New Product Development Process Goes Global:
A qualitative study of rethinking traditional concepts

Authors: Cristian Darasteanu
Maria Moskalenko

Supervisor: Per Nilsson

Student
Umeå School of Business
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ABSTRACT

The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them.

~William Lawrence Bragg, British physicist

We live in a time of globalization. People and events of one country often impact other countries. The term “globalization” became one of the main characteristics of today’s world. Countries perceive themselves not only as separate nations but also as parts of the global world. On the other hand, new product development field is a complex process that is vital for companies’ growth and success. Today, in terms of globalization, success of the product can be judged by its performance on the global market. Reduction of trade barriers and duty, development of new technologies and communication channels and other factors cause a trend towards development of the global market. In such conditions, a challenging task of new product development becomes even more challenging. It transforms into a new process that aims to take advantages of global opportunities and increase efficiency and effectiveness of new products.

The new product development theory is quite a researched field. Numerous studies were conducted in the field of global strategies as well. These two concepts, however, were always investigated separately and just little research has been conducted about the joint topic. There are no studies that analyze the new product development process in global companies. Brentani, Kleinschmidt and Salomo (2010) argue though that global company strategy, corporate global culture and global innovation strategy affects the new product development process that is conducted by global companies. Thus we can find a research gap in contemporary literature that studies the global development process in global companies. Thereby the purpose of the current research is to investigate and integrate diverse knowledge about this process and global company strategy. It contributes to the contemporary knowledge about the new product development process by adding global perspective to this concept. Moreover, the current study can provide a framework for companies that can be considered during the process of development of new products for the global market.

Our research, therefore, aims to answer the research question: How is the new product development (NPD) process run in global companies: what are the differences with the traditional NPD model and by whom and how is this process managed?

By conduction of qualitative interviews and content analysis of gathered data, the new product development process was investigated in three global companies. Further, relevant theories about new product development and global company strategy and gathered data were analyzed together. Based on this comprehensive analysis a new improved model was suggested for the new product development process in global companies. Besides this, managerial issues of this process were investigated as well and some propositions were developed.
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1. INTRODUCTION

The main goal of this chapter is to represent the reasons of the chosen research problem. Background and overview of the topic of the global NPD process will be given here, followed by the purpose of the research. Finally the organization of this research paper will be presented.

1.1. BACKGROUND

“New products are critical to the success of modern companies. Facing increasing competition at home and abroad, rapidly evolving technologies, changing customers’ needs, and shorter product life cycles, a steady stream of successful new products is fundamental to business success.”

(Milton Rosenau et al., PDMA handbook of new product development, 1997)

Scientists argue that products, finance and human resources are moving easier and in greater volume throughout the world nowadays. Economists often associate globalization with integration of these resources, growth of international trade flow’s capital and global business activity (Wall & Minocha, 2009). According to Passaris, globalization is a “global integration of economies through trade and investment flows, as well as the production of goods and services in order to enhance international competitiveness” (Passaris, 2006, p.1). The United Nations defines globalization as the process of “reduction and removal of barriers between national borders in order to facilitate the flow of goods, capital, services and labor” (United Nations, 2002).

On the other hand, findings show that the driving engine of economic growth in today’s business world is associated with new product development, where new ideas, new technologies, and new initiatives are the key factors of success and where business is built on the culture of innovation (Wall & Minocha, 2009).

Globalization is an important trend that drives business today. Greater independence of international markets has changed competitive dynamic and today’s success or failure of a new product can be judged by its performance on the global market (Yerkur & Herbig, 1996). Companies can make more profit on the international markets in view of reduction of trade barriers and customs duty, development of new technologies, new communication channels and so forth. This is a challenging task, however, and success on these markets depends on many factors (Passaris, 2006).

Success in NPD process depends on numerous factors: competitive environment, market conditions and other external aspects as well as structure of NPD process, used technology, company policy and many other issues (Brentani, Kleinschmidt, & Salomo, 2010). Besides inherent risk, the reason of failures is associated with requirements for technology, communications and shorter product life cycles. However it is almost impossible for companies to exist without new product development, companies without new products unavoidably stagnate (Yelkur & Herbig, 1996).
New product development (NPD), however, is connected with significant risk. In a good case scenario, failure rates can arise one out of every three products, but often it is going up to 90 percent of new grocery products (Yelkur & Herbig, 1996). Stevens and Burley (1997), also illustrate the complexity of the task of creating a successful product for the global market. They argue that with every 3000 raw ideas that the company has, there will be 10 projects realized, only 2 will enter the market and finally only 1 will be a successful product for the company (Stevens & Burley, 1997).

Thereby significant opportunities provided by the global market attract more attention to conditions that lead new products to success at this market. Globalization, however, makes a difficult NPD task even more challenging: it becomes a new process that seeks to take advantages of worldwide opportunities and increase efficiency and effectiveness of new developed products (Crawford and Benedetto, 2008).

Thus global business today is driven by two significant tendencies: innovation and globalization. Reduced trade barriers, advanced communication and technology, globalization of demand and other factors provide greater opportunities for companies. This means that companies can easier get advantages by trying the opportunities at international markets. Such a competitive and complex market is a big challenge, however. Profitability of products, business and cultural environment, a global NPD strategy and many other factors influence the performance of new products on the global arena (Brentani, Kleinschmidt & Salomo, 2010).

1.2. PROBLEM DISCUSSION

Traditional NPD concepts discuss numerous issues with focus on domestic and regional market or making no difference between local, national and international markets (Crawford and Benedetto, 2008; Cooper & Edgett, 2010). However, relatively little research has been done in this field, concerning the incorporation of the global perspective in this field (Brentani, Kleinschmidt & Salomo, 2010; Koudal & Coleman, 2005). Traditional NPD theory describes the process of development of new products to markets in order to satisfy customers’ needs (Crawford and Benedetto, 2008). The NPD process in global companies, however, has some specific issues that make it different from the traditional NPD model in some aspects. Thus researchers argue that the success of new products on the global arena is associated with a global company strategy that is implemented (Brentani, Kleinschmidt & Salomo, 2010). Global innovation process is different as well: from one hand it should be the same standards of quality worldwide, but on other hand the product should suit all customers and their diverse needs at the local markets (Koudal & Coleman, 2005).

The NPD process is a complex task that becomes even more challenging in terms of the global market. In these conditions, the global perspective of the NPD process becomes much more important. People involved in the process of NPD and the considerable amount of ideas are greater while risk of failure is significantly higher compare to the local markets (Passaris, 2006).

The topic of global new product development has been almost ignored by scientists with some exceptions. Yelkur and Herbig (1996) provide one of the first analyses of the NPD model from the global perspective. They made a conclusion that in order to be successful on the global market NPD program must be not just a step-by-step process, but dynamic and simultaneous one. The authors emphasize that the global NPD process
is a constant interaction between different departments that allows problems to be identified in the early stages (Yelkur and Herbig, 1996). Authors consider, however, the global market as homogeneous and describe marketing mix elements as standardized. Nowadays researchers argue that success of the company on the global arena is associated with standardized strategy with adaptation of it to the local markets when it is needed (Powers & Loyka, 2010; Moon & Kim, 2008). We take into consideration this research, however, since it gives us some inputs for our theoretical framework.

In addition, the research of Brentani, Kleinschmidt and Salomo (2010) provides an insight overview of NPD process from global perspective and can be considered as one of the inputs for our research. They discuss what makes different this process on national and global levels. Particularly they found that global NPD process is associated with so-called global innovation culture. According to their research, global NPD approach should be orientated towards complex global opportunities and challenges. Global innovation culture refers to the global perspective of market opportunities and customer requirements. Moreover it seeks to find benefits from globally diffused skills, resources and ideas. Further, the authors introduce the idea of global product harmonization strategy that combines benefits of global economies and centralized knowledge integration with adaptation of marketing tools to local conditions when needed (Brentani, Kleinschmidt, & Salomo, 2010). Authors provide a detailed overview of managing of the global NPD process; however they do not provide an answer to the question of how the process of NPD is run in global companies.

The NPD process is a quite researched topic as well as much is written about international markets. However relatively little attention was paid to the joined topic of the NPD process on the global market (Brentani, Kleinschmidt, & Salomo, 2010; Söderquist, 2006). That makes us find a research gap in the literature and organize our research around the question of how the model of the NPD process should be adapted by global companies in order to develop new products for the global market. To find an answer to this question the main focus of our research will be on the NPD process in global companies.

As it is mention by Brentani, Kleinschmidt, and Salomo “new product development has become global in scope, yet the two literatures — NPD and globalization — flow in relatively separate streams” (Brentani, Kleinschmidt, & Salomo, 2010, p.2). Thus current study will provide a research of the NPD process that is relevant for global companies. By such integrate analysis our study will contribute with further research to the field of NPD with focus on issues typical for global companies.

1.3. RESEARCH QUESTION

The field of the NPD process is quite researched as well as much research was done in the field of global business studies. However, as it was discussed, just little research was done in the combined topic of the NPD process in global companies. Thus the goal of this research is to contribute to this integrated topic of globalization studies and NPD concepts by investigation of NPD strategy from the global perspective. Therefore the question that guides this research is following:

How is the NPD process run in global companies: what are the differences with the traditional NPD model and by whom and how is this process managed?
1.4. PURPOSE

The purpose of this research is to fill the gap in the NPD theoretical concepts by investigation and integration diverse knowledge about the NPD process and global strategies; thus it will contribute to the current literature about NPD by adding global prospective of this process. Moreover, this study presents a framework that companies can implement when considering development of new products for the global market.

1.5. LIMITATIONS

There are some limitations that were considered from the first phase of our research that we find necessary to discuss in this part. First, due to the limited time of the current research and limited resources, only three companies were selected for this research and ten interviews were conducted. At the same time experts with backgrounds in marketing, management and R&D were involved in the research in order to provide diverse views on the process. However we understand that such small amount of investigated companies makes it difficult to generalize our results to all global companies. Thereby we consider that results of the current research should be tested on a greater number of companies, (more about this, however, will be discussed in the last chapter). In addition, only companies that are based in Sweden were involved in the research that can create some bias to the results of our analysis.

These are limitations which we have took in consideration during our research; other limitations have raised during the research process. These limitations are presented in the last chapter of the current thesis.

1.6. DISPOSITIONS

General flow of the thesis is illustrated on the figure 1. In order to illustrate the research process and its structure, the content of the thesis is divided into several chapters:

Chapter 1 – Introduction: The chapter provides introduction of the study, description of the background, followed by proposed research questions and the purpose of the study.

Chapter 2 – Research Paradigm: The subject’s choice, research philosophy, methodology for literature search and some researchers’ preconceptions are discussed in this chapter.

Chapter 3 – Theoretical framework and literature review: This chapter presents the theories and concepts which are relevant for the study. Literature review is divided into two parts: first traditional view of the NPD process is discussed and then global product strategies are presented.

Chapter 4 – Methodology: This part of the study reviews scientific approach and the methodology used for the study. Structure of the research is discussed here as well.

Chapter 5 – Data process: The chapter provides overview of selection process of the studied cases, overview of investigated companies and interviewed employees.

Chapter 6 – Empirical study: Presentation of empirical data gathered from the interviews is provided in this chapter.
Chapter 7 – Analysis of the findings: Discussion of presented theoretical and empirical data is provided. This analysis of the data leads to the answer for the research question. Finally, proposed model of the global NPD process is introduced.

Chapter 8 – Conclusion and future research: This chapter concludes the research. It presents some final thoughts, recommendations for future research, limitations and implementation of the current study.

![Figure 1: General flow of the conducted research](image-url)
2. RESEARCH PARADIGM

In this chapter the choice of the subject will be presented. After that epistemological and ontological considerations of our thesis will be discussed. Finally, methodological approach concerning the literature search and selection of the methods that were used for the study will be reviewed.

2.1. CHOICE OF THE SUBJECT

The idea of this topic for our master thesis was found during the course “New Product Management” that we both had at the same time. During this course, the model of the NPD process proposed by Crawford (2006, p. 24) was presented. This model was proposed for all companies without any difference in size, business field and other important issues (Crawford, 2006, p. 19). That moment we were wondering if there is any difference in implementation of this model, particularly for global companies. Therefore we started to research various academic journals and books about this topic. During our literature investigation we found information about NPD concepts, global innovation and international product strategies; however these theories are developed separately and very little information were found about join topic. In view that this issue is relevant in today global world, we decided that this topic would be appropriate for the research in our master thesis.

In the first chapter it was illustrated that the task of efficient production and support of new products on the global market is quite a challengeable task. It is considered that the reason of it is the complexity of global markets and value chains (Koudal & Coleman, 2005). Nevertheless, NPD is an essential process for any company, without development of new products companies stagnate (Yelkur & Herbig, 1996).

The relevancy of this topic today could be proved by a simple search on Google; if we search after the words new product development it could be found that there are at least 143.000.000 pages (dated August 2, 2010) which contains this phrase and more than 3.000.000 articles (dated August 2, 2010) that have this phrase in their context. This numbers can demonstrate the interest to the topic of the NPD process.

There are a lot of discussions about globalization and global issues today. Boarders between countries become more invisible, while international network and trade is growing every day. For the global economy such trends mean that companies can explore advantages of global knowledge and freedom of exchange of products and capital. From our perspective it means that the NPD process in global companies must be affected by these trends as well.

Last, but not least, this topic provides a special interest for us as researchers due to our educational and professional background. All in all, based on all these reasons, the topic about investigation of NPD process in global companies was selected for studying.
2.2. PRACTICAL PRECONCEPTIONS

It is discussed by the scientist that implementation of the subjectivist paradigm might influence the final result of the research (Saunders, Lewis, & Thornhill, 2009; Silverman, 2010). Taking this into consideration, it should be noticed that we, as researchers, have tried to keep a balanced view during our investigation. From the other hand, however, we cannot say that our background and previous knowledge about this subject has not influence on the flow of the research. Thus, with the balanced view we understand this mix between being subjective and being objective during the research.

In addition, both of us have some background in business. Our theoretical and practical backgrounds helped us a lot in understanding the process of NPD in global companies, strategies that can be implemented and how global companies manage this process. It should be noticed also, that one of us was working for one month at FaltCom, a company that was investigated during this research. This made us aware of how this company is working and we used this knowledge during our research. Finally, both of us have been studying within an international environment during the last two years. That made us aware of the globalization and global context in which companies are working nowadays. Thus our practical preconceptions have been a considerable help in conduction of this research.

Sometimes, as we have presented previously, research preconceptions can add more strength to the study; but, we want to underline the point that we have been aware of the negative preconceptions. In order to keep alert about the preconceptions that might affect our paper, we have tried to put ourselves in the position of the reader. This helped us to avoid the influence of some of our preconceptions we had and improve the quality of the paper.

Further, numerous researchers argue that a qualitative research requires interpretation of collected data in a more or less subjective way; thus this might affect the final results of the research (Graziano & Raulin, 2008; Saunders, Lewis, & Thornhill, 2009). It would be inappropriate to say, that the current research has not been influenced by the previous knowledge that we had in this area or by our life experience. We tried to avoid the impact of these preconceptions by being as much objective as possible; thus the reader of this thesis has a chance to create his or her perspective of the analysis that is presented here.

2.3. PHYLLOSOPHY OF THE RESEARCH

The goal of any academic research should be providing valuable knowledge to the science and understanding of issues and phenomena (Kent, p.47). For this all researches make certain assumptions about the nature of the studied reality. Ontology and epistemology is considered as main philosophical statements for business research, where ontology is a philosophical approach based on understanding the reality and epistemology is the science of knowledge (Bryman, 2008; Babbie, 2009)
2.3.1. Epistemological considerations

According to Bryman (2008), Lacity and Janson (1994), epistemological issue address the matter of what is, could and be the adequate knowledge for a subject. Usually epistemological problems concentrate on what knowledge is and what can be accepted as knowledge for the study. Bryman (2008) and other researchers (Lacity & Janson, 1994; Silverman, 2010; Saunders, Lewis, & Thornhill, 2009) stated that there are three possible distinctions: positivism, realism and interpretivism.

Positivism advocates that studies which are part of the social reality should be interpreted with natural science methods (Bryman, 2008). Another important feature of the positivism is that the science is objective and the knowledge can exist only if we can perceive them. (Bryman, 2008) Realism, on the other hand, has common characteristic with positivism. Bryman (2008) says that those researchers who are working with realism, have a similar path for their data collection and analyze. However the joint characteristic between positivism and realism is that both are objective and the researcher is seen as a person from outside. Interpretivism “is a term given to a contrasting epistemology to positivism ..... the term subsumes the views of writers who have been critical of the application of the scientific model to the study of the social world and who have been influenced by different traditions” (Bryman, 2008, p. 15). Interpretive epistemology argues that knowledge can be achieved only trough understanding. According to interpretivists, the main source of knowledge is people who understand and interpret the surrounded world (Kent, 2007). In addition, interpretivism is associated with such field of philosophy as hermeneutics. Hermeneutics “is concerned with the theory and method of the interpretation of human action” (Bryman, 2008, p. 15).

The goal of this research is to analyze the NPD development process in global companies. Therefore considerations and assumptions of interviewed experts will be considered in order to understand and interpret this process. In view of such nature of the research, interpretivist epistemology is chosen in order to create valuable knowledge in this field.

2.3.2. Ontological considerations

Ontology is a philosophical study that deals with understanding of the nature of reality. Ontological view is described by Saunders, Lewis and Thornhill (2009) from two aspects: first one is objectivism, while the second one is subjectivism. Objectivists assume that there is a real single reality “out there” that can be observed, categorized and measured. Such reality exists independently of consciousness and experience and cannot be changed by attempts to study it. According to subjectivism, “reality” is constructed by individuals who impose meanings for objects and situations (Kent, 2007; Bryman 2008; Saunders, Lewis & Thornhill, 2007)

For the purposes of our research subjectivism was chosen as an ontological approach. It will enable us to understand the reality and investigate the global NPD process through what people tell us about the process and how they run this process in their companies.
2.4. SCIENTIFIC APPROACH

The aim of this research is to investigate the global NPD process in order to provide a framework that can be suitable for global companies. As it was mention in chapter 1, there are numerous theoretical concepts about the NPD process as well as global company strategies. Thus, this leads us to the choice of the deductive approach. However, as it was also mentioned in chapter 1, a very little research was conducted in combined topic of the NPD process in global companies. This argument leads us to the choice of inductive approach.

According to the scientists, there are two main ways of scientific approaches of the research studies that can be found: first one is the deductive and second one is inductive (Bryman, 2008; Saunders, Lewis, & Thornhill, 2009, Neergaard, 2007).

Deductive approach is also named as “testing theory” and it starts with analysis of already existing theories that are relevant for the research (Neergaard 2007; Saunders, Lewis, & Thornhill, 2009). Thus, the researcher can create some hypothesis about investigated topic. After this, empirical data is collected and analyzed in order to test if discovered hypothesis are true or false. If the hypotheses are false, the researcher should propose a revision of the existing theory. (Bryman, 2008)

Inductive approach is also called building theory and it is conducted in the opposite way. It starts with the some specific observations and move to broader generalizations and formulation of theories. (Saunders, Lewis, & Thornhill, 2009)

In view that exciting theoretical concepts were implemented in order to formulate the research question and the framework of the research, the most appropriate approach for us would be a deductive approach. However, as it was mentioned above, there is not enough theoretical knowledge to analyze the NPD process in global companies. Therefore, collected data will be analyzed with some elements of inductive approach. Such combination of two approaches will allow us to provide more convincing results and conclusions. Moreover, with such approach, this research can be easily linked to the existing theoretical knowledge in view that analysis of empirical data will be done with implementation of the relevant theories

2.5. LITERATURE SEARCH

Theoretical framework of the current research is divided into two parts: first part provides an overview of the current theories about the NPD process, while second part refers to globalization issues and global company strategies.

In addition, for development of the theoretical framework for the current research two main sources were mostly used. First it is scientific books and second it is peer-reviewed articles. In our search we used the search engine LIBRIS, which is the library database of Umeå University and it contains a significant number of books and articles.
2.5.1. Secondary data collection

From the perspective of Bryman (2008) and Saunders, Lewis and Thornhill (2009), the secondary data collection has a great importance for the research; in view that it demonstrates the quality of the research. This is why in order to provide the trustworthiness and quality for the research, it is necessary to describe the process of choosing the relevant secondary data.

The secondary sources have been collected through internet, and more exactly through the search engine LIBRIS (Umeå database). This database provided us with a huge number of articles relevant to us. The search has been done also through Emerald and EBSCO databases and search engines of Umeå University. Since we had a significant number of secondary data, we have narrowed the searching keys to what we believed will bring us the best results. The search for articles included such key words as new product development model, globalization, global company strategy and so on.

Moreover, since the results were considerable we have selected only the peer-reviewed articles, as this is a pre-request for a good paper; besides this, we have looked at how many times the article has been quoted, given that this would show us how reliably it is. Some articles were used which were published long time ago, but we have discovered that those articles are still used nowadays in many research papers and this is why we have considered them for our paper.

