process as a whole and serves also as an introduction of the rest of the interview themes. Second section is the general forecasting questions, during this section begins the first disassemble of the process with the main critical part of the process. The third section is the sales forecasting, we decided to begin with this questions because within the different forecasting tools the sale forecasting is the principal or the point of origin for the rest of the other forecasts. The fourth section is profit projections, during this section we examine another important forecasting tool and at the same time we corroborate its relationship with the sales forecasting. The fifth section is the risk assessment section, in this section we review the techniques use by the companies studied to prevent, avoid, or to handle the risks and their influences in the new product development process. The sixth section cannibalization of Sales, handles the review of the methods used by the companies to prevent, avoid, or to handle cannibalization. The seventh section is the final wrap up questions, with this section we intended to ensure that the

objectives of all the previous section were reached and give the opportunity to the participant to express any other comments forgotten by the interviewer.

According to Kazmer and Xie (2008) research interviews can be classified as structured, semi-structured or unstructured, in order to use the best profile in our research we decided to work with a semi-structured interviews in concordance also with the statement of Kazmer and Xie (2008) that affirmed that this type of interview permit participants to share their experiences and let researchers to explore the implications inside the participants' ideas. The interview will not be unstructured even though these kinds of interview share this last characteristic with semi-structure, because we also need a basic structure to help the main objectives of the interviews to be observed at all times. This kind of interview will allow us to obtain all the information necessary to answer all our research questions in approximately one hour an a half for each interview. The cumulative experience obtained after each interview could help to reduce the time needed to complete future interviews.

#### ***4.5 Criticism of primary sources***

Since the academic world is very different from the company world, especially the SMEs industry in Västerbotten, the formal processes and definition is not widely used within the 'real' world in the sense academics recognize themselves. We spent sometime prior to the interview to explain the definitions we used to increase the understanding until we were on the same level. We believe that we successfully brought ours' and the respondents' minds closer.

The truth fact is also an issue that should be considered, as an interviewer it is hard to tell if the respondent is telling the truth, interviewers are not mind readers. Fortunately during our interviews we did not get any impression of untruthful behaviour and the well structured interview guide was sent to the respondents beforehand. The respondents were very helpful, cooperative and interested in our subject and did not have any reason to be dishonest. The explanatory nature of our research and interview demands the respondent to explain and give examples. Denscombe (2000) suggested some verification tools to establish and guarantee the validity of interview:

- Confirm the transcript with the respondent
- Confirm with other sources
- Confirm the reason in the data
- Try to find themes in the transcripts

We confirmed the transcripts with the respondents through e-mail and both respondents confirmed with what was stated and did not wish to add or modify anything. Confirm with other sources was quite hard due to the fact that the respondents companies' organisation were very simple and the option to check with a colleague was limited. The reason in the data considers that the researcher have to assess to what extent the respondent could be expected to know about the facts and have knowledge of the subject discussed. During the interviews we quickly realized that we were talking to the right people, they contributed a lot to the research and could give extensive and thorough answers. We interviewed two respondents from two companies with different focus, one business to consumer and the other one business to business, we could establish similarities in the themes between the companies.

#### ***4.6 Analysis of the empirical data***

Since our epistemological approach is interpretivistic it is important that we analyse and interpret the collected empirical data in certain way that agrees with this epistemology. In order to proceed with the analysis of the data collected we took a good look at the arguments of Yin (1994) according to her every study ought to begin with a general analytical strategy. Such strategy according to Yin (1994) can take two possibilities, the first one is called *relying on theoretical propositions* and a second one called *developing a case description*. The choice of the correct choice depends upon the type of research conducted. Even though both provide researchers with a system to recognize the matter of analysis and the justification for such analysis. The first one is used when the researcher uses a descriptive way to present the data, and in addition should only be used when little previous research is available. The second one according to Yin (1994) is the most common and recommended strategy, and is developed through data collection with research questions and previous research as foundation. Since the field of the business analysis process within SMEs is missing a lot of research we decided to follow Yin's suggestions and proceed to rely on theoretical propositions for our thesis.

Rich information was gathered from the two interviews. When the qualitative responses were reviewed it led us to significant insights in the area. However, data analysis is difficult and challenging to be made. Therefore, the analysis will be divided into seven different areas or themes and will not follow the theoretical framework. Instead the conceptualisation will be the basis of our data analysis and the seven headings we will use are, *general business analysis and forecasting, sales forecasting, profit projections, cost estimation, risk assessment, and finally cannibalization of sales*. The different responses of the respondents will be presented together but separated in the discussion and the data analysis.

According to Collins and Hussey (2000), a common mistake in qualitative research is that the authors highlight or pay too much attention to an articulately expressed opinion, yet not widely share opinion. To reduce the risk of this we chose to have the data presentation and analysis in the same chapter. It will enable us to hold the analysis and discussion together and it will facilitate the opportunity to identify patterns and relationships between the two different industries studied. These tools will help us manage and retrieve the meaningful data collected.

Miles and Huberman (1994) said that one important part of the qualitative research is the researches own reflections should focus on identifying patterns and processes, common features and differences. We believe that when analysing the data and compare them with the theories that are appropriate we will by focussing on the empirical data, enable us to be innovative and to create a new understanding to existing theory from another aspect, the SMEs aspect. In the analysis we will discuss our own ideas and findings which will be based on the empirical data and the theoretical framework. We will motivate the ideas and conclusions with the theories as base when interpreting the empirical data found during the research.

## **5. EMPIRICAL FINDINGS AND ANALYSIS**

*In this chapter we will present the empirical data collected from the interviews. We have also chosen to include the analysis in this chapter. This will facilitate the readers' comprehension of the study and enable the readers' to follow the analysis.*

The chapter will start with a short introduction to the companies, Västerbottens Kuriren and Cranab. Then each subject has been divided into their own section starting with general business analysis and forecasting, sales forecasting, profit projections, cost estimation, risk assessment, and finally cannibalization of sales. Each subject has the empirical data collected and the analysis included in each section. The analysis of each sector will provide a thorough analysis of the empirical findings which is interpreted with the help of the theoretical framework developed and the conceptual framework.

### ***5.1 Introduction of respondents***

Cranab is a privately owned company with 190 employees and an annual turnover of more than 400 million SEK (approximately 40 million EUR). They are a crane manufacturer for the mechanised forestry industry located in Vindelns outside Umeå. Cranab have two product brands, Cranab and Slagkraft. Cranab's products, cranes and crane-tip equipment for professional mechanised forestry, have been designed, manufactured and sold since the 60's. Slagkraft is the trademark used for equipment designed for vegetation clearance along roads and power lines. In addition to the Swedish home market, Cranab's products are sold to numerous countries around the world. Their long experience and the requirement for reliable products have also resulted in business opportunities within recycling and salvage handling.

Västerbottens Kuriren Company is a media group that delivers news through newspaper, radio and internet. Västerbottens Kuriren is one of their daily newspapers which will be main focus when collecting data, but the group also includes Västerbottens Folkblad (also a daily newspaper), and radio stations (Rix FM and Lugna Favoriter). The company's annual turnover was 268 million SEK (approximately 26 million EUR) and has 245 employees. Västerbottens Kuriren is located in Umeå city and they have close to 100 000 readers everyday.

### ***5.2 General business analysis and forecasting***

In this part we would like to collect general data on the business analysis process and forecasting issues.

#### ***5.2.1 Västerbottens Kuriren***

Mrs. Lindström believes that their business analysis process is quite informal. It is a very ongoing process, a practical process. It is not divided in stages or processes it is more like a one thing. However when they talked about the products that they have and the projections for those it is formal and the methods are the same. It has not been named a "method" with stages and is very much unstructured. Mrs. Lindström concludes it to be more of a 'thing' that happens and that they conduct each time before launching a new product. It is informal in the sense that there are no processes, it has not been labelled to one certain department or have a certain person assigned to it. Mrs. Lindström said that they do know about the process and it happens naturally, but it is not like a process where they do this and that accordingly.

When conducting the business analysis process Västerbottens Kuriren involves different functions. Mrs. Lindström said that they involve almost all functions, they are a chain and they have to move in the same direction to move forward. She points out that it is an advantage that small firms have, to be able to cross-functional so well because they are very close. It is not always Västerbottens Kuriren involves all the functions but most of the times. Mrs. Lindström stresses that they need to involve them in the business analysis process of product development, so it can happen. The business analysis process is very essential, with cross functional activities and involves everyone affected by the new product.

They perceive their product to be a product and service, their actual newspaper is a product, but their business vision stated that they want to spread information, which is a service. Mrs. Lindström said that they have been very product oriented here, but the service way of thinking slowly but steadily moving in within their concept. It is very important, even though Västerbottens Kuriren move quite fast with producing our newspaper and getting things out there. Within their Västerbottens Kuriren's organisation there is a kind of sluggishness. It takes time for things to settle and new ideas from "thinking as a product" to "thinking it as a service". She concludes by saying it is a slow process.

