

# The entrepreneurial process

A decision-making approach to the pursuit of an  
entrepreneurial opportunity

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# **Abstract**

## **Problem**

Entrepreneurs and firms approaching a novel opportunity will most probably meet unique challenges. In relation to this, the identified problem area of this thesis is what characterizes the entrepreneurial process for entrepreneurs pursuing an entrepreneurial opportunity with a focus on decision-making, uncertainty, and information asymmetry.

## **Purpose**

In line with the individual-opportunity nexus, the aim of this paper is to describe and analyze the entrepreneurial process of the studied entrepreneurs' pursuit of an entrepreneurial opportunity in order to find what characterizes the entrepreneurial decision-making practices under uncertainty and information asymmetry.

## **Method**

A qualitative approach was chosen as the thesis aims to create a deeper understanding of how decision-making, uncertainty, and information asymmetry influence the entrepreneurial process when pursuing an entrepreneurial opportunity. More specifically, a single case study was applied with a deductive approach meaning a couple of theoretical propositions were formulated to guide the analysis. The data was collected from open to semi-structured interviews with the studied entrepreneurs Ulf Olson and Tomi Yrjölä.

## **Conclusions**

The decision-making associated with the entrepreneurial process for the studied entrepreneurs and their innovation is characterized by being non-sequential and the decisions seem to develop from being highly informal at the first step to becoming more formal as the entrepreneurs must face the external challenges when initiating the market introduction. Furthermore, the study unveils a paradoxical situation where the perceived uncertainty is low when the objective uncertainty is high at the start of the process and vice versa in the later steps. One reason for this could be that the information advantage held changes during the process and affects the decision-making as the exposure leads to a more rational behavior.

## **Keywords**

Entrepreneurship, innovation, decision-making, uncertainty, information asymmetry

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## **1 Introduction**

*This section of the paper starts with a background of the studied topic, followed by a problem discussion which is the basis of the derived purpose. The necessary delimitations and definitions are presented, and the chapter is concluded with a disposition of the thesis.*

### **1.1 Background**

Delmar (2000, p. 197) argues that “*entrepreneurship is the key to economic development*”. This is certainly the case as entrepreneurship seems to be of significant value at multiple levels simultaneously. For instance, entrepreneurial activity at individual or firm level stimulates economic growth and development at industry and societal level. Societal advancements, on the other hand, improve factors such as the infrastructure and the availability of necessary resources which as a result will generate new opportunities at the micro level (Davidsson & Wiklund, 2001; Stevenson & Sahlman, 1990). According to Drucker (1985), innovation is the mean to exploit new opportunities. One major implication of innovation being essential for the pursuit of an opportunity is the need of mobilizing resources in order to have a reasonable possibility to reach the market successfully. This includes everything from obtaining financing for the development to ensuring important supplies and support from key actors in a potential network (Drucker, 1985; Stevenson & Jarillo, 1990).

The pursuit of opportunities is naturally affected by the nature of the market and the newness presented by the innovation. Aldrich and Fiol (1994) argue that the introduction of a new product or service on an existing market poses quite different challenges compared to launching a new product which significantly reforms an industry or even creates a new market. Entrepreneurial activity on existing markets is facilitated as a result of what pioneers have done earlier in order to create legitimacy for a specific industry and which can be illustrated by access to capital, certain customer awareness, and developed procedures of doing business. The challenges in this setting consist of finding ways of adding value as well as attracting resources in order to break entry barriers. Entrepreneurs and firms exploiting opportunities which regard new markets or restructuring of industries will encounter more severe challenges. For instance, there is a must to create relationships with an environment that can be hostile to the novelty offered and to build a structure of the emerging industry in order to obtain the legitimacy needed to survive (Aldrich & Fiol, 1994). A major implication of this could be that the entrepreneurial process in this setting should be significantly different to the one where existing markets are approached when it comes to associated factors as uncertainty, information asymmetry, and decision-making.