Furthermore in order to provide contemporary results that are relevant for today and can be related to the modern NPD theories, secondary sources that are dated 2006 year and earlier were used for our research. However, some studies of 1980th and 1990th years were used as well in order to analyze origins of some theories.

Finally, Google Scholar was also used in order to find the appropriate articles for our thesis. For this we applied the same rules as were applied for our search in the Umeå University database.

2.5.2. Criticism of secondary data collection

In order to give value to our research and provide trustworthiness and reliability to its framework, secondary data collection was done critically. This part presents our approach during the search of secondary data and criteria that were used during this search.

Books were mostly used when comprehensive information was required: thus new product development concepts and research methodology were developed based on relevant books.

Scientific articles were used in cases when more contemporary information was required. Moreover articles also provided more deep analysis of issues. During the search of articles, we emphasized the importance of how many times it has been quoted, if it is a peer-reviewed article and who is the publisher of the articles (mostly scientific magazines were used as a source of articles). Finally, as it was previously discussed, mostly contemporary articles were used for the research.
3. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

In this chapter the link between new product development and globalization trend will be examined by reviewing and integrating the literature from several relevant fields: for our purpose: NPD process and global company strategies.

As it was stated before, one of the purposes of the current research is to integrate two theoretical fields that have been developing separately: global product strategies and the NPD concept. Therefore, these two topics are reviewed here in order to develop a theoretical framework for our research. Figure 2 illustrates how previous studies and concepts are related to the stated research question.

Figure 2: Theoretical framework for the current research

As it can be seen from the figure 2, our analysis of NPD theoretical concepts consists of four relevant topics. First, we will review the history of the NPD process in the current literature. Second, the traditional types of the NPD processes will be examined. After that the traditional model of NPD will be presented. Finally, this part of theoretical review will be finalized with discussion of different roles involved in the NPD process, importance of these roles in the NPD process and relevant theories and concepts about this issue. Thus this part of the literature review will discuss the traditional theoretical
concepts of NPD which will be used as a basement for our empirical research. Furthermore traditional concepts of NPD will be used as a foundation of our analysis of the NPD process in global companies.

In the second part of the literature review, we will examine the current knowledge about global company strategies. First we will introduce what globalization is and give a definition of the global company. Then we will review what has been researched till now on the current topic and examine the trends of the global companies in the field of NPD. This will lead the discussion to presentation of the concept of global harmonization strategy. Finally, we will review global product strategies that companies can implement; two important concepts will be discussed there: global standardization and global adaptation strategies. This part of the literature review will be used as a basement of comparison traditional views of the NPD process with this process observed in global companies. Moreover analysis of theories about global company strategies will give us more knowledge about development of products for the global market and important issues during this process.

Thus, in order to answer the research question of this thesis, a theoretical framework for the empirical research will be developed based on both theoretical concepts.

### 3.1. NPD PROCESS

New product development is defined in many ways. For our research, however, the definition of Robin Simon (2009) will be used. We consider this definition as the most comprehensive and appropriate for the purposes of our research. He argues that product development is the introduction of a new product to an already established market (Simon, 2009, p. 3); or in a more general way, new product development is a method by which companies create new products in order to enter or main markets.

#### 3.1.1. Overview of the history of the NPD process

Our literature review of the NPD process we will start with a brief overview of the history of NPD. The evolution of the NPD process during the history will be discussed in this part. NPD has evolved considerable in the last 30 years. During this time, however, the focus of the process was shifting from one aspect to another. Thus, during the 80’s the main aspect for companies was the quality of their product; in 90’s they were more concerned about the re-engineering; and nowadays companies emphasize more on the aspect of “time to market”, shorter time between developing of a new product and its launch to the market (Lewis & Wong, 2004, p. 17). Lewis and Wong (2004) argue that for a technological company, “time to market” is more important nowadays than the cost of developing the product; if a company is losing time it could lead to the loss of market share. Also the same argument is found by Rosenau (1996); the author is arguing that companies should put more effort to the “time to market” issue nowadays rather than the cost of quality. Rosenau (1996) declare that companies that are not able to launch a new product to the market fast, might lose the competitive advantage.

In addition, Mayo (2010) divides the history of new product innovation in three phases. The first historical phase takes place before War World II; during this period companies
were more product orientated and did not pay much attention to customers’ needs and requirements (Mayo, 2010). The second phase, according to Mayo, started at the middle of 60’s and it is characterized by emergence of competition and development of the markets. During this period, knowledge about the markets was very important in the NPD process: what needs and wants customers have and how companies can satisfy them. The third, and the last, phase has revealed contemporary concepts of the NPD process. Modern NPD requires investments in innovations and R&D process together with the focus on diverse customers’ needs (Mayo, 2010).

As we have seen, the NPD process has evolved during the time (Lewis & Wong, 2004; Mayo, 2010). We have analyzed the history of the NPD process in order to understand better the process. Moreover, in our opinion, analysis of the current trends of NPD should take in consideration the past trends for improvement of the theoretical concepts about the process.

### 3.1.2. Types of NPD

According to Kahn (2006), several types of NPD can be found. Depending on their focuses and goals, he distinguishes next categories of NPD: cost reduction, new uses, new markets, product improvements, line extensions, new entries and new to the world (Kahn, 2006, p. 7). Experts argue that the easiest types of NPD are the ones that aim to reduce costs or improve existing products in view that product technologies and markets are well-known (Jorgensen & Messner, 2009). On the other hand, the hardest way of new product development is the new entries and new to the world products. In view that markets and technologies are new for the company such NPD processes require much time and effort. (Crawford & Benedetto, 2008)

If we take in discussion how the companies can obtain new products, the literature shows us that there are two important ways of doing this (Moorman & Miner, 1998; Crawford & Benedetto, 2008; Poolton & Barclay, 1998). Firstly, companies can manage this process internally or in-house. That means that the company has to develop new products using its own resources and capabilities. This way has also some positive and negative aspects. From one hand the company can keep the secret of developing a new product; while the negative aspect is possible lack of experience and knowledge about the NPD process. (Poolton & Barclay, 1998; Kahn, 2006) Another way, according to Mayo is “strategic partnerships, strategic alliances, joint ventures, and licensing agreements, <<< when two or more firms work together on developing new products” (Mayo, 2010). Thus several companies can work together in order to develop a winning product. The advantage of this way is the fact that companies can benefit from each other’s experience.

For the purposes of our research global companies which have the in-house NPD process were investigated. We believe that such companies have the necessary know-how of the NPD process and could provide better inputs for our research.
3.1.3. Models of NPD processes

This part starts with presentation of three different models of NPD. It is continued by choosing one of these models which will be analyzed in more details. This model will be used further for the purposes of our research.

Nowadays we can find many models of the NPD processes. One of such models was proposed by Crawford and Benedetto (2008). The authors argue that their model can be used as an initial model for the NPD process in all types of companies. Figure 3 illustrates this model.

As we can see, there are five main phases in this model (figure 3). Crawford and Benedetto (2008) argue that there are some review points between these phases where everyone who is involved in the process meet together and discuss the development of the process. This mode will be discussed more in detail in the next chapter.
Another NPD model was proposed by Cooper and Edgett (2010). As it can be noticed in figure 4, there are five stages and five stage-gates in this model. The authors argue that such a stage-gate model “is a conceptual and operational road map for moving a new-product project from idea to launch. Stage-Gate divides the effort into distinct stages separated by management decision gates (gate keeping). Cross-functional teams must successfully complete a prescribed set of related cross-functional activities in each stage prior to obtaining management approval to proceed to the next stage of product development.” (Cooper & Edgett, 2010, http://www.prod-dev.com/stage-gate.php) The authors argue that more than 70-80% of companies nowadays use a stage-gate process (Milton, Griffin, Castellion, & Anschuetz, 1996). The difference between this model and the previous one can be observed at the stage-gates level, as this model underlined them better.

![Figure 4 – The stage-gate Process by Cooper and Edgett (http://www.prod-dev.com/stage-gate.php, reviewed 2010.08.23)](image)

In addition, the model proposed by Shepherd and Ahmed (2000) who also use the stage-gate process should be reviewed. They have proposed these gates as a tool for companies to develop a strong NPD process. (Shepherd & Ahmed, 2000)

![Figure 5: NPD process (after Shepherd & Ahmed, 2000, p. 162)](image)
Shepherd and Ahemd (2000) describe the NPD process as a tunnel, as it can be seen in figure 5, where numerous ideas are gathered at the beginning, but just a few of them can reach the end of the process.

There are many models of the NPD process can be found nowadays. To summarize everything that was said above, we can see that three of these processes have a lot in common, even though these models use different names of the steps and designs look different.

As it was stated at the beginning of the chapter, the NPD model presented by Crawford and Benedetto (2008) will be used for our research. We can see presented models as similar to each other. Nevertheless we find that this model better describes all the processes during each step of NPD and thereby provides most valuable input for our research. The stage-gate part of the model, however, will be illustrated with the study of Cooper and Edgett (2010), in view that the focus of this study was stage-gate part of the NPD process.

### 3.1.4. Traditional model of the NPD process

As it has been seen previously, the traditional NPD process will be presented with the model of Crawford and Benedetto (2008). With this description of the NPD process we will not try to full examine this process, but will provide a more broad explanation of the process. This will give a starting point of the analysis of the NPD process in the global companies.

**Phase 1 – Opportunity identification**

Crawford and Benedetto (2008) describe this phase as “the most difficult to describe or define” (2008, p.28). Creativity, required during this stage, seeks to recognize opportunities in front of the company, or to say it differently, to find the opportunity gap. Many global companies have special employees whose task is to screen the market for opportunities or to find new ideas by interviewing the customers or analysis of the competitors. Rosenau, Griffin, Castellion and Anschuetz (1996) argue that usually this task is done by marketing department who have to get the information from customers and suppliers. Selection of new ideas, however, is usually done by management of the company.

Crawford and Benedetto (2008) argue that opportunity can be found inside of the company or outside of it. They divide all possible opportunities that the company can find into four categories: “an underutilized resource, a new resource, an external mandate and an internal mandate” (Crawford & Benedetto, 2008, p. 29). The case of an underutilized resource is happen when the company discovers that they can use the same machines to create other products. A new resource means that the company has discovered something new to the market. While an external mandate and internal mandate, assume that the company will react to the external or internal targets (Crawford & Benedetto, 2008).

In addition, Crawford and Benedetto (2008) argue that there are three ways how the company can identify the opportunities:
a) “Experts” – they know the best what the customer wants;
b) “Published sources” – many times the company can find what they seek in these papers;
c) “Stakeholder contacts” – the customers are the best way of finding opportunities, and this can be done by interviewing, focus groups and observations of the customers. (Crawford and Benedetto, 2008)

On the other hand, Cooper (1990) argues that new ideas can come from customers, consumer complains, by brainstorming with marketing, sales and technical staff.

**Stage-gate 1 – Idea screen**

During this stage-gate the top and middle management usually meet with experts who are responsible for the project and select the best ideas for the company. Cooper (1990) argues that the proposed ideas need to answer different aspects of the process from resources the company will spent in the development of the precise product, to those questions related to the market and potentials customers. He also says that, those who will work on this stage must have in consideration the competitors as they might have a bigger role.

If all these questions give the proper answers then the management team can decide to continue with the project and go to the next phase. If answers do not satisfy them, the project can be canceled. (Cooper, Stage-gate systems: A new tool for managing new products., 1990)

**Phase 1 – Concept generation**

According to Crawford and Benedetto (2008) this phase of the NPD process is similar to the previous one. At this stage a team of marketing and technical experts and project managers screen more between the ideas and review what they have accomplished. Finally, the “stated concept” should be presented where prototype of the future product and the project around it is presented.

This concept should take into consideration three inputs: the form of the product, the technology that will be used for production and benefits that customers will get (Crawford and Benedetto, 2008, p. 90). The form of the product is the “physical thing created” (2008, p. 90) and what the customers are going to see and buy. The second input is an analysis of how the new product will be produced from technological perspective. The last input is a review of how new product will match with the customers’ needs and requests (Crawford and Benedetto, 2008, p. 90).

It should be noticed that this phase can be found only in the NPD model proposed by Crawford and Benedetto (2008). The other models, that were presented previously, do not see this phase as a separate one, and they argue that this phase can be done during the phase 0.
Phase 2 – Concept/project development

“Development of a concept statement that provides a detailed description of the product includes features and benefits of the product <....> when possible, its performance and physical attributes. The concept statement then allows the ideas to be translated into terms that a potential customer can understand, like sketches, mock-ups, or other visual effects” (Ronald, 1996, p.212)

During this phase of the process, the team is concentrated on the technical, financial and marketing aspect of the product. Usually this means development of a business plan where all this data will be combined and present for the NPD board. (Cooper, 1990)

Moreover, Crawford and Benedetto (2008) suggest that all the departments should have a common denominator called product protocol. For development of this product protocol next concepts should be considered (Crawford & Benedetto, 2008, p. 33):

a) “Tested concept” – the consumers agree with the idea and the company has a basic confirmation from them;
b) “Fully screened concept” – the company can manage the product and all major issues concerning the NPD process are resolved and debated;
c) Protocol concept – the company gets a clear view of the product, for which it is created and what is the potential market for it. (Crawford and Benedetto, 2008)

The authors argues that at this phase of the NPD process the business plan should be started, but it will be finished during the next phases, where numerous changes will be done.

Stage-gate 3 – Go to development

At this stage of the project, the whole idea about the project should be developed. If business propositions and plans are realistic and appropriate according to the company demands, the project should be continued. (Cooper, 1990)

Finally Cooper (1990) claims that this stage is very important in view that here more knowledge about the project is revealed and the definition of the product and the future plans are presented in front of the product council.

Phase 3 – Development

Crawford and Benedetto (2008) describe this phase as the one “during which item acquires finite form – a tangible good or a specific sequence of resources and activities that will perform an intangible service. It is also the stage during which the marketing plan is sketched and gradually fleshed out.” (Crawford & Benedetto, 2008, p. 31) They continue saying that usually the product managers are preoccupied with the distribution of the resources and managing the team members so that they can do their best.

In addition, the technical department starts its role, which is to create the concrete product. After a prototype is developed, testing period is coming. Usually, testing phase is done inside of the company by computer software or in the field. It can be also done outside of the company; that is typical beta testing, where the customer receives the product and can use it for some period of time. (Crawford & Benedetto, 2008) Such approach provides customer feedback and inputs about feasibility of the product. (Cooper, 1990)
Beside the work with the technical side of the product, marketing plan is created during this phase and the product starts to be ready for the launch (Cooper & Edgett, 2010). Marketing strategies of the product should be developed, such as “package design, brand name selection and tentative marketing budget” (Crawford & Benedetto, 2008, p. 31).

In conclusion it must be said that this stage is one of the key stages of the NPD process and there are a lot of concepts around it. Our goal, however, is just an introduction of this stage and presentation of its main processes. Only data that will be used for the analysis is presented here.

**Stage-gate 4 – Post-Development review**

At this stage, the prospective penetration of the market, production capacity and other important aspects of the product are measured. It is reviewed if the product is on the right track and if everything is going according the plan of the project. Moreover, after development of the product, the future revenues are getting a better view. (Cooper, 1990)

**Phase 5 – Launch**

Crawford and Benedetto (2008), argues that at this stage the product is ready for production, entering the market and commercialization. Moreover market test should be conducted at this stage where the future customers are involved. It can show some problems with the product, customers’ dissatisfaction and level of the interest to the product.

Cooper (1990) claims the idea that the marketing is essential during this stage and that the company should be right on time and precise with the marketing mix elements:

a) “Product” – should have at least the same quality as the other products;

b) “Price” – should be big enough to create profit for the company, and low to be attractive for the customers;

c) “Promotion” – to develop a promotion plan for the product;

d) “Place” – here implies that the company will contact the suppliers, or those who are responsible for getting the product to the customer. (Crawford and Benedetto, 2008)

Finally, Crawford and Benedetto (2008) present two concepts of the launch phase. First is the “marketed concept”, when the product from the testing period goes directly into the market, while the second one is “successful concept”, when the company concludes about success of the product only after realization of the initial goals (Crawford and Benedetto, 2008, p. 34).

**Stage-gate 6 – Review and finish of the project**

When the product has been launched on the market, the product team should observe the process and maybe suggest something for improvement. A good example can be the following one, if the product’s performance is below the expectations, or if the product will require more investments, the project can be cancelled (Cooper, 1990).
Thereby, with the usage of several model of NPD (mainly the NPD models proposed by Crawford and Benedetto (2008) and Cooper (1990)) a framework for the traditional NPD concepts was developed. The main purpose of this framework was to provide a basement and the starting point for development and analysis of the NPD model for global companies. In order to develop the NPD model for global companies, this traditional NPD models will be analyzed and edited.

3.2. NPD TEAMS

This part presents a theoretical framework regarding the different roles of experts who are involved in the NPD process. This issue was reviewed in view that we believe that the personnel has a considerable role in the global NPD process and it can be different between the traditional NPD model and the global one.

After analysis of the literature, it was found that many authors split the role of management in four main parts (Lewis & Wong 2004; Barkley 2007; Rosenau, Griffin, Castellion, Anschuetz 1996; Barkley 2006): the role of top managers, the role of product developers, the role of project managers and the role of marketing personnel. These four groups of experts have different roles in development and maintaining the NPD process. Importance of management and marketing experts in the NPD process are much discussed in the literature (Olsen & Sallis, 2010; de Brentani & Salomo, 2010; Robin & Girard, 2010; Ernst, Hoyer, & Rübsaamen, 2010). Thus it was considered to have a separate part in the research where these roles are discussed.

This part will be divided into four parts: role of top managers, role of project managers, role of product developers and role of the marketing.

In order to avoid any confusion the difference among top managers and project managers is discussed below. The figure 6, provided by Lewis and Wong, the difference between top managers (represented by general manager) and project managers is illustrated.

![Figure 6: Functional and Matrix Organization Structures](Lewis and Wong, 2004, p. 19)

The top manager has the function of keeping the project on the steady road, while the product managers have a more in deep view of the project and in addition they work on the project. We have presented this description of the product managers and top management, as we wanted to make a clear the difference between these two roles.
3.2.1. Top management

Many researchers (Lewis & Wong, Accelerated Project Management, 2004; Barkley, 2007) underline the fact that the top management of a company is the starting point of the NPD process. Milton, Griffin, Castellion and Anschuetz, argue also about the importance of the top management and claim that its role “is to provide necessary product development resources, to keep the commitment and <...> they should also articulate a new product strategy for the business” (1996, p. 12).

Lewis and Wong (2004) describe some processes, which helps top managers to create excellent conditions for the project team. They consider the aspect that the top management attitudes should be open regarding the development of the project; this means that they should give enough resources for the development of the project and keeping the milestone unchanged through the life-time of the project. (Lewis & Wong, Accelerated Project Management, 2004, p. 17) On the other hand, however, the top management should not be involved too much in the management of the NPD process, because “projects are no more successful in the marketplace than other projects despite the added support of the top management” (Milton, Griffin, Castellion, & Anschuetz, 1996, p. 12).

Leung et al. (2005) argues that today few managers can assume the risk of not thinking globally in terms of new products, as considerable opportunities are provided by the global market.

In addition, this part of the theory we will use it in the analyze description, as will help us to answer our research question since we have tried to see by whom and how is this NPD process managed. This is why; it has been taken in consideration to see what the literature has discovered till nowdays.

3.2.2. Project manager

The project manager is one who manages a successful project (Bloom 1996; Kezsbom et al. 1989; Nichloas 1994). Usually project managers has two responsibilities in managing a project: the technical components of the project – plans, financial analysis, schedules and monitoring the project – and organizational skills - assembling and managing the team, controlling, and so forth - (Thayer 1987). Nowadays, the project manager is also seen as a person who is implementing the values of the company and the person who is leading the company towards the success (Kloppenborg and Opfer 2002).
Richman (2002) argues that a successful project manager has to be strong in five areas (Figure 7). These skills are important because they assuring planning and managing the project (Richman Larry, 2002, p. 30).

![Figure 7: Basic skills for a project manager (Richman Larry, 2002, p. 30)](image)

People skills, according to Richman (2002), are the ability for project managers to convince other people to work on a task. The book “PMI’s A Guide to the Project Management Body of Knowledge” (2004) highlights the aspect that these skills, should be considered as the most important skills that project managers should have since the most important assets of the company are the employees.

Further, Thayer (1987) finds that a key task for the project manager is management of the various parts of the project. Thus, integration skills mean that the project manager knows how to assemble the team, and who and how should work on the project.

Technical skills refer to the experience of the project manager in the technical area of the project; usually the project manager performs better if he or she has some experience in the production development (Richman Larry, 2002).

The last skill is knowledge of organization, which is of great value as the project manager has to have knowledge about the company culture, its vision/mission and to keep the quality of the product as high as possible.

To conclude this part of the literature review, we can see that the project manager is the key person for the entire project, as his or her tasks are complex and has to take numerous decisions which are of great importance for the project. Moreover, the project manager has a great responsibility as he or she has to report to the top management.