Mrs. Lindström said it is also a process of learning by doing. Bad experiences in the past regarding new products can sometimes be twisted and turned and tried again. They thought about the bad experiences and when the next development is under progress they will remember the mistakes, but there is of course always something missing. It is a learning process, and something reoccurring when it comes to product development. Västerbottens Kuriren have fewer and fewer errors, it is a sort of process by learning by mistakes but not in the formal structured meaning.

To determine the time scope of the business analysis process we asked Mrs. Lindström how much time they spend on doing the process. She replied that if she could put 80 percent on idea generation and product development she would put less than 20 percent on the actual business analysis process. She said that if they have an idea, it is almost like it is burning, they want to get it out there as soon as possible. Overall it is a very fast process also, developing an idea and just get it out there instead of analysing and forecasting its success. It is an informal trial and error process for Västerbottens Kuriren.

If Västerbottens Kuriren favour time-to-market or evaluation accuracy, Mrs. Lindström quickly responds that it is the time-to-market in every sense. She said that is their mentality, they have an idea and they put it out there and see if it works. It is more like an experiment, the trial and error earlier mentioned. Since they have a product that is out there every day and it is a new product they are working for every day. The culture of Västerbottens Kuriren is that they are not used to working that far ahead. They are here and now and that is the main thing why they favour time to market. Mrs. Lindström points out that they just put an idea out there and see what happens if it is not working they take it back. If it is working let it live and develop. That is a part of the company culture. She admitted however that in some cases it would be good to think a little bit ahead.

We asked Mrs. Lindström how they estimate the accuracy of their predictions and she responds that they have goals for every project and those goals can be measured. Västerbottens Kuriren will compare the predictions with the achieved goal. Sometimes she said the predictions are not so accurate, and then they have to redesign their predictions for next time. Many times the goal is like a prediction also, but a yearly goal might consist of

many monthly predictions that can revise the goal. They base their predictions and goals on history and experience. What they have seen in the past for similar products or services. To that knowledge they add the specific features and characters of that product or service and the expected reaction from the market given the specific time and place. Mrs. Lindström said by making decisions based on these facts they strive to have a high accuracy of their predictions. She said that to improve their forecast accuracy they strive to have a well based situation analysis, a conception of the world around us to base their decisions on.

### **5.2.2 Cranab**

Cranab's Marketing Manager Mr. Olsson would describe the process to be rather structured and formal. Cranab have a well structured process with stages. When they are looking for a new market or new sales, they know rather roughly where their product is needed. They start by finding the need, and thinking about it in monetary terms (is there enough money in the country? are they on a level that enables them to buy Cranab's products?). Mr. Olsson said that they have a very structured process when they launch a new product. Everything starts with the marketing department telling the other departments that they need something to fill this demand or capture this opportunity with. Then the other departments make decision to develop new product or modify an existing product to be able to siege those opportunities discovered by the marketing department. The market department make a study they calculate for each specific market how many of each product could be sold. Market research for each product and for each market is conducted by the market department.

Mr. Olsson said that it is him as marketing manager of Cranab's cranes and crane-tip equipment and the marketing manager for Slagkraft's roadside clearance equipment that usually work together with this business analysis. He points out that every time they are going to make a new product or start up in a new market they always do a comprehensive analysis. In comparison to Västerbottens Kuriren who stated that they have a kind of trial and error process, Cranab is more careful and systematic in their business analysis process.

Cross-functional activities are very much involved in Cranab's business analysis process. Mr. Olsson said that they have to involve more than only the market department and sales department. They have to involve after sales, spare parts, product support, and company lawyers. They also need to develop documentation if it is a very odd country with strict import regulations. Mr. Olsson points out the many advantages a rather small company have in those cases. It is very easy to have these cross-functional activities when the firm is so concentrated and all collaboration comes natural within this small area. For example when they started up their business in Brazil they had to involve many functions in the company for example company lawyers that had to develop export documents.

For Cranab the business analysis process, measured in time is very short. Mr. Olsson would estimate the time span to be approximately 5 percent of the whole product development process. He said that the reason for this short time span is the fact that the big part of product development process for Cranab is spent on designing, preparing the product for production and finally develop a technical description for the product.

Mr. Olsson told us that Cranab does not prioritize to get a product to the market as soon as possible. They instead try to be more accurate in their market evaluation and in their business analysis process. Cranab prefers to be sure that the product will succeed and does not adapt a trial an error approach. To increase the accuracy of their predictions Cranab try to talk to as much people involved in the industry as possible, the dealers and the manufacturers. Try to

get historical figures from people in the industry is the main thing they use to increase the accuracy. However they are not only looking at historical figures for sales, they are also looking at the volumes of lumber chopped down in the world. If there are larger volumes of lumber cut down one year, the demand for cranes and crane-tip equipment will increase.

### ***5.2.3 Analysis of general business analysis and forecasting issues***

When Waddell and Sohal (1994) talked about different techniques for forecasting, they distinguished two possible paths, the formal and the informal techniques. If formal technique is pursued another two paths enter the equation these paths of forecasting are the qualitative and quantitative methods. The path pursued by the forecaster depends upon the availability and type of data. According to Waddell and Sohal (1994) historical quantitative data must be available if the method is not called qualitative, technological or judgmental / subjective and depend upon managerial judgment and experience. In our empirical data collection we found that the most common technique was historical quantitative data. As Waddell and Sohal (1994) distinguished a formal technique, this would suggest that both companies pursue a formal technique.

Waddell and Sohal (1994) defined informal methods to be those that are basically intuitive and depend on individual experience and abilities. They further suggested that these methods are used when there is insufficient time or data to use more formal means. This would however suggest that Cranab is pursuing both techniques; they are consistently talking to other clients and are using their individual experiences and abilities in their forecasting. Västerbottens Kuriren also used their individual experiences and intuition in their forecasting. The time issue was an important issue for Västerbottens Kuriren and they did not have sufficient time to use more formal means of forecasting.

Smaller firms are often characterized by informal and short-term decision making tactics (De Toni and Nassimbeni, 2003). Appiah-Adu and Singh (1998) argued that the requirement for formal procedures would be minimized because of their extensive usage of informal and short-term decision making tactics. In addition, small- and medium-sized businesses are characterized by a limited range of products and customers, thus, minimising the requirement for formal procedures developed to gather and process customer or market information for decision making (De Toni and Nassimbeni, 2003). From what the respondents have told us regarding their formal or informal procedures, we can say that empirical data agrees with the theory. The views of the respondents point in the direction toward a more informal process, and they feel that the requirement for formal procedures is low. Both Västerbottens Kuriren and Cranab have a limited range of products and that also minimise the requirement for formal procedures as Appiah-Adu and Singh (1998) and De Toni and Nassimbeni (2003) mentioned.

De Toni and Nassimbeni (2003) stated that the innovative process in SMEs is also more informal and less structured than larger firms. This partially agrees with the empirical data, for example Mrs. Lindström from Västerbottens Kuriren said that they have an idea and they try to get it out there and test it as soon as possible. They have a kind of trial and error process. Cranab on the other hand had a more structured innovative process, the process started with a market research from marketing department which later on was handed over to the product development department who then tried to develop a product to fill this gap in demand found by the marketing department.

Wacker and Lummus (2002) emphasized on the importance to agree on one forecast among departments. Our empirical data showed that this emphasis is something that both Västerbottens Kuriren and Cranab have considered. They have both established common forecast techniques and they are consistently working across functions with the same forecast techniques.

Shahrul-Yazid and Nooh (2007) mentioned *time-to-market* and *evaluation accuracy*, they thought that corporations have to decide between those two concepts. Corporations have to decide how much scrutiny and accuracy is needed in their business analysis process without their product being delayed or slowed down by excessive scrutiny. Västerbottens Kuriren's and Cranab's decision between the two concepts was different. Västerbottens Kuriren with their daily 'product' stressed the importance of time-to-market. Mrs. Lindström said that it is a part of the company culture, to have many ideas and get them out as fast as possible. Cranab however would stress the importance of their analysis accuracy, for them the business analysis process is a very crucial process to guarantee the success of a product launch.

Wacker and Lummus (2002) claimed the forecast must include an explanation of how and why it was constructed as well as an estimate of the accuracy of its predictions. Our empirical data did not agree with what Wacker and Lummus (2002) claimed because neither Västerbottens Kuriren nor Cranab included any explanation of their forecast.

Herbig (1994) stated that forecasts are almost always wrong and that the only real question is how much they are wrong. Waddell and Sohal (1994) pointed out where one has to be aware of forecasts has to be seen as a guide and not as the ultimate word. The respondents are aware of this problem with forecasts of course, they consider them. Cranab even revised their yearly forecast every month, this to increase the accuracy and to be able to do better planning. Mr. Olsson said that they always need a plan to guide them in their production and investment decisions.