However, there are few studies focusing on the entrepreneurial process concerning the latter setting discussed above. This reflects the fact that most entrepreneurial initiatives and innovations more or less can be characterized as improvements of existing products and services (Davidsson & Wiklund, 2001). Apparently, there is an opportunity for knowledge development and this paper aspires to contribute to the area of entrepreneurship regarding how uncertainty, information asymmetry, and specifically decision-making influence the entrepreneurial process when launching a product or service which significantly can change an industry or create a new market. Another argument for carrying out this type of study is that it has empirical significance as novel innovations are relatively rare (Drucker, 1985). When encountering such an innovation it is valuable for the entrepreneurial domain to add information about what e.g. characterizes the associated entrepreneurial process or how the entrepreneurs actually proceed. For this study, this was done by studying the entrepreneurs in the Swedish industrial company Jano Technical Center (henceforth referred to as JTC). The entrepreneurs have developed and are currently exploiting a revolutionizing production method which makes it possible to produce and assemble multiple sheet metal details in one die and potentially replaces the established methods which allow for one detail at a time. The new method might have a significant impact on this area of the industrial production and the entrepreneurial process from opportunity discovery to where the entrepreneurs currently stand is hence tracked in this study in order to add knowledge to the process associated with innovative opportunities.

## **1.2 Problem discussion and research questions**

The entrepreneurial process could in short be described as the discovery of an opportunity, the decision to exploit or not, the mobilizing of resources when it comes to both acquiring and organizing them in new ways, and to construct an appropriate strategy for the new company. Furthermore, the process is influenced by factors linked to individuals as well as the industry and macro environment (Shane, 2003). As a result, the multiple steps with several influences seem to make the entrepreneurial process inherently complex regarding the phenomenon of pursuing an opportunity. However, as discussed above, an interesting aspect is to reflect on how the process is affected by novel opportunities changing the conditions for competition. Entrepreneurs and firms approaching the creation of a new market or restructuring of an industry will most probably meet unique challenges and in line with Aldrich and Fiol's (1994) suggestions it could be assumed that this is more difficult than the exploitation of an opportunity on an existing market. The entrepreneurs at Jano Technical Center are currently encountering these problems with their

process innovation and their entrepreneurial process is highly valid to study in order to create a deeper understanding of what influences the process.

Consequently, the identified problem area is what characterizes the entrepreneurial process for entrepreneurs pursuing an entrepreneurial opportunity with a focus on decision-making under uncertainty and information asymmetry. It is important to note that the emphasis is put on the entrepreneurs in this study of the entrepreneurial process. This is in line with Shane's (2003) individual-opportunity nexus which suggests that entrepreneurial activity is a dynamic process with the individual as the entity that discovers and exploits an opportunity regardless of it being in an independent start-up or in an existing firm. Consequently, the decisions made by an individual become central as they will drive and influence the process, and thus it seems valuable for the explanation to study what illustrates the decision-making in relation to the entrepreneurial process. In addition, the entrepreneurial process and the subsequent decision-making are associated with uncertainty and information asymmetry (Shane, 2003). Therefore, these concepts could be expected to be necessary to apply in order to capture the process more accurately as they implicitly are ever-present. With this problem discussion in mind the following research questions are applied to guide the study:

- *What characterizes the decision-making associated with the entrepreneurial process for the entrepreneurial opportunity pursued by the studied entrepreneurs?*
- *How do uncertainty and information asymmetry influence the studied entrepreneurial process and the decision-making?*

### **1.3 Purpose**

In line with the individual-opportunity nexus, the aim of this paper is to describe and analyze the entrepreneurial process of the studied entrepreneurs' pursuit of an entrepreneurial opportunity in order to find what characterizes the entrepreneurial decision-making practices under uncertainty and information asymmetry.

### **1.4 Delimitations**

As the aim of this paper is to adopt the individuals' perspective, there are several factors excluded from the analysis which most likely influence the process regarding how an opportunity is introduced and exploited on a new or to a large extent new market. We are thus aware of the possible impact of macroeconomic influence from e.g. economic growth, stage in a business cycle

or competence of workforce, but will not cover their potential impact due to the sizeable research effort it would take to cover them all. In line with this, infrastructural factors such as technology and communication have also been disregarded as well as the national and regional culture's impact on entrepreneurial activity.

Consequently, the delimitations are made with a micro perspective of the studied pursuit of an opportunity and the associated decision-making as well as uncertainty and information asymmetry are studied from the entrepreneurs' experiences and point of view. Hence, there is the possibility that the entrepreneurs identify some of the delimited factors as possibilities or barriers to exploitation and then these have an explanatory value as they are experienced from their perspective.