### 3.2.3. Product developer/manager

As we have seen previously the project manager is the main operator of a project, but when we discuss about the particular person who is managing the NPD then we refer to the product manager. There are some differences between product manager and project manager. One of these differences is that the product manager is subordinated to the project manager, but in some specific cases the product manager can also be the project
manager, however those cases are not so often seen, as usually they have the same tasks when the company wants to cut the costs. A product developer usually has in his order the technical department and sometimes is supported by some assistants (Clark & Fujimoto, 1991).

In his article, Luck (1969), has established through a research that usually product managers have well-established tasks; as they plan the strategies for the entire product development, or establishing the budget for the product and assuring that the project is evolving as they planned (Luck, 1969). This idea is not sustained by everyone, as Simon (2009) argue that product managers are not so much in control with the development of the product in the initial phases, but their role is increasing till the market testing stage approach.

Clark and Fujimoto (1991) concluded in their article that there are some models of integration of product manager’s work (Clark & Fujimoto, 1991, p 46-49):

a) “Traditional functional structure” - in which the product manager has to manage the rules and procedure, which have previously been adopt;

b) “Lightweight product manager” - product manager has less power in the development of the product, and their main objective is to assure that everything is working properly and the deadline are on time;

c) “Heavyweight product manager” – they are responsible for the entire product development, but they lack on marketing access;

d) “Project execution team structure” – the functional managers take the part of the work a product manager has to do, also in some cases the functional managers are the only ones in control of the development. (Clark & Fujimoto, 1991, p. 46-49)

In addition according to Gorchels (2003), if we speak about a large company, then the product manager has to focus much more on globalization nowadays; as global product development has become a must. The author is giving some tips for product managers if they want to create a more orientated global product (Gorchels, 2003, p 104-108):

a) “the product manager should establish a global whisk for their product”(Gorchels, 2003) - they should think from the beginning the product for a global market;

b) “standardizing the main part of a product”(Gorchels, 2003) - this will be of considerable help for the company as they will have to change only small parts at their product/service;

c) “applying the international standards for the product”(Gorchels, 2003) - since the product will use international standards there will be no need for re-engineering the product, if the company will decide to enter other country

d) “foresee the global competition move”(Gorchels, 2003);

3.2.4. Marketing

Crawford and Benedetto (2008) say that “the role of the marketing personnel changes and accelerates as the product nears the end of the development phase and moves closer to launch” (Crawford & Benedetto, 2008, p. 346). Marketing experts are usually involved into the NPD process from the beginning, as they should handle the market for that product. (Milton, Griffin, Castellion, & Anschuetz, 1996; Poolton & Barclay, 1998) Researches argue that early implication of marketing experts in the process “can help the product succeed, as they represent the issues and concerns having to do with the marketing of the product” (Crawford & Benedetto, 2008, p. 346).

Moreover marketing experts are involved in every step of the NPD process. First, they are involved in developing the new product idea and research of the future market for the product. Further they bring to the project requirements of the customers and working with a business plan. Finally, they are leading the launch stage of the NPD process (Crawford & Benedetto, 2008).

**Importance of this sub-chapter**

As it can be seen through the entire chapter 3.2, the role of the personnel who are involved in the NPD process is significant and these theoretical concepts provide significant inputs for our research. For the purposes of our research, experts who have this position and involved in the NPD process will be interviewed.

3.3. GLOBALIZATION TREND AND GLOBAL COMPANIES

This part of the thesis examines the current theories about global company presence. First globalization trend and its impact on the companies’ activities will be reviewed. This will lead us further to the review of the definitions of the global company and formulation of this term for the purposes our research.

If we look at the world history, the first prototypes of global organizations can be found among such well-known corporations of the past as British East India Company, the Dutch East India Company, and the Japanese Mitsubishi Organization. The phenomena of globalization are associated with movement of business, professional and industrial activities towards a global market place (Harris, 2002).

However, only in 1983 Theodore Levitt for the first time gave a definition of the term globalization (Yelkur & Herbig, 1996). In his article “The globalization of markets” Levitt determines it as a step in market evolution from multi-national corporations to the global ones (Levitt, 1983). He argues that multinational companies operate in many different countries and they adapt their products and marketing strategies to every local customer; while global companies “operate with resolute constancy”. Levitt emphasizes that the main force that drives globalization is technology that makes communication, transport and technology easier. Moreover he defines the world market as a homogenized one that makes needs and wishes of customers homogenized as well (Levitt, 1983). Today this theory does not fit modern conceptions about adaptation of products and marketing tools to local markets (Schulte & Jackson, 2007). That is why further in chapter 3.3.2 we referred to other more modern sources to understand how global companies should adapt to the local markets and compare standardization and adaptation strategies.
Kanter and Dretler (1998) provide a complex examination of the usage of the words “global” and “globalization” by business executives and by the media. They made a list of common myths and misunderstandings about this term. Among them are applications of the term “global” to companies that simply have a presence in other countries or to companies that are doing everything in the same way everywhere (Kanter & Dretler, 1998).

For understanding what the actual definition of the global company is, different strategies of international presence were reviewed. Authors mainly discuss three such strategies: global, international and multinational (Bartlett & Ghoshal, 2002; Ranchhod, & Gurau, 2007; Schulte, & Jackson, 2007).

Global strategy is typically characterized by centralized management of assets and resources: standard product design, world-wide manufacturing, and centralized management of operations. Ranchhod argues that such companies serve customer all over the world with very similar needs (2007). On the other hand, companies with international strategy exploit parent company capabilities and knowledge through worldwide adaptation. Strategy of every subsidiary is adapted to the local market (Schulte, & Jackson, 2007). In such a way subsidiaries do not have so many benefits from global strategy however they use common corporate culture, product concepts, brand name and so on. Finally, multinational companies have strong local presence through highly independent subsidiaries. Although brand names can be common, subsidiaries are considered as “a portfolio of independent activities” (Ranchhod, & Gurau, 2007, p. 292).

Bartlett and Ghoshal (2002) argue that today companies cannot rely on these traditional strategies and suggest additional so-called transnational corporate structure. Transnational company combines global integration and local adaptation (Bartlett & Ghoshal, 2002). Schulte & Jackson (2007) introduce another strategy called “globalocal strategy” based on local adaptation with some degrees of global integration that depends on the stage of the value chain of the company.

Taking the contrary view, Inkpen & Ramaswamy argue that most companies which operate across the boarders can be defined as global; a few amount of “brave companies” that tried the rest of strategies, however, faced with disaster (Inkpen & Ramaswamy, 2006).

It is obviously that this area needs classification in terms and more research in typology. For the purposes of our research we understand the definition of the global company as one that offers its product worldwide, with centralized management of strategic assets and resources.

3.3.1. Current knowledge about the global NPD process

The topic of global new product development was almost ignored by scientists with exception of Brentani, Kleinschmidt and Salomo (2010) and Yelkur and Herbig (1996).

Yelkur and Herbig (1996) provide one of the first analyses of the NPD model from the global perspective. They concluded that in order to be successful on the global market NPD program must be not just a step-by-step process, but dynamic and simultaneous one. For this purpose companies should implement so-called simultaneous engineering that allows reduction of the time of new product development because it compresses
many of development processes and makes them simultaneously. The authors emphasize that global NPD process is a constant interaction between different departments that allows problems to be identified on the early stages. Global NPD team should consist of an engineering team that is responsible for design and development of the product, a marketing team that analyzes target markets and culture differences and management who leads the project to its objectives and facilitate this project. (Yelkur and Herbig, 1996)

Yelkur and Herbig (1996) highlighted next main steps of the global NPD process: idea generation and screening, concept development and testing, market strategy development and business analysis, product development and market pretest, market testing, product introduction. This model basically represents the traditional one with exception of two first steps. Authors argue that for idea generation involvement of engineering, marketing and management is necessarily. Moreover target markets should be identified at the same first stage in order to shortcut the time of development process. At the next step the company should analyze production capacity, required raw materials, distribution channels and others. Detailed blueprints should be submitted and profit is estimated. The rest of the model authors suggest to leave the same as local model considering the global market as a target one.

Yelkur and Herbig provided this theory more than ten years ago in 1996 and we see this model as one that is not relevant for today reality. The main weakness of this concept is considering the global market as homogeneous and perceiving marketing mix elements as standardized. Moreover idea of involving of engineers, marketing experts and management of the company on the first steps of the process is relevant for local NPD model as well and cannot be specified as something unique for global NPD model. However we take into consideration this research since it gives us some inputs for our theoretical framework.

Nowadays Brentani, Kleinschmidt and Salomo (2010) provide analysis of success factors in NPD program according to the resource-based view. They argue that only companies which possess superior resources and capabilities can achieve sustainable competitive advantage. These resources and capabilities must be valuable, rare, inimitable and non-substitutable. But on the other hand they alone cannot lead to the success. Competitive advantage can be achieved only when these resources are focused on some strategic initiatives.

![Figure 8: Impact of strategy and behavioral environment on the global companies’ performance](Brentani, Kleinschmidt & Salomo, 2010, p.146)
Thus resources are closely linked with a product strategy. Authors suggest assessing global NPD program from three prospective: organizational resources; global NPD strategies; global NPD performance in terms of short- and long-term results measures, as we can see in figure 8. This hypothesis was tested among North American and European companies and proved correct.

First essential element in the model is behavioral environment. Authors identified two key organizational resources: global innovation culture that represents both entrepreneurialism and globalization and senior management involvement that is important in recognizing of opportunities and integrating specialized know-how. In the context of second element (global NPD strategy) two strategies were identified: global presence strategy that identified the firm’s vision for global market diversification and global product harmonization strategy, the extent of striving for global product standardization versus local product adaptation in response to challenges and opportunities. Finally outcome of global NPD is measured by: establishing an advanced strategic position that is degree to which global NPD programs open new opportunities (markets, products, technology); high level of efficiency, that means how efficiently and on time the projects are launched; superior financial outcome that reflects such results as level of sales, profitability, cost performance and so on.

This work provides a good basement for our research. Elements such as behavioral environment (top management involvement, project management tasks, marketing tasks and product developer role), NPD global strategy (global strategy and global product harmonization) and outcomes of NPD (time to market, windows of opportunity and financial outcome) can be considered as necessarily ones for a global NPD model.

Based on this model we can conclude that a company’s behavioral environment, resources and capabilities, and company’s NPD global strategy are key elements in this process and they will be reviewed in the next chapters.

3.3.2. Global company strategy

Nowadays corporations expand their operations globally to take advantages in ownership, location and internalization. In order to maximize their benefits companies should build a global strategy around the location-specific and company-specific advantages by implementation of series of relevant strategies. (Moon & Kim, 2008). Scientists argue that companies are most competitive when they explore efficiency of global presence on one hand, and adapt their strategies to the local markets on the other hand (Powers & Loyka, 2010; Brentani, Kleinschmidt & Salomo, 2010; Koudal & Coleman, 2005). The issue of standardization strategy versus adaptation strategy will be discussed in this part.

Scientists do not have a similar opinion however about what global company strategy is. Lewis and Housden (1998) define such strategy as one that considers the world as a whole market and do not adapt its operations to any particular country or region (Lewis and Housden, 1998). They emphasize on standardized products, as well as promotion and marketing tools. On the other hand Segal-Horn consider that just a very small amount of companies use “real” global product strategies, because any strategy requires some adaptation to regional and national market (Segal-Horn, 1998).
Many researchers agree that global product strategy play a critical role in a company’s performance in the global market. Two main approaches to global product strategy can be found: to develop global products (standardization) or to adapt products specifically to each market (adaptation) (Zou & Cavusgil, 2002; Ranchhod & Gurau, 2007; Powers & Loyka, 2010).

According to the first perspective, marketing strategy is global if product offering, promotion, price and distribution across different countries are standardized. Proponents of this perspective argue that customers all over the world have some similarities that created by advanced communication technology and transportation (Levitt, 1983; Zou & Cavusgil, 2002). Levitt (1988) was one of the first scientists who researched the topic of global strategy. He argues that globalization is driven by technology that made markets homogeneous, thus it is possible to standardize marketing strategy all over the world. Levitt (1988) concluded that companies should take advantage of technology and introduce products of low costs and high quality for the world markets.

On the other hand Goran Svensson argues that a real global product strategy is a managerial utopia (2001). Indeed he introduces such term as glocalization that contains main ideas of a global strategy approach together with recognition of necessity for local adaptations and tailoring of business activities. This term reflects companies’ need to act according to local requirements, laws, and cultures and so on. Glocalization approach requires optimization of such activities as marketing standardization and product homogenization. In order to behave “glocally” it is necessary to “think globally, but act locally” (Svensson 2001, p.6). However this term has not found a wide usage, thus for our research purpose we will continue to use the term “global strategy” even though with that we mean the necessity to adapt marketing mix elements to at least local needs, law and culture.

Ranchhod says that discussion around standardization versus adaptation is one of the most difficult areas of the company strategy (2007). During the last years however the discussion around advantages and disadvantages of standardized products across the markets versus product adaptation to local markets is coming to a solution that a proper product strategy lies in between of those two extremes, but degree of a proportion adaptation/standardization should be found by each company individually (Szymanski, Sundar & Varadarajan, 1997). As Zou and Cavusgil (1993) argues blind acceptance of just standardization or just adaptation approach can lead to failure.

Furthermore we will review factors that influence this decision. Focus of this analysis however will be on product strategy as well as the rest of elements of marketing mix. Given the importance of product adaptation in international markets theoretical review of these elements can give us valuable inputs for global NPD process understanding and analysis: necessity of product adaptation influences process of technical stages of global NPD process while necessity of promotion, distribution and price adaption are important issues during marketing strategy development and launch stages.

Viswanathan & Dicksson (2007) argue that success of new products on the global market depends on three factors: transformation of competitive advantages between local markets, differences in customer preferences and business environment. These factors will be reviewed below.

Ability to transfer competitive advantages can be illustrated with an example. The low price of the product on the market “A” can be perceived as high by customers from the
market “B”. In this case price should be adapted to the market B in order to save this competitive advantage. The sources of competitive advantage can be found in a product itself or in other marketing mix elements (Viswanathan & Dicksson, 2007).

Authors argue also that customer homogeneity should be perceived not as similarity in customer needs, but similarity in customer response to marketing mix. Customers of market “A” perceive a product as one with high quality as well as customers from market “B”. In this case the product can be introduced to the market B without any changes, so standardized product strategy can be implemented. But in a case of different quality perception between markets “A” and “B” some adaptation of marketing mix elements will be required. Homogeneity in all four elements should be examined (Viswanathan & Dicksson, 2007).

Business environment is obviously an important factor to consider by global companies (Viswanathan & Dicksson, 2007; Zou & Cavusgil, 1993; Powers & Loyka, 2010). If legal environment, political environment, physical environment and marketing infrastructure are similar between countries there is no need for adaptation.

Taking a contrary view Zou and Cavusgil (1993) suggest that such factors as technology, culture, competition, and international experience of the company should be reviewed in order to take decision about standardization/adaptation strategy. Thus technology intensive industry should seek to standardization of a product and promotion in order to take advantages of the economies of scale. If the product reflects culture differences among customers, than it needs to be adapted. In case of high competition in the market, all marketing mix elements should be customized for a better integration of the customer. However, in a case of superior product, strategy of standardization can be implemented, as we have seen previously. Finally, a company can implement standardization strategy to the market if it does not possess enough information about this market in order to implement some adaptations (Zou & Cavusgil, 1993).
Together with these researchers Birnik and Bowman review similar factors that provide evidences for more standardization or more adaptation strategy. These factors are summarized in the table 9.

<table>
<thead>
<tr>
<th>More standardization</th>
<th>Stronger evidence</th>
<th>Less standardization</th>
<th>Weaker evidence</th>
</tr>
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<tbody>
<tr>
<td>Industrial products</td>
<td>Essential products</td>
<td>Consumer products</td>
<td>Cultural bound products</td>
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<tr>
<td>High –tech products</td>
<td>Luxury products</td>
<td>High local competitive intensity</td>
<td>Direct entry modes</td>
</tr>
<tr>
<td>Market similarities</td>
<td>Indirect entry modes</td>
<td>Products in same stage in PLC</td>
<td>Local in-country production</td>
</tr>
<tr>
<td>Products in same stage in PLC</td>
<td>Parent and subsidiary have similar competitive positions</td>
<td>Fully owned subsidiaries</td>
<td>Customer-based strategy</td>
</tr>
<tr>
<td>Fully owned subsidiaries</td>
<td>High degree of communication between parent and subsidiary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign operations centralized in an international division</td>
<td>Strategy based on either (a) cost-based competition or (b) product/innovation oriented</td>
<td></td>
<td></td>
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<tr>
<td>Centralization in decision-making</td>
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Table 1: Contextual factors and influence on standardization (adaptated: from Marketing mix standardization in multinational corporations: A review of the evidence Andreas Birnik and Cliff Bowman)

For the purposes of our research adaptation of different marketing mix elements should be reviewed. Taking into account the fact that the NPD process is one that develops not only a new product itself but creates a marketing plan for it as well, we consider that adaptation of these elements to the local markets influences the NPD process in global companies.

Thus with product adaptation we understand “the extent to which the physical product differs across national boundaries” (Powers & Loyka, 2010). Such adaptation makes stronger position of the product on the local markets and satisfies specific customers’ needs. Powers and Loyka (2010) divide such changes across international markers into
two groups: optional changes and mandatory changes (2010). Optional changes work for the company’s better position in the market and adapt the product to local competition environment and consumer preferences. Mandatory changes are the ones required by legal, climatic and other factors that are not under control of the company.

Levitt (1983) argues that price must be the most difficult element of the marketing mix for standardization. Powers and Loyka suggest to use “premium pricing” when demand for the product is strong and competition is weak; and use “competitive pricing” strategy when demand is weak and competition is high (2010, p.4). Pricing adaptation usually depends not only on costs but on competitors’ prices, local taxes and local market factors.

*Place adaptation* involves changes in distribution, inventory, and transportation decisions in local markets. Thomas L. Powers and Jeffrey J. Loyk indicate that distribution is significantly influenced by internal company factors such as subunit cooperation and others.

*Promotion adaptation* can be closed connected with product adaptation. It is often related to culture differences among countries, differences in customers’ consumption process, language and so on (product and promotion adaptation article).

Thomas L. Powers and Jeffrey J. Loyk (2010) found also that the product itself is the most global element of marketing mix that does not require so much adaptation as other elements. While distribution appeared to be the most local element with the highest need of adaptation. Figure 10 provides an overview of several parameters that can be harder or easier standardized on the global scale.

For the analysis of global NPD, the issue of adaptation of marketing mix’s elements will be taken into account and several questions regarding this will be developed.

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*Figure 9: Factors influences the degree of product standardization (Birnik, Bowman, Powers, Loyk)*
Based on the literature review we can conclude that global NPD strategy is a strategy of standardization of some elements of the marketing mix worldwide, while customizing another one. We believe that companies should identify the various value chain activities and introduce some of them on a global standardized basis but some of them should be adopted locally. This will be taken into consideration in our analyze chapter.

3.3.3. Global product harmonization strategy

As it was discussed above, the question of standardization versus adaptation product strategy is a central one in the process of development of new products for the global market. Associated to this is the issue of global centralization versus localization of global NPD processes (Brentani, Kleinschmidt & Salomo, 2010; Koudal & Coleman, 2005). Brentani, Kleinschmidt & Salomo claim that a choice of one effort or another depends on numerous factors, such as the nature of the product, diversity of international markets, ability to control these markets and so on. Thus they argue that a global product harmonization strategy is one that seeks to benefit from global economies of scale and global knowledge integration, while provide adaptation of products and marketing strategies to local markets when it is necessary (Brentani, Kleinschmidt & Salomo, 2010).

In order to understand how such strategy can be managed and realized, we refer to the study of Koudal and Coleman who investigate conditions and capabilities that lead to successful implementation of such strategy (2005). This task seems to be complicated in today’s reality: global manufacturing, engineering, marketing and other activities make operations of global companies more complex (Brentani, Kleinschmidt, and Salomo 2010).

Koudal and Coleman found, that in such conditions coordination of innovation process across global operations is a key factor of success (2005). Based on the research of the best practices of more than 650 companies, authors concluded that this can be achieved by synchronization of two processes. First, activities inside of every value chain processes (such as R&D, supply chain and marketing) should be synchronized worldwide, and second, the processes across them should be synchronized as well, this can be seen in figure 10. Thus authors clearly point out that global companies should take advantages of global network: inside of the global company worldwide and its suppliers and customers (Koudal and Coleman, 2005). This means that successful new products concepts come up when managers of the company as well as its suppliers and customers work together. All together they also should evaluate new ideas whether they can make profit with such customer value, projected price and costs (Koudal and Coleman, 2005).
Further Koudal and Coleman investigate conditions that the company should create in order to reach such synchronization (2005). First, upstream and downstream value chain processes (among company, customers and suppliers) should be better visible. This gives better understanding of scenarios, profitability and costs and allows a company to create more and better ideas. Second, products and processes should be more flexible. In that case companies have possibilities shift quickly its manufacturing loads, change production level or modify products according customer preferences.

Third condition is extensive collaboration with both customers and suppliers. It helps to figure out global product requirements, design better components and materials, and make processes more efficient and flexible. The last condition is usage of technologies and information CRM systems where all this information can be collected (Koudal and Coleman, 2005).