Waddell and Sohal (1994) stressed the importance of accuracy in forecasting and should be controlled through testing, they listed several processes for testing the forecast accuracy, such as laboratory tests of constructed expectations or direct like survey-based processes. Both Västerbottens Kuriren and Cranab tested the accuracy of their forecasts, but in a more informal and less complex way. They tested it through looking at the goals achieved and the accuracy of the predictions how far they were from the truth. Sometimes Mr. Olsson said they would redesign their prediction method.

Waddell and Sohal (1994) mentioned the importance of forecast accuracy, and they further suggested that in order to improve the accuracy to combine several forecasting method. According to Waddell and Sohal (1994) this has proved to be an extremely effective way of increasing forecasting accuracy. Wacker and Lummus (2002) suggested several hypotheses on why combining forecasts improves forecast accuracy. These reasons include:

- Measurement errors always exist and combining makes them smaller;
- Unstable or changing patterns or relationships cause single models to be unreliable, but combining several models improves their accuracy; and
- Models usually minimize past data errors that were poor predictors of future sales.

To combine several methods is something both Västerbottens Kuriren and Cranab implement to increase the accuracy of their forecasts. Cranab combines both historical figures and



conversations with industry people. Västerbottens Kuriren combines historical figures with situation analysis purchased from market research companies. They both agreed that the combination really helped them to increase accuracy and therefore also their reliability.

### 5.3 Sales forecasting

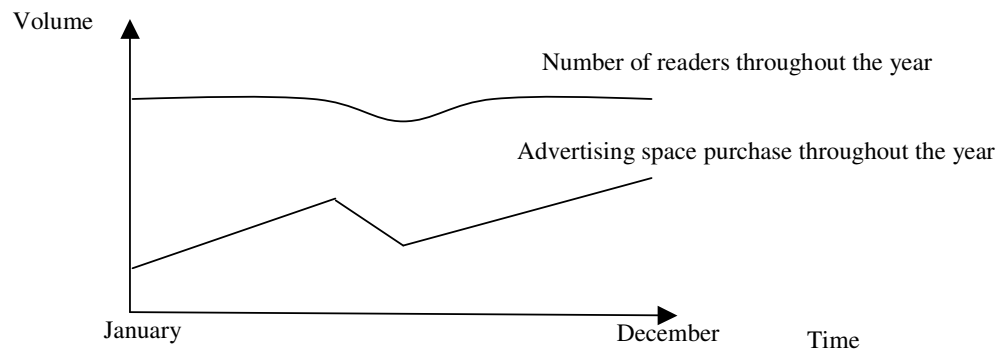
When asked about which important factors there are in sales forecasting both Västerbottens Kuriren and Cranab argued the importance of historical data, but sales forecasting consider so many other factors which will be discussed in the following part.

#### 5.3.1 Västerbottens Kuriren

Västerbottens Kuriren's Mrs. Annelie Lindström told us that they look a lot at the historical facts because now they have real facts how the sales was in January, or for the whole year, or a specific week. Västerbottens Kuriren can retrieve all those statistics from their database, consequently historical facts is the main thing that they use for sales forecasting. Mrs. Lindström added also the importance of the board of directors that set the goals for the following year, which is always to increase sales. Therefore if sales forecasts indicate something different, Mrs. Lindström and her co-workers have to take action to increase sales and beat the forecast. However she points out that all goals must be realistic for them, given the figures last year, given the situation in this economy, business cycles and trends, and given the products they have. In addition also if they have any new launches that can increase sales. She concludes by saying that they take everything like that into account when doing their sales forecasting.

We asked the respondents if their companies experience lumpy demand (defined by Kalchschmidt, *et al.* (2006) to be sporadic and fluctuating demand) and how they handle it in their sales forecast. Mrs. Lindström claimed that Västerbottens Kuriren experiences a reoccurring lumpy demand every year. For example she mentioned the readers who even though they subscribe to the newspaper, the actual reading looks like a seagull, because many of our readers tend to put their subscription on hold when they are on holidays, and since most of the vacation time is in June and July the reading demand looks like a seagull. When talking about the advertising sales, Mrs. Lindström said that they have higher sales before Christmas because every shop wants to advertise their promotional messages. Followed by a low point in January and then it goes up in the spring and declines in the summer because the readers also declines. Mrs. Lindström argued however that this fluctuation is something they know about and they know almost to the day how it has been historically so Västerbottens Kuriren sees the same tendencies year after year and consider it in their sales forecast.

Figure 5.1: Västerbottens Kuriren's lumpy demand



Source: Annelie Lindström

We asked about the relevance of the tools they use forecast sales. Mrs. Lindström said that historical data is the number one but they need to take into consideration the products that they have, if they have made reorganizations within the company, marketing demand and so forth, but historical data is the most crucial one. When asked about the extent of their historical data she replied that she thought they have 50 years in the archives but they do not usually look that far back, they prefer to use the computer archives and look maybe 3-5 years back in time.

The factor of importance for sales forecasting are the methods. We asked Mrs. Lindström if she would describe their methods to be complex or simple methods. She replied that she would describe the most of them to be quite simple. It's not simple as in the data just comes out of it, it is a little bit more complex but she would not consider it complex because they got this kind of program that facilitate the process of taking out the data and make sales forecasts. Mrs. Lindström said to us that sometimes they purchase analyses but not so often and that is more for market research. It is the kind of research that establishes trends and what people eat, where they live, what they like to do in their spare time and so forth.

### **5.3.2 *Cranab***

For Cranab the basic conditions are not similar to Västerbottens Kuriren's since they function in a completely different industry. However Cranab also mentioned historical data as an important factor of sales forecast. Mr. Micael Olsson mentioned additional factors too, such as the economy growth, business cycles and trends. He also stressed the importance of good relationships, not only with clients, but also industry individuals. Cranab's main competitor is a Finnish company, and Mr. Olsson admitted that Cranab have a really good picture of them and their prices and products. Most important factors is however historical factors and talking to their customers and industry people. For example if a client to Cranab is big enough they usually have a planned production of 12 month. This 12 month window of forecast is always moving forward one month at a time all the time. These production forecasts then becomes Cranab's sales forecasts. It is however only forestry machine manufacturers that have this, Cranab are a so called Original Equipment Manufacturer for these companies (i.e. Valmet or Komatsu Forest). For dealers they have to talk to them and really squeeze them on the data. Not because they do not want to give it away, but because they do not know.

Cranab's situation is different, they have one product brand, Slagkraft make equipment designed for vegetation clearance along roads and power lines is very seasonally influenced. Slagkraft products are very lumpy and only sell from March to September because it is not used at all in the winter months.

Cranab's cranes and crane-tip equipment for professional mechanised forestry are more evenly spread out over the year. They do have some sporadic but intense investments from dealers that are made in the autumn. For example a tractor owner work with agriculture in the fields during the summer and in the autumn they purchase forestry equipment for the winter, they go from traditional agriculture work in the summer to forest work in the winter. Mr. Olsson points out that it is only from the dealers and agents they see this, the forestry machines manufacturing companies such as, Valmet and Komatsu Forest are producing machines all the time and it is very steady. During Cranab's conversations with their dealers and clients they try to listen and hear about the changes in demand, and after that respond to that in their production.

We asked Mr. Olsson about the relevance of their tools and he replied that the most relevant tool is historical data. In the beginning of every year Cranab try to forecast and estimate the producers demand if they will go down or up in volume, Cranab may also ask the producers, because they usually know what they need within the 6-12 months. For dealers it is more about the historical data than asking them, dealers have according to Mr. Olsson a very low awareness of the demand and often they do not do any forecasts at all. Cranab therefore have to talk to them and try to get an indicator of the demand, if it is increasing or decreasing. Mr. Olsson concludes by saying that for producers, asking for forecast is the best and for dealers they have to rely on historical figures.

With the increase of demand and increase delivery time Cranab have realised the importance of sales forecast for their planning processes. Cranab have started to use a special encouragement concept that will encourage the dealers or manufactures, however mostly dealers because of their lack of sales forecasting awareness. However they have also noticed that even though some clients are very large, they do not use or have a forecasting system. Mr. Olsson explained the concept, if the dealers or manufacturers provide Cranab with a forecast then Cranab can promise them a faster delivery. This concept of encouragement is beneficial for both parties, Cranab need those things to plan material and everything they need to buy for making a product and the dealers get a faster delivery.

We asked Cranab if they use purchased forecast and if they believe their methods are complex or simple. Cranab answers that they have not really bought analysis, not for forecasting at least. They might have bought for macro analyses but most of the macro analyses they can read for free online or in different newspapers or journals. Mr. Olsson informed us that they try to keep it simple, because it is best for themselves but also for the client. He explained, if Cranab wishes a client to forecast for them, they do not want to forecast something very complex. Therefore they need a simple method for forecasting, as simple as possible. Simple methods are more satisfying for Cranab. Cranab have tried to do a more in depth detailed forecasting but the result was not that much better or sometimes even no difference. It is better to keep it simple Mr. Olsson concludes.