### **1.5 Definitions**

In order to study an entrepreneurial process it is necessary to clarify what we consider to be entrepreneurship. We have chosen Shane and Venkataraman's (2000) definition as it is closely related to the presentation of the entrepreneurial process by arguing that entrepreneurship is the activity involving discovery, evaluation and exploitation of an opportunity to add new products and services to the market. Schumpeter (1934) adds that an important aspect of entrepreneurship is the organizing of markets and processes in a new way.

When an innovation and opportunity is referred to as entrepreneurial or novel in this thesis it is applied to emphasize the newness or potential for significant restructuring of an industry. In other words, an entrepreneurial opportunity is in line with the discussion on page 21 (see 3.2.1. Entrepreneurial opportunities) changing the mode of competition on a market or in an industry (Bull, Thomas & Willard, 1995; Shane, 2003).

Shane's (2003) individual-opportunity nexus as cited in this paper means that the entrepreneurs as individuals are the main objects that need to be studied since they are the driving forces behind discovery, evaluation, and the exploitation of opportunities. Further, the author adds that both the entrepreneurs and their view of the entrepreneurial process can be studied apart from the setting, i.e. whether the individuals are entrepreneurs or creative minds within organizations.

When it comes to defining a small firm, Storey (1994) claims that the term small has various meanings in different industries and thus there is no general definition available. However, small



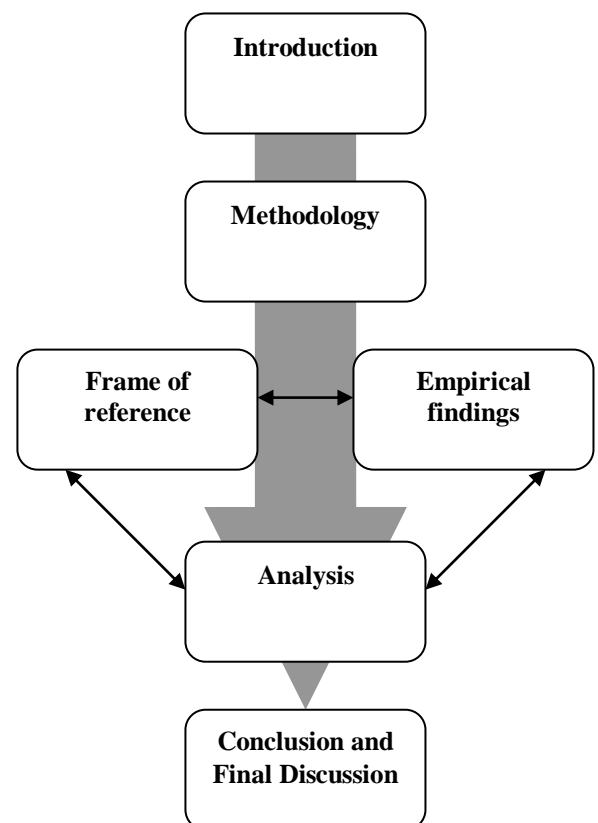
firms can be defined by their number of employees or characteristics such as having small parts of the market and being managed by its owners in a personalized way (Deakins, 1999). Deakins (1999) adds that European Union (EU) definitions have been widely accepted and they use the number of employees to distinguish companies by size. According to the EU definition, a small firm is a company with less than 50 employees. This definition is applied in our paper.

## 1.6 Disposition of the paper

Having introduced the reader to the problem area and the purpose of the thesis, the study starts with a scientific methodological discussion. It provides the reader with an understanding of how this study was conducted using a hermeneutic view, case study research, and a deductive approach.

In the third section of the paper, the frame of reference is presented. It includes a review of relevant theory on the entrepreneurial process, uncertainty, information asymmetry and entrepreneurial decision-making in order to establish the foundation for a proper analysis of the empirical findings. The latter are presented in the fourth part and cover the interviews with the studied entrepreneurs.

Furthermore, the theoretical framework and the empirical findings are interpreted in relation to the identified problem area in the fifth part's analysis. In the final section of the paper, we state the conclusions based on the research questions and elaborate on knowledge contribution as well as potential future research in a final discussion.