We find this research as a valuable input for our study. Conclusions of this study will be taken into account during the investigation of how global companies manage their NPD process worldwide and who should be involved in the global NPD process.

**Importance of this sub-chapter**

As it was stated at the beginning of this chapter, the literature review has been divided into two parts. First part reviews theoretical concepts about NPD while second part discusses current knowledge about global company strategy. Next main concepts and theories will be taken into account for the analysis part of our research:

- traditional model of the NPD processes and theory around it
- different roles involved in the NPD process, their importance and responsibilities
- global company strategies and definition of the global company
- trends of the global companies in the field of NPD
- global harmonization strategy
- global standardization and global adaptation strategies.

Based on the review literature the theoretical framework of the research was developed that was used as a basement for the empirical and analysis part of the current thesis. Traditional theoretical concepts about the NPD process was compared with empirical data about this field collected from the global companies and this analysis will be represented in the further chapters. Finally, global company strategy theories provided inputs for the analysis of the differences the traditional NPD model with the one typical for global companies.
4. METHODOLOGY

This part of the study reviews scientific approach and the methodology used for the study. Structure of the research is discussed here as well.

4.1. PURPOSE OF RESEARCH

According to Babie (2009) there are three types of studies according to their purpose: exploratory, descriptive and explanatory. The first one is used in order to clarify some concepts, find explanations, assess phenomena or seek for new insights. The main goal for such research is to develop a theory. Such kind of research is known as a very flexible one. Second type of research, the descriptive one, seeks to describe people, events or situations. The researcher must have a clear picture of phenomena before conducting the research. Thus all required changes must be done before the process of research has started. The last type, explanatory research, provides the cause and effect relationships between variables (Babie, 2009).

The main goal of our research is to find how the NPD process is run in global companies: how the NPD model looks implementing to such companies, as well as whom and how manages this process. According to Saunders (2007) the research that seeks to clarify the relevant theory and understand the problem classified is an exploratory research.

4.2. RESEARCH DESIGN

The decision between qualitative and quantitative research as different research strategies is a very important one. However, together with this choice, decision about research design and research method should be done (Bryman & Bell, 2007). Research method is always associated with research design and as Bryman argues they are quite often confused (2007). Many authors provide different suggestions for research design but after analyzing the literature of Kent (2007), Bryman and Bell (2007), Saunders (2007) and Pervez (2010) we have found the five most common research methods that can be implemented by researchers. All of them will be discussed and estimated according to our research purposes.

**Experiment**

This type of design is very rare in business research and originally it is coming from natural science (Bryman & Bell, 2007; Saunders, 2007). The purpose of an experiment is to find casual links by changing independent variables. The reason of its rare usage is the difficulty of manipulation of the independent variables: organization behavior cannot be controlled (Pervez & Gronhaug, 2010). Saunders (2007) suggests conducting of experiments in laboratories in order to study organization psychology (however it is characterized by poor validity), while Kent (2007) underlines its common usage in the marketing field of business for studying consumer behavior.
Considering all these facts, implementation of this type of design seemed to be not possible for our research mainly because of impossibility of conduction such experiment in laboratories or changing organizational behavior in the field.

**Longitudinal design**

This type of design is normally used to represent changes in business field during some time, “research in action rather than research about action” (Bryman & Bell, 2007, p. 140). Pervez and Gronhaug (2010) argue that one of the problems which are associated with longitudinal design is a problem to determine whether independent factors really have had any effect on the result. For the purposes of our research we could not effort such type of design mainly in view of time issues.

**Survey**

This type of design is very popular in business research (Bryman and Bell, 2007, Saunders 2007, Pervez). Often it is used for exploratory and descriptive research. The main advantage of this type of research is access to big amount of primary data in a highly economical way. As it could be seen from the name, survey, this type of research is associated with usage of questionnaires; however Bryman (2007) argues that other research methods such as observation, content analysis, official statistics or diaries can be used here as well (Bryman, 2007). Survey design is associated with quantitative data that are standardized and easy to compare. While using this type of design, much attention should be paid for sample selection, as it must be representative and to ensure a good response rate (Saunders, 2007). Thus, survey requires usage of quantitative data that made impossible for us to use this type of design.

**Comparative design**

Comparative design is mainly described by Bryman (2007) and associated with the usage of two or more contrasting cases (Bryman, 2007). The usage of this type of design for our research was under deep discussion. We could see a great advantage for our research to find critical differences in NPD processes between global and local companies; instead our final argument was the fact that our main goal is to find differences between the traditional NPD model and the NPD model for global companies, rather than differences between processes in local and global companies. However we leave this option as a suggestion for future research because of obvious advantages of such comparison for NPD theory in general and international business particularly.

**Case study**

Case study research is highly discussed by scientists. Saunders (2007) provides the definition of case study made by Robson: “a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence” (Saunders, 2007, p. 139). Yin (2009) discusses many aspects of this type of research design; particularly he argues about that phenomena being studied in many cases, hard to distinguish from a context in which it is being studied. This type of research was chosen for our research mainly because of its rich context of a phenomenon that provides deep understanding of it. Moreover it gave us the opportunity of “real life” context for our investigation. Finally, according to
Bryman (2007), case study design is associated with a deductive approach that was necessary for our research in order to analyze the process of NPD in global companies.

Scientists provide analysis of case study research from different perspectives. Woodside and Wilson argue that the case study research method is the one which focus on describing, understanding, predicting, and/or controlling the individuals, households, organizations and so on (Woodside, Wilson, p. 2). The main difference the case study research from other types of research designs is its attempt to investigate the unique features of the case and generate associated statements regardless of time and place of the research (Bryman, 2007).

The case study research is not limited with a sample of one unit; multiple-case studies are common for deeper understanding of related theory (www.nova.edu/ssss/QR/QR3-2/tellis1.html). Bryman (2007) argues that multiple-case study design is very popular in business research. Thus, for the purposes of our research, multiple-case study was chosen. Such design will allow us to distinguish factors that are unique for the studied companies (factors that arrived because of the organizational context) and to find issues that are common for NPD process in global companies.

The most arguable issue about case study research is how far the results of such research can be generalized (Bryman, 1988) Bryman (1988) suggests some solutions for this problem. First, if a researcher feels that one case study is not enough, more than one case can be investigated. Second, cases can be studied by more than one researcher. Also author suggests choosing cases that are “typical” with certain characteristics. Bryman (1988) argues that the main goal of a case study research should be conclusions for theoretical propositions rather than about populations. In order to provide higher reliability to the results of our research, several companies have been chosen for investigation with such criteria as global presence for all studied units (all criteria will be discussed later in this chapter).

Case study research method is often associated with qualitative study only, however quantitative methods are also appropriate for case studies (Bryman, 2007, p. 62). Furthermore such research has more value when both these methods are used in the same study. However quantity approach was not used for our research mainly because of a small size of our sample. However such option can be proposed for future research.

4.3. RESEARCH METHODS: QUALITATIVE/QUANTITATIVE

The main difference between quantitative and qualitative data is the difference between numerical and non-numerical data (Babbie, 2009; Kent 2007). Quantitative research requires gathering of numerical data that can be studied in a less biased statistical way. The main advantage of quantitative research is ability to count gathered data and to implement some statistical models. Quantitative research is characterized by deductive relationship between theory and research (Bryman, 2007) that means that a researcher should have understanding of a researched issue before starting the measurements. Finally, a set of numbers will be collected and after a statistical analysis they will lead to results.

According to Bryman (2007), qualitative research is the one that emphasizes words rather than quantification during collection and analysis of data. Qualitative research
stresses on the understanding of the words rather than numbers and seeks to answer “why” and “how” questions (Kent, 2007).

This contrast of qualitative and quantitative research makes the set of distinctions and differences between them. Both research methods have their own advantages and disadvantages and the final choice of the method depends on the goal of the research.

Compared to quantitative data, the qualitative one is, from one hand, richer and more detailed, and from the other hand, contains information from much less number of respondents (Kent, 2007). Author finds potential of its creativity as the main strength of qualitative data. Further, McBurney and White find open ended questions and subjective nature of qualitative research as another strength of such data. According to Neergaard, the qualitative research is going beyond the description on a general level to a more detailed and full research (2007, p. 5).

From other hand, the advantage of a quantitative research is its accuracy and explicit observations. Quantitative research allows aggregating, comparing and summarizing the data, it gives possibilities of a statistical analysis, ranging the data and implementing different mathematical models. Thus quantitative research provides numbers instead of words in order to measure some quality (Babbie, 2009).

Figure 12 illustrates the main differences between qualitative and quantitative research (Marshal, 1996, p. 524). It can be seen that a choice between these approaches mostly depends on research questions and required data.

<table>
<thead>
<tr>
<th></th>
<th>Quantitative</th>
<th>Qualitative</th>
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<tbody>
<tr>
<td>Philosophical foundation</td>
<td>Deductive, reductionalist</td>
<td>Inductive, holistic</td>
</tr>
<tr>
<td>Aim</td>
<td>To test pre-set hypothesis</td>
<td>To explore complex human issue</td>
</tr>
<tr>
<td>Study plan</td>
<td>Step-wise, predetermined</td>
<td>Iterative, flexible</td>
</tr>
<tr>
<td>Position of researcher</td>
<td>Aims to be detached and objective</td>
<td>Integral part of research process</td>
</tr>
<tr>
<td>Assessing qualitative</td>
<td>Direct tests of validity and reliability using statistics</td>
<td>Indirect quality assurance methods of trustworthiness</td>
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<tr>
<td>Measures of utility of results</td>
<td>Generalizability</td>
<td>Transferability</td>
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Table 2: Comparison of quantitative and qualitative methods

Based on the fact that the goal of our research is to understand the global NPD process, qualitative research method was chosen as a research method. It allowed us to understand this process more deeply and get in-depth information from our interviewees. Moreover this approach gave us an opportunity to ask additional questions that could appear during the interviews. Finally, qualitative research was more appropriate for our research due to its nature: it is not reviewing the cause and effect of a problem, but it is more associated with understanding and making sense of it.
4.4. SAMPLING

In order to answer our research question we had to investigate several units of the whole population (global companies) that is in our interest. After this investigation our result should be generalized back to all global companies. In order to reduce the whole population to a small sub-group that would be studied, different sampling techniques were reviewed.

Size

In order to find a proper sampling, one out of two techniques should be chosen: probability or non-probability sampling. The main difference between these techniques is the fact that in the first case the chance of each unit being selected from the population is known and usually this chance is equal for all units. In contrast, the probability of each unit from the non-probability samples is not known, so generalization will be done not on statistical grounds (Saunders, 2007). Often qualitative researches are associated with usage of non-probability sampling, even though probability sampling is used sometimes as well (Bryman, 2007). In view of complexity of the task to find probability sampling for global companies all over the world, non-probability technique has been chosen and will be discussed below.

Neergaard argues that “nothing better capture the difference between quantitative and qualitative methods than the logics that undergird sampling approaches” (Neergaard, 2007; p. 259). Many scientists (Neergaard, 2007; Marshal, 1996; Bryman, 2007) argue that in contrast of a quantitative research where number of respondents should be no less than one hundred; a qualitative research does not have such limits. Thus in a qualitative research the number of respondents is defined by purposes of the research; and the appropriate sample size for such research is the one that answers the research questions. Sometimes one interview could be enough to find all the answers; for simple research questions single numbers of interviews would be enough; for complex questions large samples might be necessary. In reality, sample size usually becomes clear as the study progresses, when new data, facts and explanations stop emerging it means that sample size is enough (Marshal, 1996; p.2).

During our research we used this principle. The interviews were conducted until all answers to our research question were gotten and new information and facts were not appearing any more or gave us too little knowledge.

Sampling method and sampling criteria

Selection of respondents or units in non-probability sampling is often subjective and depends on experience and judgment of the researcher. Such approach is called purposive or judgmental sampling (Babbie, 2009: p.184). Bryman (2007) argues as well that qualitative researches are often engaged with purposive sampling where selection of respondents depends on the stated research question (Bryman, 2007). Purposive sampling was used for the purposes of our research as well in order to choose companies for our research. For that several characteristics were defined for selection of the companies; thereby investigated companies could bring significant and valuable inputs for our research.

In order to select interviewees for our research, two levels of sampling were done. First, companies were selected by usage of purposive sample technique; then people were
selected inside of the each company. For selection of experts inside of the companies we used so-called snowball sampling technique (Babbie, 2009; Bryman 2007): we contacted one person inside of the company and this person was asked to suggest someone for our research (according to our criteria); after that this new person suggested further experts.

As it was discussed above, in order to fulfill the purpose of this study and answer the research question it was very important to select the right companies and the right people who would be able to give us valuable information. For that, a list of criteria of our respondents was developed, figure 13.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Criteria for selected companies</strong></td>
<td></td>
</tr>
<tr>
<td>Global presence</td>
<td>The basic criterion of the study, in view that the goal of our research is to investigate NPD process in global companies. For this criterion a definition of a global company from chapter 3 was used.</td>
</tr>
<tr>
<td>A company must have production (not services)</td>
<td>In view that NPD process for services is different and research question is associated with production, this criterion was among the important ones as well.</td>
</tr>
<tr>
<td><strong>Criteria for selected respondents</strong></td>
<td></td>
</tr>
<tr>
<td>Participation in NPD process at the company</td>
<td>The most important criteria. Experience in the NPD process can provide valuable inputs for our research.</td>
</tr>
<tr>
<td>Fluency in English</td>
<td>This criterion is based on our language skills and the language of the current research.</td>
</tr>
</tbody>
</table>

Table 3: Criteria for selection of companies and respondents

Full description of selected companies and employees will be provided in Chapter 5.

**4.5. DATA COLLECTION**

Glaser and Strauss were the first who argued that methods and approaches of qualitative data analysis depend on the nature and purpose of the research (Babbie; 2009). Kent highlights such qualitative research methods as interviews, observation, ethnography, consultation and focus groups (Kent, 2007). Bryman (2007) adds such methods as language-based collection of data and qualitative analysis of text documents.

Interviews as a main source of primary data were chosen in view that this data collection technique was able to provide intensive, detailed and valuable information. Moreover by conducting interviews we could keep the right focus on our research topic. Nonetheless, beside of the interviews, we used such source of information as companies’ internal documents, which helped us to understand the process of NPD. In addition, such documents provided us with valuable information about the companies’
background, team implication and processes. For instance, NPD process model of Ålö and its global brand guideline were provided by the company. Such multiple data collection increased the reliability and validity of our data and decreased bias view that could appear from the interviews.

**Type of the interviews**

Bryman (2007) argues that conduction of interviews is the most widely used method in a qualitative research. According to Neergaard (2007) interview is a series of questions by an interviewer and a series of responses on them by interviewees. Researches highlight three types of interviews (Neergaard, 2007; Bryman, 2007; Babie, 2009): structured; semi-structured and unstructured interview. The level of structure is a crucial choice for the researcher, since this can affect the findings and conclusions of the study.

*Structured* interview is mostly used for quantitative research because it allows the researcher to put data in systematical and numerical form. Such interviews give a chance to interview a short period of time a big amount of respondents, spread interview through a wide geographical area and it does not require much training of interviewers (Neergaard, 2007).

For qualitative research unstructured and semi-structured interviews are mostly used, where interviews are more like conversations with some possible direction or focus. Researchers sometimes combine two these types of interview with a common name “qualitative interviews” (Bryman, 2007, p. 436).

*Qualitative interviewing* is different from quantitative in several ways. Firstly, qualitative interview concerns more about the interviewees’ own perspective; while quantitative interviews aim to increase the reliability and validity of collected data. Secondly, first type shows greater interest of interviewee’s point of view, while the second one reflects the researcher’s concerns. Moreover, qualitative interview can differ significantly from questions guide since new questions can appear to follow up the replies: questions can be asked not at the same order, some of them can be added, and some can be illuminated; although asked questions are similar between different interviewees. As a result, qualitative interview tends to be flexible and concern more about issues that emerge during the interview. (Bryman, 2007, p. 437-438)

*Unstructured interview* is just a brief set of prompts for the respondent to deal with topic. It could be just a single question asked to make a direction, after that respondent can answer in a free way. In this sense it is very similar to a conversation.

Semi-structured interview was chosen for our research based on several reasons. First, this kind of interview gave us more access to required information by asking questions that could appear during the conversation. In view that we have some issues and aspects which we wanted to discuss, semi-structured interview provided us with some guideline and allowed us to address some specific questions. Moreover some kind of structure in our interviews provided us with a foundation for the analysis and comparison of different answers.

An interview guide is much less specific then a questionnaire for a quantitative interview. It is just a list of memory prompts and issues to be discussed. Thus all the issues that could be useful for the research question and that are significant and important for the research area were included in the interview guide (Appendix 1).
4.6. CRITIQUE OF SECONDARY DATA

In order to be sure that collected primary data are reliable and provide quality information for our research, it is necessary to critique them. For this, first of all, a list of requirements for the interviewees was developed (Table 3). These criteria provided us with assurance that all our respondents possess relevant knowledge and experience and are able to provide valuable inputs for our research. Moreover, in order to collect the information that describes the NPD process in global companies, criteria for the studied companies that assure their global presence were developed as well (Table 3).

However we understand that in spite of these actions some factors which decrease reliability of the collected data could appear. First, some information could be hidden for us as the researchers and skipped during the interviews. It is caused by confidentiality of the information that the companies possess. Even though our interviewees sometimes informed us that they did not want to share some information because of this reason, we understand that some information can be skipped without notification.

Moreover, as Bryman (2007) noticed, the usage of a voice recorder can make our interviewees feel uncomfortable and answer to our questions quickly and briefly. However, during our interviews, if we noticed that our respondent is feeling any discomfort, we tried to ask more questions to get all necessary information.

Finally, during our data collection process, we had to conduct two phone interviews. We noticed that answers of these respondents are not so detailed as ones of other respondents whom we met personally. In order to avoid any misinterpretations, we clarified this information with other expert from the same company whom we met personally.

Thus we can conclude that there are some factors that could decrease reliability of the primary data. However, we as researchers tried to avoid the influence of these factors as much as possible.

4.7. DATA ANALYSIS

Scientist such as Yin (2009) claims that while using a deductive approach for the research, theoretical framework can be used for developing and organizing the data analysis. In such a way we as researchers will provide a link of our research’s results to the existing knowledge in the field of NPD. Moreover careful analysis of current knowledge in this field gives us understanding of this area and possibility to develop a framework for the analysis of the gathered data.

In order to conduct analysis for our research, transcripts of all conducted interview were done. Even though it is a quite time-consuming process (around four hours of typing of one hour of speech), it allowed us to keep all the words to be said in attention and provided with a text to be analyzed.

For the purposes of our research content analysis technique was applied. The main reason for such choice was a fact that our interviews were semi-structured and had just some similarities between each other. Thus it was decided to transcript all the
interviews and make analysis based on careful analysis of these texts. Implementing to our case, Silverman (2004) suggests defining main issues for discussion and then allocating gathered data to some of the defined groups. Thus the content of all interviews were divided into groups according to the questions that was discussed there. This information gave us an understanding of NPD processes in studied companies, what the main steps are there, who is involved in the process and how the process is organized. Finally gathered data was analyzed based on theoretical a concept that was presented before, see chapter 3.
5. THE DATA PROCESS

This chapter describes the interviewers and their role inside of the companies, particularly in the NPD process. It also presents a brief description of the companies we have interviewed. Finally the trustworthiness of the study will be discussed in this chapter.

In the previous chapter description of the used methods for choosing the companies and interviewers were provided. It has been considered appropriate that the companies and the conducted interviews should be explained more in depth in this chapter in view that the following chapter will provide the data process. Thus this chapter starts with overview of how the researched companies have been selected. Then it continues with description of interviewers and their roles in the NPD process. Finally the last two sub-chapters will describe the companies and examine the trustworthiness of the paper.

5.1. SELECTION OF THE COMPANIES

To find the proper companies for our research has turned out to be a difficult task. Only global companies with an inside NPD process should be considered for our research in view that it was stated as the main criteria for the research as it could be seen in the methodological chapter. In addition, selected companies had to have a NPD department in Umeå, given that we did not dispose of a high budget, which would allow us to increase the potential selection of the companies.

After this has been established the search for the appropriate companies for the research was started. The finding process has been done through Google, during the first search it was founded 3 companies and after a more complex search 2 more companies were found, all of them with a process of product development in Umeå.

The first contact with the companies was done through phone; the human resource department of each company was contacted with a question for the permission to interview their employees. If the answer was positive, the next step was to ask for a contact person from production department. From those five companies, two of them refuse us while the three remaining companies allowed us to interview their employees. Those two companies which refused us stated that information about NPD process is confidential and it cannot be shared with anyone outside of the company. This made us aware of the high level of concern concerning this subject, thus for other companies it was underlined the point that confidential information about their NPD process will not be disclosed in our research and this paper search to understand the process, not to show the products with which they are working.