Sales forecast is the foundation for many forecasts Mr. Olsson said. However it is especially hard to use those forecasts for accessories, for example they have a basic crane but then buyers can put on so many different accessories and other equipment that is unique for a specific buyer. The cranes and the equipment that Cranab produce can be covered by the sales forecast and also they always try to keep a minimum in stock. It is however more difficult to forecast the accessories that have to be purchased from suppliers.

One sales forecast for the next year's budget. But when Cranab get into January, they revise the budget's sales forecast. Every month they do a sales forecast for every product, for each specific market. It is important for Cranab to do it continuously to see if the production should be brought up or down in the coming months.

### ***5.3.3 Analysis of sales forecasting issues***

Cassar and Gibson (2007) claimed that the study of sales forecasting within small firms is important because forecasts and estimations have a vital influence on many commercial decisions and the following growth, profitability, and survival of the firm. After interviewing Västerbottens Kuriren and Cranab we have to agree to what Cassar and Gibson (2007) said, both Mrs. Lindström and Mr. Olsson agreed that it is one of the most influential issues in their daily work. It is for them an ongoing process and something necessary for their survival. For

example, sales forecasts are pivotal in their decisions regarding capital investments, production volume estimation, budgeting and so forth. For Cranab especially inaccurate forecast include higher inventory cost which was also stated by Cassar and Gibson (2007) as potential consequence of inaccurate forecasts. Västerbottens Kuriren would disappoint the advertisers if their sales forecast were inaccurate, by informing them about an inaccurate clientele.

Fader, *et al.* (2004) suggested the essence of relying on formal models of sales so that practitioners can understand the underlying factors of sales forecast and in the end produce a valid sales forecast. These formal models for sales forecasting that Fader, *et al.* (2004) is suggesting are not something that neither Västerbottens Kuriren nor Cranab use. Cranab is relying on their historical data and business relationships while Västerbottens Kuriren is mostly concerned about historical data in their sales forecasts.

Fader, *et al.* (2004) thought with regard to the time projected for the sales forecast that there are long range, medium-range and short-term forecasting. The empirical data concurs with the theory in this aspect. The respondents might however use different labels than suggested by Fader, *et al.* (2004) but we could see that there are different kinds of sales forecasts. Cranab for example used one long range sales forecast when they did the budget for the coming year. They also did a short-term forecast for each month and for each product. Västerbottens Kuriren also conducted similar forecast that differed in time projected. For example Mrs. Lindström mentioned the short-term forecasts made for launching new services. They also had the long range sales forecasts when doing their budget.

Wacker and Lummus (2002) claimed that the believability of the sales forecast is linked to the strength of the theory underlying the forecast. Cranab's believability in their sales forecast was very strong, Västerbottens Kuriren's believability in their sales forecast was strong. However nothing in our empirical data indicated that Cranab or Västerbottens Kuriren believability was linked to the strength of the theory underlying the forecast. Even though their believability was strong on their sales forecasts, it was not linked in any way to the underlying theory, because there were none. Instead of theory underlying their sales forecast, historical figures and facts is the foundation of their sales forecast.

Kalchschmidt, *et al.* (2006) mentioned lumpy demand that they define to be characterized by fluctuations, sporadic, because the demand is characterized by many periods of very low or no demand. Cranab experienced this lumpy demand mostly for their roadside clearance equipment brand Slagkraft, but also in a smaller scale for their cranes and crane-tip equipment. Västerbottens Kuriren's lumpy demand was very notable, their 'seagull' figure for the reader and the peak in sales of advertising space in December. The main issue regarding lumpy demand was if they consider it in their sales forecasting, and they do. Both respondents were very well informed about the fluctuations in the market demand. Demand is also something that Kalchschmidt, *et al.* (2006) found to have tendencies to become more variable and uncertain. Managing such uncertain demand has according to them created significant problems for managers. Both Cranab and Västerbottens Kuriren admitted that it is very tricky to handle demands but they seem to get along fine. Cranab is producing 1200 cranes per year and from order to delivery a time span of more than six months. Mr. Olsson said that this time span will increase and that their factory is working at full capacity.

Our final concerns regarding sales forecast covered the complex versus simple method satisfaction. It was suggested by Wacker and Lummus (2002) that the high cost of complex

forecasting models suggests that managers expect greatly improved accuracy and are relatively dissatisfied with the models when they are not more accurate. Cranab said to us very straightforward that they try to use only simple methods, and they are very satisfied with them. Cranab have also tried more complex methods but were not satisfied at all. First of all they were not that accurate as they expected from a complex method. Second they felt that it was hard implementing this complex method to their clients, in which Cranab relied a lot on to get information from. Cranab agree with Wacker and Lummus (2002) statement concerning the level of satisfaction with sales forecasts indicate that forecast users are generally more dissatisfied with complex forecast methods compared to simple forecasting techniques. Västerbottens Kuriren had a similar point of view; Mrs. Lindström told us that they have tried more complex methods only to return to a more simple method.

Sales forecast is the foundation for many forecasts Mr. Olsson said. The only forecast that was hard to retrieve a comprehensive forecast was the accessory forecast. For Västerbottens Kuriren the sales forecast was the foundation of many forecasts. Then why is this? Reichard (1966) said that the reason of this was because sales forecast is the basic planning and forecast for every department.

#### ***5.4 Profit projections***

In this part the data collection has not been as extensive as the other areas. The theory and data collection was crippled by the fact that profit is a product from cost and sales. We have however tried to collect as much as possible which will be stated here.

##### ***5.4.1 Västerbottens Kuriren***

According to Mrs. Lindström Västerbottens Kuriren does not really make any difference between sales forecast and profit projection, in the sense as she said “on a daily basis we do not use them both in my way of thinking but in the end they are very close that you measure one or the other”. What she meant is that they do not make any difference between sales and profit projections, it is more a coincidence of what they measure, however she admitted that they measure sales more often.

##### ***5.4.2 Cranab***

On the other hand Cranab is doing profit projections all the time, every time they release a new product. Mr. Olsson also said that profit projections is made to set a target production cost, which involves to check what the market price is of the products are.

Cranab have to consider the profit, they do it all the time. They differentiate sales and profit projections, but he admitted that they go hand in hand. Mr. Olsson described a situation when they got out because the profit was too low. They had the volume to enter the market but the low price was hard to justify. Profit projections are therefore vital many times to the decision to enter a market or not. Mr. Olsson explained the importance of price that some markets are really price sensitive, especially when they have started importing from companies in Russia or Baltic states. Then they got this price indication and they think that they can get that low price from Cranab also. Mr. Olsson points out that Cranab’s product is completely different in quality and technical aspects.

Cranab look at the profit all the time. They do not go on volume estimations every time, but sometimes Cranab try to take the volume to gain other advantages. Mr. Olsson stated that profit goes hand in hand with sales but are two different things.

### ***5.4.3 Analysis of profit projection issues***

According to Cravens and Piercy (2005) profit projections are a product of cost estimation and sales forecasting. Considering the definition of what profit is; the sales of the firm subtracted with the costs we get to see the importance once again of the sales forecasting together with cost estimation. Both Västerbottens Kuriren and Cranab looked at profit in the way described by Cravens and Piercy (2005). They agreed that they go hand in hand, Cranab is the one considering profit more individually than Västerbottens Kuriren. Cranab uses profit projections in their market analysis, when entering a new market. Cheng and Firth (2009) stated that for profit projections to be credible they needed to be accurate. Mr. Olsson told us that he found their profit projections credible and accurate and Cranab base their decision a lot in the profit projections before entering a new market. The expected lack of profit projection theory and the lack of empirical data have increased the importance of this study to lay the emphasis in the cost and sales forecasting analysis instead.

## ***5.5 Cost estimation***

Cost estimation is an important part of business analysis according to theory. What our empirical collection found will be stated in this part.

### ***5.5.1 Västerbottens Kuriren***

The important factors for Västerbottens Kuriren with regard to the cost estimation are according to Mrs. Lindström the awareness of the costs and the cost reduction. Since she joined the company, it has been a lot about cost reductions. She informed us that their cost reduction has been working very well, and they are a very cost aware company. An example of their cost reduction is that they have started to negotiate deals with airlines so they can get a discount and the airline will help them find the cheapest flight and not the fastest, of course within some limitations. Additionally Mrs. Lindström said that because they are so cost aware and by being aware they can also predict and estimate how much things should cost and start a budget after that.

We asked them if they always try to be lower than their estimates and Mrs. Lindström said to us it is not always, but they try to have some realistic goals. Västerbottens Kuriren has to be proactive and outgoing and often can not be too bound to costs. However she thinks it is important to mention that it is not that they do not get to do the things they need to do, but they are aware of the costs and can measure them and count them and estimate the costs much better than they could do before.

