Decision-making processes in industrial organizations

- a case study within the pulp- and paper industry on behalf of FrontWay AB

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Spring 2009
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Bachelor thesis in Business Administration
International Business Program, Spanish
Abstract

**Background:** In order to survive and attain growth organizations need to make different investments which require that different decisions are being made. It is a process, by which a person, group or an organization identifies a choice or judgment to be made, gathers and evaluates information about alternatives and selects from among the alternatives. Thus, a decision is of great importance for an organization for which it is interesting for us to see how they make their decisions regarding a purchase and foremost how the actual decision-making process is constituted regarding a purchase of a simulation solution offered by our case company FrontWay AB.

**Purpose:** The purpose of this thesis is to examine and understand how a client’s decision-making process looks like, concerning the purchasing of technical complex products in industrial organizations, more specifically in the pulp- and paper industry.

**Method:** A qualitative study has been used, based on interviews with the clients of FrontWay who have bought their simulation solution or are in the buying process.

**Result and Conclusions:** The empirical findings that has come to hand shows that the decision-making process actually was shorter than perceived by the case company. One explanation was that the investment was not seen as big. Further we have concluded that the selling organization and the buying organization do not see the same start and end point when a decision is being made. The decision-making process for the buying organization seems to be difficult to shorten down, however, if the selling organization will do some changes maybe it can be shortened down. It is however questionable if FrontWay can make changes at all since it requires a lot of work as well as a lot of resources. As it takes time to make a good decision, and also resources from the buying organization to have someone working with simulations solution fulltime it is unsure if it is of interest to actually shorten down the decision-making process.

**Key words:** decision-making process, business-to-business, buyer-seller relationship, simulation solutions
Acknowledgements

Anders Nilsson, thank you for the help and giving us the opportunity to write this thesis. We would also like to express our gratitude to the respondents of the pulp- and paper mills for taking their time, and helped us giving a deeper understanding of the subject.

Finally, thanks to our mentor, Hanna Antonsson.

Linköping, August 23rd, 2009

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1. Introduction

In this chapter we will describe the background of our subject, where we formulate the problem and describe the purpose of this study. The purpose with the introduction is to give the reader a deeper understanding for the research questions discussed. The chapter ends by illustrating the disposal of the paper.

1.1 Background

"Even the best leaders make the occasional bad call, but in hard times such mistakes can be fatal. The key to minimizing the risk of flawed decision-making lies in knowing your limitations, and having just enough process in place to balance inevitable subconscious bias" (Whitehead et al 2009:1)

Everyday different decisions are being made, easy and more complex ones. Decisions regarding purchasing of products and services are being made on the business market. (Kotler et al 2005). The business market includes all the different organizations that buy products and services with the aim to use them in production of other products and services, or with the purpose to resell or rent them to other organizations (Kotler et al 2005). In order to survive and attain growth it is necessary for organizations to make different kinds of investments (Alpenberg and Karlsson 2005).

An investment signifies that one is staking financial means today to generate incomes in the future (Hallgren 2002). Woodside (1992) states that an effective purchasing strategy affects the return on investment of purchasing activities more than any other single activity made by the organization as it gives a greater return on the investment. However, an effective marketing strategy has a greater impact on increased sales and market share. According to Webster (1991) a need to purchase arises when someone in the organization observes an opportunity to solve an existing problem or alike by purchasing a good or a service. When purchasing goods in an organization a decision needs to be made. A decision can be defined as a choice between different alternatives of purchase (Brunsson 1982), it is a process by which a person, group or an organization identifies a choice or judgment to be made, gathers
and evaluates information about alternatives and selects from among the alternatives (Carroll and Johnson 1990)

According to Sjöberg 1978 (cited in Savén 1995) decision-making is about taking a position on which of many different plans are the best in order to satisfy ones needs. The classical decision theory states that decision-making is completely rational, with economic motives, with access to all available information and knowledge about the alternatives and their consequences. On the basis of this knowledge an optimal solution can be found that will maximize the utility, however one does not normally possess all the available information. Business buyers are in fact influenced by emotional so called “noneconomical” motives. This makes the business buyer a decision-maker taking into consideration both economic and noneconomic considerations. (Robinson et al 1967) Thus, a decision is of great importance for an organization for which it is interesting for us to see how they make their decisions regarding a purchase and foremost how the actual decision-making process is constituted.

When an investment concerning computer systems has to be made the client’s decision making process is very time consuming as it is a very complex product and the buyer often need competent personnel who shall implement and be able to use the computer system (Kotler et al 2005). A lot of factors are involved in the purchasing process such as how and why organizations make various choices (Sheth et al 1977). According to Kotler et al (2005) installation and education for example requires the making of big and important decisions. A new computer system requires a lot of time in order to learn how it is used, which in turn costs money, therefore at times it can facilitate to update the computer system that is already in use.

1.2 Problematization

Decision-making is a broad concept that occurs in many different situations. In this study we will focus on the decision-making process that organizations in the pulp- and paper industry do, regarding the purchase of computer systems, in this case simulation solutions, in the business market. Simulation solutions are typically technical products, which are characterized as more complex in nature. The decision-making process for these types of products is also more complex and takes a longer time than that of commodity products. The decision-making process, when making a purchase, can be divided into three categories;
organizational, behavioral and economic. The organizational factors tend to be more explanatory and realistic, having a more non economic and behavioral emphasis in its philosophy. The central point is that it is more orientated toward the actual tasks of the organization rather than toward the individual itself. (Sheth et al 1977) The amount of persons involved in a complex decision-making process also tends to be higher, (Webster 1991) and the many individuals act differently than they would have if they would have been alone or in a different type of organization (Webster and Wind 1996). This coincides with our case company who perceive the decision-making process for their clients in the pulp- and paper industry to be far too long, what is this dependent on?

The business-to-business client is not just a physical person, but is constituted of many different participants. This implies that the selling organization have to realize that the expectations of the client and their criteria’s of values varies as well as the dynamics, are depending on the changes occurring in the “participant group” or the so called buying centre. (Day and Barksdale 1992) According to Webster (1991) in the context of a formal organization, industrial buying behavior is characterized by many participants interacting with one another. In this case, how can one know if the dialogue is with the correct person within the organization, in other words if one is dialoguing with the one responsible for making the decisions, and how can one persuade the client that the computer system one is selling is the better alternative on the market. Can one, through identifying the “right” person, within the buying organization, in the early stages shorten the decision-making process? Sheth et al (1977) states that organizational buyers are as human as consumers and in the end it is a physical person in the organization that is taking the final decision in the buying process.

Those who compromise the buying centre, are for an “outsider” hard to identify, as well as the different criteria’s that vary across the members (Day and Barksdale 1994). As the time required to make a buying decision is longer the more complex the product is, the members in the buying centre can change. Thus, the criteria of certain individuals can change in the purchase process as well as the purchase goals and expectations (Day and Barksdale 1994). This can result in an even longer decision-making process for the client as their selection criteria might change regarding the product. It can also result in a more difficult process for the selling organization to find the “right” person, or to find a new contact person within the buying centre. Thus, the behavioral factor is about the understanding of the relations in a
group of individuals working together in an organization and their different objectives and expectations concerning buying alternatives and suppliers (Sheth et al 1977).

Day and Barksdale (1992) mentions a few criteria’s that the buying organization look for in the decision-making process. Amongst others it is the selling organizations’ understanding of the client’s interests and needs and their communication skills that are important. Furthermore the relationship between the seller and the buyer also plays an important role in the process. Even though the seller might have a good relationship with the buying organization, however it might not be with the “right” person in that organization, it can still be hard to sell the product as the pulp- and paper industry is very conservative concerning the implementation of new technology (Von Schultz 2005), in this case simulation solutions. The users of the existing computer system might not be as willing as one might think regarding a drastic change that comes with a new computer system. These people might be reluctant to changes in their working environment and therefore could an implementation of a new computer system be seen as a “threat” as it might require new personnel, or reeducation of existing personnel, that can handle this type of new technology. Thus, the resulting costs might be hard to identify for the buying organization.

The economical factor in the decision-making process is for example about quantifying the consequences in economical terms for each choice that is being made, ignoring the natural behavioral and organizational influences which are included in any purchasing decision (Sheth et al 1977). According to Webster and Wind (1996) formal organizations and their industrial buying process are influenced by considerations such as budget, costs and profits. Furthermore, organizational buying behavior is both motivated and aimed at by the goals of the organization as well as constrained by its own financial, human and technological resources. As it is difficult to quantify consequences, or so called revenues, from simulation solutions in the pulp- and paper industry it may be hard for the buying organization to make a judgment whether or not the simulation system in the end will be profitable and better than the old solution. All the costs regarding the actual purchase, installation, reeducation of personnel etc can not be ignored in the decision-making process.

In order to make it easier to understand our area of problematization we have chosen to examine the clients of our case company, FrontWay, and their decision-making process
regarding the purchasing of simulation solutions. Furthermore we will examine how the decision-making process looks like and what different factors affected the process.

1.3 Purpose
The purpose with our thesis is to examine and understand how a client’s decision-making process looks like, concerning the purchasing of technical complex products in industrial organizations, more specifically in the pulp- and paper industry.

1.4 Research questions
Within the frame of this study we intend to answer the following questions regarding the buying process of technical products in the business market.

- How does the decision-making process look like for industrial organizations? Why?
- Who participates in the buying process?
- What factors influence the business buyer?

By answering the questions above we will be able to formulate suggestions that could, in the long run, shorten down the decision-making process for clients buying technical complex products.

1.5 Delimitations
On the basis of the time span of this study we will not be able to follow the decision-making process for the clients as it is already made. Factors of microeconomics, macroeconomics, culture and psychology will not be discussed in detail, nor will calculation of the financial terms IRR (Internal Rate of Return) and the payback method be done. All these factors are only included to the extent they contribute to the understanding of how the decision-making process looks like.
1.6 Definitions

The purpose of this study is to investigate the decision-making process for businesses, in specific the pulp- and paper industry, regarding purchases of simulation solutions from other businesses, so called business-to-business relations. Throughout the study as business markets and industrial markets are mentioned we are referring to the aspect of business-to-business. Furthermore, those organizations that are buying these simulation solutions or are in the process are named clients. When mentioning the decision-making process, or by some authors called the buying decision process, of the clients we are referring to the process that is undertaken in order to bring about a decision to a purchase.

Simulation is a method that attempts to imitate something real. The purpose of a simulation for its user is to be able to make conclusions of how things are in the reality, for example a system, process or a situation. Simulation can be described as building a model where the simulator tries to gain comprehension by making a copy of something and after that manipulate it through making adjustments of the variables used to build the model and finally see how this affects the rest of the system. The benefit of using a simulation is that it allows experimentation without taking any risks.

The simulation solution of the case company can be described as different programs used for different scenarios’ mainly in pulp- and paper mills. The specific application of the simulation for the clients can be explained as for example; how pulps are used by evaluating different scenarios at a pulp- and paper mill, optimization issues such as the energy consumption, understanding the water and energy flows in a paper plant, and how to make the optimal dimensions for new pipes or machines made by for example machine suppliers. When we in this study are referring to our case company’s product or “simulation solution” we imply that it is used in these types of situations.

Our research is based on a case company, FrontWay AB and the buying decision process their clients do regarding a simulation solution. As this simulation solution neither falls under the definition of a product nor a service it is hard to place it, however in order to make it easy to follow we will in this study refer to it as a product.
1.7 Disposal

In order to make it easier to follow and understand this study, the disposal of the paper will be described in brief below.

Chapter 1 – Introduction: The introductory chapter provides the reader with a background and explanation of the problems underlying the study which later will lead to the purpose of this study.

Chapter 2 – Method: This chapter aims to clarify our choice of approach for the gathering of empirical data. The chapter sets out principles of our way of working and the investigation approach used in order to reach the purpose of the study.

Chapter 3 – Frame of reference: This chapter presents the framework of theories and concepts that are relevant to our problem area. The chapter is based upon our own structure that we use to describe the different factors that affect the buyer in their decision-making process regarding the purchasing of goods on the business-to-business market. The frame of reference forms the basis of the analysis of the empirical data.

Chapter 4 – Empirical data: In the empirical part we firstly describe the pulp- and paper industry in brief and later on the case company and their products. Further on the result of the interviews will be presented, which composes the empirical data of the investigation.

Chapter 5 – Analysis: In the analysis we will analyze the theoretical part together with the empirical finding in order to discuss our problem area. We will also present some recommendations for our case company which could shorten the decision-making process for their client, but also some recommendations for the pulp- and paper mills in order to shorten down their process.

Chapter 6 – Conclusion: In the conclusion we will answer our research questions and by doing so fulfill the purpose of this study.
2. Method

This chapter aims to explain our choice of method when gathering the information which forms the basis of our study. We will describe our way of working and applied research which will be used in order to achieve the purpose of the study. The chapter ends with a criticism of the chosen method.

2.1 Scientific Approach

The method is a way for us to collect empirical information, in other words, data about the reality that is to be studied. It is a way of aiding the description of the so-called reality. However, there exists a constant dissonance of what reality or truth really is and how one can gather the right information in order to receive the best possible approximation to reality. Reality, knowledge, and truth seem to be easily understood, but these are harder to understand than one can imagine. (Jacobsen 2009) In order for us to receive a deeper understanding the following concepts will be discussed; epistemology, ontology, and later on the chosen method.

2.1.1 Our view of knowledge

Epistemology is a person’s view of knowledge, our view of knowledge. There exist two aspects of epistemology; positivism and interpretivism. Positivism implies that a person sees knowledge growth as an accumulative process. Knowledge is acquired through verifications and falsifications of hypothesis and theories, and the result leads to an objective and true understanding. In this case the researcher is, on the contrary to us, an external observer that in no way will influence the object of investigation. In other words, the results will be the same irrespective of who the observer is. (Björklund and Paulsson 2008) The opposite of positivism is interpretivism, where individuals interpret the same occurrence in different ways (Jacobsen 2009). We agree with the interpretivist view of knowledge as we also believe that people understand and interpret what is happening around them in their own specific way, based on their previous knowledge and experience. Thus, our investigation will be influenced by our views of knowledge, in what we believe is important or think is relevant for the investigation of the chosen subject. During the early stages of the process we built ourselves an
understanding of the pulp- and paper industry and from there what factors we believed were important regarding the decision-making process. Thus we have, ourselves, built up our own view of the knowledge of the studied area and from there chosen the relevant theories we have thought to be of importance. This may explain why we chose to put more emphasis in a certain theory and leaving out others or what gathered empirical data we have chosen to bring up in this study and then how we analyze it.

Furthermore, the anti-positivists see social sciences as fundamentally different from natural sciences, as the subject of investigation (people and its institutions) is not the same. Therefore the research procedure of the social world is different. The research of the social world can consist of theories and methods of understanding the human behavior, in other words hermeneutics applied to social sciences. (Bryman and Bell 2007) We will be using a hermeneutic method, a scientific method that emphasizes the meaning or interpretation of texts. The central idea behind hermeneutics is that the analyst of the texts shall seek to understand the perspective of the author (Bryman and Bell 2005). Therefore, when reading the different articles on the topic of the chosen theories we have to try to understand the perspective of the author in order to be able to interpret the article in the best possible way. Hermeneutics is applicable not only when understanding texts but also in social related situations, (Bryman and Bell 2007), for example when we are carrying out our data research which will be made through interviews with pulp- and paper mills, financiers and the CEO of our case company. With our interview questions and at times the resulting follow up questions we, as the interviewers, need to try to understand and interpret the perspective of the interviewed as well as their point of view on the subject, the decision-making process.

Another important question for us to take into consideration in hermeneutics is, when we as analysts are trying to understand the meanings of a text it is important to emphasize in which historical and social context the text has been written (Bryman and Bell 2007). What is seen as true at one certain point or in a specific context can later on, with new knowledge or in another context, be false. For example, when doing our interviews we must be aware of in which situation the interviewed is in, it could for example be a client that is in possession of the product and has a positive view of the simulation solution, a client that has a negative view of the product, or a financier who shall finance FrontWay. Either way it is important for us, in this kind of a situation to know the context in order to be able to interpret what the
interviewed is saying and later on be able to analyze the meanings of the answers of the interviewed.

### 2.1.2 Our view of the world

According to Jacobsen (2009) ontology is the philosophy of how the world is like. Our view of the world as researchers depends on the background of ourselves as individuals, as well as on the area of research and the research problem (Björklund and Paulsson 2008). As we are three different “researchers” in this study and we all have a different background, the view of the world of the group as a whole will differ from that if the investigation would have only been done by one or two of us. Furthermore ontology can be divided into two positions, objectivism and constructionism. Objectivism implies that social actors do not influence the reality, that a social phenomena is independent of its social actors as an externality that is beyond our reach or influence. On the other hand, according to the other ontological position, constructionism, the reality and social phenomena is created by social actors, like us, through social interaction and is therefore under constant reconstruction. (Bryman and Bell 2007)

Our research will be based on constructionism, we believe that our view of the world will affect the result of our study and that it will, to a great extent, affect both our choice of relevant theories as well as how we will interpret knowledge and our empirical information. If someone else were to do the same study it would most probably be done in a different way and would probably not result in the same outcome. The interpretation of the empirical findings together with the theories would be different as they would probably have another view of the world and a completely different background to base this on, as opposed to the concept of objectivism. Values, both our own and those of the interviewed, will influence what might be perceived as relevant in this matter as people, including us and the interviewed, already from the beginning have different values which can affect the study. Depending on who is being interviewed the view on the matter might differ as each person is describing their own social construction of what they perceive as the reality in this world.