**Figure 1** - The disposition of the thesis

## 2 Methodology

*This section aims to increase the understanding of how our study was conducted. The academic perspectives and the data collection method are explained. Furthermore, the reliability and validity of the study are discussed considering both the method and the data used in the research for this paper.*

### 2.1 Hermeneutic

This study is based on a hermeneutic view, which means that everything presented in this paper has been analyzed and interpreted using the knowledge the authors and other social actors have. The hermeneutic interpretation is important for the understanding of every actor participating in this study and, therefore, has been applied throughout the course of work (Gilje & Grimen, 1992). In academic research it is crucial to understand the hermeneutic course of action in order to be prepared for possible difficulties in interpretation when it comes to actors from different cultural and social environments (Gilje & Grimen, 1992). We have chosen to apply a hermeneutic approach because we believe that the phenomenon studied in this case is something that we cannot measure with great accuracy and therefore it is appropriate to use our own understanding and interpretation when trying to explain the entrepreneurial process underlying the innovation. Furthermore according to Drucker (1985), innovations are a rather rare phenomenon and conclusively there does not exist a great deal of pre-understanding in this field which makes the hermeneutic approach even more appropriate in order to clarify our findings and thoughts.

The hermeneutic process consists of four main parts all equally important for research. These parts are interpretation, understanding, pre-understanding, and explanation.

#### 2.1.1 Interpretation within hermeneutics

Interpretation in this case means how the authors chose to present the information to their environment. In this paper, the information mainly consists of text from articles and theories as well as orally semi-structured in-depth interviews that will be analyzed. The interpretation will primarily consist of our own associations surrounding the current phenomenon and how we choose to present it on paper (Gustavsson, 2004). To present and interpret other peoples' associations is difficult, basically because it lies in our nature to ascribe ourselves a certain identity. Because of this it is difficult for the researcher to know for sure what is genuine truth and what are interpretations already made by the people the researcher is interviewing and analyzing (Gilje & Grimen, 1992). This is a problem within social science research, rooted in society and therefore unavoidable for

researchers. Hence, it is very important that we are accurate in our research in order to achieve a truthful interpretation of reality.

There are many different ways in which researchers can tackle this problem. One way is to ignore the self description of the social actors and their activities mainly because these associations often are untrue and a reflection of how the actor wants to view himself and his surroundings (Gilje & Grimen, 1992). Another way is to look upon these descriptions as important and the researchers must therefore base their research on these associations of themselves and their environment. In this view, the actors' thoughts are important since they are reflected in and the actors are part of society studied by the researcher (Gilje & Grimen, 1992).

### **2.1.2 Understanding within hermeneutics**

The second part in the hermeneutical process is understanding. This is a very vague concept because all people think they have an understanding about things even if they have never studied a particular occurrence. The understanding we as researchers have to work with when dealing with hermeneutics is the understanding that we reach after studying, analyzing, and interpreting a certain phenomenon (Gustavsson, 2004). Personal experience, i.e. pre-understanding, is viewed as a prerequisite in order to achieve the desired knowledge (Alvesson & Sköldberg, 1994). As elaborated on further below, we as human beings never face any situation without a certain degree of pre-conditions; rather, we always carry along a pre-determined knowledge and opinion. This of course has an effect on the understanding we carry along as well.

### **2.1.3 Pre-understanding within hermeneutics**

Pre-understanding is the understanding every individual is carrying along in any situation, based on the predetermined knowledge and views he or she possesses. The reason why pre-understanding is so important when we are interpreting something is because pre-understanding gives us the first hint of where to look for knowledge we do not possess. Without this pre-understanding, we would not know where to search for the missing knowledge. Pre-understanding is based on previous experience which we have accumulated over time (Gilje & Grimen, 1992).

Since we are using semi-structured interviews for our data collection it is important to keep in mind the pre-understanding of our respondents. Here we can use three steps within the hermeneutic process. The first step is "silent knowledge", which we have without even knowing it. This can lead to problems since we as well as our respondents can misunderstand each other due to our "silent knowledge" being different. To avoid this, we have to be aware of the fact that this problem can

occur and we also have to view the event and the answers from our respondents as just a small part of a bigger phenomenon. The second step we have to take into consideration is the holistic system which involves that all information is connected in a loosely coupled system where all parts build on each other and on different premises. Actors that do not know these premises will not be able to orientate themselves in their environment (Gilje & Grimen, 1992). Last but not least, all pre-understanding is revisable which means that new and better information can lead to the fact that pre-understanding changes and develops. This can have big effects on the system as a whole (Gilje & Grimen, 1992).