Mrs. Lindström concludes by saying that they do not use any cost estimation framework as the activity based costing framework, however she also said that they have quite an advanced sales tool in which they have all the travel agency bookings and other data. With this advanced sales tool they can go back to any time they want to and search data for making predictions out of it.

### ***5.5.2 Cranab***

Cranab that operate in a completely different industry from Västerbottens Kuriren, was able to tell us several important factors for them in their cost estimation. Mr. Olsson stated for example raw material cost, labor cost, handling cost which involves storage and transport cost, sales cost, and development cost.

They are working with different frameworks that he could not pinpoint for us because he does not actually know what they are called. Mr. Olsson explained that they analyse different bases of costs and they calculate the time it takes to produce their products. They also have all the component cost data in a big database that he can access and see in the system for each component how much it cost. Cranab has a lot of people responsible for preparing these figures from production and engineering.

### **5.5.3 Analysis of cost estimation issues**

De Toni and Nassimbeni's (2003) research showed that the most common obstacle to innovation among small medium size enterprises (SMEs) is the excessive cost of product development projects. Both Västerbottens Kuriren and Cranab could agree to that and both admitted the financial limitations that their small size causes. It is however crucial for both companies to tend to these activities to gain competitive advantage and to survive. Cranab has to match their competitors all the time with new product innovations to stay competitive and desired by costumers. Västerbottens Kuriren has to lower the cost and be cost aware to always be able to increase value for the reader and the advertisers.

Hamilton (2004) mentioned the importance of the initial sales forecast, to be able to determine the cost mentioned is necessary to have a very close prediction of the units that will be sold. This is something that Västerbottens Kuriren and Cranab agreed with, they both use the sales forecast as a foundation for many other forecasts including cost estimation.

Neither of the respondents could pin point any stages mentioned by Hamilton (2004) with the *design basis*, *planning basis*, and *cost basis* stages. None of them use the production cost estimation framework based on activity-based costing framework (with three stages, allocation, estimation, and analysis) used for cost estimation proposed by Park and Simpson (2005). They might however use some kind of process or framework but they do not recognize them as a process or framework.

## **5.6 Risk assessment**

Here we want to establish how our respondents would describe their companies' risk assessment procedure.

### **5.6.1 Västerbottens Kuriren**

Regarding the type of risk assessment developed by Västerbottens Kuriren Mrs. Lindström thought that it is more of a combination of *intuitive*, like for example brainstorming, *inductive* including hazard analysis, checklists and human error analysis, and finally *deductive* techniques like for example using general theoretical framework to make specific conclusions regarding the data collected. In the same manner Mrs. Lindström admitted that for their risk assessment they mainly used the intuitive component connected to the informal process of business analysis. Mrs Lindström finalized this section saying that they have to involve different functions to really understand the situation and that for Västerbottens Kuriren the best way to achieve this understanding is through the brainstorming process since they need to see the situation from different angles.

When questioned about important factors in risk assessment for Västerbottens Kuriren, Mrs. Lindström mentioned among others, brainstorming, cross-functional activities, competitors, economic fluctuations, the way the products are received, the preparation of the product for the market, and risks reduction techniques. Mrs. Lindström said that in Västerbottens Kuriren they try to see from all the angles that they can. She also mentioned the high importance of

historical data and the analysis made from this database. Finally Mrs. Lindström confirmed that they use these factors depending on some specific situations or sometimes they require the use of a combination of all these factors.

In order to facilitate the reduction of risks Västerbottens Kuriren classifies the risks in external and internal risks, according to Mrs. Lindström the most attention is focused on external risks and subsequently divided into competitors, technology, markets, and customers. Once the risks are defined and classified they work with the risks defined and taken into account with a cross of functions.

Mrs. Lindström commented that Västerbottens Kuriren classifies their risk levels in low risk and high risk. Depending on the kind of risk, the establishment of one or another is as follow: if the risk is financial the risks are in objective absolute numbers, and measurements that allow Västerbottens Kuriren to see the level of the risk. On the other hand Mrs. Lindström confirmed the existence of subjective risk assessment as well in Västerbottens Kuriren. Finally according to Mrs. Lindström the assessment of future risks in Västerbottens Kuriren involves marketing research methods are used to determine their classification for example research with specific targets group and their specific reactions to different stimulation.

Within the techniques used by Västerbottens Kuriren, Mrs. Lindström included market research in Sweden and international research. She continued saying that it does not matter where they develop these research studies they are both based on the same data collection techniques. For example a big database, or collected interviews from inhabitants in Sweden or other countries that keep track on how people travel, what people eat, how people live and so forth. This research is according to Mrs. Lindström used to predict what will happen in the future, Västerbottens Kuriren's future. The research mentioned by Mrs. Lindström in her opinion is a very good tool for example very useful to see how specific target groups are developing. She added that some researches are bought from external agencies and that if they have a specific problem they take in an external part that research about that problem. Mrs. Lindström pinpointed the importance of the classification of risk levels to help in decisions regarding the techniques used, because they can see what resources they have inside the company to determine if it is feasible within the company, otherwise they hire an outside agency.

Regarding the handle of risks in Västerbottens Kuriren Mrs. Lindström commented that depending on the risk sometimes they try to avoid it. She said if there was anything they could do to avoid the risks they would do it for example one specific risk that Västerbottens Kuriren is facing is the lower number of readers in this case they try to reduce it because it is impossible to avoid it. In this specific case Mrs. Lindström highlighted the observation by Västerbottens Kuriren of an opportunity for their homepage from the risk regarding newspapers.

The frequency of the risk assessment in Västerbottens Kuriren according to Mrs. Lindström is more like sporadic but at the same time continuously due to their daily kind of activity base operation an ongoing process, and mostly depending on what they are doing in a particular point. She affirmed that the risk assessment comes natural when they do their estimations and projections.



### **5.6.2 Cranab**

In the Cranab case Mr. Olsson stated that they always have to consider aspects like the economy and he believed the type of risk assessment is more like intuitive and that they use mainly brain storming to develop risk assessment. Mr. Olsson considered that Cranab itself does not take a great amount of risks for example if they supply to someone that is consider to be a high risk they take preventive measures like payment in advance or bank guaranties.

Mr. Olsson continued by saying that Cranab considered three important factors when assessing risks, the first one is payment terms, the second one is how long time the clients has been in relation with Cranab and how long time they have been doing business with them, and finally the contracts signed and all the details and clauses included in every contract. Mr. Olsson added that they try to get as much detail into the contracts due to some unfortunate events.

The risks levels for Cranab according to Mr. Olsson are evaluated in a rough and general manner for example long term loans and new contacts are considered as biggest risk, however they may have to take chances sometimes because of their policy about trying to open to new contacts.

Mr. Olsson mentioned that Cranab does not evaluate risk differently according to the way their products are going to be transport since they make sure everything is insured so it really does not matter what the transportation is, that does not affect their risk analysis.

Mr. Olsson clarified that if they handle a new dealer they are more careful until the new dealers have proved to be safe, in some cases they can not accept another order to be shipped until they have paid the first shipment. In the other hand Mr. Olsson said that when they look at dealers that have been working for so many years with Cranab, they do consider these companies as a low risk, even though he also said that sometimes they should not do that because for example they lost at the beginning of 2008 their dealer in Canada, they went bankrupt and they did not know about this financial disaster and when this set back happened they could not believe it since it was a big company and they were really surprised when it happened. Mr. Olsson said that if they had received financial information before hand from this dealer, Cranab could have avoided it but they trusted this dealer completely. He regretted, and said that they should not have trusted them, but at least now they are more careful. Finally regarding the level of the risks Mr. Olsson ended with highlighting the importance of what you write in the contracts can solve the problems caused by some of those risks.

About the objectivity or subjectivity of the risks level classification Mr. Olsson commented that when they face a new client Cranab check every time how they have behaved in the past so they look at their history and have them economically analysed. To economically analyse companies are much easier in Sweden than in many others countries. Mr. Olsson considered this way to classify the level of risks pretty objective but he also admitted that some of their ways to classify the level of risks as subjective for example when a client is from Russia or Brazil Cranab “feels” that they have to be very careful, on the other side if the client is from Norway they do not do the same analysis.

Mr. Olsson mentioned that as a way to correct and avoid the risk exposed by some clients they use a strategy based in the way they handle their clients. For example if a client does not pay them as promised, Cranab put them in a black list. This means that if they are on the black list they do not get any benefits from Cranab until they paid them as established in the

contract, Cranab even stop deliveries to this client, which is totally different from clients that fulfil their part of the deal.

For Cranab, Mr. Olsson commented that the risk assessment is made in a fairly continuously way similar to that performed for sales forecast but he thinks it is less frequent than sales because they do not do an assessment of risks for every sale.