### 2.2 Case study

There are many types of investigation designs that can provide as the frame for the investigation, the collection and analysis of data and provide as a “model” for how the
investigation is conducted. The different types of investigation designs include for example; experimental investigations, survey-investigations and case studies. (Patel and Tebelius 1987) A case study, which we will be conducting, implies that one is investigating a minority of objects, for example in our case a number of selected clients of our case company FrontWay. Furthermore a case study assumes a general perspective and tries to obtain as much information as possible. In our study we will investigate the decision-making process of our case company’s clients regarding a specific product. As a method, case studies have according to Eriksson and Wiedersheim-Paul (1997) often been used within certain areas, for example when analyzing decision-making processes in organizations.

Norén 1990 (cited in Savén 1995) claims that case studies have the possibility to create contextual and theoretical generality. The meaning of this is that by a description of a certain context a deeper understanding can be reached and also that the case can be used to develop or to perfectionize a theory. This will make it possible for us to gradually find better theoretical explanatory patterns which can be transferred to other contexts. According to Bryman and Bell (2005) in many aspects of case studies a qualitative approach to the method is preferable.

2.2.1 Qualitative Approach

A research can be conducted in many different ways; one can be through using either quantitative or qualitative methods. These methods can also be used simultaneously. Bryman and Bell (2007) describes the two methods in the following way; in quantitative methods, that are mainly essential for research of big populations, one gathers empirical and quantitative data at first and then sums it up in a statistical form. Thereafter the outcome is analyzed through testing different hypothesis. Qualitative methods are often used for smaller populations than that of a quantitative research. In this method the one conducting the research finds oneself in the reality that is analyzed, and the collection of data occur at the same time as the analysis. Us as researchers will be trying to understand both the actions, in specific the perspective, of the interviewed but also the significance of those actions. As the interviews will be conducted with the persons involved in the actual decision-making process we will find that our research will follow a qualitative research path. The population to be studied in this investigation is comparably small, approximately six paper mills and a financier, and as we are gathering the data, conducting interviews, we will try to understand
the views of the interviewed as well as their significance. These characteristics further strengthen the fact that we will conduct a qualitative study.

2.2.2 Our description of reality

According to Bryman and Bell (2007) a quantitative research entail a deductive angle of approach to the relationship between theory and research where the testing of theories is emphasized. On the contrary, a qualitative research implies an inductive angle of approach to the relationship between theory and research where the development of theories is accentuated.

Describing the reality can be done through different attempts, depending on the mode of action (Jacobsen 2009). An alternative outlook is to consider theory as something which appears or actualizes after collecting and analyzing the data. We can here see the importance a second factor has regarding the evaluation of the relationship between theory and research i.e. the difference between deductive and inductive theory. (Bryman and Bell 2005) A deductive method implies that assumptions are tested to theory, in other words test the validation of a theory with a hypothesis that later drives the process of collected data. According to the inductive method, theory and hypothesis is shaped from the empirical findings, in other words one collects data first and then constructs the frame of reference. (Bryman and Bell 2007)

In our research we are using both an inductive and a deductive method due to the fact that our concentration at first lied on the theory building followed by the empirical data, gathered through the interviews. Furthermore, as we did not know before the interviews how the decision-making process looked like, as organizations do it differently, we needed to collect further information about the phenomena after, in order to establish the conditions whether our theories were valid or not and also to better understand certain circumstances. Therefore, as said before, one can discuss the fact that the study is based upon a blend between an inductive and a deductive method.
2.3 Empirical Material

2.3.1 Qualitative Interviews

As data collection, to the empirical part, we have chosen the use of interviews as our study requires a deeper understanding within the chosen subject. This gives the interviewed a chance to share and describe their own understanding of the problem. According to Bryman and Bell (2007) a qualitative research holds emphasis on a more general formulation of the initial research ideas and on the own perspective of the interviewed. Thus we will, by conducting a qualitative interview, place greater interest on the interviewed persons own perspectives as well as their own understandings. In this form of interviewing, we as interviewers will be able to distance ourselves from our interview guide we have chosen to follow, and ask new questions in order to follow up the interviewed persons answers. In other words, qualitative interviews are very flexible and can follow the path that the interview takes as well as adapt the emphasis of the research according to significant problems that can arise during the interview.

Technically seen, a qualitative interview is half-structured, in other words it is neither an open conversation nor a strictly structured question guide. This type of interview is conducted according to an interview guide (which can be found in the appendix) which concentrates to certain themes and that can include propositions to questions. (Kvale 1997) Our printed interview together with the written text and the recording of the interview will constitute as the material needed for the following interpretation. As a goal with the qualitative interview we seek to receive a balanced description of different qualitative aspects of the interviewed persons reality; and to understand that it is about words, not numbers. Kvale (1997) mentions the importance of the qualitative interviews precision in the description and the accuracy of the interpretation of the meanings in order to be equivalent to the precisiveness of the quantitative measures.

According to Kvale (1997) the interviewer must be able to register and interpret what is said and how it is said. Therefore it is important for us to be able to observe and interpret intonations, facial expressions and other bodily expressions. With a qualitative interview we seek to understand not only the actual level, the directly commented descriptions and meanings, but also to understand what is said between the lines.
2.3.2 Realization of the interviews

When our contact person at FrontWay had given us a list of the clients he wanted us to interview we took contact with the following clients through email (a copy can be found in the appendix) where we described who we were, what we were going to do, and the disposition of the interview that we wanted to make. Furthermore we informed them that the interview would be recorded. We chose to record the interviews instead of taking notes as this gives us the advantage that we can concentrate on what the interviewed said and we could document all of the respondent’s statements. However recording an interview can have a negative effect on the interviewed, he or she might not feel comfortable and not dare say what he or she would have said if the interview was not recorded (Kvale 1997), this we chose to solve by guaranteeing all of the interviewed and their respective organizations anonymity.

The interviews were semi-structured, which means that they were neither an open conversation nor a highly structured questionnaire (Kvale 1997). The interviews were performed with those that had been actively involved in the decision-making process for the simulation solution offered by FrontWay. For all of the interviews, except the one with the financier, we used the same interview guide (which can be found in the appendix). In the interview guide we focused on specific topics such as simulation and decision-making and designed suggestions to questions that could be asked during the interviews. We chose to ask the questions and follow up questions as they fitted in to the interview in order to not control the interview and to facilitate for the interviewed to describe their own views and perceptions on the subject.

As the interviews were performed we formulated questions in the meantime and used a different order of questions depending on who we interviewed, this resulted in that the interviews had a lower degree of standardization and structure according to Patel and Tebelius (1987). An interview with a low degree of standardization and structure can be described as the following; a low degree of standardization means that the interviewer formulate questions during the interview and ask the questions in the order in which it is appropriate for the interviewee to be interviewed, a low degree of structure implies that the questions can be interpreted freely, as the interviewee has a large answering and interpretation space. During the interviews we chose to start with more general questions, as Patel and Tebelius (1987) suggests, in order to receive background information on the problem area. Furthermore we
finished all of the interviews neutrally with space for comments or additions from the interviewed.

The majority of the interviews were made over telephone as it resulted in too far for us to go to make so called “personal interviews”. However, one interview was made on the spot at the company of the respondent. Telephone interviews, as well as email interviews, are positive in the sense that the response rate is high, however they can be seen negatively as it is hard for us as interviewers to ask sensitive and complex questions (Eriksson and Wiedersheim-Paul 1997), which we tried to solve by letting them talk as much as possible around the subject. 

The interview that was made on the spot, a so called personal interview, had the advantage that we could establish a trust between ourselves and the interviewed, that we could see the body language which might help us to know if the interviewed knew the subject thoroughly or not. However, the so called “interview effect” can occur which means that we can influence the interviewed and vice versa and that it can be difficult to ask sensitive questions as the anonymity can disappear. (Eriksson and Wiedersheim-Paul 1997) This we chose to solve by making the interviewed feel as comfortable as possible as well as having a pleasant and easy atmosphere.

According to Jacobsen (2009) where the interview takes place can have an impact on the content of the interview. As stated earlier the majority of the interviews were telephone interviews and in these cases the interviewed were, one can suppose, in the respondents office which he or she is very familiar with. This can result in a more natural response. The personal interview was also made in the office of the interviewed which, equally to the telephone interviews, most probably resulted in a more natural response.

When processing the information from the interviews we first ensured that the information we had gained was useful, that the interviewed were the appropriate ones to answer, and that the questions were properly answered without misunderstandings. (Eriksson and Wiedersheim-Paul 1997) At the end of each interview we reserved us the right to come back with further questions if things were unclear. After the interviews were performed, the recorded texts were transcribed in order to make it easier for us to analyze the material, the disadvantage is that it takes a long time to take down the interviews. (Jacobsen 2009)
2.3.3 The thesis process

As stated before, the study is of a qualitative character including literature studies and interviews. The initial phase of the study started with a meeting with our case company, FrontWay, in order to receive a deeper understanding of the problem we were to confront. At first we were thinking of gathering the empirical data i.e. doing the interviews first and later on look deeper in to the different theories which would fit our purpose. Problems arose when our case company was late in giving out contact information about their clients which resulted in that we had to start with the literature study in order to not be held back time wise. The literature we first looked into was information regarding simulation and the pulp- and paper industry in general, in order to receive a better understanding of the usage of simulation systems.

Further on, we started to look into a model we knew existed regarding decision-making which later proved to consist of several models made by other authors. Therefore we started to investigate literature as well as articles in order to find information about their work and models of how a decision-making process may look like and its different phases. There are many existing theories concerning decision-making processes, but we have chosen to use the three models which were included in the first model we looked into. We have also been looking into other authors who have criticized or in some way developed the models used, or in another way contributed with important information concerning the chosen theories in order to assimilate the theoretical base for the investigation as a whole.

The gathering of empirical data was performed through interviews, mostly telephone interviews but also mail interviews with those who did not have the time for us. One of the interviews was however done on the spot at the company. The selection of interview objects were chosen by our case company where they wanted us to interview four different kinds of clients; pulp- and paper mills, machine suppliers\(^1\), consultants and financiers. However some were unable to participate in our study and in the end we ended up interviewing two kinds of clients, pulp- and paper mills and financiers, in total nine clients from seven different organizations.

\(^1\) The machine suppliers are using the simulations solution when they are testing the machines in the pulp- and paper mills i.e. to simulate how the machines are working.
The clients who participated in the interviews were first contacted through e-mail, this to give them the choice of when the interview should take place and whether or not they wanted to take a part in it. Among the clients there were six pulp- and paper mills and one financier. We also interviewed the founder of our case company with the intention to see how he presented the product and how he got in touch with the different companies. Before performing the interviews an interview guide was written (which can be found in the appendix) with questions which answers might help us being able to answer our research questions fully. The design of the interview guide was completed after a seminar with our tutor where we also afterwards looked into different method books borrowed from the library to aid us further. All of the interviews were taped and the interview objects were informed of this from the very first contact. The interviewed were guaranteed anonymity and given fictive names which can be seen in the table below.

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>PERSON</th>
<th>POSITION</th>
<th>Type of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company A</td>
<td>Andrew</td>
<td>R&amp;D</td>
<td>Telephone</td>
</tr>
<tr>
<td>Company B</td>
<td>Brian</td>
<td>CEO</td>
<td>Telephone</td>
</tr>
<tr>
<td></td>
<td>Bartholomew</td>
<td>Production Manager</td>
<td>Telephone</td>
</tr>
<tr>
<td>Company C</td>
<td>Carl</td>
<td>Development Engineer</td>
<td>Personal</td>
</tr>
<tr>
<td></td>
<td>Conan</td>
<td>Development Engineer</td>
<td>Telephone</td>
</tr>
<tr>
<td>Company D</td>
<td>David</td>
<td>Technical Manager</td>
<td>Telephone</td>
</tr>
<tr>
<td>Company E</td>
<td>Edward</td>
<td>Project Manager</td>
<td>Telephone</td>
</tr>
<tr>
<td>Company F</td>
<td>Fred</td>
<td>Project Manager</td>
<td>Mail</td>
</tr>
<tr>
<td>Company G</td>
<td>Garfield</td>
<td>Development Manager</td>
<td>Mail</td>
</tr>
<tr>
<td>FrontWay AB</td>
<td>Anders Nilsson</td>
<td>CEO</td>
<td>Personal</td>
</tr>
</tbody>
</table>

Table 1: The respondents, their respective positions and type of interview

After the interviews were made the interviews were transcribed onto paper and from there we put together the collected data from the interviews and put the relevant information, information that could help us answering our research questions and information relevant to the purpose of the study, into the empirical chapter of this study. Later on ideas to the analysis started to take form and the analysis was decided to be structured to a similar structure from
that of the empirical chapter. Lastly we looked over the purpose and the research questions again as well as the analysis in order to fully be able to write the conclusion.

2.4 Method Criticism

When information is gathered to the study problems can easily arise. Concepts such as validity, reliability and objectivity are often considered in scientific contexts in order to measure the credibility of the study and to avoid problems that can possibly arise. (Björklund and Paulsson 2008) According to Jacobsen (2009) these concepts are more related to a quantitative research as they are based upon a quantitative logic. However, to critically judge validity and credibility in qualitative investigations does not imply a capitulation of data to a quantitative logic. Instead it implies that one seeks to relate oneself critically to the quality on the gathered data.

2.4.1 Validity

The most important criteria of research is validity. Validity refers to which extent one actually measures what is intended to be measured (Björklund and Paulsson 2008), that what we have measured in the study is perceived as relevant and that what we measure among a few also is relevant for many (Jacobsen 2009). The validity concept can be divided into two approaches; internal and external validity. Internal validity means that there is a high consistency between the researcher’s observations and the theoretical ideas developed. External validity (generalization) means to which extent the results can be generalized to other social environments and situations. (Bryman and Bell 2007)

In a qualitative study it is easier to reach a higher validity as the researcher has a greater closeness to what is being researched, in our case the interviewed. Thus, the researcher’s picture of the situation can be incorrect as one might not clearly perceive the signals and motives that the interviewee sends out. (Holme and Solvang 1997) External validity or generalization of case studies can by some, according to Denscombe (2009), be viewed with distrust – is a generalization of conclusions based on only a few cases reasonable? One can discuss how unique the conclusions are for the specific case and how one can generalize it. In order to defend the distrust one can say that even if every case is unique it is also an example which exists in a broader category. If the results of a study can be transferred to other similar
situations, in other words if the organizations have enough in common in order for a pattern to be discovered, a foundation for generalization can be seen. (Denscombe 2009). According to Merriam (1994) one chooses to do a case study not to generalize but to go deeper into a special situation, which is what we intend to do when investigating the constitution of the decision-making process in the pulp- and paper industry and what factors affected it. Hence, our conclusions can be generalized to some extent, but in the line with Merriam’s (1994) reasoning, a part of the responsibility of the study’s generalization is transferred on the reader i.e. the generalization is related to what the reader can get out of the investigation.

Our study is considered to have a high internal validity as the interview guide is designed so that the interviewee do not need to take some biased decisions and therefore it can provide with reliable answers and also that the interviewee had the possibility to influence their own participation during the interview. As we are doing a case study, the external validity do not exist to the same extent as internal validity as our purpose is not to generalize our results to other environments and/or situations.

2.4.2 Reliability

The reliability indicates how reliable a study is, i.e. if the results from an investigation could be repeated or if the result from the investigation has been affected by chance or by other accidental factors (Bryman and Bell 2007) When doing a qualitative study, it is difficult as the interpretations of the researcher plays an important role when analyzing individuals’ experiences (Eriksson and Wiedersheim-Paul 2006) and also as the social environment is always changing. (Bryman and Bell 2007) According to Holme and Solvang (1997) reliability is not as important when doing qualitative studies as the purpose is to receive a better understanding of certain factors.

The reliability of this study is based on the fact that all the interviewees (except one) have had the same opportunity to answer the same type of questions in the same type of circumstances i.e. telephone interview. As the interviewees’ may, consciously or unconsciously, provide inaccurate or incomplete descriptions regarding the area which is to be explored we carefully explained, in the e-mail, our purpose with the study and gave them our definition of what we meant with a decision-making process.
2.4.3 Source Criticism

In order to increase the credibility of a study one shall critically evaluate all sources. One needs to conclude whether the sources are valid, relevant and reliable. Problems which can arise from the use of secondary data are, for example, that the literature is not adaptable to the problems the investigator is confronting. Therefore it is necessary that the researcher has a critical attitude towards the information used, as information for various reasons may be biased or distorted. (Bryman and Bell 2005) During our thesis we primarily used the databases at the University library, containing scientific journals etc, to ensure that the information was authentic.

The interviews done in this paper were only done once with each person and we can therefore ask ourselves if we have a good base in order to do a credible interpretation as a person can change their opinion when being interviewed more than one time. Six of the interviews with the clients were done via telephone, two were done via e-mail and one was done face to face which can be seen as a disadvantage as we may have lost the information transmitted via non-verbal communication. On the other hand an advantage with telephone interviews is that neither the interviewee nor the interviewer are given the opportunity to form some preconceptions about each other to the same extent as when people meet. (Eriksson and Wiedersheim-Paul 1997) Questions regarding if we have interviewed the right persons, if they have been giving us the right information can be discussed. The persons interviewed have been chosen by our case company which can lead to a validity problem as the case study very likely can be exposed to a very qualified representative not representing the average values concerning how the decision-making process is constituted. But as we are doing a qualitative interview one want, according to Holme and Solvang (2007) “extreme” cases as we are not looking for the average, we are looking for persons who possesses the knowledge needed. The interviewees of this study can be seen as relevant sources as they all have participated in the actual decision-making process in one way or another.

Finally, our own pre-understanding, identity and beliefs have influenced the choice of methods and sources as well as how the interviews have been conducted, the questions asked and the interpretation of the answers. There is always a risk that we as interviewers have not clearly understood the interviewees’ answers in the right way. Moreover, if the case company would not have chosen the persons interviewed, the outcome may have been different, as they may have chosen persons that they have a good relationship with and also that the persons
interviewed knows that this paper is done for one of their suppliers may have lead to less honest answers whereas the credibility can be seen as less reliable.
3. Frame of Reference

In the frame of reference we will describe theories that are relevant to our research questions and the purpose of this study. The frame of reference will provide as a base for the analysis of the empirical information gathered. The disposition of this chapter is as follows; first we will look into more detail the concept of business-to-business as well as a brief on decision theory. The remainder of the chapter is structured according to the five factors we consider are the most important regarding buying decision-making, this in order to make it easier to follow the relevant theories. Through this structure we will explain how the buying decision process looks like and what different factors are affecting the process.