#### **2.1.4 Explanation within hermeneutics**

All interpretations have explanations embedded in them meaning that one has to be able to explain something in order to show that one has understood (Gustavsson, 2004). This also means that all meaningful phenomena only are understandable in the context they exist in. Therefore, the researcher himself has to collect all the necessary knowledge in order to understand and interpret the phenomenon in the most truthful way possible (Gilje & Grimen, 1992).

Conclusively, hermeneutics are the base for qualitative methodological theory with an aim of understanding and interpreting how people experience a situation and what this means for decision-making and actions taken. Feelings and personal experience are important and therefore detached research is viewed as nearly impossible since the chances of liberating oneself completely from all personal beliefs about reality have to be considered almost unfeasible (Alvesson & Sköldberg, 1994).

Our study is based in a hermeneutic view of knowledge since our aim is to reach a deeper understanding of the chosen subject. We do not expect to present a solution to the entrepreneurs' situation; rather, we want to explore alternative explanations for the phenomenon studied. As researchers, we cannot expect to be fully neutral and detached which is why we have chosen to conduct our study in a way where interpretation is an important part of the result.

Furthermore, this paper is based on the assumption that reality and the world we live in are socially constructed. This implies that the means people use to interpret reality are constructed by their different subjective and inter-subjective views of the world. Hence, it is not possible to generate models fully representing reality (Davidsson & Patel, 1994). By studying the phenomenon from a socially constructed point of view, we are interested in how the entrepreneurs experienced and interpreted their reality.

## **2.2 Execution and course of action**

There are two ways in which researchers can conduct an academic study, those being the qualitative and the quantitative approach. Using the quantitative approach, researchers work in formalized and structured ways processing information in digits and quantities. The focus lies on what is common and average (Holme & Solvang, 1997). The qualitative approach on the other hand handles people, objects, and specific situations in their natural environments and one tries to understand and explain how different situations came to be and the importance that the people involved attach to them. Focus here lies on collecting information to gain a deeper insight into the studied phenomenon. Qualitative studies are based on people's attitudes, preferences, and associations concerning the whole situation and thereby an increased understanding of social processes is made possible (Holme & Solvang, 1997).

For the work on this paper, we have chosen to use a qualitative research method, since a qualitative approach is appropriate in order to achieve a deeper understanding of a complex problem (Andersen, 1998; Yin, 2003). The qualitative method takes into consideration the softer values in an analysis, for example "why" and "how" people act in a certain way (Eriksson & Wiedersheim-Paul, 2001). Therefore, the purpose with qualitative studies is regarded to be an increase of the information value concerning a certain phenomenon. Using qualitative studies, researchers try to dig deeper into the studied individual or organization in order to strive for a complete picture of how these look upon the world (Holme & Solvang, 1997). We find this to be the best way for us to analyze and interpret the chosen phenomenon since the processes of method development and market introduction are events involving numerous decision processes by various individuals. In addition to this, we find a qualitative approach more appropriate because the studied phenomenon requires a deeper understanding of the entrepreneurial mechanism behind it in order to achieve the purpose of this thesis.

### **2.2.1 Case study research**

According to Yin (2003), case study research is appropriate when the questions addressed are "why" and "how" individuals or organizations have acted in a certain way. Furthermore, he argues that case studies should be used in situations when the researcher has little control over the studied phenomenon. Case studies can be conducted as simple or as multiple case studies (Yin, 2003). According to Yin (2003), the benefit with a multiple case study is that the study builds on a stronger analytical substance while the reason for choosing a simple case study is due to the studied phenomenon being of the extreme and unique sort.