### **5.6.3 Analysis of risk assessment issues**

Frosdick (1997) stated the techniques of risk identification are facilitative tools, intended to maximize the opportunity of identifying all the risks or hazards inherent in a particular product development process. The tools may be categorized under the broad headings of:

- intuitive, (brainstorming, involving a group generating ideas)
- inductive (what if?, include hazard analysis, checklists and human error analysis) and
- deductive techniques (so how?, event and fault trees, a primary tool in risk assessment)

Frosdick (1997) said that deductive techniques are a primary tool in risk assessment, but our empirical data showed that intuitive techniques are preferred.

Both answers from Västerbottens Kuriren and Cranab lead us to confirm with the theory that when classifying the level of risks both companies have an objective element and a subjective element, but as Cassar and Gibson (2007) affirmed, these smaller firms also tend to have a higher degree of subjectivity in the process.

Regarding the two parameters mentioned by Ammar, *et al.* (2007) risk probability and risk consequence, was observed that in both Västerbottens Kuriren and Cranab, gets a higher priority the risk probability or the likelihood that indicates a chance of a risk event happening which is handle in an objective manner, while risk consequence is focused in a more subjective way simply as an expected bad or good consequence.

The basis for risk assessment mentioned by Ammar, *et al.* (2007) coming from preferences and expertise, was identified by both Västerbottens Kuriren and Cranab this basis proved to be in both companies a positive characteristic of the subjective approach that could for example save time for these companies when was more important to emphasize risk events rather than an exact calculation of such risks.

The seven stages proposed by Frosdick (1997) for risk assessment were encounter in Västerbottens Kuriren and Cranab but is necessary to mention that neither of them were able to describe the stages nor its sequences they only recognized the different stages when they were asked specific questions about each one of them.

## **5.7 Cannibalization of sales**

According to Srinivasan, *et al.* (2005) the concept of product cannibalization was recognized more than thirty years ago by Heskett (1976), who defined it as “the process by which a new product gains sales by diverting sales from an existing product”. We will examine the respondents’ experiences of cannibalization in the following part.

### **5.7.1 Västerbottens Kuriren**

Mrs. Lindström said that they have products or services that might steal market share form an existing product. All newspaper companies have that according to her. Many saw Internet as a

competitor and not as a complement to the ordinary newspaper. She said that their page is very developed and Västerbottens Kuriren has many readers on Internet. Mrs. Lindström explained by saying that they have worked very hard on the webpage to be able to attract as many readers as possible.

With regard to the advertising income, Mrs. Lindström said that the cannibalization between web and newspaper is not that extensive. The newspaper advertising income is still a lot larger than the website advertising income however the website is growing steadily. They thought that the readers would emigrate from the newspaper to the Internet version. What they have seen through extensive research is however that the readers use both Internet and the newspaper equally. Most visitors of the webpage are also newspaper subscribers, Västerbottens Kuriren have some really heavy users on Internet. Mrs. Lindström thinks that it is because of the instant access to news online. Instead of waiting to read about it in the morning they can see almost the exact material instantly on the webpage. Some news that could be seen as trivial to publish in the newspaper attracts a lot of readers to the webpage.

We asked Mrs. Lindström about the reactive and preventative measures they implement when they experience or predict cannibalization of sales. She responded that the context has been very similar historically in the website compared to the newspaper. But she admitted that the mindset has been to pour the content to the webpage from the newspaper without knowing that the consumer behaviour is totally different from visitors on the internet than from the readers. They are proud of their website and they think they have a good strategy for making a difference of their behaviour.

The preventative measures they implement are that they try to be different in many ways. Mrs. Lindström replied that that is a question for when they launch new things. They could not launch something that is too similar. She mentioned the articles are very different between the medium, in the newspaper they have more in depth interviews and articles. On the webpage they have this instant short news that is too trivial to publish in the newspaper, but of course they have some similar articles also. She also mentioned the soul, the webpage have a different "soul" than the newspaper have, a short and fast soul on the webpage, and an in depth soul in the newspaper. That is how they deal with the cannibalization.

Mrs. Lindström mentioned some important factors to consider when extending their product line. First try to make them as different as possible. They have a good market situation because they have a vast majority of advertising market. Västerbottens Kuriren's owner also owns the Västerbottens Folkblad newspaper (a competitive newspaper) but it is not subjected to cannibalization because the advertisers buy advertisements space in both. They try however to separate those newspapers as hard as they can so they can continue as two separate individuals very competitive between them. Mrs. Lindström said that they try to keep them apart and keep them different from each other. That is their main concern, Västerbottens Kuriren is one brand and the brands meanings between them are different.

We asked Mrs. Lindström if the risk of cannibalization is more significant if a new product is launched under the same name as an existing product. She replied that it is an important thing to think about, they make additional newspapers that cover house and garden, financial, wedding, and different exercises. They then make a special issue with the extra material. She admitted that it can be hard in an advertising space sales situation to charge this extra money and not take that from the ordinary newspaper. She admitted that they are on the top of their market in what they can charge of them. They do not have that much extra money that they

can take. If they have some additional paper it is quite hard to get something extra from that one according to Mrs. Lindström.

### **5.7.2 Cranab**

Cranab have many different cranes that vary in, size, length, capacity and weight capacity. Mr. Olsson said that they experience cannibalization. For example they have a crane model named FC 45 that is different from FC 53 model in the lifting capacity and the reach of the crane. They are however very similar according to Mr. Olsson, he said that many customers choose the FC 53 model. He admitted however that they developed the FC 53 to steal market share from competitors, who were pretty lonely within that segment.

The reactive and preventive measures they implement are few according to Mr. Olsson sometimes they do not do anything. As in the case of FC 53 they did nothing, even if they do loose some sale for FC 45 the sale will still be within in the company. It was more important to take sale from the competitor. They were aware of the fact also before launching FC 53. It was launched to stay competitive in comparison to our competitors.

The risk of cannibalization could be more significant when a product is launched under the same name. Mr. Olsson commented that they are more concerned with the technical description between products. They also use the numerical model number to differentiate the products even though they are launched under the name Cranab. They always try to keep the technical specifications of the cranes diversified.

### **5.7.3 Analysis of cannibalization of sales issues**

Lomax, *et al.* (1997) believed that brand owners use existing brand names to reduce barriers to entry for the new line with the concealed theory that additional earnings will be achieved. This is something that Cranab is doing, they are frequently using FC which means ‘forwarder crane’ to reduce their barriers when launching a new product. Västerbottens Kuriren is consistently using their brand name to promote and develop their brand, both on Internet and in newspaper special issues. Lomax, *et al.* (1997) said that haunting the parent brand is the spectre of cannibalization; the line extension could be successful but only at the expense of the parent brand. This is not true in the sense of our respondents; the respondents try to diversify their extensions. They are however using their parent brand (Cranab and Västerbottens Kuriren) to lower barriers and to give it more trustworthiness. Cranab for example is a well known brand in the crane industry and one of the largest manufacturers of cranes and crane-tip equipment for the forestry industry in the world.