3.1 Introduction

The interest in studying the understanding of organizational buying behavior increased considerably during the late 1960s. Some of the models developed during this time are today the foundation for the studying of organizational buying behavior. The three most important models and those that have had the most significance in the studying of organizational buying behavior include; the buy grid model” (a model of the industrial buying process) developed by Robinson, Faris and Wind in 1967, “a general model for understanding organizational buying behavior” which was developed by Webster and Wind in 1972, lastly the Sheth Model (model of industrial buying behavior) that was developed in 1973. (Johnston and Lewin 1996) Since then many researchers has investigated within the area, for example Bradley (during the late 70s) and Bonoma (during the late 70s and the 80s), contributing to a new understanding of organizational buying behavior and the decision-making process. We will, mainly, use these three models in order to build an understanding of organizational buying behavior in the business market and their decision-making process. The reason being as the purpose of this study is to examine and understand how a client’s decision-making process looks like, concerning the purchasing of simulation solutions for production in the pulp- and paper industry. However firstly we will describe the characteristics of business-to-business and what constitutes a business market.

The decision-making process in business markets involve persons that take buying roles and make decisions regarding purchases in order to satisfy ones needs. In the business market there are few but large participants. The buying decisions are usually complex, and the
process tends to be formalized as well as it usually involves many people. (Kotler et al 2005). Business-to-business is defined by the nature of the client “a profit-seeking or budget-constrained organization” that seeks help in achieving their goals through the purchasing of goods. This business-to-business relation is unique, especially regarding the importance of “long-term, strategic relationships with clients, the complexity of the buying process, and the mutual dependence that results.” (Webster 1991:V)

As stated earlier, the buying decision process in business markets is very complex. Reasons include, for example, large sums of money involved in the purchase, economic responsibility, and very complex technical products. Furthermore business markets tend to be geographically concentrated and have fluctuated demand, in other words the demand for products in the business market changes very rapidly. (Kotler et al 2005) According to Johnston and Lewin (1996) the key for being successful in a business-to-business market is that the selling organization has knowledge of their clients buying behavior. This type of knowledge might be hard to acquire as organizational buying behavior is characterized as a multiphase, multidepartmental, multiperson and multiobjective process. Moreover the industrial buying behavior takes place in the context of a formal organization that is characterized by many participants interacting with one another. Here the buying decision process in general takes a long time and is very structured (Webster 1991). Selling organizations are often presented with a complex set of issues as well as situational factors that will influence the buying organization both directly and indirectly.

3.2 Briefly on Decision Theory

The purpose of this thesis is to understand a specific buying decision process, putting most emphasis on the actual description of the process itself. However, to describe the decision-making process, it is natural to first explain what a decision really is. Decision theory is not very unified and there exists many different ways on how to theorise the subject but the attempt of this part is briefly explain what a decision is.

A decision is in general a choice between two or more alternative options. Decision-making theories have mostly been derived from studies of individual behaviour instead of organizational behaviour, this since it is easier for a person to go from a decision to action
than for an organization. (Brunsson 1982) Hansson (1994:5) gives an example of a decision and what kind of theoretical problem it can lead to;

“I am looking for a house to buy. Shall I buy this one? – This house looks fine, but perhaps I will find a still better house for the same price if I go on searching. When shall I stop the search procedure?”

There is a difference between normative and descriptive decision theories. The normative decision theory is according to Hansson (1994) about: “how decisions should be made” and the descriptive decision theory is about: “how decisions actually are made.” According to Brunsson (1992) the normative decision theories set the criteria for a rational decision. According to the rational decision theory all the possible alternatives should be evaluated, which is impossible, therefore it is often reformulated to evaluating as many alternatives as possible. In order make a rational decision the decision maker has to consider all the relevant consequences that the options can lead to and respect both the positive and the negative consequences equally. (Hoffman 1968 cited in Brunsson 1982)

The opposite of making rational decisions is making irrational ones. Brunsson (1982) explains three reasons why irrationality is found in practice of decision-making:

1. People studied are not clever enough to behave rationality.
2. Full rationality can only be achieved by mathematical formulas or by using computer programs since the human being in nature is not fully rational and some types of irrationality is a part of the human being.
3. Practical restrictions explain irrational decision-making as decision makers have either incomplete information or more information than a human being can grasp.

3.3 Approaching the theories

There are many different studies regarding the subject of organizational buying behavior and its decision-making process. Many different theories can be applicable depending on which approach that is being made. There exists many different factors or so called approaches that affects the buyer in their decision-making process regarding a purchase of goods.
In order to make it easy to understand and easy to follow the theories in this chapter we have chosen to first describe the buying behavior of the clients where we will look into the business buying process, which types of decisions that are being made, and who is involved in the actual process. Secondly we will look into the different criteria’s within the buying organization and other influences, such as environmental and individual, factors, that affect the process in certain ways and why. Furthermore an approach to how the organizations are built and how they function will be described and how it plays an important role in the decision-making process. The financial aspects will also be described considering how they affect the decision whether the investment is worth considering. Lastly a description of the role of the relationships between the seller and the buyer will be described as well as how it affects the actual process.

Model 1: Model of the structure of the theoretical chapter (own model)

These five different so called “factors” are big on their own and are all respectively influencing the decision-making process; therefore we have chosen to view these factors separately. Thus we have chosen to structure the remainder of this chapter according to these five parts, or so called factors; Business buying behavior, Influences on business buyers, Organizational Aspects, Financial Aspects, and Buyer-Seller Relationships where we will explain each factor in detail and how it can affect the decision-making process.
These different factors can be divided into external and internal ones. The left-hand side of the model above can be characterized as internal factors, which both include an organizational level and an individual level. Furthermore the right-hand side of the model can better be characterized as external factors, however also including both an organizational level and an individual level. All five factors are also very much interrelated with one another, affecting one another as well. Therefore it is important to not leave any of the factors out of the investigation.

3.4 Business buying behavior

“Organizational buying is a decision-making process carried out by individuals, in interaction with other people, and within the context of a formal organization.” Webster and Wind (1996:53)

In this part of the chapter we will describe in more detail how the decision-making process looks like regarding the purchase of a good. The model to be used as a foundation is the business buying behavior model developed by, amongst others, Philip Kotler. This model by Kotler is constituted of many different models made before him in the specific subject, for example the “Sheth model”, “the buy grid model” and “a general model for understanding organizational buying behavior”.

The business buying behavior model describes how the behavior in a business-to-business relation works. In the model, certain buyer responses are produced, such as supplier choice and order quantities, as marketing and other stimuli, for example the four Ps, are affecting the buying organization. In their buying decisions the buying organization are both influenced by internal factors as well as external ones. The buying decisions made in the organization consists of two specific parts; the buying centre; all the people involved in the decision making, and the buying decision process; including the eight buyphases. These two specific parts are influenced by individual, interpersonal, and internal organizational factors as well as external environmental factors. (Kotler et al 2005)
Model 2: A model of business buying behavior (Kotler et al 2005)

The model above suggests four questions that can be of importance and help in order to understand how the decision-making process looks like. The questions include:

- What buying decisions do business buyers make?

- Who participates in the business buying process?

- What are the main influences on business buyers?

- How do business buyers make their buying decisions?

When looking into the different factors influencing the business buyer and its consequences, one can see that it is a fairly big and important question regarding the understanding of how the business buyer makes decisions. Therefore we have decided to dedicate a separate part in this chapter to this question in order to receive a deeper understanding.

3.4.1 What buying decisions do business buyers make?

In order to distinguish how complex the actual decision-making process will become one firstly needs to learn what type of buying situation the buying organization finds themselves in. When making a purchase the business buyer faces a number of different decisions depending on this type of buying situation. The buying decision process will be more or less complex depending on the importance and the scope of the purchase being considered. “As
complexity increases, the amount of time required for the purchase decision and the number of persons involved tend to increase, as do the buying criteria of the purchasing organization and the amount of information required by the decision makers.” (Webster 1991:30)

According to Robinson, Faris and Wind (1967) there are three distinct types of buying situations, so called “buyclasses”\(^2\); Straight Rebuy, Modified Rebuy and New Task. The three buyclasses vary in length of time, complexity, participation of the buying centre, and the amount of previous experience (Woodside 1992).

- The **Straight rebuy** implies that the buyer purchases a good which has earlier been purchased i.e. without modifications and from the same vendor as before. However, the purchasing terms may vary to some extent. (Webster 1991) It may involve for example changes in delivery dates, price negotiation and quantity needed (Woodside 1992). The purchase is usually done on a routine basis by the purchasing department (Kotler et al 2005) and the process takes between one week and seven months (Woodside 1992). According to Robinson et al (1967) this type of a purchase is the most common in industrial buying. At most times the company considers the same solution as they considered the last time when the requirement arose. In other words, the problem or need that the buying organization is having is a reoccurring one and therefore the purchase becomes routinized. To sum up, various factors are able to change as long as they do not alter considerably the factors of the buying decisions.

- The **Modified rebuy** is the purchase of a good that has been purchased before (Webster 1991). However, the buyer wants to change product specifications, price, terms or suppliers (Kotler et al 2005), which can include asking for bids from other vendors and seeking information about their specific product offerings (Webster 1991). In other words, the buying organization might seek for new alternative solutions to the problem or need. Here the buying organization makes new evaluations of other vendor’s offerings. However, in the end, the buying organization might purchase the same product and from the same supplier as before. The distinctive element here though is the reevaluation of alternatives, for example considerations of new ones, and that it is worth to seek additional information and alternative suppliers and products before a decision is being reached. There exist certain factors that will influence the buying organization into

\(^2\) These "buyclasses" by Robinson et al are similar to the ones described by Howard and Sheth; Routinized Response Behavior, Limited Problem Solving, and Extensive Problem Solving.
looking for alternatives. One of them is when the buying organization, either by
themselves or through persuasion, realize that seeking for alternatives might result in, for
example, cost savings and improved production processes. Other influential factors is
when the buying organization is displeased with their existing supplier, a change in the
purchasing requirements of the buying organization, or when another marketer offers an
improvement in price, quality or service. (Robinson et al 1967) Usually this reevaluation
of alternatives involves more participants in the decision-making process, (Kotler 2005)
and the process itself may take between seven months and five years (Woodside 1992).

- The New task arises when an organization buy a good for the first time. Depending on the
costs and the risks more participants are involved in the decision-making process. A lot of
new information also needs to be collected by the participants (Kotler et al 2005) as all the
stages in the buying decision process are involved, which will be further explained in
chapter 3.3.3. The previous experience of the buyer is of little relevance as it is a new task.
Therefore the buyer must instead create purchasing goals, define potential sources of
supply, and develop criteria and information in order to be able to evaluate alternative
sources. (Webster 1991) This type of buying situation gives the selling organization an
opportunity as well as a challenge (Kotler et al 2005). As described above one can see that
new task purchases tend to be complex, are more time consuming, and may take between
seven months and up to five years. It also involves many different departments as well as
many different persons, and involves the necessity to consider vendors that have not been
used before by the buying organization. (Woodside 1992)

According to Woodside (1992) the classification of a purchase within the different buyclasses
depends primarily on the perceived importance of the actual purchase. The buyer takes fewer
decisions in a straight rebuy and the most in a new task purchase.

3.4.2 Who participates in the business buying process?

According to Webster (1991) as a buying situation arises, the organization creates a so called
“buying centre” which consists of a group of persons within the organization that will take
part in the buying decision process. The members of the buying centre posses’ different kinds
of roles during the process and these different members may come from many different
departments within the organization (Sheth et al 1977). The variations of the circumstances
that are creating the need of a product also affect the structure and the behavior of the buying centre (Zaltman and Bonoma 1977).

“As might be expected, the more complex and involved the buying decision, the larger the decision unit and the more careful its decisions.” (Bonoma 2006:177)

Webster and Wind (1972, cited in Lau et al. 1999) have suggested that business marketers should study the different buying roles of different members of the buying centre in order to achieve effective marketing. Furthermore, when the purchase is perceived as new or involves a greater time pressure it is important to interact and communicate with higher management within the buying organization as they may possess more influence and for that have a great deal of say regarding the decision-making.

The different roles of the members in the buying centre, initially formulated by Webster and Wind, are as follows; users, influencers, deciders, buyers, and gatekeepers.

- The Users are the ones who will use the actual good or service. In many cases it is the users who initiate a purchase or describes the need that the product needs to fulfill. (Kotler et al 2005)

- The Influencers are the members who have an impact on the actual decision-making, mainly technical personnel. They normally help define criteria’s for the decision-making and also give information for evaluation of alternatives. (Kotler et al 2005) Bonoma (2006) claims that the range of the influencers becomes broader as major purchases are considered. The reason being that many corporate resources are involved as well as many people.

- The Deciders are the ones who both have formal and informal authority. They select and approve specifications, products and the final suppliers. (Kotler et al 2005) Furthermore Bonoma (2006) mentions the fact that when a major purchase is being considered many people in the buying organization can have the role as the decider.
The *Buyers* have formal authority. They select suppliers and formulate the terms of purchase. The role of the buyer varies depending on if it is a routine or complex purchase. (Kotler et al 2005) The buyer role is usually held by the company’s purchasing department (Bonoma 2006).

- The *Gatekeepers* control the flow of information to others (Kotler et al 2005). There are either one or more gatekeepers involved in the buying decision process and these usually act as product or problem experts. The gatekeeper controls the information flow and at times vendor access to corporate decision makers and by doing so they determine which vendors will be able to get a chance to sell. (Bonoma 2006) In other words, the gatekeeper can in fact allow more favorable information to reach the formal decision-makers from one bidder and allow less information from a less favored bidder. This behavior may in fact the gatekeeper not be aware of. Perceived from a vendor’s point of view, the gatekeeper is the best way in order to get information into the firm. (Zaltman and Bonoma 1977)

Bonoma (2006) has added a sixth role to the buying centre concept, the *Initiator*. The initiator recognizes that some problems within the company can either be solved or avoided by acquiring a product. (Bonoma 2006) All these different roles mentioned above and their descriptions refer to common patterns of behavior and how these different behaviors contribute to the actual buying decision (Sheth et al 1977). According to Bonoma (2006) if the purchase is very small and not complex at all, one person might fit into all the six different roles during the buying decision process. Furthermore, the actual buying centre is more of a theoretical term as the group that influences a purchase does not call themselves a buying centre. Nor do, for example, decision makers and influencers think of themselves in those specific terms. (Bonoma 2006)

Sheth et al (1977) mentions the importance that the buying centre must be understood in terms of two different variables, task and non task. Task variables are related to the actual buying problem that is to be solved. It entails the general criteria of a purchase, such as buying the right amount and quality for the right price. Non task variables can be divided into two categories; achievement motives and risk-reduction motives. Achievement motives can be described as those related to personal recognition and advancement. The risk-reduction motives provide an important link between the organizational decision-making process and
the individual. In other words, if a situation occurs regarding a purchase when all things are equal the buyer might choose non task variables as the decisive factor, applying strictly personal criteria’s, when making the final decision. (Webster and Wind 1996)

3.4.3 How do business buyers make their buying decisions?
Buying decisions represent a complex set of activities that engage many members within the buying organization. The result is a commitment to a purchase of a product. (Webster 1991) Robinson et al (1967:13) describes a model with eight phases that an industrial organization goes through in their buying decision process. When a buyer makes a new task buy he is very likely to go through all the phases in the model. However, when a buyer makes a straight or a modified rebuy he might skip a phase or more in the model. The model presented below is a theoretical model trying to make it easier to understand the different phases. However, in reality the phases are often much more complex and the buying organization do not necessarily go through all of them, nor in the specific order stated below.

1. Problem recognition: The buying process starts when the organization, or someone within the organization, recognizes a problem or a need which can be solved or avoided by purchasing a product. (Kotler et al 2005) According to Robinson et al (1967) it can also start from a potential supplier who foresees or precipitates a need for a product within the buying organization. In other words both internal and external stimuli can result in a problem being recognized.

This phase is divided into two parts; the recognition of a problem and the awareness that the solution will fill certain needs through a purchase. The first part, problem recognition, can, for example, be that the inventory might run low, one needs new equipment, or messages from a seller or an advertisement that causes the buying organization to doubt that their existing product is in fact the best one for their specific operation. The second part is that the buying organization becomes aware of the fact that the best solution to the problem or need that has been recognized is most likely to be positioned in a particular direction. (Robinson et al 1967)

2. General need description: The buyer prepares a general need description over characteristics and quantity of the needed item. Regarding more standard items the
process presents few problems, however when it comes to more complex items the buyer might have to work with others, such as engineers in order to define the item. Here an opportunity exists for the selling organization by helping define a need and give information about its value in the product selection. (Kotler et al 2005)

3. Product specification. According to Kotler et al (2005) in this phase of the process the buying organization develops a technical product specification for the needed item. As this specification will serve as the base for people both inside and outside of the buying organization Robinson et al (1967) mentions the importance that it must be very precise and detailed in order to facilitate for later stages in the process. The buyer then estimates the value and the cost reduction, which the new product would imply (Kotler et al 2005).

Phase three is of importance according to Robinson et al (1967) for the seller as it is the stage in which specified influences enters the buying process. Therefore the seller needs to know who is preparing and selecting the specification, what specific information sources that the buying influences are drawn upon, and the roles of the various individuals and their participation in the decision-making process.

4. Supplier search: At this stage of the process the buyer performs a supplier search in order to find the best vendors, and later on contact a number of them. As the buying task is newer, more costly and more complex the buying organization will consequently spend a greater amount of time to search for suppliers. (Kotler et al 2005) In the end of this stage the buying organization will have determined which suppliers that will be considered as potential sellers (Robinson et al 1967).