The first company interviewed was Ålö, second one was Volvo Trucks, while the last interviewed company was FältCom. This order is important to be mentioned, considering that Ålö was a good starting point for creating the necessary knowledge for the upcoming interviews from Volvo Trucks and FältCom. This helped us a lot with the future interviews in view that for the other 2 companies the process of interviewing has been easier to manage and processed.
Moreover, two of these companies, FältCom and Ålö, have their headquarters and production department located in Umeå. On the other hand, Volvo Trucks has production department in Umeå, but the main part of their NPD is done in Gothenburg, where its headquarter is located. More about the description of the companies you can find in section 5.3., where this will be explained in more details.

5.2. PARTICIPANTS OF THE RESEARCH

In this sub-chapter we want to present the interviewed personnel; this would be done in a more impersonal approach, it would make easier to understand our perspective for the reader. It has been seen previously that 3 companies have been selected and all of them are global. From these 3 companies 10 persons have been interviewed and all of them have different positions in the companies. As it can be found in figure 14, all the employees interviewed had a position which was related to the NPD process.

<table>
<thead>
<tr>
<th>Company</th>
<th>Name</th>
<th>Position in the company</th>
<th>Interview duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ålö</td>
<td>Tomas</td>
<td>R&amp;D director</td>
<td>1h30 min</td>
</tr>
<tr>
<td>Ålö</td>
<td>Urban</td>
<td>Marketing director</td>
<td>40 min</td>
</tr>
<tr>
<td>Ålö</td>
<td>Fredrik</td>
<td>Area Manager</td>
<td>50 min</td>
</tr>
<tr>
<td>Ålö</td>
<td>Finn</td>
<td>Area Manager</td>
<td>40 min</td>
</tr>
<tr>
<td>Ålö</td>
<td>Anders</td>
<td>Project manager</td>
<td>1h30 min</td>
</tr>
<tr>
<td>FältCom</td>
<td>Mats</td>
<td>Product developer</td>
<td>30 min</td>
</tr>
<tr>
<td>FältCom</td>
<td>Anna*</td>
<td>Marketing</td>
<td>40 min</td>
</tr>
<tr>
<td>Volvo Trucks</td>
<td>Patrik</td>
<td>Product manager</td>
<td>1h</td>
</tr>
<tr>
<td>Volvo Trucks</td>
<td>Ingela</td>
<td>Project manager</td>
<td>30 min</td>
</tr>
<tr>
<td>Volvo Trucks</td>
<td>Ingrid*</td>
<td>Marketing</td>
<td>40 min</td>
</tr>
</tbody>
</table>

Table 4: Information’s about the employees

In addition the number of interviews was discussed with the supervisor and after this discussion it was agreed that 10 interviews is the most appropriate number for our research; time limitation of this research was considered as well. The research started by conducting 5 interviews with Ålö since it was intended to get a better picture of the NPD process in a global company. Only 3 interviews were held with Volvo Trucks in view that it was hard to get the right people to give us an interview; but still it is considered that the collected data has relevant information which would help the researchers to ensure strong results of the study. For FältCom two interviews were more than enough in view that it is a small global company; from those two interviews enough data has been found for our research. This paper will now continue to discuss
more about the employees which have been interviewed and their contribution to this research.

As it has been previously said, in subchapter 5.2., Ålö was the first company interviewed and all the interviews were done face to face. These interviews helped us as the researchers in two ways: firstly the collected data was appropriate for the purpose of the paper, and secondly we got important inputs in how to approach the following interviews. At Ålö five employees were interviewed as it can be seen in figure 14; all of them with important role in the NPD process. The most valuable information was given by Tomas, since he helped us to understand the NPD process of Ålö and suggested other employees which work with the NPD process. Tomas is the director of R&D and he works at this department for a long period of time, and his knowledge about the process was a valuable input for this research.

Another interviewed person was Urban who introduced the global marketing strategies of Ålö, and explained the involvement of marketing in the NPD process; additionally he explained the tasks of different people within the NPD process. Fredrik and Finn brought new information about marketing processes, thus from them we got essential information of how data is gathered for the development of products at Ålö and, besides those they confirmed what the other people said about the NPD process in the company. Anders who is a project manager described the technical part of the NPD process of Ålö, and information that he gave was essential for understanding the NPD process of the company. Moreover he helped us to establish the contact with Volvo Trucks.

The second company interviewed was Volvo Trucks and there 3 interviews were done; one interview was face to face, while the other two were made by phone. Two interviews were held by phone since only production department is located in Umeå, while the most of top management is located in Gothenburg and many decisions are done there. In view of limited budget of the research we had to conduct the interviews by phone. Our first interviewee was Patrick who is the product manager of Volvo Truck in Umeå. He described the NPD process of the company and the role of other departments in this process. Another our respondent from Volvo Trucks was Ingela who is one of the many project managers from Gothenburg facility, she helped us to understand better the NPD process of Volvo in view that she has a lot of experience with this process. Ingrid described her role at Volvo Trucks as well as the process and implications of marketing in the NPD process. Here we should say that although the last two interviews were done by phone, we did not get any drawbacks from getting the appropriate information.

The last interviewed company was FältCom, where 2 interviews were conducted as it can be seen from the figure 14. The first person interviewed was Mats, a product developer, who explained us the NPD process of the company. Moreover he described the company and different roles inside of the company. Another interviewed person was Anna and her role in the company is to manage the process of production inside of the company and to support marketing department. Her information related to the NPD process was vital for completing and understanding the process in FältCom.
5.2.1. A short word about the interviews

It was a long process for us to manage all ten interviews and it took three months to conduct all of them (from middle of April till middle of June). Here we should say that those names from table 4, which have an asterisk near their name, requested us to keep them anonymous, and because of this reason their names have been changed. The duration of interviews was counted from the moment when respondents were asked first questions prepared for the interviews.

Almost all the interviews were recorded and transcribed except those that were done by phone. During the phone interviews one of us was asking the questions while the other one was writing the answers to the questions. With such effort we believe it can be considered that no important information has been lost.

5.3. COMPANY DESCRIPTION

5.3.1. Ålö Company

Ålö Company is producing front loaders and sub-frames for the tractors in Umeå, Sweden. Today Ålö is a world-leading manufacturer of front loaders with associated implements, and has around 25 per cent of the global market. This means that the company is currently represented in more than 40 countries, in which it enjoys a leading position in more than 15. (http://www2.alo.se/Media/PDF/ALO_Eng_2008.pdf, reviewed 25.08.2010) Ålö is also known under three brands names: Quicke, Trima and Veto, this is mainly because of their acquisition process.

In addition, the most important years in the development of Ålö are presented:

- **1945** – Karl-Ragnar Astrom takes over the family farm in Umea;
- **1947** – the first Swedish front loader was produced;
- **1949** – the Ålö Company is founded;
- **1959** – the first front loader is exported;
- **1967** – the company has succeded to sell more front loaders for the export market then for the domestic market;
- **1977** – is an important year for Ålö, since they have opened their first new factory in Brännland, Sweden;
- **1988** – the factory is acquired by KMW, and they own the company till 1993 when Balticgruppen takes control over it;
- **1992-2002** – Ålö Company, acquires other similar companies from France, Germany, Denmark and UK;
- **2002** – 3i becomes the new owner, having the majority of shares;
- **2005** – the factory from Brännland, Sweden becomes the most modern front loader factory in the world;
- **2008** – the best result for Ålö Company, with more than 100.000 front loaders produced;
• **2009** – Ålö is the market leader in 15 countries and, with a production of approx. 26,000 loaders and 35,000 implement a year, the world leader in front loaders with associated implements ([www.alo.se](http://www.alo.se), reviewed 25.08.2010).

Ålö Company has six own factories, four in Sweden, one in France and one in USA. In these factories 515 employees are working, with a total production of 26,000 loaders and 35,000 implement per year. For 2008, Ålö has reported revenues of 1.92 billion SEK (almost 190 million EUR), which have made the company the first between the competitors. ([www.alo.se](http://www.alo.se), reviewed 25.08.2010)

**Structure**

![Ålö Organization](image)

*Figure 11: Ålö Organization (adapted Ålö product development)*

As we can see in figure 11, Ålö has a direct structure, where the main part is represented by the marketing department. They have a separated research and development department, which is ranked quite high compared with the other departments. This shows that the company puts a lot of accent on the product development.

### 5.3.2. FältCom Company

*Vision – “FältCom shall be one of the leading providers of systems for secure and reliable communication.”*

Fält Communications AB is a wireless communications company which provides solutions for secure and reliable communication. The company started its business operations in 1998 with headquarters in Umeå, northern Sweden. Currently, the company is formed by 25 employees, distributed mainly in R&D and marketing departments. The CEO of FältCom is Mikael Långström and the CFO of the company is Anna-Lena Bergquist. Turnover of the company is estimated to be around 40 million SEK for 2009 (4 million EURO). Fält Communications is selling and producing Lift Phones and Wireless M2M. In Sweden they produce around 10% of their product, while 90% of the product manufacturing is outsourced in China. In the future, they take in consideration to build their own factory in China. ([www.faltcom.se](http://www.faltcom.se), reviewed on 25.08.2010)
The company’s solutions are used for security applications, logistics and supply chain management, remote supervision and reading, and lift emergency communication and supervision. It also provides various services, including assessment and studies, system studies, electronics hardware specification, and software development, as well as hardware and software integration, test, and validation. (www.faltcom.se, reviewed on 25.08.2010)

FältCom works actively to create strategic cooperation with established companies in the IT/Telecom sector. The purpose of it is to connect to application developers and system integrators with a wide network of different market segments and end-customers. (www.faltcom.se, reviewed on 25.08.2010)

FältCom works with customers and partners that are established in IT/telecom field from different sectors, for example with the M2M business, FältCom use to work with Volvo, Schenker logistics, General electric security, Telia Sonera. While for the lift phone business: Kone, Otis, Schindler are considered as being the main customers. FältCom’s strategy on working with these companies both as partners and customers is to establish connections with companies that are well informed about the end customer needs all around the world. (www.faltcom.se, reviewed on 25.08.2010)

Structure

FältCom has a functional structure based in four operational departments. These are Elevator phone marketing direction, M2M marketing direction, Production-Purchasing and R&D. The strategists in the company are the CEO and the business units’ sales directors, who present a strategic plan to the board according with the stakeholders’ requirements and expectations as well their criteria about the way the company has to follow. (www.faltcom.se, reviewed on 25.08.2010)

This structure allows them to have a dynamic operation with certain autonomy but at the same time, allows them to keep in touch between each other’s and with the CEO, which is required for their operations. (www.faltcom.se, reviewed on 25.08.2010)

In conclusion, we want to say that Fältcom is a global venture capital company. The shareholders have only the responsibility for the capital, while strategic direction is responsibility of the board and the CEO. The CEO has certain autonomy for developing strategy, since his personal development is the basis for this specific business unit (M2M). The main stakeholders are the customers, and the company is focused in developing the most productive communications platform for the customers, making this, profitable for the company.
5.3.3. Volvo Trucks Company

Volvo Group consists of: Volvo Trucks, Mack, Renault Trucks, Volvo Buses, Volvo Construction Equipment, Volvo Penta, Volvo Aero and Volvo Financial Service. In 2009, Volvo Trucks operations accounted 63% of the entire Volvo Group, which makes it the most important part of the group. In addition, from the total number of 90,210 employees, 21,968 are working in Volvo Trucks (Volvo, 2008). Headquarters of Volvo Trucks is in Gothenburg, Sweden; were over 1,100 people are working in the NPD process. The majority of those 1,100 people are marketing, technical and management personnel, who make the NPD process, look really complex.

Moreover, Volvo Trucks has production in 16 factories all over the world, with a production of over 100,000 trucks per year in 2008 and 47,000 in 2009, due to the financial crises (Volvo, Earnings, 2009). The biggest market for Volvo Trucks is Western Europe, with around 35% in 2008, followed by North America with 33% in 2008.

**Structure**

Volvo Trucks is a part of the 3P’s process, which stands for Product Development, Product Planning and Purchasing, and is created for the global market of Volvo Trucks and other companies.

_as we can see in the figure 16, the Volvo 3P is a business unit not only for Volvo Trucks but for the entire Volvo Trucks Group. They have created the 3P process so that the company can have a better control of the NPD process, which will enhance their production of a new product. Product planning means to have the right products over the long term. Product development focuses on chassis, cabins and electrical systems. In purchasing, Volvo 3P offers significant size and negotiating strength._

_in conclusion, we want to say that Volvo Trucks is a global company in the true meaning of the word, and their NPD process will help us to understand better the process of NPD in global companies._
6. **EMPIRICAL DATA**

Presentation of empirical data gathered from the interviews is provided in this chapter. First the overview of the NPD process will be provided followed by the presentation of each step of the process. After that different roles of the process will be reviewed. Finally the issue of managing of the global NPD will be discussed.

### 6.1. Introduction to the global NPD process

This section will provide a brief overview of the process of new product creation and a general picture of how the studied companies see this process.

In order to be sure that our respondents review their NPD processes from the global perspective interviewees were asked if they perceived their companies as global ones. It appeared that all of them see the companies as global by providing mainly such arguments as the number of countries where the company is present:

“Of course we are not everywhere, but in each part of the world. And we consider ourselves as a global company. And we are becoming more and more global.” (Tomas, Ålö)

“Of course we are not the most global company in the world but looking at the sales that we had last year, it was close to 40 different countries, not all the part of the world, but Europe, North America, some countries in Asia, Asian countries like Australia, New Zealand. When people ask me what is the company you are working for it’s a global company.” (Fredrik, Ålö)

“Probably yes, I see it as a global company. As we have some customers who plan to enter with our products in Australia. Now we are present mainly in Sweden, Norway, Finland, USA and less in other countries from Europe and America. For elevator we are present all over Europe and USA.” (Anna, FältCom)

“Yes, of course, Volvo Trucks is a global company. We are presented in 140 countries all over the world” (Ingrid, Volvo Trucks)

After being sure that all respondents have global perception of their companies we asked some questions in order to understand the process of NPD. We found out that Volvo Trucks and Ålö have a formal process of NPD which is documented and all new products should go through all the stages of the development. At the same time FältCom does not have such formal process probably because of the small size of the company. However they have some steps that are common for developing of all new products:

“We want to keep it really simple, and this is why we have the normal steps. First we ask our marketing department if there are some requirements of the customers, and if there are we meet and decide if those are good reasons for us to start the development. <...> Then we have a financial agreement, and after this we start the development of the product; which of course includes..."
hardware and software, the normal phases of the product development.  
<Then> we move to the normal part of the NPD, which is testing and market acceptance” (Mats, FältCom)

Älö has a formal process of NPD that consists of five phases. According to the company’s policy the development work is carried out with their own resources, which are reinforced with external consultants when needed.

“<Our NPD process> is based on tool gates that you have to pass. We have different phases of the projects. First step when you decide to go on with a project. <…> And then we take a decision to make a product. We finalize the development with product costing, we have to commit the safe price, and find our profit. And of course development should be finalized, developed, tested and so on.” (Tomas, Älö)

Formal NPD process of Älö company consists of the next stages: pre-study, design and test, validation, implementation and termination. According to the experts of the company the first stage of their NPD process is a pre-study where a new idea is investigated and decision about further development is reviewed. During the pre-study it is important to understand if the market is big enough, who should be involved in the process, how many people will be involved, if there is a need to hire external consultants, if expected revenues are considerable and so forth. This stage is usually taking between one and three months.

Next phase of the process is a design stage, where the production department starts to do a detailed design of the product and figures out what materials should be used. After this step the phase of validation comes where the product is tested. On the next, implementation stage, information about the new product is sent to partners and everything is ready to start the production. During the design and test phase some product’s features that should be improved can be found. The last phase is the termination phase where the project is closed.

Volvo Trucks Company has a similar process. During the first stage marketing and technical studies are conducted; later the concept of the project is developing. After that a product prototype goes through different stages of technical development and ends up with the industrialization stage where pre-production processes and launch of the product take place. The NPD process ends with the follow up stage where the product is ready for mass production. A brief overview of this process can be found in the next quotation:

“We start with the analyze of the market <…> After this, the top managers of Volvo Trucks will meet together and decide if start or not the work with this project, also they decide the budget for our entire project. After this, the concept and design starts <…> During this phase, we will again meet with a board formed from our top managers, which will see how the process is going and if there are issues to be addressed. After this we do the testing, which can be in house or by customers. The last phase is where ultimately the parts that will make the product are bought and prepared for the assembly plant.”

(Patrik, Volvo Trucks)
Another important aspect of NPD in Volvo Trucks is that the process is divided into different classes: each class describes the complications of the projects. Thus the first class is very simple projects that have shorter time of development process and require fewer resources; normally it is such projects as small changes of existing products. From the other hand, third class of projects has more steps and longer time of development; it includes for example such projects as development of completely new trucks.

Finally, talking about NPD process in general, respondents were asked how often they have such processes in their companies and how much time it takes in general. This question allowed us to understand how often companies develop new products and how much time it is required from idea generation to launch of new products. The importance of time issue can be illustrated with the words of Tomas, Ålö:

“It is really critical to be able to provide a new product as soon as possible. As you know in the beginning of a new product the sales are the best and then they decrease. So we cannot miss the introduction of a tractor that when we have a chance to sell something. <...> So short lead time to market is really important for us. The product of course needs to be good also.”

According to Fredrik, from Ålö, a NPD process in their company takes from 9 months to a year; it much depends on the complexity of the project. He noticed that technical development of the product and R&D processes are the most time-consuming processes. At the same time, respondents from Volvo Trucks found it hard to answer this question, because obviously time of the projects development depends on their complexity and required resources:

“It takes around five years to make a completely new product”
(Ingela, Volvo Trucks)

“<Moreover> we don’t have time measurement as an indicator of project efficiency”
(Ingrid, Volvo Trucks)

Another question for discussion was how often the researched companies have a NPD process.

“Usually, we upgrade our products every year, for example we do an upgrade this year for one of our product, and we are doing this because we need to change some things and also to cut the costs of producing that product. A totally new product we develop once at 2 years, as this is our company vision.”
(Anders, Ålö)

“In general completely new product, a product from a blank, I would say one every twenty years. But of course, every year we have some changes and improvements of <current> products” (Ingela, Volvo Trucks)

“Each 4-5 years we have major project in which we have to produce a new truck for example. But, smaller project we are trying to have every year, like to improve the trucks so that we can say is a new model in that specific area.”
(Patrik, Volvo Trucks)
“Basically we have a development of a new product every 1-2 years. These are the major ones, but then we have customer’s adaptation which might be done every 3-6 months, depending on the customer needs.” (Mats, FältCom)

From these answers we can see that completely new products are developing once per several years, while different types of product changes and improvements are happening much more often. Time, required for the NPD process, depends on its complexity and required recourses.

6.2. NPD STAGES

Here we will review different practices of the NPD process that are used by studied global companies: Ålö, Volvo Tracks and Fältcom. This chapter will discuss the process of creation of new products for international markets all over the world as well as some issues typical for global NPD processes.

Data were collected from the answers of the companies’ experts who are involved in the NPD process. These data are divided into several main topics according to the theoretical part and represent answers of all respondents. During the collection of the data we were following the interview guide that is represented in appendix 1. In addition, here we have tried to spare the chapter, so that we can give an appropriate answer to our research question.

In view that our interviews were semi-structured this guide provided us just general direction of the conversation and main points for discussion. The interview structures are different from each other and were adapted during the interview according to the respondents’ knowledge, experience and provided answers. But the first part of the interviews was always a discussion about the role of the respondents in the NPD process and his or her experience in the company. Also we asked them to provide their overview of the NPD process overall. In most cases we also had discussions about adaptation of marketing mix elements to local markets and differences in these elements between countries and regions.

6.2.1. Opportunity Identification and Selection

Here the process of opportunity recognition and idea generation will be discussed. This section starts with the description of sources of new ideas and participants of the process. After this the processes of analysis and estimation of new opportunities will be discussed. Finally some reasons of idea rejection will be presented.

For understanding how the NPD process starts we asked our respondents about sources of new ideas and the process of opportunity identification. It appeared that the very first step in the NPD process is idea generation and opportunity identification process. Mentioned sources of new ideas went from external ones, such as customers, experts, competitors and partners, to internal sources like marketing, technical or R&D department. It was also found that investigated companies do not have any structured process for idea generation. Majority of ideas tend to come from marketing department through communication with customers. This point can be illustrated with the words of Finn, Ålö:
“We are visiting dealers, several times per month and we also visit farm shows all over the world. There we have a chance to speak with the end customers. And whenever there is a problem or some sort of comment or suggestion for improvement, we passing it to our product managers ... Sometimes farmers they design things themselves and they want to sell these patents to us. And things like that. Many times it can be a very good idea, what they do. Because they know what they need.”

Another example is the words of Patrik from Volvo Trucks:

“We are around 200 persons working in the department of product development <...>. In those 200 persons, we include also the marketing department which is considered of great importance when we start the product development, as they are our link between us and the customers or the market”.