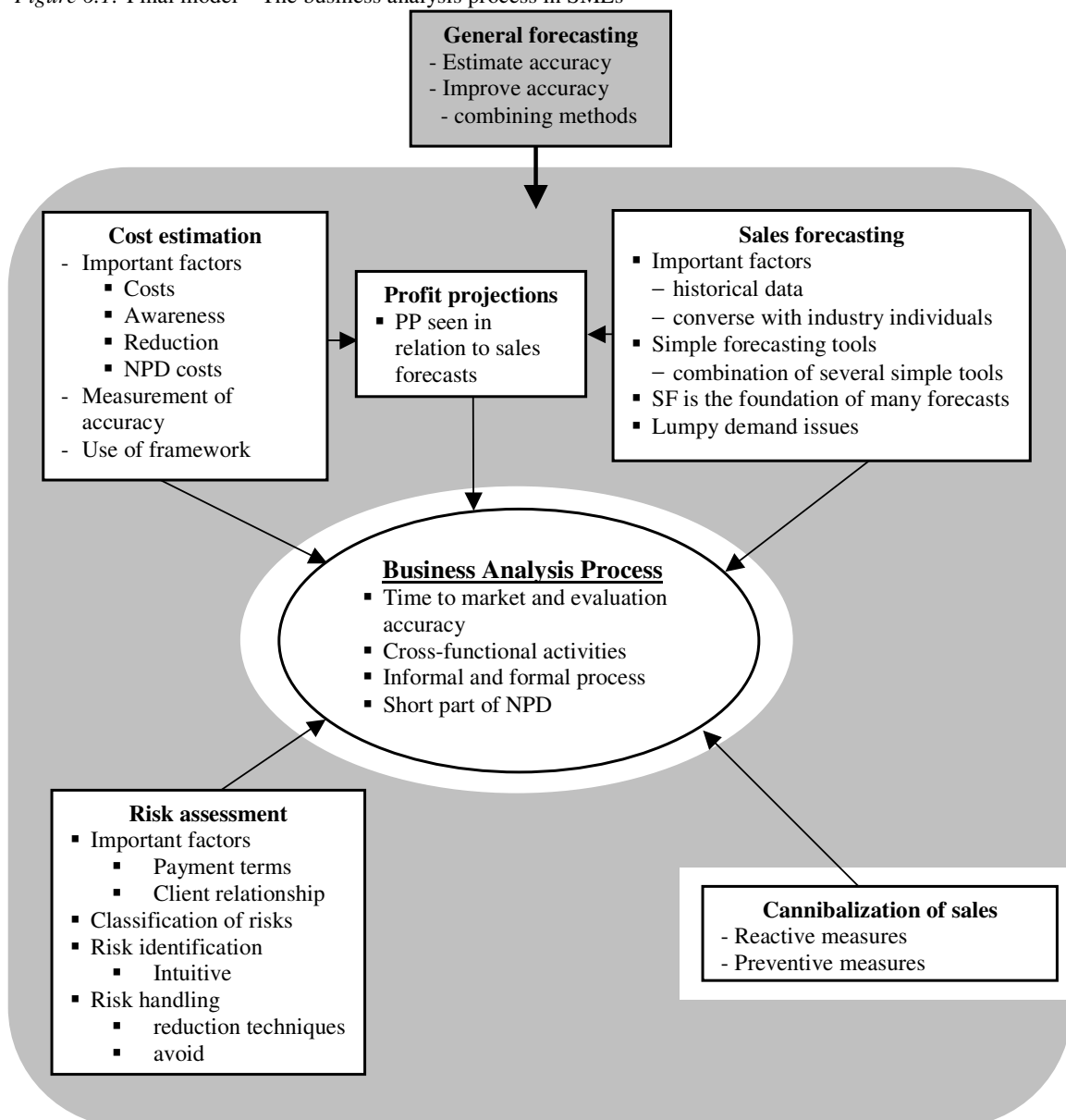
Srinivasan, *et al.* (2005) stated that the risk of sales cannibalization becomes more significant if the new product is launched under the same brand name as an existing product. Västerbottens Kuriren and Cranab both agreed on that but had different angles to tackle the issue. Västerbottens Kuriren that had a problem to sell advertising space in special issues, had a problem getting advertisers to pay extra for advertising in these special issues. Cranab was more concerned about the technical specification of their products, to not be too similar in the specification that might cause confusion and product cannibalization. Srinivasan, *et al.* (2005) considered “not accounting for cannibalization as one of the biggest mistakes in the decision-making process of a new product introduction.” Västerbottens Kuriren and Cranab take cannibalization of sales into account in their new product introduction decisions.

## 6. CONCLUSIONS

*In this chapter we will start by presenting a model we have constructed. This model will be used to answer the research questions and problem statement which will thereby fulfil the overall purpose. Finally we will suggest some ideas concerning future research.*

The purpose of this thesis was to contribute to an emerging body of research on the product development planning process of small and medium size enterprises. The thesis sought particularly to deepen the understanding of the distinctive nature of the business analysis stage of the planning process. In order to fulfil the purpose of this thesis we have constructed from our empirical data a model, which is based on our theory model presented in chapter three. This model is a new model based on the findings in our empirical study. Cannibalization of sales is still not influenced by general forecasting issues.

Figure 6.1: Final model – The business analysis process in SMEs



This model will be the basis for answering the two research questions that we have developed. Each research question will be given their own part in this chapter.

### ***6.1 Which are the important factors for SMEs in their business analysis?***

The important factors for the companies studied in their business analysis process are according to our empirical data are the following (the factors are not presented in any specific ranking or order):

Business analysis process

- Cross-functional activities

Sales forecasting

- Historical data
- Combine several simple methods
- Micro and macro economic factors influencing the company
  - Business cycles
  - Trends
  - Economic growth
- Cultivate business relationships within the industry

Cost estimation

- Cost awareness
- Production costs
  - Raw material costs
  - Labour costs
- Handling costs
  - Transport costs
  - Storage of stock costs

Risk assessment

- Intuitive risk assessment techniques
- Sales contract
  - Payment terms
  - Insurance for transportation

The factors presented will in the following part be stated and explained more in-depth enabling the reader to utilize more on the research findings.

#### ***Cross-functional activities***

Those activities are a reoccurring theme through many forecasts in the studied companies. Both Cranab and Västerbottens Kuriren valued and encouraged cross-functional activities.

#### ***Historical data***

It is very important for both companies when they do forecasts. Historical data is often the basis of the forecast. They both perceived it as a simple method for forecasting.

#### ***Combine several simple methods***

Västerbottens Kuriren and Cranab both combine several simple forecasting techniques to increase their accuracy and reliance of the forecasts.

***Micro and macro economic factors influencing the company***

When doing their business analysis both companies looked at micro and macro economic factors influencing their companies. For example they mentioned business cycles, trends and Cranab mentioned economic growth of the country in specific.

***Cultivate business relationships within the industry***

It is also very important for companies studied to nurture their business relations within the industry, with regard to identify risks and to facilitate forecasts.

***Cost awareness and cost reduction***

Their importance can be explained as a basic condition for new product development success. It is however not the final decision factor that make them proceed blindly, it is more like a guide for the business analysis process.

***Production cost***

It is important in the sense of raw material costs and labour costs, but there is also product related costs such as handling cost for example shipping and cost of storing stock.

***Intuitive risk assessment techniques***

Intuitive risk assessment techniques that Västerbottens Kuriren and Cranab used mainly involved brainstorming to develop their risk assessment.

***Sales contracts***

A complement for the risks assessment part of the process and is important for Västerbottens and Cranab since represent both preventing and corrective tools when handling assessment of risks according to the experiences had in the past by both companies.

***6.2 How does the business analysis process look like in the companies studied?***

In our conceptualisation we developed a model from the theoretical framework. This model was however based on theory, which is lacking the concentration of SMEs like the companies studied. Therefore we have decided to revise that model in accordance to our findings in our study of SMEs. The Figure 6.1 show how a business analysis process looks like in the companies studied.

Formal and informal processes are encountered in the two companies studied, most of them correspond to the informal processes so it confirmed the previous suspicion of SMEs having rather an informal business analysis processes, even though some parts of the analysis process involve certain degree of subjectivity in the two companies studied, the measurement of accuracy in their cost estimation is very objective, the former predictions are always compare with the actual results and modifications for the current forecasting techniques may result from this comparison. The explanation to this reality in the two companies studied is that due to the high costs of the new products development process, the companies studied put a very important role in costs awareness and reduction. In order to support this necessity of objectivity the companies studied tend to improve their accuracy by the combination of techniques, for instance a very well based situation analysis and the use of the correct historical figures. The companies studied also use the cross functional approach every time possible which is seen as an advantage for themselves since their size allows them to get all functions together and working in the same direction; the improvement of accuracy. Finally there is a clear preference by the companies studied for simpler forecasting tools which are

seen as reliable methods and worthy of all their trust in favor of the desired accuracy instead of more complex methods especially because of their high cost and hard implementation process. A consequence of such preference for simpler methods is the little amount of time spent in the business analysis process within the new product development in the two companies studied, less than 21 % of the total time spent in the new product development process.

Another important point involves the presence of several theoretical frameworks during the business analysis process in the two companies studied and the lack of a clear recognition of these different theories by these companies. Nevertheless the companies studied recognize other important factors for the business analysis process like the direct relationship between sales forecasting and profit projection and the specific uses of one or the other in the business analysis process. In some occasions they go from one tool to the other depending on the type of analysis. Another important recognition made by the companies studied is the lumping demand issues identified in two ways: directly from their historical data or indirectly by means of external factors well know to affect the demand with their clients.

We find important to highlight the risk assessment for the companies studied that begins with the identification and classification of risk based on different relationships within the industry are part intuitive but also based in economical researches. The two companies studied always try to avoid risks but they are aware of the impossibility to avoid some risks recurring then to ways to reduce such risks, for example the conditions set in a contract. The cannibalization in the new development process in the companies studied can also be perceived as a risk but sometimes as a positive consequence, depending on this perception these companies take different measures to fight or affront cannibalization.

### **6.3 Problem statement**

When answering the problem statement we chose to divide this wide problem statement into specific research questions stated above. These research questions together will answer the problem statement.

*Study and describe small and medium size enterprises' business analysis stage.*

The Figure 6.1 is a good way to bind it all together into an answer for the problem statement. We have provided a richer insight into the factors and the description of Cranab's and Västerbottens Kuriren's business analysis stage. The model describes in detail the business analysis process according to our empirical findings. It shows the many important factors of the business analysis stage. It also shows the differences within two specific industries. In our case the differences between a business to business focused company and a business to consumer focused company.