5. Proposal solicitation: The buying organization invites the selected suppliers to present their proposals. It is of importance that the proposals, written documents and presentations, should inspire confidence and make the supplier stand out from its competitors. Regarding complex products the buyer will most likely require a detailed written proposal or a formal presentation. (Kotler 2005) According to Robinson et al (1967) a complex product also implies a series of counter-proposals and new offers, which can result in a time consuming process taking many months.
6. **Supplier selection:** During this phase the members of the buying centre evaluate and analyze the suppliers and their proposals. Different factors are conclusive depending on the type of product and the buying situation. (Kotler et al 2005) As the buying organization approves one or more suppliers’ offers and rejects the others, the supplier is selected. Further negotiations might however occur even though a supplier is selected regarding prices, deliveries etc. (Robinson et al 1967)

7. **Order-routine specification:** In this phase of the buying process the buyer prepares an order-routine specification which includes a final order to the chosen supplier. Here items are listed such as technical specifications, expected time of delivery, quantity needed of the item and warranties. (Kotler et al 2005) Even though one might think that the purchase is finalized in this phase, it is not. From the viewpoint of the buying organization the purchase has not been completed and the problem not yet been solved until the actual product is delivered. Therefore it should be of importance to the seller, and he should be aware that the purchase is not yet finalized until the product is delivered. (Robinson et al 1967)

8. **Performance review:** The last stage of the process involves reviews of the supplier performance by the buyer (Kotler et al 2005). This review includes questions as to how well the product bought has solved the problem and how well the supplier performed prior, during and after the purchase (Robinson et al 1967). In this review the buyer also rates its satisfaction with the product and the supplier. At this point the buying organization decides whether or not to continue with this specific supplier, or at times modify the contract. (Kotler et al 2005)

The eight phases of the buying process are very much interrelated with one another. They do tend to follow a logical sequence but in practice two or more phases can take place simultaneously. This can happen in situations when the buyer and the seller work together. For example when developing a new item, modifying an existing item or when new technologies are involved. Furthermore these phases are not mutually exclusive; this means that something that is normally being performed in phase four may be performed in phase three depending on the buying situation. It can be added that it is hard to determine where one phase ends and the next one starts. (Robinson et al 1967)
According to Webster (1991) it is of great importance to analyze the different stages in the process for industrial organizations and their marketers in order to be able to develop a well functioning selling strategy. The reason being that it defines the target for its efforts and the different phases, through which it have to respond to the needs for information of the buyer. The purchasing organization decides on a purchase by completing the sequence of activities in the model, and at times it will lead to repeated purchases.

We have previously seen the three different buyclasses (straight rebuy, modified rebuy, and new task) and now the eight buyphases, the steps taken during the buying decision process. Some phases can be skipped, and are skipped in reality, as the buying organization possesses previous experience. For example, in buying situations such as a straight rebuy and usually in a modified rebuy, the phase supplier search might be skipped. (Woodside 1992) Furthermore Woodside (1992) also states that complex buying situations often occur in New Task purchases, and that a New Task purchase in its initial phase, problem recognition, generally represents the greatest difficulty for the management of the buying organization.

According to Möller (1993) these eight buy phases have many researchers, such as Wind, Choffray and Lilien, tried to confirm. However, they have instead come up with a number of stage classifications that varies in the actual content and the number of stages found under different conditions. All these different models vary considerably in precision and complexity and are applicable under certain purchasing conditions. Nevertheless, other researchers (O’Shaugnessy, Silk and Kalwani) has questioned if it is at all meaningful to use one single, generic model with succeeding stages to describe the decisions of all industrial products. Robinson et al (1967) has however not claimed that they have found such a model but merely claimed that it is an attempt to distinguish certain buying processes from others. Möller (1993) states that although no general model can be established it is important to estimate the industrial buying process in order to receive a general picture of the industrial buying behavior.

3.5 Influences on business buyers

Business buyers are subject to many influencing factors when making a decision to purchase (Kotler 2005), the direction and the outcome of the buying decision-making process is determined by these influencing factors (Robinson et al 1967). Webster and Wind (1972)
consider that factors such as technology, organizational structure and goals, and member characteristics affect, in a way, the buying decisions through their impact on interaction within the buying centre.

Robinson et al (1967) states that it is important for the industrial marketer, or the so called vendor, to become familiar with the buying processes of his client’s so that he can predict the influences with high accuracy in any given situation. Some of these influencing factors include the following four sets of variables; environmental, organizational, interpersonal (for example the buying centre), and individual (Webster 1991). Other influences include the financial aspects and buyer-seller relationships. However, organizational factors, financial aspects and buyer-seller relationships will be described in separate subheadings as these are big on their own. In this part of the chapter we will identify the other three factors, environmental, interpersonal and individual, and later on we will analyze their effect on buyer’s behavior.

### 3.5.1 Environmental Factors

When making a buying decision the environment affects the buying centre, as it provides information as well as opportunities and constraints. The environmental influences are characterized by physical, technological, economical, political, legal, cultural (Webster and Wind 1996) and competitive (Kotler et al 2005) factors. These influences are however hard to identify and measure as they tend to be relatively spread (Webster and Wind 1996). However they are important, for the business marketer, to consider as it affects the buyer’s behavior. Webster and Wind (1996) define four ways of how the environmental influences affect an organization. First they define the availability of goods to the buying organization. Secondly, the general business conditions the organization is confronting. Thirdly, the values and norms which guide the relationship between different parties in order to evaluate the buying alternatives. Finally, the environment influences the flow of information to the buying organization by marketing communications, mass media and other personal and impersonal channels.

Kotler et al (2005) consider the economical factor as the most important, as the level of primary demand, the economic outlook and the cost of money affects business. Consequently, business buyers tend to cut back on new investments and attempt to reduce their inventories
as economic uncertainty arises (Kotler et al 2005) as the investment is influenced by considerations like budget, cost and profits (Webster and Wind 1996). When quantifying consequences in economical terms, behavioral and organizational influences are ignored even though they are included in any purchasing decision (Sheth et al 1977).

### 3.5.2 Interpersonal Factors

Understanding the nature of interpersonal relationships and factors in the buying organization is of importance as one develops a marketing strategy (Webster and Wind 1996). According to Robinson et al (1967) the buyer is only one out of several persons within the organization that influence and decide on the purchase. Those influencing the buying decisions can be divided into two groups; the members of the buying centre, these have a direct contact with the buying decision, and those within the organization but not in the buying centre, these have an indirect contact with the buying decision. The relationship between the members of the buying centre is of greater importance whereas the relationship between the buyer and the other members of the organization are of lesser importance. The nature and the extent of the interpersonal relations within the organization affect the decision of the buyer, or the ones deciding whether or not to buy the product.

However, according to Kotler et al (2005) the interpersonal factors are very subtle. It is hard for an outsider to identify who in the buying centre that is influencing the buying decision, for example who have the unique expertise, is well-liked or have a good relationship with other important members of the buying centre.

"managers do not wear tags that say "decision maker" or "unimportant person"" (Kotler et al 2005:316)

As stated before members of the buying centre belong to different departments within the organization, thus the interpersonal relations can also be influenced by interdepartmental and intradepartmental relations of the different members in the buying centre (Robinson et al 1967). Webster and Wind (1996) also mentions the importance that the seller has to understand how each member of the buying centre expects the seller to behave towards him, depending on which role in the buying centre he possesses. Furthermore they argue the need
of analyzing the buying centre, focusing on the buyer role (mentioned in chapter 3.2.2) as the member of the purchasing department generally is the first contact in the buying organization.

3.5.3 Individual Factors

Webster and Wind (1972: 18) states the importance of the individual in the organization; “In the final analysis, all organizational buying behavior is individual behavior.” Webster and Wind (1996) also mentions that it is not the organization itself that make the decisions but rather the individual as a part of a group who defines and analyses the buying situation and thereafter makes the decision. The individual is in turn influenced by its organization, other members of the buying centre and also affected by the external environment. According to Kotler et al (2005) the participants of the buying centre are influenced by their own preferences and personal motives, this means that each buyer has his own buying style.

There exists an important interaction between the needs of the individual and the individual’s perception of how ones participation and performance in the buying decision process will be evaluated and rewarded by the organization. Thus, according to Webster (1991) it is the individual decision makers rather than the organization as a whole that should be the targets of marketing efforts.

Marketing strategy decisions made by the selling organization should be based upon the importance of understanding the organizational buyer’s characteristics and his preferences, predispositions, and decision model (Webster and Wind 1996). Webster and Wind (1996) further states that the organizational buyer is motivated by a combination of various objectives, individual and organizational, and is also dependent on the others within the organization for the satisfaction of the specific needs. The organization determines the expectations of the individual, the payoffs of his performance and the goals to be followed.

In certain circumstances, when “all other things are equal” in a buying situation, the organizational buyer, or the so called individual, can be able to apply personal criteria’s regarding the making of a final decision, a so called nontask motive. (Webster and Wind 1996)
The concept of reinvention, when a selling organization adapts their product to the needs of the buyer, is not taken into account in decision-making models regarding the industrial buying process. According to Zaltman and Bonoma (1977) reinvention needs to be taken into account in the decision-making process as it can be decisive when a decision to purchase or not to purchase is made. However, different people within the buying organization or the buying centre, may value different characteristics of a product and thus they may try to alter the product in order to enhance its best characteristics, which may result in conflicts. Webster and Wind (1996) states that in order for vendors to be able to affect the behavior of the organizational buyer they need to understand the individual determinants as well as the tactics used by the buyer when dealing with potential vendors.

3.6 Organizational Aspects

3.6.1 Organizational Factors

Kotler et al (2005) states that each buying organization has its own objectives, policies, procedures, structure and systems whereupon, according to Webster and Wind (1996), individual decision makers tend to act differently than they would have done in other organizations or by doing it alone. Based on the organization’s goals, the buying behavior is motivated as well as bounded to its financial, technical and human resources.

Organizations are multivariate systems and the buying process and its behavior are influenced by the formal organization’s variables; buying tasks, organizational structure, buying technology and buying centre. The buying task consists of the organizations purpose of the actual purchase, whether the demand is generated in the organization or by forces from the outside, whether the decision-making is a routine or not and whether the authority is centralized or not. The organizational structure consists of five subsystems; communication, authority, status, rewards and work flow that influence the buying process. The buying centre, as mentioned before, consists of all members involved in the decision-making process (users, influencers, deciders, buyers and gatekeepers). The behavior of the members is influenced by others as well as the buying task, organizational structure and technology which makes the buying behavior unique for each organization. (Webster and Wind 1972) These four variables together determine which type of information, expectations, goals, attitudes and assumptions
3.6.2 Organizational Structure

The organizational structure has a great impact on the decision-making process as it refers to the internal pattern of relationships, authority and communication (Thompson 1967, cited in: Fredrickson 1986). By looking into an organization’s structure one can easier understand how they make decisions, its behavior, (Robbins and Judge 2008) and what affects the process when it comes to whom and where decisions are being made. Therefore, in big organizations, as in the pulp- and paper industry, it is of great importance to analyze the structure in order to understand the decision-making process. The structure can be divided into three different dimensions; centralization, formalization and complexity. (Thompson 1967, cited in: Fredrickson 1986)

The degree of centralization, when studying decision-making, is where the decisions are being made and who has the formal authority to make decisions (Robbins and Judge 2008). The organization can be distinguished between centralized and decentralized structures where as in centralized, the decisions are made due to the hierarchical structure i.e. top managers are making the decisions with little or no participation from lower-level personnel. In decentralized structures decisions are being made in different levels of the hierarchy i.e. more lower-level personnel are involved (Robbins and Judge 2008). The decision-making in centralized organizations involves fewer people and tend to be more coordinated which can delay the start of the actual process. (Fredrickson 1986) Decentralizing the decision-making is favorable, especially when the technical environment for the purchased products is rapidly changing (Zaltman and Bonoma 1977), as decisions can be made more quickly as more people provide input into the decisions (Robbins and Judge 2008).

When a decision is to be made, the degree of formalization plays an important role, as the degree of using rules and procedures affects the process as well as where and by whom tasks are being performed. (Fredrickson 1986) Formalization can also be described as, how standardized the jobs are within the organization, referring to how the degree of how programmed the behavior is as well as the level of freedom of action a person has in his work (Robbins and Judge 2008). The last dimension, complexity can be divided into horizontal
differentiation; the division of labor which is a process where jobs are simplified into related and repetitive tasks (Wesley and Bonoma 1981, cited in Lau et al 1999) and vertical differentiation; the number of levels of the hierarchy. The hierarchy shows the lines of authority and responsibility and by increasing the levels the more complex and differentiated the organization will be. Authority can in other words be described as power i.e. who has the right to make a decision? (Hahn 2007) Thus, complexity is likely to cause problems in coordination and control and to easier handle this, increased formalization is one alternative (Hsu and Marsh 1983).

3.7 Financial Aspects

In order to obtain acceptability when deciding if an organization will carry out an investment project, for example a simulation system for a pulp- and paper mill, an organization has to investigate how rapid the investment can recover in terms of the money invested in it. This can be made in several ways; however the most common one used by management is the payback method. (Boardman et al 1982) Yung and Sherman (1995) states that all investors are interested in payback, in other words the return on money invested. Although the payback method has many weaknesses, for example it does not include the time-value of money, it gives the buying organization a clue on whether or not the investment is even worth considering. The internal rate of return (IRR) is the discount rate, the rate of return that makes the sum of present value of future cash flows and the final market value of an investment equal to its current market value. As a result it is used to rank several investments an organization is taking into considerations. The higher an investments IRR is the more desirable it is to undertake the investment as well as when the IRR is greater than the rate of return that could be earned from other investments of equal risk. (Verhoef 2004)

In this case our point is not to explain the different investment analysis methods but to emphasize the fact that an organization does not make an investment, buying a simulation system, without thinking it will generate or save more money than was initially invested. Regarding major investments in computer systems, such as simulation systems, it is hard to quantify the revenues as data is needed for the analysis, which turns out to be rather impossible to determine for these kinds of investment offers (Verhoef 2004).
3.8 Buyer-Seller Relationships

“Companies don’t make purchases; they establish relationships.” (Robinson et al 1967:139)

Industrial marketing is distinguished from consumer marketing regarding the nature of the buyer-seller relationship (Webster 1991). The buyer-seller relationships are affected by as well as are affecting the buying behaviour of the organization (Johnston and Lewin 1996). According to Robinson et al (1967) organizations, in their purchasing decisions, are all about establishing relationships, often when benefits exceed the risks (Sheth 1995 cited in Cann 1998). Primarily both buyers and sellers seem to be interested in establishing long term relationships that are mutually beneficial. Webster (1991) states that for industrial marketing the central focus should not lie on the actual product or on the market, but rather on the buyer-seller relationship. The relationship between the buyer and the seller provide security, predictability, and continuity but can also result in unique and important management challenges. Relationships between sellers and buyers are developed in the buying decision process and are maintained through the negotiation of the sale and the completion of the transaction to the post-sale service and repeated orders.

Relationships in business markets are often close, complex and long-term although some can be centered on a single purchase. A relation can at times be characterized by domination by one of the parties, the buyer or the seller, or by conflict and dishonesty. (Ford 2002) To the buying company it is of importance to be viewed, by the supplier or suppliers, as a good customer. They consider it to be to their advantage to make sure that their business is important to their suppliers. (Robinson et al 1967) Furthermore an effective relationship can, if it has a respectable supplier, be a significant strategic asset to an organization. A supplier can in an effective relationship also be a valuable source of ideas, contacts and expertise. For a relationship to be effective it needs to benefit both the buyer and the seller. (Nichol 2009)

Each time a purchase have been carried out, the buying organization will remember it and the pattern of interaction, whether it was good or bad before, during and after the purchase. Thus, every purchase will be influenced by what has happened before and will also influence what will happen in the future when a similar purchase is in progress (Ford 2002). Normally, it
takes time before the first purchase has taken action as it involves much interaction between the two organizations (Ford 2002). At first the relationship between seller and buyer is similar, as they are entering a relationship for their own interest and consequently seek to achieve them through the relationship.

Seen from a more strategic point of view, the seller wants a long-term relationship with its clients as it is in general less costly to keep existing clients than attracting new ones. Long-term clients can also provide feedback and are a part of the selling group by providing good word-of-mouth and encourage new business. (Cann 1998) As time passes by, the communication between the two parties, the buyer and the seller, opens up and the client’s needs and problems becomes better known. A better relation thus arises between the two organizations. (Congram 1991 cited in Cann 1998)

“How buyers perceive the selling company, its products, and its personnel is very important to efficient selling.” (Bonoma 2006:180)

In order to understand how buyers perceive sellers one can ask, according to Bonoma (2006) the seller to estimate how the buyer judges the selling organization and its actions. Marketing efforts by the selling organization should then be aimed towards those in the buying organization who likes the selling organization, including their actions and products. The reason being that as they like the selling organization they are, what Bonoma calls them, partially presold. However, one can not deny the fact that it is important to sell to “everybody” although Bonoma also argues that those who direct their efforts to sell to everybody often sell to no one. Furthermore it is of importance that the selling organization keeps it promises regarding the product and the benefits associated with it, as well as making sure that they deliver the notion of keeping its promises to the buying organization. In other words, so that the buying organization can be confident that the selling company will keep its promises. A well known vendor might here have a greater advantage over a vendor that is less known. Here the seller outlines the buying organization’s motivation and thus being able to focus the attention of the buyer on benefits that are not a part of his thinking. (Bonoma 2006)
In traditional models and treatments regarding buyer-seller relationships the role of friendships has often been ignored. Frequently “purchasing agents buy from supplier friends or individuals whom they get along with very well.” (Zaltman and Bonoma 1977:55) Owners of small businesses, small and medium sized enterprises (SME), have often been able to, through personal contact with the buying organization, know the needs of their customers very well. Through this personal contact they have been able to suggest appropriate offers to their customers individually. (Palmer and Bejou 1994)
4. Empirical Data

In this chapter we will give an account of the gathered empirical information. We will begin the chapter with a general description of the pulp- and paper industry as a whole, and then continue with a more detailed description of the concept of simulation and how it works in the pulp- and paper industry. Furthermore we will give a brief description of our case company, FrontWay. However, the main part of the chapter will consist of a summary of the interviews that were carried out. The interviews will however not be depicted in their entirety; in order to facilitate the comprehensiveness of the study only the relevant answers of the interviewed will be depicted. All of the interviewed have been treated anonymously and even so their respective organizations. In the end of the study in the appendix the interview guide can be found.