It appeared that other external sources of new ideas could be competitors and market itself. For example Ålö that is a producer of tractors implements and front loaders has a partnership with some tractor manufactures. In view that their development of new products depends on tractors’ market development such source of new ideas and market information is very valuable. In all our companies’ cases law is a big driver of new products as well: for Ålö and Volvo Trucks its pollution regulation law, for Fältcom it is safety-related legislation. Of course all our respondents pointed out technical department as another source of new ideas in view that they are experts in production and often have suggestions for improvements. Both Ålö and Volvo Trucks have a database of technical problems that customers are complaining about and they call this database as a valuable source of new ideas as well. FältCom has a common database where all ideas are collected:

“We have a person who is in care of managing the data, to see if we can gain money after developing that process. We will have a support system, which will act as a database also for our prospective improvements we can bring to the products” (Anna, FältCom)

All researched companies have so-called product council meeting where experts of the companies get together and discuss new ideas and opportunities. Such councils consist of top management representatives, marketing and technical experts. Ingela from Volvo Trucks noticed that this stage is among crucial ones in the NPD process, which is why top management is always involved in the first steps of it. Ålö has such meetings every two months while Volvo Trucks (being a bigger company) has them every other week. The idea of such meetings can be illustrated with the words of Urban, marketing director of Ålö:

“All in all we collect all information here, and then we have a product council every two months, where we brings the ideas and discuss if it’s a feasible project or not. If we can see any market for it, then we bring it to development process.”

According to the experts of Volvo Trucks, Ålö and FältCom, top management is mainly responsible for the decision about new projects. They are also involved in the decision about the budget for it. Some projects can be hard to implement for the current time, so
they can be “frozen” for the future. As experts mentioned, all ideas and opportunities are reviewed from the global perspective from the beginning (Patrik, Volvo):

“When we start, we think of our process from the perspective of a global market. Our customers are all over the world, this is why we have to take into consideration that we have to create a global product, which can be used by all of our customers.”

However there are some cases when new ideas can be implemented locally (Tomas, Ålö):

“Products can be developed for a specific market as a target. We think globally <…> But if Latvia for example will have the only sales but the profit will be high enough we can go ahead anyway. Sometimes we need to do it anyway because it could drive the sales there. Some markets might be with specific standards <…> We invest in those projects that get more profit for us.”

Finally our respondents named some reasons that can cause the rejection of a project such as not being profitably enough, a long payback time period, absence of required recourses, no need or just absence of the company’s interest. But in cases when a new idea is approved it goes further to the concept generation and the project starts. As it was mentioned above top management is involved in taking such decision in all investigated companies’ cases.

6.2.2. Concept generation

The concept generation phase was discussed in all three interviewed companies and the main questions for discussion of this stage of the NPD process were what is the role of the concept generation? and how is this done in your company? Some of the employees interviewed said that they do not know what this stage is about and we had to explain the idea. Then they were able to describe how the process of concept generation looks like in their company or if they do work with this aspect of the NPD process.

The interviewed experts agreed that at this stage they investigate if the idea selected is right for their purposes and how it can be improved, even if this means that they should add something like a new color for the truck, in Volvo’s case, or a new option for the loader, in Ålö’s case, or a new specification for products at FältCom’ case.

Tomas from Ålö answered that during this stage, experts from the company who are involved in the project meet together (marketing director, managers, top management and the production director). As he explained during this meeting they go through the ideas they have gathered and do some “pre-investigation of the ideas, or possible changes and their potential from our perspective”. Moreover, he said that they screen the potential idea for some problems, like “if it’s technically possible, if it is something that they can sale and if it is something that they can do business with it”. The same answer we received from FältCom, particularly Mats said:

“Usually the CEO of the company and marketing persons are meeting to investigate the idea they have till then, and there is no technical person since the CEO of the company has also technical expertise. If he would not have, I
think technical department would have been involved in this process also <....> and they decide on the concept which is appropriate in their opinion."

On the other hand, Ingela who is the project manager of Volvo Trucks said that they spend more time on working with the concept generation for bigger projects than for those that are small:

“We have a concept study which is going more and more into details and after that is a following up phase. It can be seen in three project classes with the largest class outside, which means more time length for bigger projects to be researched. Here the project managers and marketing people are involved.”

All respondents argued in one way or another that this process is a tough one as they have to take into consideration many aspects of the idea, since they are working on global companies which are present in many countries. One good example is the one said by Anders who answered that:

“We have plants in France, and other countries, we have customers in many countries and when we are doing the concept generation, we might find ourselves in a tricky situation as we have to handle so much information. Since our product should be right for all markets, not for one only. <.....> this is a global market problem, as if there would have been only one market or two this would have been easier.”

According to the employees interviewed from FältCom, Ålö and Volvo Trucks, the idea generation is more useful for receiving the acceptance of the board to continue the work on the project, as they consider that a better impact is having the next phase where they build a business case for the idea. As experts mentioned Ingrid, marketing Volvo:

“The concept generation is like an assurance for the board, that the idea we have chose is the right one and that we can continue with this idea.”

6.2.3. Concept/Project evaluation

Previously we have seen how the idea is getting shaped, while now the main objective is to see how global companies evaluate their projects and what they take into consideration for their project evaluations.

It should be expressed that all interviewed experts have said that this stage, project evaluation, should be in the same part with a concept generation. Following expressions clearly illustrate this:

“Outcome of the pre-study is usually a very detailed concept of the project, product, costs, and profit. That is the first step. And we don’t go on if we don’t have costs or profit. Costs are very difficult to find. You need to base it on high degree of estimate, but it’s very critical. And then we take a decision to make a product.” Tomas, Ålö

”First of all you have to find the information. Then you have to make a package, present it, then they decide if it is worth of doing or not. Pre-study is possible use on the market, competition, what it will cost to produce, how many
we can sell. And when that is done they present it to product council. And then they decide whether or not we should go ahead with it. If it is go ahead, than it’s a sort of project plan for it.” - Finn, Ålö

Furthermore, some interviewees stated that for the project evaluation, they have to take into consideration many aspects such as the production costs, the profit they might obtain to, who should be working on the project. They argued that they want to create a big picture of the entire project and to understand the steps they will have to take for the future development of the product. Below are some statements concerning the things they have to take into consideration for their project evaluation.

“After this we have a better view of the total cost of the project, and how the design will look like, so we can go again to the product council to present in front of them what we have done and what our conclusions with this project are. If the figures of the future revenues are low or if the number of people involved is high the council might say that it is not worth proceeding with the development of the product. (Anders, Ålö)

“We invest in those projects that make more profit for us. We have really focused on what really brings money in the next 5 years. That is what we do. Or try to do. It’s not so easy. Don’t trust on what they are writing in the books. It comes down to what people feel around the project and what data they have at the moment, because it’s very difficult to estimate the sales of a product that you do not have. Then you try to collect all the information from the marketing department, but they are not so honest either. They might exaggerate the sales numbers because they just want it. The can tell us that they want 100 but they sell 10. Some of them are really good at doing like this.” (Tomas, Ålö)

Moreover the interviewees mentioned that on this phase of the project the timing is crucial. As they do not want to spend too much time working for the project evaluation, since this might change the market conditions and the project can be found with other competitors. On the other hand they must not be in a hurry and pay proper attention to the project. In addition they add that this project evaluation can be done, also, during the next phases of the project, where they will create the business plan of the product.

6.2.4. Development process

Technical development

In order to understand the development stage of the NPD process in global companies the respondents were asked questions related to product (technical) and marketing development. These questions made up a significant part of all interviews and tended to find out how products are developed for the global markets as well as important issues in global marketing development. Such questions in all our interviews brought us to the discussion about standardization versus adaptation strategies. In other words, respondents mainly pointed out the decision according to adaptation of marketing mix elements to the local markets as one of the main issues during this stage.
Development of a product starts with the decision if it should be standard for all markets or some of the product’s features should be adapted. It appeared that in all cases companies tend to produce standardized products for the whole global market with exception of small adaptation such as translation of users manuals to the local languages or any kind of local legislation that producers must follow:

“We produce a standardized product. If we need to sell it in North America, we have to add three times more warning stickers. But the machine itself is the same.” (Finn, Ålö)

“When we start, we think of our process from the perspective of a global market. Our customers are all over the world; this is why we have to take into consideration that we have to create a global product, which can be used by all our customers.” (Patrik, Volvo Trucks)

“...if you develop a new product, you need to look at the entire market and to fulfill all the customer’s needs of your entire market, which in our case is global.” (Mats, FältCom)

Later, together with our respondents, we came to the discussion about customers’ needs all over the world: if customers are different in different countries and how diverse customers’ needs should be satisfied with the global product. For example it appeared that Volvo Trucks has a database for gathering the information about global customers that they receive from factories, suppliers, fairs and distributors (Ingela, Ingrid). Then these data is considered during the product development process. The same process can be observed in other companies:

“(Are requirements from customers similar or different all over the world?) Different. But up until now we have one product for all markets. We know that it is not perfect for the whole market. But we have taken a decision to have one standard product and sell it to as many countries as possible. But we know that demands are different.” (Fredrik, Ålö)

Tomas, R&D director of Ålö provided us with an interesting example. Apparently, as he can see from the company experience, every country has its own “favorite” product. The same products are required to be with different characteristics in Germany, France and USA, for example. “One thing that is difficult for example in France is that they require a big lift high. They should lift high because the farmers try to stock everything too high, to keep space. In US we don’t have this problem at all. They want to have a big lift capacity. And those are contradictory requirements.” (Tomas, Ålö) For meeting the diverse customers’ needs all over the world the company implements different technical solutions and try to offer the range of products that can satisfy as many customers as possible.

“So we try to fulfill the requirements of each one as well as possible. But of course sometimes we end up with a compromise that it is not the best product for France and not the best for North America. And they [local sales people] are always complaining that they don’t have exactly the same what they need for those markets. We are the market leader in the world, but we are not the market leader in France. A French company is the market leader there”- (Tomas, Ålö)
“This is a global market problem, as if there would have been only one market or two this would have been easier. What I have said about countries is not applied only at the level of countries but also for regions of the world. As in North America there are some specific standards for front loaders while in Europe there are different standards, which we have to take into consideration” (Anders, Ålö)

Thus as we found out from our interviews the task of development of a product that is suitable for customers all over the world is a quite challengeable one. That is why in some cases companies take decisions to produce a product specifically for some local markets. For example Volvo Trucks produce separate products for India and other right-hand driving countries and produce products specially adapted for these rules of traffic. Another example of reasons for local product adaptation can be found in the interview with R&D director of Ålö:

“If Latvia for example will have the only sales but profit will be high enough we can go ahead anyway. Sometimes we need to do it anyway because it could drive the sales. Some markets might be with specific standards <...>. Of course we could do something for the implements that we will <allow us to> sell 50 more loaders. It’s just an exercise on how much money we can get from that. We invest in those projects that get more profit for us” (Tomas, Ålö)

“We sometimes try to compromise, <...> but sometimes it is not possible and we have to produce some different models for different types of countries or regions. But this is done only after we discuss this issue in the council, sometimes we do this” (Anders, Ålö)

The way how the company satisfies diverse customers’ needs globally is a very hard and crucial decision in overall NPD process. No doubt that a product should be suitable for every particular market and sometimes it is very hard to find a solution. We found also that at this stage technical specialists, like R&D, designers and so on work very close with marketing experts in order to design a product that can meet market requirements.

Another issue that was discussed with our respondents is the process of testing of product prototypes. This question is connected to technical development stage as well and plays a very important role in the NPD process. It was found that the end users are involved in this process and help companies to test new products “in the field”. For example, FältCom always involve users in the testing process: “Yes, we do test. This is done usually by the customers, whom we call as beta testers”. (Mats, FältCom) At the same time Ålö first develop a prototype of the future product and then send it to some of the farmers for testing as well. However they leave some prototypes inside of the company to make some tests. Volvo Trucks has similar a process as well. Moreover all companies make not only these kinds of testing, but use special computer software for testing the prototypes also. The process of testing can be very good illustrated with example of Volvo Trucks Company:

“The test is done both inside, where we have a verification of the design, which is done on the computer; from this test we want to observe the resistance of the materials we are going to use, how it is going to act in some special situations. Also, the test means that we have to see how the parts are going to be assembled, since we have to produce the trucks fast, this means that the
parts should be put together fast. The second way we test is by test track, where we test our trucks in a real environment, so that we can assume how they will act on the roads” (Patrik, Volvo Trucks)

Marketing development

Together with technical development of the products, companies work with a marketing plan for the new products. Similar to the issue about product adaptation decision, global strategies for price, promotion and distribution should be worked out as well. Our questions about global marketing development came up to the discussion of marketing mix elements; it appeared that decisions about each particular element are made separately and some elements seem to be more standardized than others.

In all companies’ cases we observed the policy of price adaptation to every local market. When our respondents were asked the question: “Do you adapt your price policy to local markets or is your price strategy standardized?” It became clear that they consider each local market as a separate one from this perspective. In general, the respondents reflected the need to adapt price policy to every local market in order to offer reasonable price for the local customers from one hand and gain as much profit as possible from the other hand.

According to Ingrid price difference for Volvo Trucks between countries can reach 20%. For example, prices for trucks in Ireland are lower than in Great Britain, even though these countries are so close to each other. As she explain price on local markets depends on local conditions and competition.

“Our products in China are cheaper than the same products in Germany, for example” (Ingrid, Volvo Trucks)

Similar policy has other studied companies:

“Prices are different between countries, and this is the role of the marketing department. For example, Spain, Italy and Greece are price orientated” (Mats, FältCom)

FältCom’s experts mentioned that price depends not only on the country but the product configuration and purchased volume. Ålö also adapts prices to every local market and the next quotation from the interview with a company’s expert probably is a good example of the reasons for such policy:

“We have a strategy there. We have to reach the price that suits the market. So there is a big difference for products sold in Norway and in Spain for instance. That is probably the biggest difference. But we try to have a correct price for each market. Of course it is easier to have the same price list for everyone. But then some people pay too cheap and for some people it is too expensive. We try to use the other way and relay the price to the market rather to the actual costs of a product”. (Urban, Ålö)
Further the issue of promotion in different countries was discussed and it appeared that local dealers and local offices play an important role in the promotion adaptation process:

“We do both. We do the framework here <...> and then depending on where it is, sales companies or importers, they work with their agencies <locally>” (Urban, Ålö)

Ålö has a special promotion tool that creates unified values and brand image all over the world. Even if messages are different in different regions, the feelings that they create should be the same everywhere:

“For example we have two the same projects, but they have different values for the market. Then we sell different images. Our marketing team, they make a framework for the marketing. But of course the campaigns and advertising are done locally. <...> So if you see the advertising in Germany for example and in Sweden, you should recognize the advertisement. But they can push for different aspects of it.” (Tomas, Ålö)

Volvo Trucks spent a lot of resources for promotion: it includes mass media (magazines, TV, radio and so on), sponsorship of different events and other channels. But local companies and offices are involved in this process. FältCom is also working with local partners and distributors:

“We are marketing <...> through distributors, also advertising via partners, for example like Telia, and in the magazines” (Mats, FältCom)

“In the majority of the cases distributors are working with our promotion.” (Anna, FältCom)

Finally such a promotion tool as websites is also adapted by companies. Thus Volvo Trucks has around 75 of them while Ålö has 24 local websites for different parts of the world.

The last aspect of marketing strategy that was discussed with companies was distribution of new products. Here a case of Ålö can illustrate very well challenges that companies can face in the global arena:

“In Ireland we work with tractor dealers. But in Russia we don’t have the same kind of importers, they sell it to different distributors. The dealer is also an importer usually. They don’t have the middle, a company importing the goods and selling it all over Russia. But Russia is such a big market. It seems we need several importers, one is in the Moscow area, and one is somewhere else. But of course for me to work just with one importer is a lot less than with 7. So we have to change the way that we used to perform to be able to handle it. I think it’s a very different market and we didn’t? face this kind of structure before” (Fredrik, Ålö)

All in all, during the interviews with experts of researched companies, all respondents discussed necessity of some adaptation of marketing mix elements to the local markets. The issue of decision about product adaptation versus standardization seems to be one of the crucial decisions during technical development stage of the NPD process in researched global companies; while such elements of marketing mix as price; promotion and distribution, a global policy should be considered on the marketing development
stage. Overall, the studied companies seem to face the challenge of decision about adaptation of product strategies during the development stage of the NPD process.

6.2.5. Launch

The last step of the NPD process is known as launch, so we had some questions to our respondents that were referring to this stage as well. It was found that mostly marketing people are involved in this stage. According to our respondents, in most cases the process of launch of new products is developing for each single market. As it was mentioned by experts of Álö and Volvo, sometimes the new product’s launch can be connected to some show or exhibition.

During the conversation with Tomas from Álö, one issue appeared that can be common for any global company at this stage of NPD. According to his opinion it is hard or almost impossible to launch a new product all over the world at the same time:

“If you build up a too big amount of products from the beginning, you will not be able to deliver them because it could be very expensive to deliver it to the same market at the same time <...> For example France and Germany are the first that are going to launch a product. One reason for that is very high competition there. We want to be on this market as soon as possible. Because they need something to go to dealers and say ‘look what I have’. And we want to make our competitors a little bit shaky also. So they <marketing department> have been starting with sales promotion and everything while other markets decided to run it a little bit slower.” (Tomas, Álö)

Also experts from Volvo Trucks and Álö noticed that smaller changes don’t require so much attention. Sometimes just a small message for dealers is enough in case of small changes, while other new products’ launch is planned very carefully in all details. Moreover according to our respondents, launch stage is also associated with education and training of dealers and partners all over the world.

According to the formal process of NPD in Álö and Volvo Trucks it is necessary to follow up the launch process: to see what went wrong and what was good. During this stage close cooperation of marketing, sales and production departments are required. The final step in this process is starting of mass production of new products:

“The product department and the selling department can start their work, which is to sell the new created product, after we have signed the product release papers. They are very important as this is like insurance from us that the product is good to start mass production.” (Anders, Álö)
6.3. STAGE-GATES

During the description of the NPD process from the companies we skipped to write about the stage-gates. From our interviews we found that basically they have the same process for each gate and thus it was decided to discuss this issue in a separate part. According to our interviewees, at the stage-gates product council mainly checks if there are any delays and how this can be managed, if there are any issues concerning the NPD process, some risks of the project, if there is a market for the project from the global perspective and so on. The main idea of stage-gates process can be found in the next quotation:

“Steering group often has some corrections. Sometimes they are afraid of being risky and so on. And they want to prevent every potential problem.” (Urban, Ålö)

During our research it was noticed that all three companies have different names for the group that is taking decisions throughout these gates. For example Tomas from Ålö used such names as product chancellors and steering group, while another expert from Ålö, Finn, used a term of a product council in order to describe these stage-gates. Volvo Trucks is using a term of steering group, while experts from FältCom mentioned the term of a meeting group.

The respondents acknowledged that this decision group is meeting after each phase of the project in order to analyze the project and check its flow. They also agreed that this group play an important role in achieving the success of the NPD process. It can be found below some parts from the interviews that were selected in order to illustrate this:

“All in all we collect all information from the phase, and then we present it to the product council <…..>” (Urban, Ålö)

“If you have a small company every step would be faster, but because we are working in a big company we must have every step confirmed by the product council.” (Lundgren, Ålö)

The next question referred to the issue of who is taking part in this decision group. The answers were quite similar and it appeared that usually the management of the companies is involved in this process. Following replies can illustrate this conclusion:

“Decisions for all development processes are taken by our product chancellors. It’s marketing director, me [R&D director], product manager, CEO and production director.” (Tomas, Ålö)

“Usually, in the product council the top managers, director of marketing and director of R&D are present.” (Anders, Ålö)

“The CEO of the company will have this decision after analyzing the documents...” (Mats, FältCom)

“The decision is made by the product council, which is formed from top managers from different departments like marketing, finance, sometimes CEO and others.” (Ingrid, Volvo Trucks)
Different answers were gotten for the question of how the decision group measures results of the project. Thus Volvo Trucks is using a special model for that, while Ålö and FältCom do not have any kind of such tools. To illustrate those explained above, the following paragraphs have been chosen:

“We measured [it] at development gates, how well we can cope with the costs and how the quality of the product is. We are also committed to something called QDCF – which means quality, delivery, costs in terms of project (and product?) costs and product costs and the features also. From this perspective we measured that we are on time and have a good quality at a low cost.” (Patrik, Volvo Trucks)

“Sometimes they are afraid of being risky and so on. And they want to prevent every potential problem, and look at the price, market, costs and what they consider important for that project. Other times, they look how the project is going and if it is on time or if it has delays and why.” (Tomas, Ålö)

“They usually discuss how the project will work and what the issues of the project are.” (Anna, FältCom)

One of the last questions that were discussed was an issue of the reasons why some projects are rejected while passing through these gates. Experts didn’t have a similar opinion and they expressed that there are many reasons why this can happen. The projects can be refused because of the incertitude, because of the lack of perspectives for the project, or there are no global opportunities for the project. Also projects can be canceled because they can require too much effort from the company:

“Many ideas are rejected for some reasons: it could be resources, or we don’t need that idea, or we can’t make a profit, or whatever. But with some of them of course we decide to go ahead. And then we start the development process that we have.” (Tomas, Ålö)

“All this classes have detailed scopes and a specified amount of money, and if a project requires more money, then we have to bring this in discussion to the next product council, to see if we will get or not. For example, class 1 is up to a limited amount of money.” (Patrik, Volvo Trucks)

“It happens not so often for us actually but it could happen that you developed a product, made costing, calculate profit and you find out that the profit is not enough and the product is closed.” (Tomas, Ålö)

Finally some of the experts noticed that if there is a big new product project in progress the decision group is the one that handles the budget of the NPD process, as they want to see the reasons of the budget and if there are any needs to increase the budget. This is best described by Anders from Ålö:

“Of course, when we have started to do the pre-study of the new product development we will also have a budget. Usually, if it is a large project, the budget can be handle during the process, so it is not a standard budget. This we discuss of course, during the process, as sometimes we might need more money and also there might be the situation when we have too much money. This we discuss on product council, so that we can have the money before I can
start spending them. If it is not enough, I go to the product council and ask for
more money, and try to explain why I need more money.”