### **6.4 Suggestions for future research**

One topic that would be interesting to research would be the differences between SMEs and larger firms, when it comes to the business analysis process. Then we could see the real differences between them and it would be interesting to know about the differences. If it is a formal or informal process, compare the structure of the process between SMEs and larger firms. To compare our empirical findings and conclusions from a study aimed at larger firms would produce very interesting conclusions. It is however a topic that we were not able to grasp because of our limited resources.



Another topic that would be interesting to study is the cross-functional activities involved in a business analysis process in larger firms. In our small scale study we found that cross-functional activities are a natural process and something that occurs on a daily basis, but how is it for large multinational companies? A large firm could have functions spread over a vast area, how do larger firms facilitate cross-functional activities?

When studying and collecting data on the improvement of accuracy strategies we found that our respondents preferred rather simple strategies, such as combining methods. It would be interesting to see if there are other strategies, both in SMEs and larger firms. To study complex methods of forecasting would bring a whole different dimension to the theory.

Cannibalization of sales is an interesting concept, in our empirical findings we found that it is often a conscious decision to cause cannibalization, in order to steal market share from competitors, to find other segments and so forth. The empirical data pointed however out that it is important to keep the product extensions within a certain product family to not lose economies of scale benefits. For future research we recommend future researchers to look into the relation between product family and cannibalization in the decision of taking market share from competitor.

## 7. CRITERIA OF TRUTH

*The following chapter and the last chapter of this thesis we will consider the scientific relevance of the study. This will be performed through looking at the validity and the reliability of the study.*

Two main criteria are suggested as major criteria for measuring a qualitative study: validity and reliability. (Bryman and Bell, 2005) We will present the two criteria separately in the following part.

### 7.1 Validity

According to Denscombe (2000) validity is about to what extent the research data and methods for gathering that data are regarded to be exact, correct, and accurate. To increase the validity of our study we have taken a statement from Denscombe (2000) in consideration, he said that to see things from different perspectives can increase the validity of the study. Written sources and interviews provide a different perspective, and we have used secondary data in form of scientific articles as well as in-depth interviews. When it comes to interviews Denscombe (2000) suggested some verification tools for establishing and guarantying the validity of interview, these tools were the ones we used:

- Confirm the transcript with the respondent
- Confirm the reason in the data
- Try to find themes in the transcripts

We recorded the interview and wrote a transcript from the recordings, we sent the transcripts for confirmation to our respondents by e-mail. We confirmed the reason in the data with the respondents in an intuitive way, it felt as if they knew a lot and could provide us with many details. Having the theory in the back of our heads we could also verify the consistency with the theory. We established that the discussion had reason and was very informative and truthful. When conducting our analysis of the empirical data we were working on identifying themes in the empirical data.

Denscombe (2000) also mentioned advantages with interview as an empirical data collection method. One of them was that the direct contact with the interviewee enabled the interviewer to verify the correctness and relevance during the time that data is collected. This can be connected to the tool of confirming the reason in the data.

Miles and Huberman (1994) said that one important part of the qualitative research is the researches own reflections should focus on identifying patterns and processes, common features and differences. Miles and Huberman (1994) also suggested that when the researchers return to their empirical data and transcripts from interviews the researchers should search for reoccurring themes and relations between the units and categories emerging from the data. We have done what Miles and Huberman (1994) suggested and as mentioned before tried to identify themes and relations between the two companies, but also differences between Västerbottens Kuriren and Cranab.

## 7.2 Reliability

Denscombe (2000) described reliability as the trust of the methods chosen by the researchers. A high reliability would mean that if the research would be conducted once more, the same data would be retrieved. The possible fluctuations in the result would only be due to variations of the object measured. No variations would depend on instability of the method.

In qualitative research the researchers self is according to Denscombe (2000) an integrated part of the research method. The question regarding reliability is formulated as followed:

*If someone else carries out this research, will he or she attain the same results and will he or she reach the same conclusions? – Denscombe (2000, p. 250)*

This question could probably not be answered in an absolute way. Denscombe (2000) suggested that the qualitative research can however tackle this in different ways, which principally includes an explicit description for:

- the research purpose and essential premises such as the theoretical framework
- how the research was conducted
- the most important in this context is the reasoning behind the decisions made (i.e. when it comes to sample selection)

We have during our study consistently and correctly described most of our actions, from decision regarding theory included in theoretical framework to the selection of respondents. Arguing the theory included has been and should be, an important part of the theoretical framework. Our sample selection population was narrow, in regards to the quite narrow definition of SMEs, we however managed to identify and make an interview with two companies with different business focus.

We conducted as mentioned, in-depth interviews, Denscombe (2000) mentioned disadvantages with interviews, and one such disadvantage was the reliability. The interviewers and the contextual influence would suggest that it is hard to achieve objectivity. The gathered data are in some degree unique as a result of the specific context and the specific individuals that take part in the interview. Denscombe (2000) concluded by saying that this has an unfavourable effect on the reliability. We had however chosen the interpretivistic approach for the thesis, because our intention was to capture the respondents' subjective point of view.

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***Respondents***

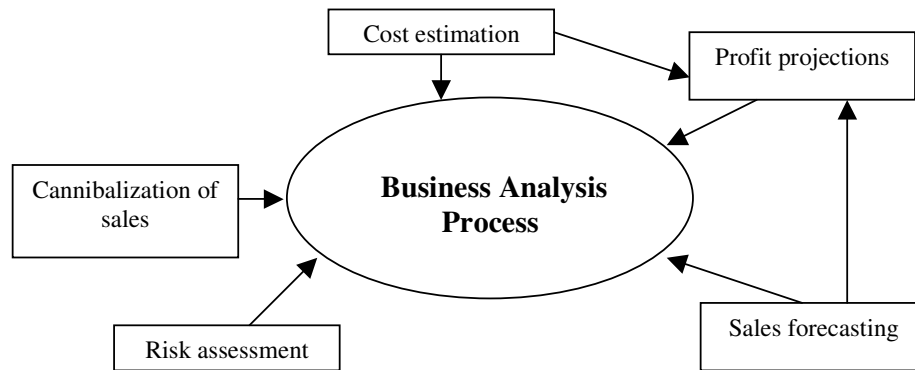
Micael Olsson, Marketing Manager, Cranab

Annelie Lindström, Market Analyst, Västerbottens Kuriren

## APPENDIX A

### Interview guide

#### *General business analysis process questions*



Would you describe this process to be formal or informal in your firm, is the process structured or unstructured?

Do you favour time-to-market or evaluation accuracy?

Are there any cross-functional activities involved in this process?

How much time do you spend on conducting the business analysis process within the new product development process?

#### *General forecasting questions*

How do you estimate the accuracy of predictions?

What strategies do you implement to improve forecast accuracy?

Do you combine several simple techniques to improve forecast accuracy?  
- Which techniques are those used?

#### *Sales forecasting questions*

What important factors are there in sales forecasting for your firm?

Do you experience “lumpy demand” (sporadic and fluctuating demand)?

How do you handle “lumpy demand” in your sales forecast?

What tools do you use for sales forecasting for example historical data etc?  
- How do you find the relevance of these tools?

Would you describe your methods/tools to be complex or simple?  
- Do you feel a lower satisfaction with complex forecast methods?



How many other projections/estimations can be retrieved from sales forecast?

How often do you forecast sales, is it on a yearly basis or in a more frequent sporadic manner?

***Profit projections***

Do you make any difference between profit projections and sales forecast (they are very connected to each other)?

How often do you forecast profit, is it on a yearly basis or in a more frequent sporadic manner?

***Cost estimation***

What important factors are there in cost estimation for your firm?

Do you use a production cost estimation framework such as activity-based costing (ABC), which consists of three stages:

- allocation,
- estimation, and
- analysis

How accurate are your cost estimations, how do they differ from real costs?

Do you set a target cost for your products or services?

***Risk assessment***

Is your risk assessment;

- intuitive, (brainstorming, involving a group generating ideas)
- inductive (what if?, include hazard analysis, checklists and human error analysis) and
- deductive techniques (so how?, event and fault trees, a primary tool in risk estimation) or a combination of all these?

What important factors are there in risk assessment for your firm?

How do you classify your risk levels as acceptable or unacceptable?

The establishment of an acceptable level of risk is it subjectively or objective (is there any absolute number)?

What techniques do you use to identify risks?

How do you handle risks?

- Do you avoid it or try to reduce it?
- How do you reduce it?

How often do you assess risk, is it on a yearly basis or in a more frequent sporadic manner?

***Cannibalization of Sales***

Do you have any products/services that might steal market share or sales from an existing product in your portfolio? (Cannibalization)

If it becomes real what reactive measures do you implement to correct this situation?

What specific preventative measures do you take to decrease the risk of cannibalization?

How can you describe important factors to consider when extending your product line?

Is the risk of cannibalization more significant if a new product is launched under the same name as an existing product?

***Final wrap up questions***

Do you measure how accurate your predictions were?

Is there anything else you would like to add about your business analysis process?