4.1 The Pulp- and Paper Industry

The forest industry is an important part of the Swedish economy and stands for ten to twelve percent of the total employment and turnover. It also represents eleven percent of the Swedish exports and three percent of the Swedish gross domestic product (GDP). The forest industry can be divided into; the sawmill industry, the wood board industry, paper and board, and the joinery industry. The paper industry is the biggest industry within the forest sector, The Swedish pulp- and paper industry is the third largest in Europe. (Skogsindustrierna 2008)

There are obvious similarities of the paper machines in use today and the first machines that were developed in the 1850s. The process technology itself is still today based on the same traditional process involving sections of pulping, forming, pressing, drying and calendaring. However, the machines today are far larger, more continuous, faster and work with a higher precision. (Laestadius 1998)

The pulp- and paper mills today can be described as giant converts of fibres and energy, they consume large amounts of water, are extremely expensive, need an enormous area for growing the input and an enormous and stable market for selling the output. (Laestadius 1998) In Sweden, the pulp- and paper industry is of great importance, when looking at doing business around the world, as it has a great value for the Swedish economy, employment and welfare. Considering the change in structure within the Swedish pulp- and paper industry, a lot of discontinuation has been the result. More is produced by fewer people, greater
investments and more effective machines. (www.pappers.se) The pulp- and paper industry is relatively conservative compared to other industries where greater flexibility and new thinking exists (www.papernet.se).

As stated above the pulp- and paper mills are very expensive, and according to Skogsindustrierna (2008) the forest industry and in particular the pulp- and paper industry is extremely capital intensive. The pulp- and paper industry is also the sector within the forest industry that is investing the most in research and development (R&D). The forest industry stands for 15 to 20 percent of the total Swedish industrial investment. For example an investment of new pulp lines or new paper machines can cost several billion SEK.

Per Lindvall, a columnist of Svenska Dagbladet, describes the contemporary situation of the Swedish forest industry, explaining the tragicomic of that the streets name of a suburb in Stockholm that were in the 1920s named after paper- and sawmill villages of the once so pride Swedish forest industrial history, today for many of the streets are just memories from times long passed by. The Swedish forest industry is at the moment going through one of its worst crisis’s, so far during 2009, three pulp- and paper mills have been closed down. It is not only the deep recession which has cut back on the demand in this cyclic business. The explanation of the vulnerable situation of the forest industry can be explained by structural troubles. The olden days of cheap energy and raw material is by far gone meanwhile the reading has moved from paper to internet. Most obvious is the problem within the segment for newspaper, well pap, pulp and sawed wooden goods which has difficulties surviving. The elimination of the forest industry in Finland is even more brutal where 40 percent of its capacity needs to be removed. (Lindvall, Svenska Dagbladet)

In the pulp- and paper industry such as in other process industries simulation has been used for two main reasons, one is to educate and train the operators to understand the process, how the system should be handled and secondly training for different scenarios that can occur and by doing that be ready for difficult situations. (Sandblad) Other usage areas of simulation in the pulp- and paper industry is to, for example, minimize bad environmental impact, and increase productivity and cost-competitiveness. (www.cost.esf.org)
4.2 FrontWay – a company description

FrontWay is a small company with a turnover of SEK 1, 85 million during the calendar year 2007-2008 and is based in Norrköping Science Park. FrontWay offer software products supporting business needs when it comes to simulation solutions, mainly in the pulp- and paper industry. The company was founded in 2005 by Anders Nilsson as Millmac AB, and later on became FrontWay. (www.ad.se) Today FrontWay has three employees including its founder, the CEO. According to him the clients are primarily pulp- and paper mills in Sweden, however the company also has clients in Germany and in Austria.

FrontWay offers a range of products to the market and they imply that they can provide all industries with simulation solutions. Some of the products include; PaperFront, PulpFront, ProjectFront, and PipeFront. PaperFront is a library of functions that describes, in detail, the actual process, starting with the entry of the chips or bales to the ready made paper. This simulation solution can easily be programmed to the specific specifications of the client. PulpFront is a library of functions that describes, in detail, the process starting with chips entering the process and finishing with the ready made pulp. ProjectFront is also a library of functions but it handles in- and output from the models and is a strong scenario handler. It easily presents and extracts data from the different runs. PipeFront as well is a library of functions but that in this case describes the actual infrastructure of a pulp and paper mill. This system can easily interact with other expert systems. When we are referring to simulation solutions that their clients are using they are using one of these, however, for the purpose of our study it is not relevant which of the solutions that each specific client is using. For all the applications and solutions FrontWay offer support, service and an update agreement. (www.frontway.se)

The problem today according to the CEO of FrontWay lies in the fact that the simulation solution his company is offering is hard to use and it is hard to sell. This might be as the product itself is not a “commodity product”, which one can just take from the shelf and sell, in other words it is no standard selling. It is a very adaptable product that is at the same time very hard to define. In this way it is also very hard to define the type of marketing that is necessary. He further explains that he usually, regarding the sale, goes through the development engineers and very low down in the hierarchy in the buying organization, however, he is not sure that this is the right way to go as he usually has personal contact with
them from before. A problem can easily arise if that specific contact is let go from the company, in other words fired, the question at that moment is; what happens next?

In the case of the selling process the CEO says that he is the one taking the initiative to a contact in nine cases out of ten where as a seller he is obstinate and does not really have that great of patience, he wants an answer immediately. He further explains that for old clients of the product FlowMac, the product of the competitor PaperMac that the CEO have worked with before, he offers a direct change to the simulation solution offered by FrontWay step by step as well as support and service. As the selling process starts for a new client the CEO mentions that he presents his product, the product portfolio, thereafter follows a prestudy taking about two to three months where he goes through everything such as goals for the client and their prerequisites. It is necessary to understand the client and his or her needs and thereafter come back to them with a sketch or an outline. From this point on until the client has reached a decision the CEO has in general contact with them every second month.

In the process, already from the start, the CEO of FrontWay tries to involve the purchasing department in the buying organization as it is, according to him, the most efficient way to get a product “in”. Here he explains that in this way one receives an order number which can make it easier so that one does not become “forgotten” by the buying organization. Furthermore he states that he is in contact with 10 to 15 potential clients at a time until someone accepts. In most cases he has to wait two years for an order from a client, which he sees as the decision-making process for his clients. These two years he perceives as being a far too long process. In general the CEO mentions that he receives between two and three orders each month and the main reason for a no he explains is that the buying organization does not have the financial means for an investment like this.
4.3 The Interview Results

In this part of the chapter we will present the results we have obtained through the interviews we have carried out. The respondents that are a part of this study are pulp- and paper mills around Sweden that are using the simulation solution offered by FrontWay or has been a client during the last two years, but also the financiers of FrontWay. In general simulation solutions are to make projects and production more efficient, in a way that one can simulate an action/model/factory before actually developing it, but also to assimilate for the correct flows in machines in order to receive the best result. This hopefully in order to reduce costs. We have also interviewed the CEO, which can be seen in the previous part of this chapter, in order to obtain his point of view on the decision-making process as well as more general information as to how a simulation solution works, as can be seen in the previous part of this chapter. Together this will constitute as our empirical data gathered during the investigation.

The interviewed in the study are either ones that have worked and been a part of the actual decision-making process regarding the purchase of a simulation solution from FrontWay or has been closely related to it. However, foremost those who have taken a major part in the process as those interview objects can, together, give us a better look of the entirety of the process and how it actually looks like. In this account of the results we will be differentiating between the pulp- and paper mills and the financiers as the pulp- and paper mills, to a great extent, uses the simulation solution frequently as opposed to the financiers who only finance FrontWay. According to the CEO the financiers creates prerequisites for them to build up their business.

As the purpose with this study is to examine and understand how a client’s decision-making process looks like regarding the purchasing of technical complex products, in specific simulation solutions, the majority of the questions during the interviews have been concerning how this process actually looked like among the respective clients. We have decided to present the results according to a similar structure of that in the frame of reference in order to make it easy for our readers to understand as well as for ourselves to later on be able to analyze our results. Furthermore in order to secure the anonymity of the interviewed and their respective organizations we have decided to give each respondent as well as their respective organization fictive names, which can be seen on the following page. This has also been done as to make it easier to follow and understand our findings.
Table 2: The respondents, their respective positions, and if they bought the product

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>PERSON</th>
<th>POSITION</th>
<th>Bought it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company A</td>
<td>Andrew</td>
<td>R&amp;D</td>
<td>Yes</td>
</tr>
<tr>
<td>Company B</td>
<td>Brian</td>
<td>CEO</td>
<td>Still in process</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Production Manager</td>
<td>Still in process</td>
</tr>
<tr>
<td>Company C</td>
<td>Carl</td>
<td>Development Engineer</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Conan</td>
<td>Development Engineer</td>
<td>Yes</td>
</tr>
<tr>
<td>Company D</td>
<td>David</td>
<td>Technical Manager</td>
<td>Yes but not decided if to use it</td>
</tr>
<tr>
<td>Company E</td>
<td>Edward</td>
<td>Project Manager</td>
<td>Yes</td>
</tr>
<tr>
<td>Company F</td>
<td>Fred</td>
<td>Project Manager</td>
<td>Yes</td>
</tr>
<tr>
<td>Company G</td>
<td>Garfield</td>
<td>Development Manager</td>
<td></td>
</tr>
<tr>
<td>FrontWay AB</td>
<td>Anders Nilsson</td>
<td>CEO</td>
<td></td>
</tr>
</tbody>
</table>

4.3.1 The type of buying situation

In order to learn what type of buying situation the buying organization did find themselves in when buying the simulation solution offered by FrontWay we asked the interviewed questions such as the ones below.

- Did you use a similar simulation solution before the purchase?
  - If yes was it from the same supplier or a different one? If it was from a different supplier why did you decide to change supplier? If it was from the same supplier why did you decide to upgrade the simulation solution?
  - If no what kind of product did you use before? And why did you decide to change?
As can be seen in the table above the majority of the interviewed told that their mill had used some kind of simulation system even before they decided to initiate negotiations of the simulation solution offered by the case company. For example Andrew at Company A explained that they had been using different kinds of simulation systems since the middle of the 90s. David also explained that they had been using simulation systems for a very long time with different usage areas. Of the ones who had used some kind of simulation system, some explained that they had used FlowMac or had consultants working with it at their mill. In these cases they switched from the supplier selling FlowMac to FrontWay which offered their simulation solution, a similar simulation solution where old clients of FlowMac was offered a direct change to the one by FrontWay step by step. The selection of supplier was mainly between the former supplier and the present supplier and when the buyers changed the supplier they referred to it as an upgrade of the existing simulation solution.

The remainder of the respondents explained that they had used and tested several products from different suppliers before getting in contact with the simulation solution offered by FrontWay. For example Bartholomew at Company B said;

“*We have had contact with many different companies to find this tool that we need and FrontWay was one of them*”

However, those respondents who had not been using FlowMac before an upgrade was not an option, it was rather an option whether to change the supplier and/or the product. Of these
“non upgraders” company B is still in the buying decision process and had agreed on a trial for using the simulation solution from FrontWay. The complexity of the product can be understood through the following statement made by David at company D which bought it.

“We bought it at first without really knowing what it was, we also bought education, and it was not until afterwards, when we had done that when we really understood what it was.”

The users of the product today have to pay a fee every year for the license for the simulation solution which, for example, includes the right to use the tool, upgrades and free support.

4.3.2 The participants

To find out who participated in the decision units of the buying organizations and which roles these different participants had we asked questions such as:

- How many were involved in the decision-making process? Also how many departments were involved?
- Who participated in this process and from which department did they belong to?
- Which role did the participants have?
- Who/which department took the final decision?
- Are you the right person to contact regarding this type of purchase?

All respondents working at the pulp- and paper mills, which can be seen in table 2, were participating in the business buying process, they explained that they were the ones initiating the buying process by understanding the need of this kind of a decision support that the simulation solution can contribute to, specifically to their area of expertise. For example Andrew at Company A stated that;

“it is me who is initiating the purchase but I do not take any own decisions”

The respondents, those who identified the need, are, as seen in table 2, mainly higher engineer staff from the production, technical or research and development departments of the pulp- and paper mills, and most of them are working with projects where simulation as decision support is relevant. They all have explained that they have previous knowledge of simulation and all of them, except Brian, consider themselves to be the right person to contact
for a selling organization since they are in charge for motivating an investment like this. Brian, the CEO of company B said that a production engineer at the mill had explained the need of simulation for the production manager and Brian confirmed that this was an adequate level to go through for an investment of this size.

“I think that it is right, does it go too high, so to speak, then it can be stopped.”

To the question who participated in the process the respondents were together with a smaller group, which we in the future will be calling “the informal decision-making group” at the mill, often only two or three persons. These people carried on the buying process and made a decision; which supplier of the simulation solution that were best suited for them. When the decision was made and a supplier was decided upon by this informal decision-making group, they presented the investment for a formal decision-making group which takes the final decisions regarding investments. This could for example be seen in company C where Carl explained that his superior did not know anything about simulation, so she questioned the need of it. Therefore Carl had to write a short motivation of why he needed it, then she in turn presented it to the formal decision-making group. In some cases the informal decision-making group presented the potential investment directly to the purchasing department depending on the respondents organization. For example Conan, development engineer of Company C explained;

“We were two, three persons... we decided together [to invest] but then there is formally someone sitting on a chief position who says; yes we will go for it... I definitely took a part in it [the decision]. “

In one case, Company C, the purchasing department was not involved at all and in some cases there did not exist a formal decision-making group, however in most cases it did. In the formal decision-making group there were participants from the higher management who took the decision whether to invest or not. Bartholomew from company B explained that the formal decision-making group at his mill had six or seven representatives including managers from economic, technical, maintenance and production departments plus the CEO, where he as production manager was representing the production department.
The informal decision-making group that presented the investment for a formal decision-making group or the purchasing department was as stated formed by the respondents in all the cases, the other persons were often a member of the same department, depending on where the respondent was working. David at company D explained how many participated in the specific buying decision process in the informal decision-making group;

“Maybe it is two or three persons, usually when we buy a software program or such we have an IT-department that wants the system, then it is the responsible for the budget at that department and then it can be for example an operation manager or someone who thinks; We shall get this!”

4.3.3 The buying decision process

Organizations, including industrial organizations, go through different buy phases in their buying decision process. In order to identify these different buy phases we asked the interviewed to describe their decision-making process regarding the simulation solution offered by FrontWay through these questions;

- Can you describe your decision-making process?
  - How did the need arise? Or what need was wanted to satisfy with this simulation solution?
  - What criteria’s did you proceed from when choosing this product?
  - What stages did you go through? including identification of product, supplier search etc
  - Do you have a guide or alike to follow regarding this type of purchase?

- How long did it take in order to reach a decision?

- How can the decision-making process be shortened down?
  - What can the selling organization do?
  - What can the buying organization do?

To the question about the need to be satisfied all respondents of the pulp- and paper mills explained that they were already using or if not they understood, by having previous knowledge of simulation, the need of having a simulation system in the pulp- and paper industry. The simulation solution of the case company was supposed to be used in the work as a helping tool at all of the mills but how it was used and which specific need it was supposed
to satisfy varied from case to case. One respondent, David at Company D, told that they were going to use it as helping tool for calculations and building models in relation with a certain project. Another respondent, Brian at Company B, just explained that it is a tool that all pulp-and-paper mills should have. Bartholomew of company B told that the need being satisfied by the simulation solution for them was;

“to facilitate and improve our way of working so that we can reach solutions faster.”

Conan at company C states that is a useful tool when building a new factory for example, with the simulation solution one is able to build a model of the factory in the computer system before it is actually built and thus be able to find certain factors that might go wrong. Another respondent, Edward at company E, explains the importance of a simulation solution as it allows one to run different scenarios in for example the factory. It takes time to build them up but it is a huge advantage to run the different scenarios beforehand. However even if there always is a underlying need of the simulation solution as described above, it does not exist a crucial necessity of having this kind of simulation solution for running a mill. For example according to Carl at company C this kind of a simulation solution;

“ is an extravagance...it is nothing necessary in order to get your factory running.”

Fred at company F which had bought an upgrade of the simulation solution explained the need of why they upgraded it.

“We considered it a shame and pity to let all the work come to nothing. The upgrades consisted of adapting the model to the process changes which had occurred during the years and in the same way it is a must to keep upgrading the model in the future, if we want to utilize the model.”

However, Fred argues that the main question when buying this kind of a product or upgrading it is, like always, which account that should be charged and in what way. He further explains that what is so difficult about simulation models is to legitimate/justify their existence, thus how one should be able to motivate the investment money.
After the need had been identified, either one needs a new simulation solution or a development of an already existing one, different criteria’s for these products was mentioned by the respondents and a research was being done as to which options there are on the market. Most of the respondents mentioned the importance of a product that is easy to use, it should function without it taking too much effort and time. Another important criteria that was mentioned was the importance that it should be developed and that it will continue developing in the future, in other words that it has future potential. The price of the product and the given budget of the buying organization did matter but not to a great extent as most of the respondents considered the investment to be relatively “cheap”. According to the respondents the price of the actual product was not very high; however the license fees were relatively high.