6.4. NPD TEAM

Another issue that we would like to discuss and which is also found in the research
question is the possible composition of the NPD team. This can be analyzed from the
answers of our respondents to the questions regarding their position in the company and
their roles in the NPD process. The experts expressed essentially similar things which
showed that they have more or less the same approach for the composition of NPD
teams in the companies.

Top management

Our interviewed experts expressed during the interviews that the top management is
implicated in the entire process of NPD. They are the ones who have the power to stop
or sustain the process and in addition they are part of the decision group. From the
interviewers’ answers it can be seen that the top management is involved in the
discussion process only if there is a big issue for the projects, thus they are not always
involved in taking care of small projects that does not have so high risk. The following
quotation is giving a complete answer to this question:

“Top management’s biggest role is to be involved in the process and make
decision what should be launched, when and so on. It is also working for
product developing projects. They also take decision on each gate. Not each we
report to them. They can let me take all the decisions for small projects for
everyone. But when it comes to introducing the product, or starting the project,
they are always involved.” (Tomas, Ålö)

Marketing

Marketing experts argued that they are involved from the beginning of the process and
till the end of it. Thus they have to screen the markets to look for new ideas and
opportunities and together with other experts they have to develop a concept of a future
product. Moreover their role during the development and launch stages as well as stage-
gates was discussed previously. When they answered the question about their tasks in
the NPD process it appeared that it is mainly managing of the market. Below an
example of such answers is presented:

“We have the ear closest to the ground when it comes to meeting customers.
We are visiting dealers, several times per month and we also visit farm shows
all over the world. There we have a chance to speak with the end customers,
the farmers. And whenever there is a problem or some sort of comment or
suggestion for improvement, we passing it to our product managers.” (Finn,
Ålö)
Project manager

The last question that we addressed was dealing with the role of project managers and it appeared that they normally keep everything under control and report any issues that can appear during the process. Also, they said that another important task is to handle the teams, to motivate them and to keep them focused. At Ålö and Volvo Trucks we found that project managers have some check lists which they should follow. Even though these lists can be adapted from process to process, there are some basic things which they need to follow in order to keep everything on track:

“For our project managers we have a check list, with the most important things which they have to take into consideration inside of the project and how long this will take to be done. This is for a standard project, but the check list can be adapted also for an important product which will require more funds from us. In this check list we can see if we have done this, what we have done, for how long and so forth.” (Anders, Ålö)

“My role is to manage this organization. In development projects I’m a member of the development council and also the owner of all product development projects. I’m managing everything that’s going outside of the budget or some problems with projects” (Tomas, Ålö)

“I am the product manager of the company and I take care of the development of the product and create road maps for assuring a better process.” (Mats, FältCom)

6.5. HOW THE PROCESS IS MANAGED

In order to understand how the global NPD process is managed we asked some relevant questions to our respondents. First we discussed how suppliers and customers are involved in the process, if they collect inputs from them worldwide. Second, we investigated how companies synchronized their processes (related to product development) inside of the company.

As it was mentioned already in chapter idea generation, all companies involve their customers in the NPD process mostly at the beginning of it. They collect inputs from customers all over the world. Moreover, as it was discussed before, customers can be involved in pre-study processes, testing stage and other:

“When we start the project, the marketing department is working with us. In the beginning <...> we need to test the specification, or to find a good design, we are working close to them as we are presenting to them models, and they present those models to the customers to see their opinion” - Anders, Ålö

“<We collect customers’ feedbacks and suggestions> through workshops or fairs that we are attending. We are doing clinics, where we know that people gather and we can establish some showrooms for them to tell us about the trucks they have.” – Patrik, Volvo
We also found that suppliers are involved in the NPD process in all studied cases.

“Suppliers yes, they are definitely involved. We have a recent product development project, where we have been working during 5 years together with suppliers. It has been a joined project.” – Urban, Ålö

“We of course involve them, the suppliers and the factories which are producing our products, are involved from the beginning. So they can produce or sell our new product. We discuss with them things like what components we should use, how much it will cost and so forth” – Mats, Faltcom

Thus all researched companies involve customers, suppliers and partners from all over the world. Some companies, as Volvo Trucks, use a special database or software where they collect all these inputs. Other companies like FaltCom and Ålö, they do not have such a database; instead they have responsible people who collect all such information and make conclusions. However, experts of Ålö noticed, that with such kind of database it would be easier to manage all the information.

Finally we found that all companies have easy access to information about the processes inside of the company. All companies use intranet where all necessary information can be found. In such a way companies make their processes more visible and any expert of the company can find required information at any point of time.

All in all we can conclude that studied companies cooperate with their customers, partners and suppliers worldwide. Moreover they use technologies in order to share information with each other and make processes more visible. Finally, just one company has a special CRM-system where they collect all information about the market.

Conclusions

Thus in this chapter the data collected from our interviews have been presented. Here it must be noticed that all gathered data was transcript in more than 20 pages and not everything was discussed here. Rather only the data that provides basis and inputs for our analysis and findings was reviewed.
7. Analysis of the findings

Discussion of presented theoretical and empirical data is provided. This analysis of the data leads to the answer for the research question. Finally, proposed model of the global NPD process is introduced.

This chapter analyzes the data which was collected during the interviews and was presented in chapter 6. The gathered data is intended to illustrate the NPD process in global companies, some unique aspects of this process for global companies, describe experts who are involved in the process and decisions that they take and to analyze how the global NPD process is managed. This chapter will discuss the theoretical concepts that were presented in the theoretical framework and literature overview and these theoretical findings will be used for data analysis as well and will keep the flow of the research question we have proposed.

First, each step of the NPD process in studied companies will be analyzed; conclusions that can be implemented to all global companies will be provided together with this analysis. Then the chapter will be continued with the analysis of composition of NPD teams in global companies and issues that are crucial for the global NPD process management will be discussed. Finally, a model of the NPD process for global companies will be proposed, and like this an answer to our research question will be revealed.

7.1. NPD PROCESS

7.1.1. Opportunities Identification and Selection

In chapter 3, that presents the contemporary perspectives on the NPD process, opportunities identification and selection stage was defined as one that seeks to find new ideas and recognize new opportunities (Crawford and Benedetto, 2008). In order to understand this stage of the NPD process in global companies it was analyzed with the usage of reviewed theoretical concepts about this stage. The analysis of the stage starts with the review of different sources of new ideas used by the companies and it is followed by the examination of the idea evaluation process. Based on this information, conclusions about the stage that can be common for all global companies will be done. Finally, all these discussions lead to proposition of the detailed model of this stage of the NPD process for global companies.

According to the theory, opportunities can be identified and new ideas can be generated both inside of the company and outside of it (Crawford & Benedetto, 2008). Particularly sales people can bring new ideas based on their communication with customers or technical experts can have some suggestions. On the other hand new ideas can come from the market (for example, from competitors or partners) or external environment (for example, new legislation) (Cooper, 1990). Moreover it was discussed
in the literature review that such sources of new ideas as experts, published sources and stakeholders can be used (Crawford & Benedetto, 2008). Finally, in order to turn an idea to a concept and a project, companies should investigate the potential market of it, customer benefits from a future product, expected profit and market growth.

During the interviews with the companies, different sources of new opportunities were discussed. As it could be seen from that chapter all theoretical concepts regarding the process of new idea generation are used on practice by global companies as well. Thus, experts of production department can suggest ideas for improvements or better products based on their knowledge and experience or by analyzing technical problems and reports on damages. On the other hand they can initiate ideas for new to the markets products. New ideas can be proposed by the marketing department as well. Moreover the marketing department is considered as the main source of new ideas: they are the closest people to the customers and they normally collect information about competitors as well. As we found during the interviews, all investigated companies try to offer mostly new for the market products; thus it can be assumed that presence at the global market is associated with such strategy.

On the other hand, sources of new opportunities can be found outside of the company. Thus all the companies mentioned the necessity to follow local legislation and make some changes of the product according to the local law. The legislation seems to have a strong influence on new product development process in global companies and it is considered as a very important reason for development of new or adapted products for local markets. Markets bring new opportunities as well: experts, partners and competitors are common sources of new ideas among studied companies.

Therefore, global companies use different types of sources of new ideas and generate new opportunities in different ways. In such a way, after comparison and analysis of interviews it was found that global companies can find new opportunities both inside of the company as well as outside of it. Thereby we concurred with the concepts of idea generation that was presented in the literature framework.

However we consider that one issue should be discussed in more details here. Particularly, as all respondents mentioned, not any initiation can be viewed as a new idea. It appeared that in view that global companies operate worldwide they should satisfy needs of customers from all over the world. As it was mentioned during the interviews, from the beginning companies perceive their markets as the whole one, so the idea should be good not just for one local market but for the global one, even if some adaptations can be required. The words of Anders from Ålö can be a good illustration of this idea:

“When the market department comes with the request, it can be the USA market, which we know that the standard should be this, or the France market, where the standard is quite different from the USA market <...> and in Germany they want something in between this. Usually we need to have a compromise between these countries <...>; for example, we put the question how can we make a product for 3 countries and how can we combine those 3 markets so that everyone can be successful for us.”

Moreover, as it was argued by other interviewed experts, quite often companies do not consider requests from one local market as far as they will not confirm it with customers from other countries. Thus it can be argued that the traditional NPD model
starts with ideas’ estimation and selection (Crawford and Benedetto, 2008). The global NPD process, in contrast, starts with transformation of new product’s requests and initiations into the idea that can be suitable to the whole global market. For the purpose of our research we will call such ideas that are adapted for the whole global market as global ideas.

Based on all these arguments it can be concluded that ideas for new products can be brought from inside of the company as well as from outside of it. During this stage of the NPD process, marketing department plays a very important role in view that they collect all the inputs, suggestions and information about the market. However it was found during the interviews that a new idea must be suitable for the global market; respondents argued that for this purpose management of the company, marketing and production experts should work in close cooperation in order to find a solution that can match diverse global customers’ needs.

All these conclusions lead to the scheme of the idea generation stage that is presented below.

![Diagram of idea generation stage of the NPD process in global companies](image)

**Figure 13: Idea generation stage of the NPD process in global companies**

7.1.2. **Concept generation and evaluation**

In the traditional model of the NPD process, which has been presented in chapter 3, the concept generation and the concept evaluation stages are essential for each company as it is obvious that without a strong concept the product will fail. (Mayo, 2010; Shepherd & Ahmed, 2000)

Moreover, according to the literature, the concept generation and the concept evaluation are two different stages of the NPD process (Cooper, 1990; Crawford & Benedetto, 2008). However during our interviews the respondents said that they do not make any differences between the concept generation and evaluation stages, instead they work on the concept generation and evaluation simultaneously. As it was presented in the
empirical findings, the experts consider that the concept generation stage is more about shaping the idea as well as evaluation of it; at the end of this stage a product council will approve the concept or not. From the gathered data we can conclude that studied companies combine these stages in order to minimize the time of the process. We consider that this conclusion can be implemented for all global companies, since their goal is to bring the product as soon as possible to the global market.

Furthermore, some researchers see the stage of a concept generation as similar to the previous stage, opportunity identification; however there are some visible differences that make it as a separate part of the NPD process (Crawford & Benedetto, 2008). Those differences are related to the customers, as they have to be involved in the process of the idea generation (Cooper & Edgett, 2010), and as Crawford and Benedetto argue, at this stage is the “first appearance of an idea” (2010; p. 33). Moreover, according to the theoretical concepts, a product concept is created and the gathered ideas are selected during this stage. Depending on the companies, the idea can be revealed through market screening, customer’s surveys, technical department and other ways of gathering ideas (Crawford & Benedetto, 2008).

We find that at this stage of the process companies should have a good perspective of how the product should look like: they should decide if the idea is good enough, screen for possible problems, which might appear during the process, and so on. Besides these, we found that during this stage companies start to work with a business plan; based on this plan the budget for the project is developing. Our observations on studied companies show that global companies put much attention on forecasting the numbers in this plan; based on these numbers and “general feelings” (Tomas, Ålö) a decision about the project is taken. These numbers describe potential markets for the product, how much money the group can make, and how this project is related to the global presence of the company.

Finally it is our perception that marketing department, technical department and project/product managers have an important role during this stage, particularly in development of the business plan; more about their roles will be discussed in further parts. From the analysis of three investigated companies we can conclude that the main task for this part is to understand the potential for the future market and to create a development path for the NPD process.

After the analysis of the concept generation and the concept evaluation stages we suggest a model of these stages that is provided below: it is our perception that both these stages can be done in the same time without a stage-gate in between.

Figure 14: Concept generation and evaluation stage of the NPD process in global companies

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Thus we can conclude that this stage of the NPD process, the concept generation and evaluation, has a great importance for the global companies. Below, in the figure 18 we summarize the main observed points for concept generation and concept evaluation stages in global companies.

<table>
<thead>
<tr>
<th>Main points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concept generation</strong></td>
</tr>
<tr>
<td>- investigating the idea</td>
</tr>
<tr>
<td>- the product should address all markets</td>
</tr>
<tr>
<td><strong>Concept evaluation</strong></td>
</tr>
<tr>
<td>- market potential</td>
</tr>
<tr>
<td>- expected profit for the future product</td>
</tr>
<tr>
<td>- costs of the new product</td>
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<tr>
<td>- detailed plan of the NPD process</td>
</tr>
</tbody>
</table>

*Table 5: Main points for concept generation and concept evaluation in global companies*

### 7.1.3. Development

This part provides analysis of the development stage in the global NPD process. According to the theoretical NPD concepts, during this stage technical department starts to work with the real product (Crawford and Benedetto, 2008). First, a prototype is developed and after that testing is taking place. Normally companies can test a prototype inside of the company (with computer software or/and in the field) or outside of it with the help of customers (Cooper, 1990).

At the same time, on the other hand, the marketing plan should start to be developed at this stage. According to the traditional NPD concepts it includes marketing strategies for the new product (Cooper & Edgett, 2010). In chapter 3, as we have seen, theories about global company strategies were reviewed; it was found that in order to be successful on the global market, companies should consider local markets as separate ones and adapt some elements of marketing mix if it is necessary (Schulte & Jackson, 2007; Brentani, Kleinschmidt and Salomo, 2010; Powers & Loyka, 2010).

Referring to the data gathered from the interviews, the issue of the technical part of product development was deeply discussed with companies. It was found that all interviewed companies have some testing of their new products, and as well as it stays in the theoretical concepts, companies do testing inside of the company and outside of it. It was also confirmed by our empirical findings that testing is a very important process of the technical development stage and it is a crucial step in the development process of new products.

However, as it can be seen from the literature review chapter, the traditional NPD model does not consider the fact that quite often some technical features of the product should be adapted to local markets. In other words, companies should always keep in mind the necessity to check if a standard product will suite each particular market or if it should be adapted (at least to the local legislation). Thus, the technical development process can start all over again if some product adaptations are required.
Similar to adaptations of product’s features, marketing strategies for new products are often requiring adaptation as well; concepts about adaptation of marketing mix elements were discussed in the theoretical chapter (chapter 3.3.2). During our interviews we found that companies use some adaptations for local markets. Particularly, all companies adapt prices of their products to the local customers’ expectations, local markets and local environment. Also it was illustrated in chapter 6 that promotion and distribution often requires some adaptations. Thus our empirical findings confirm the importance of adaptation of the marketing mix elements to international markets in order to suit local market conditions. However, the usage of standardization strategies for some marketing mix elements was confirmed: for instance, Ålö uses standardized distribution strategy all over the world.

We consider, however, that all these decisions regarding standardization versus adaptation strategies should be reflected in the development stage of the global NPD model. In our view, if a company decides to produce a standard product for the whole global market, the stage of technical product development should be done just once. In contrast, if a product should be adapted to some local markets, technical development stage should be repeated and other products (adapted for the local markets) should be developed. This issue can be illustrated with an example of Volvo Trucks. During the interview the experts mentioned that they have to adapt their models to right- and left-hand driving countries, this means they have to go through the technical development stage at least twice and develop at least two versions of the model.

The same idea can be implemented to the marketing development stage: in case of standardization strategy, development stage should be done once, but in case of some adaptation the company should go through this stage again.

![Figure 15: Development stage of the NPD process in global companies](image)

Therefore it is our perception that the development stage of the NPD process should be repeated by global companies as many times as many adaptations are required. In this case, the traditional NPD model can be implemented only by companies that use full standardization strategy (however it seems to be impossible to implement the strategy of full standardization worldwide according to the current theoretical concepts, see chapter 3). These conclusions can be illustrated with proposed scheme of the development stage (figure 20).
7.1.4. Launch

This last phase of the NPD process is described by experts as the last stage before the mass production and the one that aims maximum of new product performance. The final stage of the NPD process is associated with significant involvement of marketing experts who should deliver the right product at the right time to the right place (Cooper, 1990). Interviewed experts agreed with this statement and underlined the importance of the marketing department during this stage as well. It was found that they should provide execution of a marketing plan that was developed before; they should coordinate a launch process with inputs from production department and sales department, they are also involved in promotion of new products and education of dealers and partners worldwide.

According to our interpretation of the information gathered from the interviews, launch stage of the NPD process in global companies has some issues which the traditional NPD model does not take into account. This statement based on the conversation that we had with R&D director of Ålö. He argued: “... launch is done by each single market. We cannot make a global launch of something. Not even Apple does it actually. They launch it before in US. And then they come to Europe. If you build up too big amount of products from the beginning, you will not be able to deliver, because it could be very expensive to deliver it to the same market at the same time”. Thus studied companies agreed that some markets or regions tend to be first for launching of new products. It could be “testing” market; or some markets can be first because of a high competition there that requires being “first on the market”; or markets that are first ready for the launch.

Therefore, from our point of view, global companies tend to start with launching of new products in some markets and continue with other ones. However, it should be noticed, that we recognize so-called “sprinkler model” of launching strategy for global products where companies tend to enter the markets worldwide simultaneously. From our perception even in this case some markets tend to be first on the global market just in a really short period of time.

Thus it is our perception that global companies cannot go through the launch stage of the NPD process just once as it is supposed to be according to the traditional NPD model. Even if a global company plans to launch a new product simultaneously worldwide, there will be some markets where the product will be introduced first. This assumption means that global companies cannot perceive the global market as the entire one and should go through the launch stage all over again. Our interpretation of the launch stage of the global NPD process is represented on the figure 21.

![Figure 16: Launch stage of the NPD process in global companies](image-url)
7.1.5. Stage gate

We have been discussing the NPD process in global companies without taking into account the stage-gates that the company should go through after each phase of the process. It has been decided to have a separate part about stage-gates in view that all studied companies had the same process there and the structure of these gates. Moreover we perceive that a process that happens during the stage-gates looks similar every time. Thus in this part we will analyze the role of the product council. Later, in the next part, the issue of who should be involved in this process will be discussed, and this will help us to give an answer to our research question

As it was discussed in the theoretical framework, Cooper and Edgett (2010) argue that the product council aims “… to obtain management approval to proceed to the next stage of the product development.” (Cooper & Edgett, 2010, http://www.prod-dev.com/stage-gate.php) From our perspective, after investigating the empirical findings, we concur with this statement. As it was illustrated in the empirical chapter, each studied company has a product council that is taking a decision if they should continue with the process or if it should be stopped. Moreover, the product council has a list of demands that the product developer or project manager should present. Based on their knowledge and experience, product council decides if the process is in the right direction. Based on the models of NPD processes that studied companies have, it was found that the product council is taking place every time after the stage of the NPD process is over. It is our perception that it is related to big investments in this process and all details should be considered.

As it was discussed in chapter 3 some experts such as Cooper (1990) consider that the product council should take into account the potential profit of the product, a flow of the process, any delays that could occur. This statement can be confirmed by our empirical findings as well. Experts of those studied companies noticed that a product council pays much attention on profit and potential markets of the future product and how it will affect the global presence of the company.

Further, according to our findings, studied companies have some guidelines that help them to control the process. Some examples of the controlling documents was presented in the empirical findings, for example, the one that is used by Volvo Trucks, QDCF model (chapter 6).