At the same time as the research was being done and the criteria’s were stated most of the respondents and their respective organizations were already in contact with suppliers, either they had contacted the supplier or the supplier had contacted them. Most of the respondents explained that they had been in contact with two or more suppliers. Bartholomew at company B explained that they were in contact with four different suppliers and had their respective products in for trial in order to test them in order to see which one would fit their needs the best.

When asking the question if there existed a purchasing guide most of the organizations, in general, had a detailed description, a guide, of how the purchase was to be done. However, most of the respondents mentioned that as this product was not such a big investment it was a special case and therefore the guide, to a certain extent, could be overlooked. They did however need to write a detailed motivation as to why the product was needed, how it was to be used, cost reductions, etc. This so called “motivation” was as mentioned earlier in chapter 4.3.2 to be presented to the formal decision-making group or/and the purchasing department where the final decision was to be taken, at this time the supplier was already chosen. In some cases this investment was competing with other investments because of a limited or restrained budget.

Carl at Company C explained the decision-making process for a general investment in his organization. He told that they did not use a specific guide for the process it depended on what kind of investment it was. He stated that when it comes to bigger investments it is a long
process; it begins with an internal prestudy with own personnel which leads to a decision about making a projecting because directly when one starts to count on things in detail the consultant fee starts ticking. From the basis of the work of the consultants the board of directors makes the decision if it is a big or medium sized investment. In the case of FrontWay they were not involved,

Regarding the actual process Andrew at company A told that he and a co-worker of the R&D department had identified the purchase but they were not allowed to make any decisions on their own. He also said that they do not use a specific guide for the decision-making process but they have well defined purchasing routines in the organization.

“We are not really allowed to go out and make inquiries ourselves, we have to go through the purchasing department but we can so to speak make investigations about existing software’s and technical solutions that exists.”

One of the companies, company B, was still in their decision-making process when we did the interview, at that moment they were evaluating the different products they have tested and after this their so called “motivation” will go up to their formal decision-making group. As stated earlier one of the organizations bought the actual product during the decision-making process in order to know exactly what they were buying and to know if it would really fit their specific needs.

The time span of the decision-making process in most of the cases studied was, according to the respondents between two and three months. David at company D explained why the decision-making process takes such long time when buying these kinds of products;

“What is difficult with a product like this is that it is very hard to know exactly what you buy... that is why it takes such long time and the seller also has it quite hard to explain what they are really selling.”

Carl at Company C stated that their decision-making process took about three months as they had to involve a lawyer to look at the contracts and the legalities, to shorten it down they could have called in an extra meeting for the formal decision-making group taking the decision.
The ideas from the respondents on how to shorten down the process included that the buying organization could “work harder”, that the selling organization should invest more in education and make it more clear as to what it is they are really selling, better practical example on how one can actually save money on this specific type of simulation solution, or as Andrew at company A stated;

“Remove the purchasing department, but that is not allowed”

Garfield at Company G stated that in big companies, such as these pulp- and paper mills, it is not unusual with long decision-making processes. In some cases it is not possible to shorten down the process. However, he further stated that in the selling relation it is always the seller who has to take the initiative and he thought it to be important for the selling organization to recruit good ambassadors in the organization who strongly believes in the idea and help them to sell internally as well. Furthermore he stated that these ambassadors have to have high influence, the selling organization needs to try and show the benefit with the simulation solution in a greater context. In the end Garfield mentioned that it is important to know the real value for the buyer, the higher this value is the more interesting and hopefully it results in shorter decision-making processes.

Another idea was mentioned by Carl, he thought that FrontWay should try to get in contact with a university that has an engineer program aimed at process technique where the simulation system could be used as a tool for the students in order for them to learn process technique. However, there are only a few universities with process technical programs connected to the pulp- and paper industry, but by “infiltrating” these, one has created potential clients as they could end up in the pulp- and paper industry in the future.

4.3.4 The influences

As business buyers are subject to many influencing factors when making a decision to purchase we have asked the interviewed what they perceived, during their decision-making process, as the most relevant factors that influenced their decisions.
The current economical situation can make it hard for new potential clients today to motivate an investment for a simulation system. However, when the companies of the respondents once bought the simulation solution the situation was different. Carl explained that this now has changed. When he looks into the future he sees that the profits will decrease in this business. During recent years it has gone tremendously well for company C but according to Carl the margins will shrink and then it will be much more critical when deciding upon a purchase like this.

Influences that affected the choice of the product of the case company were in general quite similar between the respondents. All of the companies of the respondents had bought it before the financial crisis had begun to set deep marks in the business, except company B which still has not bought it and their process is cancelled for the moment because they are lacking the money for an investment like this. Brian the CEO, explained that this simulation solution was not really a big investment for them, but as Bartholomew stated, the organization does not have the financial resources at the moment, instead they have other priorities, such as more imperative investments.

When talking about the main reasons in the actual choice between different products on the market all respondents also agreed that the functionality and the user friendliness of the product were important factors. For example, David at Company D explained that it is rather seldom that they have personnel that can work fulltime with this kind of a computer system so it has to be, at least, rather simple to use. Bartholomew at company B also stated that the tool had to be user friendly as he wanted to use the tool in his daily work. However, before coming to the point where the companies are looking for certain characteristics of the product, the selling organization has to find someone in the buying organization and convince him about the need of using this simulation system. As an investment like this is “technically” decided upon in the department where the need arose, according to David at Company D, the relation between the decision-makers is usually pretty good and finding one of these persons is of great importance for the selling organization. Carl talks about what can influence the buying organization in the early stages; he explained that if an organization has an extremely competent person, an engineer, interested in simulation and he gets wind of this it will be much easier to carry through the investment. It is important to have a receiver in the buying organization who can be convinced technically, and so this person becomes an internal seller within the organization.
"I think it is pointless to go to the purchasing department. You have to find a technician a person that you can influence to say: Wow look! One who can become enthusiastic about this and work for it."

He confirms his own statement by adding; without me and the corresponding engineer (Conan), this purchase would never have been carried out in the organization, one has to have a good technician support that can support the purchase through the decision-making process. In other words it is clearly very important for the seller to find a person like this in the buying organization. The CEO of FrontWay explained that many of those he had sold the product to so far actually were previous contacts so in those cases it was rather easy to identify a receiver in the buying organization for the selling organization, the respondents are examples of these contacts. Brian further confirms this by adding that he has been working with the CEO of FrontWay in the past.

In comparison with other investments made in the pulp- and paper industry, most of the respondents saw the purchase of the simulation solution as a very small investment. The problem seemed to be that it is difficult to see the economical benefits of buying the product. For example, Bartholomew states that regarding this kind of an investment it is hard to quantify how much money one is going to save, however he believes that it can result in far-reaching savings. As the simulation solution somewhat works as a decision support he believes that the many small decisions one is making and if they are done correctly (with the help from the simulation solution) at a daily basis it will give more money in total during the year rather than only using it for the big projects.

Carl mentioned that it would facilitate reaching a decision if the seller could show better practical examples of how one actually can save money using the simulation. Carl further explained that they have not calculated or researched to see if the simulation solution would be profitable. The product is expensive but when they first bought it and started to use FlowMac they had plenty of money. Fred argues that the main question when buying this kind of a product or upgrading it is, like always, which account that should be charged and in what way. He further explains that what is so difficult about simulation models is to legitimize their existence, thus how one should be able to motivate the investment money.
If the organizations already have personnel educated in simulations systems it is positive, Andrew for example explained that they had a few employees that had the necessary knowledge in using simulation systems, since the hard thing often does not seem to be the simulation system itself but the costs that comes with it. For example, Conan stated that the simulation software is not a big investment but the cost comes with the personnel that have to work with it. Therefore it becomes expansive as it takes long time to learn the product and to build up the models, however one spin-off effect is that one can find real things in the process that can be improved, one receives a good run-through of the reality.

Also Edward explained that an investment like this simulation solution is not big in itself but as they did not have any personnel with adequate knowledge to use it they had to spend a lot of money on consultant fee. He also stated that they have not calculated to see if the simulation solution has been profitable as it is hard to find cost savings.

To the question whether or not an economical analysis was done beforehand Fred could not answer, however he believes that some kind of analysis must have been done, then if it was rapidly done in a notebook or not he is not able to answer to.

When talking about how the organizational structure of the organization influences the decision-making in this case, the answers were as Andrew’s explaining his organization as relatively flat. Another example is Brian, he describes company B as a very flat organization, which Bartholomew further confirms.

“We have a very flat organization... we have Brian [the CEO] then me as a production manager then the managers of the first line and the co-workers that are working in the process [at the mill]”

4.3.5 The buyer-seller relationship

As the buyer-seller relationships are affected by as well as are affecting the buying behavior of the organization we asked the respondents how they saw FrontWay as a supplier, what kind of relationship they have with FrontWay and how the relationship looks like, and furthermore how important, in general, they consider the buyer-seller relationship to be in a purchase.
To the question how the buying organization saw FrontWay as a supplier most of the respondents stated that they were a good supplier. For example Conan at Company C explained that they thought FrontWay to be a good supplier as they made special blocks for them, built parts of models when necessary and they received help when it was needed. David at Company D also thought FrontWay to be a good supplier, but however he thought the product was a bit too hard to handle, it could have been more easy to use. Bartholomew at Company B explained that he had only met them once but at this meeting they agreed upon letting them borrow the product for a certain time in order to see if it would fit their needs, which he considered to be an important factor for a supplier;

“I think it is good that they act actively in order to get their product out”

One respondent, Andrew, however hesitated on the question whether FrontWay was a good supplier or not and said that as it is a small organization they have very limited resources and that they were not very interested in distributing certain things, for example the important code, which has been a disadvantage for Andrew and his organization. Regarding the actual relation between the two parties however he said that FrontWay were good dealing with. All of the respondents, except Bartholomew as he had only met them once, stated that they had a good relationship with FrontWay and its CEO. For example Carl at Company C said;

“It has been really good working with Anders... he is always willing to help...”

Even if Carl saw the relation as good, he suggested a development of the product offer to two different packages, one specialist function and one more general. This as FrontWay has mainly two different types of clients, the consultants who use the simulation tool in their everyday work and the pulp- and paper mills that use it mainly in projects. He also discussed the payment of the license fee for the product, that maybe it should be divided into one higher fee for those who need more support and one lower license fee for users that do not need that kind of support, this since Carl stated that they did not use as much support as they indirectly paid for in the license fee. However David at Company D explained that it would have facilitated things if FrontWay had been a bigger organization, had stability and had more resources as developing and handling this kind of a computer system is a very heavy job to administer and manage. David further states that the development of this kind of simulation solution requires a big organization who can sell enough so that they can have a little stab of
personnel specialized in developing the product. They need to have resources. This results in a pretty tough job since it is a small market and as it is very demanding. Generally speaking regarding the buyer-seller relationship all of the respondents thought this relationship to be of great importance, for example Andrew mentioned that it is important to know the person one is dealing with, that you can trust them and that they are doing what they are supposed to do. Edward at Company E stated that;

“In this kind of work a good relationship is extremely important.”

Carl at Company C explained that regarding this kind of a product it is very important for the supplier to be very attentive to what it is the clients really want. Another of the respondents, Conan, mentioned that the buyer-seller relationship is very important as the product is supposed to be developed and it is no meaning with developing a product if the user of the product does not agree with it and like the development. However, one of the respondents explained that he thought the product in itself to be considered a more important factor rather than the buyer-seller relationship although he stated that the relationship was also important, the respondent being Bartholomew at Company B;

“hopefully it is always the product in itself that is the most important..., but it is also important that one is receiving a professional contact”
5. Analysis

In this chapter the purpose is to analyze the gathered empirical data from the theoretical frame of reference we have presented earlier. In the chapter we are trying to analyze as well as explain how the decision-making process looks like and who participates in the process. But also analyze and explain the different factors that are influencing the process and last but not least the buyer-seller relationship and how this can affect the decision-making process.

According to Johnston and Lewin (1996) the key for being successful in a business-to-business market is that the selling organization possesses knowledge of their clients buying behavior. It can be hard to identify how the actual decision-making process looks like for the industrial industry and in our specific case, the pulp- and paper industry, as several persons are involved and several factors are influencing it. The purpose of this thesis is therefore to analyze how the decision-making process looks like when pulp- and paper mills are buying simulation solutions and what factors are influencing it. In order to make it easy for the reader to follow and understand our analysis we have chosen to follow a similar structure to that of the Empirical chapter as well as our analysis process model which can be seen below.
Firstly we will analyze the type buying situation that the buying organizations did, as the type of purchase will help us see how long time this kind of a buying situation could take. Secondly we will analyze the different roles of the participants taking part in the decision-making process, as identifying these different roles may help a selling organization where to aim its efforts and knowing who to contact. The next step will be to analyze the different buy phases the buying organizations go through and lastly an analysis of the different factors that are influencing the decision-making process will be made. After the steps above have been done we will be able to see if the decision-making process can be shortened down and thus give suitable suggestions.

5.1 The type of buying situation

When making a purchase the business buyer faces a number of different decisions depending on the type of buying decision. It will be more or less complex depending on the importance and the scope of the purchase considered. In our case the pulp- and paper mills have bought a simulation solution in order to make their work more efficient and hopefully reduce their costs. According to Robins on, Faris and Wind (1967) there are three types of buying situations; new task, modified rebuy and straight rebuy. Further information about these can be found in chapter 3.3.1.

The clients interviewed in our study had all been, except for one, using simulation systems before. However, in some cases these simulation systems used by the companies were not at all similar to the one offered by our case company FrontWay, in other words these simulation systems were used in other areas.

Some of the companies; Company A, C, and E, had been using simulation tools before including the one of the competing simulation tool of FrontWay, FlowMac. This type of a purchase where a replacement was being made from FlowMac to that of FrontWay can be described as a modified rebuy as the buying organization has bought an “updated” similar version of the old simulation system in use but changed the supplier to a new one, in this case FrontWay. It is a product that has been purchased before (Webster 1991) however in these cases the buyer has decided to change product specifications and supplier (Kotler et al 2005) this characterizes the buying situation as a modified rebuy.

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3 One mill at company C, the mill where Carl works
One company, Company F had already been using FrontWay as a supplier and their product, this buying situation could be described as a straight rebuy as the product bought is the same as well as the supplier. However, according to the Robinson et al framework when buying an upgraded version of the product, as in this case, the upgrade can be seen as an improvement of the quality, which is not the same as a usual straight rebuy as for instance raw materials or alike, and the new version of the simulation system can therefore also be classified as a modified rebuy even if the supplier is the same.

The remaining companies in the case study, Company B, C⁴, and D, had not been using a similar simulation solution before buying the one offered by FrontWay. However, these companies had been using other kinds of simulation systems from other suppliers. Therefore, as they are in the purchasing process or has purchased a new product, maybe not necessarily stopped using the old computer systems, the buying situation can be classified as a new task. A new task is according to Kotler (2005) when an organization purchases a product for the first time and these purchases were their first of its kind and for this specific purpose. Furthermore depending on the costs and the risks more participants are involved in the decision-making process (Kotler et al 2005) which can be confirmed in our case as the initial cost for the product as well as the risks associated appeared to be very low.

Identifying the buying situation helps us to understand the length of the decision-making process for this kind of a purchase. According to Woodside (1992) the process may take between seven months and five years when doing a modified rebuy. For the companies that we considered made a modified rebuy as explained above, the decision-making process was much shorter than the theory stated as well as stated by the CEO of FrontWay (one to two years). According to the respondents it was in fact only a couple of months, maybe reaching up to three months until a decision was made. This may depend on the fact that they already were familiar with simulation tools, having all necessary expertise and wanted to continue to work with it. Another reason might be that some of the respondents considered this type of a purchase to be a smaller “special” one and that the decision did not need to go through all the necessary buy phases that an investment usually goes through in each of the respondent’s

⁴ Another mill at company C, the mill where Conan works
organizations. The choice was here, more or less, only between FrontWay or the buying organization’s current supplier as a modified rebuy many times is.

In the case of new task as, for example company B, the decision-making process seems to be far longer, probably reaching the time the CEO of FrontWay said. This is also stated by Woodside (1992) who described the new task purchase to be very complex, time consuming and taking from seven months to five years. It does not make it any easier that the product itself is complex and that the pulp- and paper industry is affected negatively by the current economical situation. Company B is in fact still in its buying decision process evaluating different alternatives but is now delayed because of insufficient money. The new task and the example of company B is what FrontWay confronts when trying to sell their product to new potential clients.

By explaining the different buying situations we can continue with identifying the participants of the buying decision process easier, as we believe that the type of buying situation can influence who or how many participates in the decision-making process.

5.2 The participants

When a buying situation arises the organization creates a buying centre consisting of persons within the organization that will take part in the decision-making process (Webster 1991). The participants will have different roles during the process (Sheth et al 1977). According to Webster and Wind (1972 cited in Lau 1999) it is of great importance for the business marketers to study the different buying roles of the different members in order to achieve effective marketing. They also states that it is important to interact and communicate with higher management in the organization as they possess more influence and have a great deal of say regarding the decision-making. The different roles, described in chapter 3.3.2, are; users, influencers, deciders, buyers, gatekeepers (Webster & Wind 1972) whereupon Bonoma (2006) has to these roles added a sixth role, the initiator.

Our result shows that the majority of the respondents at the pulp- and paper mills thought of themselves as the ones initiating the decision-making process, so called initiators. The respondents are mainly higher engineer staff from the production, technical or R&D department and most of them are working in projects where simulation solutions are used and
therefore they are the ones who have identified the need. Therefore they can also be classified as *users*. As all of the respondents, except one, have been using simulation solutions before, they consider themselves to be the right person to contact for a selling organization as they are in charge for motivating an investment like this one. These persons also tend to have an impact on the actual decision-making (Kotler 2005) and therefore they may also be identified as *influencers*. As can be seen the respondents are the initiators within the buying organization, however, we have also observed that there exists an external initiator as FrontWay in nine times out of ten contacts the buying organizations regarding the simulation solution.

The persons contacted by the case company, which in fact, in our case, were the users and initiators as described above, were the ones receiving the information or the offer from the case company and by this they also control the flow regarding potential suppliers, product specifications etc to others in their respective organization. These characteristics coincide with that of a *gatekeeper*. By controlling the information flow the gatekeeper controls what information reaches the formal decision-makers or the so called *buyers* in the buying organization. According to Zaltman and Bonoma (1977) the gatekeeper is the best way to get information into the buying organization. The fact that the CEO of FrontWay have been in contact with the respondents before may have made it easier to actually find the gatekeeper, however when new potential buyers is to be contacted it may be hard to identify the gatekeepers of that buying organization.

The role of the *decider*, described as persons possessing both informal and formal authority, is in our case two different roles. The person or persons described before as initiators, users, influencers and gatekeepers may also possess informal authority as a decider, as these are the ones deciding upon product specifications, suppliers etc. The formal authority as a decider is held by the formal decision-making group, as they are approving the informal decision made by the informal decider.

As we have seen the persons, within the small informal decision-making group, possess all the roles except the role of the buyer, who takes the actual decision regarding an investment like this, and the role of the formal decider. If the purchase is very small and not complex at all, one person according to Bonoma (2006) might fit in to al the sixth different roles, which we hereby confirm. Therefore it is not strange that we have identified a smaller group that
possesses five out of the six roles as the purchase in itself does not appear to be as complex as we first believed.

When deciding upon which product to buy and which supplier to chose, there were normally two or three persons participating in the informal decision-making group which later on presented their decision to the formal decision-making group, purchasing department or a manager higher up in the organization. According to Bonoma (2006), the more complex and involved the buying decision, the larger the decision unit and the more careful its decisions, however in our study we have identified the buying as less complex as few people are involved in the decision-making. This can be seen as positive, as if more people had been participating, more wills would have been involved. According to the respondents, they were all of approval in the small informal decision-making group regarding the choice of product and supplier which maybe not would have been the case if there would have been more participants.

If the higher management, from the beginning, would have participated in the initial process the outcome may have been different. Mainly all of the respondents confirmed that if the selling organization contacts a person high up in the hierarchy it may not even be brought up, as they are not as involved in the process leading up to the decision as the people working with simulation and may therefore not recognize the need. As one respondent, Brian at Company B, told us “I think that it is right, does it go too high, so to speak, then it can be stopped”. Moreover we can also point out that the buyer in most of the cases did not have the knowledge that the initiator, users or the influencers had. As Carl at company C explained for us, that his superior did not know what the simulation solution really was and what it was supposed to help with, thus she asked him to write her a motivation why he wanted it and what it was to be used for and then she took it up with the formal decision-making group.

As we now have identified the different roles and the type of buying situation we will now continue to analyze how the actual decision-making process is carried out. It is of importance to know which type of buying situation the buying organization finds themselves in and who possesses which specific role when making a decision.
5.3 The decision-making process

According to Robison’s et al (1967) model industrial organizations go through eight phases in their buying decision process. Which phases the organization goes through depends on the actual buying situation. The different phases are; problem recognition, general description, product specification, supplier search, proposal solicitation, supplier selection, order-routine specification and performance review. These phases are described in more detail in chapter 3.3.3. However, these phases stated by Robinson and his colleagues have been criticized by many other researchers in the area who states that the stage classifications vary in the actual content and the number of stages as well under certain conditions. It is however important to have a general picture of the industrial buying behavior (Möller 1993).

In general most of the clients had a specific “guide” of how a purchase was to be done. But as the majority mentioned that this product was not such a big investment, it was more like a “special case”, and therefore the guide could to a certain extent be overlooked. We have from the perspectives of the respondents and from the theory described above tried to depict a common pattern between the different organizations decision-making processes which is to be described below.

As the majority of the respondents had previous knowledge of simulation they understood the need of having a simulation solution. It does not necessarily have to be the buyer who precipitates the need, it can also be a supplier, in other words it can both be internal and external stimuli (Robinson et al 1967). In our case it seems, mostly, to be an external stimuli as the CEO of the case company makes the initial contact in nine times out of ten. A simulation solution is supposed to work as a helping tool, however this varied from organization to organization. One respondent, David at Company D, told that they were going to use it as a helping tool for calculations and building models in different projects. Another respondent, Brian at Company B, said that this is a tool every pulp- and paper mill should have. Although one respondent, Carl at Company C, said that it “is an extravagance... it is nothing necessary in order to get your factory running”. Whereas we can conclude that the majority identified a need within their organizations which was solved by purchasing and using a simulation solution. This phase in the decision-making process we have chosen to call Identifying the Need, which is very similar to the phases; problem recognition and general need description in the Robinson et al framework.
After the need had been identified, criteria’s for the product, so called task variables (Sheth et al 1977), was written down and a research was done regarding different suppliers on the market who could be of interest. This was done more or less simultaneously, and we have decided to call this phase Product Criteria’s and Supplier Search. This phase can be seen as similar to the following phases found in the Robinson et al framework; product specification and supplier search. The fact that these phases were done simultaneously may depend on the existing knowledge, the clients did know what they were searching for and also which suppliers that could satisfy their needs, as the market for this kinds of simulation solutions is relatively small. Moreover, the clients were, during this phase, already in contact with a supplier. Most of the clients were in contact with two or more suppliers, although one respondent, Bartholomew at Company B, told us that they where in contact with four different suppliers and had their respective products for trial in order to test them to see which one would fit their need the best. During the same time as the Product Criteria’s and Supplier Search phase was carried out the supplier selection was made, as written above.

The phases described above are made by the informal decision-making group who at this point presents their motivations to their chosen product and supplier to the formal decision-making group. The formal decision-making group is now taking the final decision, whether or not to proceed with the investment, the so called order-routine specification phase.

Regarding the last phase, performance review which includes questions as how well the product bought has solved the problem and how well the supplier performed (Robinson et al 1967), all clients were in general satisfied with the product they had bought, although there were some complaints concerning the distribution of certain things. The supplier’s performance could in some cases been better. According to Kotler (2005) a supplier should present proposals, written documents and have presentations that should inspire confidence and make the supplier to stand out. Webster (1991) also states that it is of great importance for the supplier to analyze the different phases in the process in order to be able to develop a well functioning selling strategy as they easier can respond to the needs for information of the buyer. As one respondent told us “what is difficult with a product like this is that it is very hard to know exactly what you buy…and the seller also has it quite hard to explain what they are really selling”. Further ideas where better practical examples on how one can save money on this specific type of simulation solution included; recruit good ambassadors in the organization who strongly believes in the idea and help them to sell internally.
As can be seen in the model below all of the respondents respective pulp- and paper mills did go through much fewer phases in their decision-making process as opposed to what the theory has stated. According to Robinson et al (1967) if the buying situation is a *New Task* the buying organization is likely to go through all the eight phases in the Robinson et al framework. This however as stated before did not seem to be the case at all, we could only observe four distinctive phases. This can be explained by the respondents’ previous knowledge about simulation systems. Furthermore, regarding a *Modified Rebuy* one or more phases can be skipped. The skipping of phases was the case for all of the organizations interviewed. As we have observed, in our case, there did not seem to be a big difference between a new task and a modified rebuy regarding the different phases that an organization goes through in their decision-making process.

![Model 4: Own reconstruction of the Robinson et al framework (1967)](image)

**5.4 The influences**

As business buyers are subject to many influencing factors when making a decision (Kotler et al 2005) the direction and the outcome of the decision-making process is determined by these influencing factors (Robinson et al 1967). Under this part of the chapter we have chosen to also include, as we did in the empirical chapter, financial aspects and buyer-seller relationships as in reality all these factors are influencing the decision-making process as well as influencing each other.
5.4.1 Environmental Factors

The environment provides the buying centre with information as well as opportunities and constraints (Webster & Wind 1996). As the world today is facing a financial crisis, including the pulp- and paper industry who is at the moment going through one of its worst crises’, the environmental factors and especially the economical one is affecting the decision-making process. According to Kotler et al (2005) the economical factors are the most important, as business buyers tend to cut back on new investments and attempt to reduce their inventories as economic uncertainty arises. However, when the companies of the respondents bought the simulation tool the situation was different, at that moment it was going extremely well for the pulp- and paper mills and the budget for this type of purchases was bigger and the companies did not have to make the same priorities as those buying the product today. One of the respondents, Carl at Company C, explained that during recent years it has gone tremendously well but the margins will shrink and then it will be a much more critical decision when deciding upon a purchase like this. One company, Company B, is still in the process of buying the simulation solution, but at the moment the process is cancelled due to the lack of money for an investment like this, that is of the extravagant and is not necessity in order to get your factory (mill) running.

According to the respondents it is not the simulation tool in itself that is expensive but rather the costs around it, support fee, education, having people working with it etc. As we have understood it from the interviews, if the tool is used in a correct way as well as having an employee working with it full time there can be money to be saved. However, none of the mills taking part in this thesis did have the resources to let an employee work solely with simulation.

5.4.2 Financial Aspects

The financial aspects, or so to say, the calculation of how rapid an investment can recover in terms of money invested in it is of a great importance for a company deciding whether or not to carry out an investment (Boardman et al 1982). However, none of the respondents told us that they had done such a calculation in order to see if the product itself would be profitable to the organization. One of the respondents’, Bartholomew, stated that this type of an investment is hard to quantify as it is hard to calculate how much money one is going to save, however he believes that it can result in far-reaching savings although this depends on how the simulation
solution will actually be used in the mill and how much. This can therefore be confirmed by the theory of Verhoef (2004), that investments in computer systems are hard to quantify as data is needed for the analysis, which turns out to be rather impossible to determine for these kinds of investments.

In order to influence the buying organization further, the selling organization could provide with better practical examples of how one actually can save money with the help of this simulation tool, as according to the respondents was lacking in all the cases. By providing the buying organization with practical examples in the initial steps of the process we think that the buying organization easier can make a decision as money always have a great impact if one is going to go through with an investment or not. However, most of the respondents told us, as mentioned, that the investment was not as big in itself but it was rather the difficulty in finding a project where an account could be credited. Thus, if the simulation solution was to be bought in relation with a project, the purchase of the simulation solution could be motivated as a part of that project and thereby be included in that specific budget.

5.4.3 Interpersonal and Individual Factors

When taking the interpersonal factors into account it was hard for us to identify the relationships within the buying organization. As Kotler et al (2005) also states; it is hard for an outsider to identify who in the buying centre that is influencing the buying decision, for example who have the unique expertise, is well-liked or have a good relationship with the other important members of the buying centre. Although it is of great importance for the selling organization to analyze the buying centre of the buying organization, with special focus on the buyer role, as the member of the purchasing department generally is the first contact (Webster & Wind 1996). This has been proven by our study to not be the correct way to go when selling a product like this. In fact it has proven pointless to go that way for a selling organization, as one of the respondents stated, Carl at Company C, “I think it is pointless to go to the purchasing department…” If one goes through the purchasing department according to the CEO of FrontWay one probably receives an order number which can make it easier so that one does not become “forgotten” by the buying organization, which seems to, in our case, not to be the best alternative as we believe that the purchasing department does not posses the knowledge needed to take this further, however they are of
course important towards the end of the decision-making process, as they are the ones, in some cases, making the final decision whether to purchase or not.

We believe that, in order to be able to identify these interpersonal factors, observations at the buying organization would have been needed which we were not able to do as the decisions had already been taken or were already in the decision-making process. We have acknowledged that when one is purchasing a simulation solution, which can be considered to be relatively small for a big organization in the pulp-and paper industry, few are participating in the decision-making process whereupon the occurrence of interpersonal relations do not exist to the same extent as for example in a mayor purchase where more persons are affected and wants to influence the participants and consequently the actual purchase. Therefore we do believe that the interpersonal aspects are not that big of an importance when it comes to this type of purchase.

However, according to Robinson et al (1967) the interpersonal relations within the organization affect the decision of the buyer and the ones deciding whether or not to buy the product. We detected an interpersonal relationship between the formal decision-making group and the informal decision-making group by the influence that the informal group had over the final decision made by the final buyer, the formal group or the purchasing department. The information from the interviews shows that the formal group took the same decision that the informal group had already made, in other words, approved their choice. This shows that the relationship between the members of the buying centre is of a great importance (Robinson et al 1967). In one of the cases, Company C, the interpersonal relationship existed to a certain extent between the two different mills which can be seen in their decision-making process where the actual process was initiated at one of the mills and the other mill was consulted upon the decision, however in the end it was the first mill who took the decision to purchase the product. To a certain extent the organization did want the two mills to use the same product and thus the informal decider at the second mill was influenced by both its organization and the other participants of the buying centre. This coincides with the theory of Webster and Wind (1996) that the final buyer is influenced by the organization and other members of the buying centre. Furthermore this shows, as Webster (1991) explains, that marketing efforts should be targeted to the individual decision-makers, the individuals in the informal decision-making group, and not to the organization as a whole.
The importance of influencing the individual can be confirmed by Carl at Company C, who stated that if a company has an engineer interested in simulation it is easier to sell in the product. This fact being as individuals are generally influenced by their own preferences and personal motives, a so called non task motive, and therefore one can conclude with the theory of Webster and Wind (1972) that all organizational buying behavior is individual behavior. For the selling organization it is important to have a receiver in the buying company who can “sell in” the product to the remainder of the buying centre. If one does find this receiver in the buying organization it could speed up the process. We have, through the interviews, seen that our case company has contacted the right person in the buying organization, as this person has been the one able to drive the process further to the informal decision-making group and then further on to the final buyer, the formal decision-making group.

Most of the respondents during the interviews explained that the selling organization was, to a certain extent, adapting the product sold, the simulation solution, to their individual needs, in other words to the respective organizations specific needs. As this can be a decisive factor when an actual decision to purchase or not is going to be made it is important to, according to Zaltman and Bonoma (1977), take this concept of reinvention into account in the decision-making process. The reason being, one can argue, that if taken into account when a buying organization finds themselves in a situation where the choice lies between two selling organizations, whereas one can adapt their product and the other can not, it is not hard to decide which supplier and product to choose. This could further be extended to the fact that if the concept is taken into account one could argue that it could help the decision-making process time wise as well. According to the respondents this, adapting the product to ones needs, was an important factor when labeling the selling organization a good supplier or not and in a way strengthened the buyer-seller relationship.

5.4.4 Organizational Factors

When looking at the organizational structure, it seemed that all the respondents did see their organization as a very flat one, this could imply that each and every one of the buying organizations do have a low degree of centralization as there are not that many steps to go through from the workers up to the higher management. However, as the informal decision-making group can not make any final decisions without the approval of the formal decision-making group and as there does exist specific rules and norms in the buying organizations one
can argue that they seem to have a higher degree of centralization than first was assumed. Fredrickson (1986) states that decision-making in centralized organizations involves fewer people and tend to be more coordinated, which is the case here as all the respondents organizations did have a so called “purchasing guide”, which can delay the start of the actual process. Furthermore one can discuss this in relation to the theory as Zaltman and Bonoma (1977) argues that decentralization is favorable in decision-making in situations where the technical environment for the products is rapidly changing, as in this case, and thus the decisions can be made quicker. However, as stated above we have seen that the buying organizations are more centralized and if these organizations would have been more decentralized maybe the informal decision-making group would not have to, in all cases, go through the formal decision-making group when making their decision and thus be the final buyer themselves. The result then maybe being a quicker decision.

As the respondents have stated that there does exist a guide with specific steps one needs to follow regarding a purchase it implies that the organizations of the interviewed have a high degree of formalization (Fredrickson 1986). However, as in this specific case regarding this specific purchase this guide could be overlooked according to the respondents, in other words rules and procedures could to a certain extent be ignored, and one can therefore discuss that the formalization here did not seem to be of a high degree. Thus, in this specific case the level of freedom of action the participants of the buying centre, in specific those in the informal decision-making group, did have regarding this purchase was relatively high with the exception that they needed the approval of the formal decision-making group in the final decision whether to buy the product or not. The degree of freedom of action could also be relatively high if only a few participants would have been involved in the decision-making process, as was the case in this study. Here one could argue as the formalization decreases, written rules and norms can easier be overlooked and one has greater freedom in his work, as well as the centralization more intermediaries can be skipped and thus shorten the decision-making process.

The organizations of the respondents appears to not be that complex as the hierarchy does not seem to be so high i.e. there does not exist that many levels between the workers and the higher management.
5.4.5 The Buyer-Seller Relationship

When buying technical products we believe that it is of great importance to have a long-term buyer-seller relationship, as the technical environment changes rapidly. According to the majority of the respondents it would have facilitated things if the selling organization as a supplier was bigger, as in order to compete in the business of technology and for a buying organization to choose a supplier the selling organization needs to have a future potential, they need to continue the development of this kind of a product in the future. By future potential one refers to for example stability and more resources as the simulation solution bought by the clients need to be developed which can be a very heavy job to administer and manage. This continued future development as well as the adaptation of the product to the needs of the buying organization is very important factors when clients chose their supplier and establish relationships. The case of reinvention, if the selling organization is able to adapt their product to the specific needs of the buying organization, is for that reason essential as the buying organization values different characteristics of a product (Zaltman and Bonoma 1977).

All respondents (except one) agree on the fact that having a good buyer-seller relationship is important as it is important to know the person one is dealing with, that you can trust one another as well as the development of the product needs to be adapted after the needs of the client. The opinions regarding how able FrontWay has been to please their clients needs differ. As it seems, the most outstanding needs from the clients were that they wanted special blocks, models, codes which not all of the clients have been helped with. This the buying organization will remember as well as the pattern of interaction (Ford 2002) and if the selling organization was not able to please their clients it might be hard to sell to them in the future. If reverse, then it would probably be easier to sell to them in the future. However, we do not know how high the buying organization’s expectations were when deciding upon FrontWay as a supplier. As Cann (1998) stated, the seller wants a long-term relationship with its clients as it is in general less costly to keep existing clients than attracting new ones. All the respondents did believe FrontWay to be a good supplier and that the relationship was good.