In conclusion, a list of main characteristics that describe the product council in global companies is provided:

- product council is vital for the success of the NPD process in global companies;
- it has control documents that are necessary during each particular phase;
- it has the power to ask for more development of the project, continue it or cancel, it also sees if the process is on the right track;
- product council is responsible for the budget of the project, its increasing or diminishing.
7.2. WHO IS INVOLVED IN THE NPD PROCESS IN GLOBAL COMPANIES

In the current part of the research, the implication of different roles in the NPD process will be provided. Theoretical concepts regarding the issue of who should manage the NPD process were reviewed in the theoretical chapter; while in the empirical chapter gathered data about this topic was presented. The role of top management, project managers, product developer and marketing personnel will be analyzed here, since these four categories are mostly involved in the NPD process according to our findings.

**Top management**

According to the theoretical framework that was presented before, top management is a starting point of the NPD process. (Lewis & Wong, Accelerated Project Management, 2004; Barkley, 2007) From the interpretation of the gathered data, it was found that top management can be an initiator of a new product development. In addition, Rosenau and Griffin (1996) argue that the top management makes all crucial decisions during the process, which gives them the utmost power in the NPD process. Rosenau and Griffin (1996) argue also that this is applicable for all types of companies: small, big, national or international. Here we should concur with this statement in view that it was observed that top management has the right to decide if to go further with the NPD process or not.

Moreover during the analysis we found that the top management is involved in product council and making decisions, but they are not much involved, however during the NPD process.

**Project manager**

As it was presented in the theoretical framework, the project manager is responsible for the entire project. Moreover it was discussed that the project manager has some established tasks: planning, monitoring the project, reporting to the top management, as well as managing the teams and other tasks related to the NPD process (Lewis & Wong, Accelerated Project Management, 2004).

Based on our empirical findings, we can concur with these theoretical findings. It should be admitted that a project manager in a global company has a crucial role. We found during our investigation that the main tasks of the project manager is to check if everything is on track, to report to the product council about the process, to establish and lead NPD teams towards the goals. Moreover in a case of global companies, project manager should keep in contact with marketing departments, suppliers and factories worldwide.

In conclusion, from our point of view, the project manager is an expert who has the most knowledge of the process: technical details, target markets, potential customers, the scale of the process and many other related details. Moreover, it is our perception, that the project manager can be called “the eyes and ears” of the top managers, in view that he or she has to report about the project to the product council.
In the theoretical chapter it was provided a description of the tasks of a product developer, proposed by Luck (1969). According to the author, a product manager should plan the strategy for the entire product. Moreover, according to Gorschels (2003) the product developer has to establish goals for the product, be sure that the product will address the entire range of the market and take care of the time schedule of the NPD process.

If we relate to our empirical chapter, we can conclude that a product developer in a global company has the same tasks which were described in the theoretical framework. Since all the interviewed experts express their opinion that the product developer is managing the process, and takes care of it from the beginning to the end. Moreover the product manager is responsible for technical development of a new product and coordination of all R&D and production activities.

The role of the marketing department was discussed before. According to the theoretical framework, providing in chapter 3, the marketing department is involved in the whole process of NPD (Crawford and Benedetto, 2008). Our findings confirm as well that marketing experts participate in the process from the beginning (idea generation) till the end (launch of new products). It was found as well that they bring to the process such inputs as knowledge about customers’ needs, market conditions, competitors and other information. Finally, we should agree with Crawford and Benedetto who claims that the role of marketing department is changing during the process: first, they participate in idea generation and development stage, then they conduct a market investigation, after that market experts participate in developing of business plans and finally they are responsible for a successful launch of the product.

7.3. HOW GLOBAL NPD PROCESS IS MANAGED

Now when it is found who is managing the NPD process, the last question left that needs to be analyzed is how the NPD process is managed in global companies. In chapter 3 we discussed theoretical concepts which argue that the main challenge of this process in global companies is a proper involvement of the company’s global network such as its subsidiaries, suppliers and customers that are located worldwide (Koudal and Coleman, 2005). In order to reach such synchronization global R&D departments, suppliers and marketing departments (representing customers) should be coordinated between themselves and with each other. Also it was illustrated that such factors as visibility and flexibility of the processes, collaboration of the company with suppliers and customers lead to synchronization of global processes and success in product development worldwide (Koudal and Coleman, 2005).

The issues of involvement of suppliers and customers in the process were discussed with all researched companies; and empirical findings were presented in the previous chapter. It appeared, first, that customers should be involved during the whole process of the NPD. Companies refer to their opinions during such stages as concept generation, product development, testing, launch and so on. That gives to the company an opportunity to understand customers’ requirements worldwide and to develop better products. On the other hand, suppliers are also involved in the process in order to
collaborate with the company in designing new components, materials and make the process more efficient. In such conditions managing of all this information from countries all over the world becomes the biggest challenge of them all. It was found that some companies (Volvo Trucks) have global databases and CRM systems in order to coordinate such information. Other companies does not have such systems, instead there are some experts who are responsible for collecting all this information. However these companies noticed that managing of all the information and global processes would be much easier with such kind of software and clear flow of information.

It should be noticed that we did not had a special question regarding managing of the internal information inside of the companies and visibilities of the processes. However, during our interviews all respondents used their intranet systems in order to find some documents that were required. Thus we can conclude that visibility of the process is a very important issue as well and all researched companies make a process visible for all the employees by sharing all necessary information with each other.

After analysis of all gathered information regarding how the NPD process is managed, we can concur with the concept of Koudal and Coleman (2005), who argues that for better results of the global NPD process the whole company, suppliers and customers from all target markets worldwide should be involved. We can also confirm by our findings that in order to be successful, the global NPD process should be flexible and visible for all involved experts. Moreover collaboration with global suppliers and customers is required. Finally, such a big process as global NPD will be better managing with the usage of global databases and CRM systems where all information from all over the world can be collected.
7.4. **SUGGESTED MODEL OF THE NPD PROCESS IN GLOBAL COMPANIES**

After analysis of the theoretical concepts and data that was gathered from the conducted interviews, we can agree with traditional NPD concepts, that in order to develop new products, global companies should go through five stages: idea generation, concept generation, project evaluation, development stage and launch. This part will present the model that illustrates the NPD process in global companies and this model can be considered as a key point of our analysis.

According to the picture the global NPD process starts with generation of a proper idea. However, in contrast to the traditional NPD model, good ideas cannot go to the concept generation stage immediately. As it was found during the interviews, any initiation should be suitable for the whole global market. Thus it is our perception that the first step of a global NPD process should be an initiation where companies find new opportunities for the markets. After that this initiation should get a shape of “global idea” we use this term to define the idea that is developed, analyzed and suitable for the global market.

Next stages of a global NPD process are concept generation and concept evaluation. During these stages global companies should, first, develop the proposed idea to the clear concept and then estimate potential market, company growth, expected profit and costs of the project. Based on empirical findings, in contrast to the traditional NPD model, it could be suggested that global companies can go through these two stages without a tool gate in between.

![Figure 18: Suggested model of the NPD process in global companies](image-url)
Development stage of a global NPD process consists of two parts: marketing and technical development. In contrast to the traditional NPD process we believe that global strategies of standardization or adaptation should be considered here. Thus if a company implements a strategy of standardization, this stage looks similar to the development stage of the traditional NPD model. However in most cases companies have to adapt some features of the product (technical development) or some elements of marketing program (marketing development). We perceive that in this case global companies should go through the development stage as many times as many adaptations are required.

Finally, at the launch stage of the NPD process, global companies should introduce new products to the global market. However some differences with the traditional NPD model were found at this stage as well. As, it was mentioned by the interviewed experts, companies tend to introduce new products to some markets first and to other markets later. According to our interpretation this affects the global NPD process as well: the launch stage could repeat itself several times in different world regions (even for a short period of time).
8. CONCLUSIONS

This chapter concludes the research. It presents some final thoughts, recommendations for future research, limitations and implementation of the current study, discusses the trustworthiness of it.

Theoretical concepts from chapter 3, gathered data from chapter 6 and conducted analysis provide us with a framework where we can find answers to the aimed research question:

How is the NPD process run in global companies: what are the differences with the traditional NPD model and by whom and how is this process managed?

The purpose of this research was to provide a scientific contribution to integrated topic of globalization studies and NPD concepts by adaptation of the current theoretical framework in the NPD field to the conditions of the global market. In order to reach this goal and provide the current research with practical and scientific value, first, theoretical concepts of both these fields were studied. After that a framework for our research was developed. We should admit here, however, that it was quite a challenge for us because we had to find out what aspects of the NPD process that can be affected by global presence of the company. Thus the final design of the research was finished after conduction of the first interviews where we got a chance to discuss with experts these issues. Therefore we had to go back to our research and discuss some additional theoretical concepts.

Finally when the framework of the research was established and all necessary data was collected we got a sufficient basis for our analysis. This analysis gave us all information that was required in order to answer the research question. All the conclusions from our research are provided below.

The results of the current research supported the suggestion that was made at the beginning of the research: The NPD process in global companies has some specific issues that make it different from the traditional NPD model in some aspects, as we have seen in the analyze chapter. The main task of the NPD model from traditional perspective is development of new products in order to satisfy needs of some certain markets. According to our findings, the NPD process in global companies aim to explore global economies of scale and resources provided worldwide, while adapting products and marketing programs when it is required. Thus focus of the NPD process in global companies shifts from some specific markets and satisfaction of some specific customers’ needs to the global market and global customers’ needs (with adaptations when it is required). Therefore we consider that the process of NPD in global companies should be considered as a separate topic in the NPD field.
**Differences with the traditional NPD model.** As it was stated at the beginning of this research, with the traditional NPD model we understand the one that consists of the next steps: opportunity identification and selection, concept generation, project evaluation, technical and marketing development and launch. There are some other models however that contains seven or more steps. Nevertheless the main goal of this research was to show the different nature of this model in relation to global companies, but not to investigate exact stages of the NPD process in the global companies.

Thereby the first difference that was found was the beginning of the NPD process in global companies. According to our analysis of empirical findings, only ideas that are appropriate for the whole global market should be considered for the development by global companies. Hence the first step of the NPD process in global companies we consider to be the initiation. Only after a proper investigation and development, the initiation gets a shape of a global idea, the one that is able to match customers’ needs worldwide.

Another crucial difference from the traditional NPD model is the fact that global strategies (such as standardization or adaptation of some elements of marketing mix) influence the NPD process in global companies. Particularly we consider that the development stage of NPD can be affected by these factors. Thus if the company implements a strategy of standardization then the development stage of the process becomes similar to the traditional NPD process: the company should develop one product that is suitable for the whole global market or one suitable marketing plan. However in a case when the company needs to adapt some elements of marketing mix, the development process should be repeated as many times as many adaptations are required. For instance, several options of one model of the product can be developed for different parts of the global market; or diverse price strategies can be worked out for various markets or countries.

Finally, the last stage of the NPD process, the launch, has some differences with the traditional NPD model. It was argued by our interviewees that the launch of a new product at the same time all over the world is an almost impossible task. Some regions of the world tend to be first for the launch and other ones are usually late (even in a short period of time). Therefore the launch phase of the NPD process should be divided into several parts according to the number of the regions where simultaneous launch are planned.

It should be noticed also that it was found that studied companies tend to combine concept generation and project evaluation phases. It is our perspective that such decision leads these companies to shorter time of the process. However, such decision depends on the nature of the company, its products and established processes and should not be considered as a general practice.
**By whom NPD process is managed in global companies.** At this part of the NPD process we should concur with traditional theoretical concepts. Our findings show that such experts as marketing department, product managers, project managers and top management are involved in the process. The main issue for the global companies here is the fact that these teams normally are dispersed worldwide. Thus managing of all these teams and information flows becomes a more challenging task.

**How NPD process is managed in global companies.** Based on the theoretical concepts and empirical findings we can conclude that the main task of managing the global NPD process becomes a task of managing of the company’s global network. With global network we mean here its subsidiaries that are located all over the world, global customers and suppliers. First, inputs from this global network should be collected, well-coordinated and considered during the NPD process. Second, it was found that the usage of global databases and CRM-systems makes the task of collecting this information much easier. Finally, the NPD process should be visible for all experts involved in the process; this will get the easy access to the required information at any point of time for all involved experts and make the process of NPD shorter in time.

### 8.1. THEORETICAL IMPLICATIONS

As it was discussed at the introduction chapter of this thesis, the NPD process is quite a researched field as well as numerous researches were conducted in the field of global company strategies. The joined topic of the NPD process for the global companies, however, was ignored by the scientists and relatively little research was conducted in this field. Thus the main contribution of our thesis to the current literature is an integrated analysis of the current theoretical concepts about the NPD process in global companies.

Another theoretical contribution of our thesis is the proposed model of the global NPD process. This model was developed based on the empirical data, which was collected from the investigation of three global companies, and analysis of the current theoretical concepts about NPD and global company strategies. The NPD model for global companies proposed here illustrates the difference between the traditional view of the NPD process and the global perspective of NPD.

In addition, the issue of by whom and how the global NPD process is managed was investigated in our thesis. Roles of different experts, who are involved in the global NPD process, were researched and some recommendations about composition of the team were developed. Moreover it was analyzed how the NPD process should be managed by global companies and the issues that are typical for running this process in the global companies were discussed.

Thereby this thesis provides contribution to the integrated topic of globalization studies and NPD concepts and it contributes to the current theoretical field about NPD by expansion of this field with a global prospective of this process.
8.2. MANAGERIAL IMPLICATIONS

NPD is a process that is crucial for all companies. Success in this field is closely related to the successful performance of the company. The research that was presented in this thesis provides for managers of global companies an overview of NPD and the global perspective of this process. In spite of the fact that the results of our study were generalized to a wide range of global companies, it gives an overview of the important issues that should be considered during the NPD process. Moreover, this research discusses such important managerial issues as how the NPD process should be run in global companies and who should manage this process. This can be used as valuable inputs for the management of global companies.

8.3. LIMITATIONS

This thesis found proof for the idea that the NPD process in global companies has some specific issues and should be considered as a separate field of the NPD theory. It is necessary to say, however, that the conducted research, however, has some limitations that occurred in view of the limited time of the research, its budget and geographical limitations.

Firstly, it should be noticed that the current findings refer only to the companies that have a production department and produce some physical products. This leads to the question how the NPD process looks like for global service companies. Thereby future research in this field can provide further inputs for the theory of NPD.

Further, the current study has been conducted in Sweden. Such factors as economic development of the country, national business culture and companies’ environment might have some influence on our research.

Finally, in view of time and budget limitations, relatively small sample was investigated during this research. Thus it can influence validity of our research. Some methodological tools were used, however, in order to increase the quality and worth of the research. This issue was discussed previously in this chapter.

8.4. FURTHER RESEARCH

Although the aim of this research was to present a model of the NPD model that is typical for global companies, the focus of our research was mostly on investigation of the nature of this process, but not description of the stages that companies should go through during this process. Based on this reason qualitative approach was implemented and some number of interviews was conducted in order to understand this process. That is why we suggest testing the proposed model of the global NPD process on a large number of companies with a more diverse spectrum of interviewed experts. In such a way the proposed model can be confirmed, modified or rejected. Moreover, sales people, suppliers, customers and distributors can be included in future research since it was observed that they are involved in the global NPD process.

Moreover as it was stated at theoretical framework for our research, only companies with the in-house NPD process were investigated. We believe that different partnership
strategies worldwide would influence the global NPD process and it can be another suggestion for future research.

Furthermore, since only companies based in Sweden were investigated in the current research, it gives some limitations for our researched (as it was discussed above). Thereby, conduction of similar research at the other parts of the world can be suggested in order to test the results of our research on the companies that are operating in other environment.

8.5. QUALITY AND WORTH OF THE FINDINGS

Tools that can be implemented for ensuring worth of quantitative research seem to be hard for implementation in qualitative research, in view of its nature and epistemological assumptions. But some criteria to measure trustworthy of such research should be used in view that issue of trustworthiness is relevant for any epistemological approach. To estimate credibility of research findings it is necessary to understand the definitions of validity and reliability and their meaning in the context of qualitative research.

Current research involves conduction of the number of interviews and investigation of several companies’ cases that makes them to be close associated with interpretive paradigm and subjectivist nature. Qualitative research of NPD process in global companies is based on assumptions of respondents and researchers about the investigated process. Because of these reasons we have to recognize our involvement as researchers in the process that makes us responsible for credibility of the research; this subject has been already approached in the chapter 2.3.2, related to the preconceptions of our research.

Although reliability and validity are the terms used for evaluating of quantitative research, the base of this idea is implemented for qualitative ones as well. Guba and Lincoln suggest specifying the terms and criteria for assessing the qualitative data that can be an alternative to reliability and validity in quantitative research. For that purpose they propose such criteria as trustworthiness and authenticity. Quality and worth of current research will be assessed based on trustworthiness criteria in view that this is recognized as the proper one for qualitative research by other researchers (Bryman; Golafshani, 2003, Shenton, 2004; Neegaard)

8.6. TRUSTWORTHINESS

According to Guba and Lincoln there are four criteria of trustworthiness and each of them has an equivalent in quantitative research: credibility (internal validity), transferability (external validity), dependability (reliability) and conformability (objectivity).

Credibility

The first criterion, credibility, tends to ensure that the research investigates and measures what it is initially supposed. Lincoln and Guba indicate that this criterion is one of the most important. Researchers suggested some provisions that can provide more credibility and confidence to the study. Among them are the adoption of well-
established research methods, familiarity of researcher with the culture of participants, random sampling, triangulation techniques (Shenotn).

First, in current research all companies were chosen according the necessary criteria, studied and analyzed before interview conduction. Moreover during analysis of interviews only data that were shared by several respondents were considered. Also the interviews were recorded and transcript for full understanding and deep analysis of respondents replies. Such details as intonation and expression were considered as well. Finally previous research findings were investigated in order to give “right” direction of the research. However it must be noticed that issue of random sampling was limited by geographical location, thus only Swedish companies were used for investigation.

Transferability

Criterion of transferability refers to the extent to which the results of research can be generalized and applied to other cases. In quantitative research it means the ability of findings to be extended and applied to the whole population (Shenton).

The problem that is associated here with qualitative research is a small number of participants that makes harder to apply findings to other situations. In order to avoid influence of specific environment of one case, three companies were investigated. However it must be noticed that all these companies are based in Sweden. Ultimately findings of the current study must be understood in the particular organizational and geographical context. For this reason information about studied companies as well as data about respondents are provided. This information should be considered before any transference of findings of the current research to other situations.

Dependability

Dependability is associated with the issue of reliability meaning that if the research would be repeated with the same context, methods and participants similar results should be found (Neergaard). “Complete records are kept all phases of the research process – problem formulation, selection of research participants, fieldwork notes, interview transcripts, data analysis decisions, and so on – in accessible manner” (Bryman, p.414) For meeting this, criterion methodology chapter is provided with full description of research methods and motivation of chosen techniques.

Conformability

The last criterion of research trustworthiness, conformability, is conserved with attempts of researcher to reach the complete objectivity, even though it is recognized as impossible (Bryman). In other words the findings should illustrate ideas and information gotten from interviewees rather than preferences of the researcher. As it was mentioned the interviews were recorded and transcripts of them can be found. Moreover during the research all made decisions and adopted methods are acknowledged and can be found within this study.

In conclusion a range of techniques were adopted in order to provide trustworthiness to this research and ensure the quality and worth of the findings. For a better observation we have summarized them in figure 24.
<table>
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<th>Quality criterion</th>
<th>Provision made by researches</th>
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| **Credibility**   | - adoption of appropriate research methods;  
|                   | - early familiarity with researched companies;  
|                   | - examination of previous research;  
|                   | - transcriptions of the interviews; |
| **Transferability** | - investigation of several cases;  
|                   | - information about researched companies;  
|                   | - information about respondents; |
| **Dependability**  | - research methodology chapter with full description of all phases of the research process; |
| **Confirmability** | - transcriptions of the interviews  
|                   | - motivation of all decisions and methods choices |

Table 6: Trustworthiness of the current research


www.entrepreneur.com/tradejournals/article/191264059.htm


Appendixes

Appendix 1: Interview Guide

The interview guide presented bellow had the purpose of ensuring that we will reach all of our goals in giving an appropriate answer to the research question. As we have previously said, the questions presented here are the most relevant for our study. In addition, we need to underline the fact that other questions have been asked during the interviews, as we have interviewed different departments.

**Basic information’s:**

1. What is your name?
2. Is your company, where you work, a global one?
3. What is your role inside of the company?
4. How long have you worked in the company?

**General things about NPD process:**

5. How does your company manage the NPD process?

*If we would have seen that they miss some phases from the NPD process, we would have asked them more exactly to what we refer. This is why the next questions might have been asked to some interviews.*

6. What can you tell us about opportunity identification and how is it done in your company?
7. How do you manage the concept generation?
8. What can you tell us of how the company works with concept/project evaluation?
9. Development process:
   a) Technical perspective
   b) Marketing perspective
   c) Do you adapt your policy price to local markets or is your price strategy standardizes?
   d) What departments are involved in this part of the project?
10. How does your company work with launch stage?
11. What can you tell us about the stage-gate? (this question was asked after each process)

**General things:**

12. How you manage the tasks?
13. What is your global product strategy?
14. How do you involve the customers and the suppliers?
15. How are you collecting information’s all over the world?
16. How do you coordinate the process of collecting the information’s?