The fact that our case company, FrontWay, is a small company and have limited resources may affect the buyer-seller relationship. The reasons being that they might not be able to satisfy every client’s needs fully which can, at times, ruin the relationship and their clients may find it necessary to look for other suppliers. Depending on how helpful the selling organization is to their clients, a better relationship can be developed. When trying to fit the
different organizations needs’, the long-term relationship is of great importance as the clients can provide the selling organization with feed-back, help with the development of the product by assisting with their expertise and also provide good word-of-mouth to other buying organizations (Cann 1998). As time passes by the clients needs and problems may become better known by the selling organization and therefore it is easier for the selling organization to satisfy their needs and to develop a adaptable product and thus a better relationship will arise between the two parties.

Palmer and Bejou (1994) states that owners of small businesses have often been able to, through personal contacts within the buying organization, know the need of their clients very well and thus may be able to suggest appropriate offers to their clients individually. As stated before it is important to know the person one is dealing with, that you can trust them and that they are doing what they are supposed to do. The fact that many of the clients of FrontWay are former contacts to the CEO may have helped selling the product, as these have proven to be the ones that have a high impact on the final decision, as they in a way are influencing the formal decision-making group. A problem that FrontWay may confront in the future, as they are trying to sell their product to new organizations, is that it may be difficult to identify a receiver within a new organization where a relationship can be established. To conclude the buyer-seller relationships we have seen that the fact that “purchasing agents buy from supplier friends or individuals whom they get along with very well” (Zaltman and Bonoma 1977) fits very well into our case with FrontWay and their clients.

5.5 Shorter decision-making process

As the respondents come from organizations where almost everyone have bought the simulation solution, it can be seen as a “best case scenario” for the case company, as the outcome of the decision was to buy their product. The decision-making process has not been relatively long in these cases, only a couple of months according to the respondents. However, the CEO of FrontWay stated that the problem is that the decision-making process for new clients can take up to two years. We do believe that the problem here lies in the fact where one is considering the decision-making process to actually begin and end. The case company perceives the start of the process when the initial contact with a client is being made and that the process ends when the buying organization has actually purchased the product. However, the buying organizations may not perceive the start of the decision-making process until they
actually have started it by themselves, which may be far later than when the selling organization contacted them in the first place, and may perceive the end already when the buying organization has decided upon buying the product. In this case, as we can see, there is one decision-making process which is seen externally by the selling company; however the real, internal decision-making process is within the buying organization. We believe that it is important for both parties to have a unified picture of when the process starts and when it ends in order to start analyzing how one can shorten down the process.

We believe that it will be difficult to shorten down the decision-making process for organizations which are in the actual process at the moment or the one for potential new clients within a near future. The economical situation and the fact that many pulp- and paper mills are having a hard time financially can make these types of investments be put on hold. As stated under Influences, the economical influence is one of the most important (Kotler). This will probably make the decision-making process longer as there is no money for an investment of this sort, which was the case for Company B. Besides this, one also has to take into consideration that it is not only to purchase the product itself, the buying organizations need to have educated personnel and continuously re-educate the personnel as technical products changes over time.

By looking at the type of buying situation, modified rebuy and new task, we have already concluded that the decision-making process takes a long time, that reaching two years is fully normal for an industrial organization. However in this case, regarding the purchase of a simulation solution, this might not have been the case. Another aspect is to whom the selling organization makes its initial contact with, identifying the right person in the initial process may save valuable time and open up doors in the buying organization. We consider, in the case of the organizations of the respondents, that the right person actually was identified as already mentioned, much because there already existed a relationship between the respondents and the CEO of FrontWay. However, in the case for new potential clients where such a previous relationship does not exist it will become hard for FrontWay to identify the receiver in the buying organization and thus they might have to go via the purchasing department of that organization, which we have earlier stated is not a good way to go as it does not come to someone that is interested in simulation solution and has the necessary expertise, and can influence other within the buying centre that it is a necessary tool for them. If this person is impossible to find for the selling organization then the only way to go might
be through the purchasing department. This might however lengthen the decision-making process if one does not become passed on to the correct receiver within the buying organization.

5.5.1 Suggestions for the selling organization

In a long term perspective there are several things to consider which, we believe, may influence the decision-making process. Examples being that the selling organization could try and get the simulation solution in to the universities, in specific the process technique programs. Thus the students will use the product, get used to it, and know it very well which could, in the future, when they are starting to work at a pulp- and paper mill for example make them want this specific product and thus sell it in to the rest of the buying organization. Furthermore it is important for the selling organization to recruit good ambassadors that have a high influence within the buying organization, these ambassadors could for example be the examined students, as well as show for practical examples, cases, on how the buying organization actually can save money by acquiring this specific simulation solution. This might make the investment a higher priority for the buying organization. If the investment has a higher priority it can compete with other investments more easily than before and thus the decision might be made quicker.

As a New Task buying situation gives the selling organization an opportunity (Kotler et al 2005) to attract new clients it is of great importance that the selling organization show to the buying organization that they are the better choice on the market, that their simulation solution is the better alternative. This could be done by, for example, making it more clear to the buying organization what one is selling, even though oneself knows what one is selling it does not have to mean that the buying organization do. Thus, as seen, FrontWay needs to make this more clear as it is evident that not all their clients know what it is exactly they are selling. For example, as one respondent mentioned that they bought the product first without really knowing what it was. Furthermore it is always important to adapt ones product to the needs of one’s clients, it could for FrontWay facilitate things if they would offer two different “packages” of the product, as mentioned by a few respondents. One package with a cheaper license fee where almost no support is included, which would suit the needs of the pulp- and paper mills better today as they do not need the support they are indirectly paying for as they do not use it in their everyday work. The other package would be with a more expensive
license fee where full support is included, as the consultants who use the product fulltime often needs support. This would make the choice easier for the pulp- and paper mills. Adapting to the needs of one’s clients might in the future further strengthen the buyer-seller relationship.

We have previously seen that if one wants a shorter decision-making process it is important to contact the right person within the buying organization. This person has to be able to drive the process further and influence the final buyer. One also needs to take into consideration that going to high up in the organization can be rather difficult as well as going via the purchasing department as these probably are not the ones interested in simulation solution and does not know what kind of a product it is that the selling organization is trying to sell. Thus one solution might be, as many of the respondents have requested, that the simulation solution offered should be made more user friendly. This in turn would make it more usable within the buying organization as more people, not only experts, would be able to use the product. In this way a person without the necessary knowledge, for example in the purchasing department, if contacted could bring the process further.

It is of great importance for the selling organization to analyze the different buy phases the buying organization goes through in order to be able to develop a well functioning marketing strategy (Webster 1991). At the moment this does not appear to be the case with FrontWay as it seems that they do not really know where their clients’ decision-making process neither starts nor ends. By analyzing these buy phases of the buying organization they were to sell to, they could most probably come up with a well functioning marketing strategy. Furthermore as the market for simulation systems is relatively small and very demanding it is important that the selling organization has for example the necessary resources in order to be able to develop the product in the same direction as their clients want, thus it could be hard for a small company like FrontWay to fulfill the needs of their clients. The necessary solution might be to grow, which is particularly hard today considering the economical situation, and thus a small organization like FrontWay might have to find new cooperation forms with other organizations.
5.5.2 Suggestions for the buying organization

We also believe there are certain things that the buying organization can do in order to influence their decision-making process in the long run. As seen in the cases studied it appears that in each case the formal decision-making group has approved the decision already made by the informal decision-making group. Thus one can ask the question if the formal group makes the same decision as the informal group, the ones with all the knowledge, why is it necessary to pass the decision on to them? The higher management could give the informal decision-making group the necessary authority to make a decision over an investment like this without going via the formal decision-making group (a more decentralized organization) as well as giving the people involved in the informal group a higher degree of freedom of action (lesser degree of formalization). Furthermore, as stated by a few of the respondents themselves, it is important for them to “work harder” as this usually is the problem for the long decision-making process. As it is not a necessary tool for them in order get their factory running the purchase of this simulation solution might thus not be priority number one, and for that reason they might not hurry on the process. If the process would have been hurried by them, for them to “work harder”, and the investment became more important the decision-making process might be shorter.
6. Conclusion

In this chapter we fulfill the purpose of this study by answering the research questions.

The reason why this thesis was written in this way was that the CEO of FrontWay, Anders Nilsson, considered the decision-making process of his clients in the pulp- and paper industry to be far too long in the case regarding the purchase of a simulation solution. In order to be able to investigate if the decision-making process could be shortened down we had to describe the actual process and what different factors influenced it.

Seeing that all purchases of the respondents were, according to theory, modified rebuy or new task it showed us that it is not unusual that the decision-making process can take up to two years as the CEO stated, even if in this case the picture that the respondents gave us were that the decision-making process was only a couple of months.

There were not many persons taking part in the decision-making process of this specific purchase. Apart from the respondents the informal decision-making group consisted of one or two more. All of the participants in the informal decision-making group held the roles of influencer as they affected the formal decision-making group, user as they were the main persons to work with this simulation solution and also the role of an informal decider as being the ones presenting what to buy to the formal decision-making group and the purchasing department, which held the buyer role. The role of initiator was only held by the respondents as these were the ones initiating the process.

In the decision-making processes of the buying organizations we could identify four general buy phases; Identifying the need, Product Criteria’s and Supplier Search (simultaneously as this phase the Supplier Selection), Order Routine Specification, and the last one Performance Review. Furthermore the decision-making process was affected by all the influencing factors (environmental, individual, interpersonal, organizational, financial, and buyer-seller relationship) and the study also showed that these factors also affected each other.
Finally, after trying to give a picture of the decision-making process of a number of pulp- and paper mills regarding the purchase of a simulation solution we can now see if it is possible or not to shorten the process down. This seems, however, to be difficult at the moment and to reach the time mentioned by the respondents rather impossible. The decision-making process will probably take up to two years, or even longer, if no changes are made in the long run by the selling company such as our suggestions. These suggestions can, if approved by the buying organization, influence future decision-making processes.

It is however questionable if FrontWay can make these suggestions at all since it requires a lot of work as well as a lot of resources. Moreover, even if it also lies in the interest of the buying organizations to shorten down their decision-making process it may not be possible. It takes time to make the best decision, and then again, it takes resources from the buying organization to have someone working with it fulltime and it is unsure if it is of interest for the buying organization to actually shorten down their decision-making process.
Further Studies

We have written this thesis about the decision-making process with a focus on the perspective of the buying organizations. However, it would be interesting to make the study from a selling organization perspective and identifying how the decision-making process is perceived by them. For us it would also be interesting to see how the decision-making process for a small investment, like in our study, differentiates itself from the decision-making process of a major investment.

One problem was the fact that the organizations in the study were clients of the case company, which could lead to more biased interview results. Therefore a larger study of the decision-making process of smaller investments, of industrial organizations, in general would be interesting without a connection to a specific supplier.
Recommendations for FrontWay AB

- Få in simuleringsprogrammet på universiteten, specifikt de processtekniska utbildningarna för att studenterna på så vis kan bekanta sig med programmet och sedan vilja använda sig av det på deras framtida jobb.

- Rekrytera bra ambassadörer som har ett högt inflytande inom den köpande organisationen, dessa ambassadörer skulle till exempel kunna vara studenter.

- Visa på bättre praktiska exempel, ett konkret case, hur den köpande organisationen kan spara pengar genom att köpa denna specifika simuleringslösning, detta är extra viktigt med tanke på rådande marknadssituation.

- Visa den köpande organisationen att man är det bättre alternativet på marknaden. Detta skulle kunna göras genom att tydligare visa på vad det är man säljer.

- Anpassa sin produkt efter kundens behov →erbjudas två olika ”paket” till kunderna. Ett paket, med en billigare licensavgift där minimal support är inkluderad, och ett annat paket med en högre licensavgift där full support är inkluderad. Detta skulle underlätta beslutet för en del organisationer.

- Det är viktigt att kontakta ”rätt” person inom den köpande organisationen, denna person ska vara någon med tekniskt kunnande som kan driva processen vidare inom företaget och påverka den slutgiltiga köparen.

- Utveckla ett mer användarvänligt simuleringsprogram så att inte enbart experter inom området kan använda det. Detta skulle resultera i att fler anställda inom den köpande organisationen skulle kunna använda det. På så vis skulle en person utan den nödvändiga expertisen driva processen vidare, som t ex inköpsavdelningen.

- Analysera var den köpande organisationen befinner sig i sin beslutsprocess för att på så sätt kunna anpassa sin marknadsföringsstrategi.


- Generellt öka marknadsföringen för att öka medvetenheten på marknaden om att just denna produkt existerar.

För mer detaljerade åtgärder se kapitel 5 i uppsatsen, mer specifikt 5.5.1.
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Vi är tre studenter; Malin Lindau, Natalie Ewertz, och Oskar Jerrå som läser vårt fjärde år på Internationella ekonomiprogrammet vid Linköpings Universitet. Vi skriver nu under vårterminen 2009 vår C-uppsats inom Företagsekonomi.


Vi skriver uppsatsen på uppdrag av Anders Nilsson, VD för FrontWay AB i Norrköping och det är av honom vi fått er kontaktuppgift.

Syftet med uppsatsen är att beskriva och förstå beslutsprocesser vid komplexa inköp mellan två företag, varför beslutsprocessen tar lång tid och hur den kan kortas ned. Detta med hjälp av att göra en fallstudie för att förstå den specifika beslutsprocessen som föregår ett eventuellt inköp av simuleringsprogram och -tjänster som vårt fallföretag FrontWay AB tillhandahåller inom Pappersindustrin.

Det skulle därför vara till stor hjälp för oss om Ni vill delta i en intervju angående hur er beslutsprocess såg ut som föregick ert beslut för investering av den simuleringslösning som erbjudits.

Intervjun kommer att spelas in för att underlätta datainsamlingen. Anonymitet garanteras för samtliga intervjudeltagare.

Tack för att Ni vill medverka!

Med vänlig hälsning,
Malin Lindau, Natalie Ewertz och Oskar Jerrå

Linköpings Universitet
A copy of the interview guide that we used in our interviews.

**Om personen:**

*Kan du berätta om din roll i företaget? (sen frågar vi det andra om vi ej får info)*
- Vilken position har du i företaget?
- Hur länge har du arbetat där?
- Vad arbetar du med? (arbetsuppgifter)

**Om företaget:**

*Kan du berätta lite om företaget?*

**Hur ser organisationen ut?** (platt, hierarkisk)

**Produkten:**

**Hur ser du generellt på användandet av simuleringsprogram?**
- Hur ser du på framtiden?

Användte ni en liknande produkt/simuleringsprogram innan köpet? Om ja var det från samma leverantör eller en annan?
- Om annan leverantör → varför valde ni att byta leverantör?
- Om samma leverantör → Uppgradering av program?

**Hur fick ni kännedom om den här produkten från FrontWay?**

**Vilka kriterier utgick ni ifrån när ni valde deras produkt? ***** (Kan du utveckla det lite?)**
- budget
- krav på produkt
- vilka behov
- vilka förväntningar hade ni
- går produkten att anpassa till det som användes tidigare

**Var programmet en stor investering för er? (Om nej → varför inte?)**
- Behövdes det utbildning, ny personal, implementeringsfas?
- År det en riskfylld investering? Varför?
- Vilken påverkan hade priset på valet?

**Valde ni mellan alternativ från olika företag? Om ja, varför valde ni just FrontWay?**

**Vad tycker du om produkten ni har köpt? (sen checka av med understående)**
- Vad har ni för ändamål med programmet?
- Används produkten löpande i verksamheten? År programmet svåranvänt?
- År Produkten betydelsefull för er verksamhet?
- Har förväntningarna/behoven blivit tillfredsställda?
- Fördelar/nackdelar med programmet?
- Vad anser ni saknas gällande produkten, säljande företaget (saknar de/ni kunskap, anställda) Hur skulle det kunna förbättras?
Har ni gjort uppföljning om programmet är lönsamt?

Hur kvantifierade ni intäkterna av simuleringsprogrammet innan köpet? (Gjorde ni någon beräkning om programmet skulle vara lönsamt under beslutsprocessen?)

**Beslutsfattande:**

Vem tar vanligtvis besluten gällande större investeringar och inköp, så som detta simuleringsprogram från FrontWay? Och var tas besluten? (på vilken nivå inom organisationen?)
- **Hur många** var involverade i köpprocessen? **Vilka** var dessa? **Vilken roll** hade de i beslutet?
- **Vilka/vilken avdelningar** tog de avgörande besluten?

**Frågor rörande beslutsprocessen:**

Kan du beskriva er beslutsproces?  
Sen avstämnning med frågor nedan om den intervjuade ej tar upp allt.
- Hur gick inköpsprocessen till? (identifiering av produkt, leverantör, infosökning, alternativ, utvärdering etc)
- Hur uppkom behovet av just ett sådant här simuleringsprogram?
- Har ni någon guide hur en beslutsprocess ska gå till som ni använder er av? (Om ja hur går den till, finns det några generella steg som ni följer?)
- Hur lång tid tog det för att komma fram till ett beslut?

**Hur kan beslutsprocessen kortas ned?**
- Vad kan säljande företag göra för att underlätta detta?
- Vad kan ni göra? Om inte kan göra något, varför?

Är du rätt person att ta kontakt med när det gäller denna typ av inköp? Om nej, vilken person/avdelning ska man ta kontakt med?

Hur ser ni på FrontWay som leverantör?

Vad har ni för relation till FrontWay?

Hur ser er relation till dem ut? (Kan du beskriva lite närmare?)

Generellt sätt, anser ni att relationen mellan köpare och säljare är viktig? (Om ja varför?) (om nej, vad är viktigare?)