We decided to use a simple case study when analyzing JTC's entrepreneurial process and the two entrepreneurs behind it, mainly because we believe that the method they have developed and want to introduce on the market is both extreme and unique. Extreme because it will cause grand changes for both JTC and the industry once it is accepted and unique because only the inventors possess the knowledge surrounding the new method. We are aware of the advantages a multiple case study holds when it comes to generalizing and comparing the results, but that is not our aim with this thesis; rather, we want to study the driving individuals within JTC and the entrepreneurial process as well as the decisions made regarding the invention. Developing a method and introducing it on the market are very complex phenomena in a small company and also strongly influenced by the surrounding situation and a variety of variables. This makes a simple case study an appropriate way of studying the entrepreneurs at JTC and their operating while introducing the new method in order for us to gain a better and deeper insight in how JTC as well as the individuals there were affected by and did handle the market forces. Consciously, an industry study was not chosen since our aim was to study the entrepreneurial process regarding the innovation and how the entrepreneurs handled the situations they faced when trying to get the method accepted on the market.

Our observation of the two entrepreneurs and their operating will not be of the participating kind, since we only want to study the individuals and the methods they use, but not want to participate in the development while we are working on this thesis. We are aware of the fact that participant observation has both pros and cons, but have come to the conclusion that the positive effects of a simple case study without participating observation dominate since we do not want to be too affected by a possible close relationship during the course of work. Here, we have to mention that one of the authors is closely related to one of the entrepreneurs at JTC and this already might affect the objectivity of our thesis. Also, we have to take into consideration that one of the authors while working on this paper realized that his interest for the new method and its market introduction increased. When he mentioned this to the two entrepreneurs at JTC, they answered by indicating that they would like to see the author as part of their future team. This development could have negative effects on the course of our work since the author could put too much focus on the actual market introduction and not on the scientific approach to the phenomenon. We have chosen to deal with this issue in a way that the author only is allowed to actively participate in the market introduction when our thesis is completed and handed in.

Case study research is used when the phenomena studied are partly or completely unknown, which in this scenario is the case since we are talking about a totally new method that only these two entrepreneurs have knowledge of. Therefore, we choose the simple case study as our research method in order to examine this particular phenomenon formed by its context that we ourselves have little control over.

### **2.3 Data collection**

When collecting data for our study, we have used both primary and secondary data sources available. Primary data is so-called first hand data which the researcher collects himself, while secondary data is data that has been collected and processed by other researchers for different purposes (Andersen, 1998). Since primary data is collected by the researcher himself for the specific study he is conducting, the data can be adjusted to the purpose of the study. However, it is also important to study secondary data, i.e. literature and research within the field, in order to secure the quality of the study oneself is executing (Backman, 1998).

In order to extract as much information as possible while collecting empirical data, we have decided to conduct several qualitative semi-structured in-depth interviews with the two entrepreneurs. The reason why we only interviewed the two entrepreneurs is that they are the only ones that know about the secrets behind the new method. They have treated the development and the process very confidential all the time and therefore nobody else would have had any complementing information for us to access. The high confidentiality surrounding the new method also restricted the technical information we were able to collect from the entrepreneurs. We have chosen qualitative semi-structured interviews so that we will be able to compensate our semi-structured interview questionnaire with follow-up questions during the interviews as well as give the respondents a chance to answer without any restrictions. This way we have been able to leave room for new findings and both the interviewers and the interviewees were able to be more spontaneous. When collecting empirical data for this thesis, we conducted three different interview sessions with the two entrepreneurs. The first session was placed early in our course of work with this thesis, more specifically May 2<sup>nd</sup> 2007, and was more of an open two-hour talk where we wanted the entrepreneurs to talk about anything that came into their minds regarding the innovation and themselves. The second session involved another company visit by the authors on May 16<sup>th</sup> 2007. Only this time, we did follow our semi-structured questionnaire (see Appendix) and complemented it with follow-up questions when the answers were unclear or when we experienced that there was some more information that could be extracted. The second session

lasted for more than half a day and we also spent some time studying the actual machines and the new method on site at JTC. The final interview session involved our follow-up questions via email and telephone and was held a week after the second session on May 23<sup>rd</sup> 2007. We placed the interview sessions at different points in time in order to get a more accurate picture and understanding of how the innovation and the entrepreneurial process developed over time. Furthermore, we are aware of the fact that with us conducting only three interview sessions, the amount of information we could extract from the entrepreneurs was restricted. However, we do not think this has affected our study in a negative way. On the contrary, we believe that we managed to gather as much information as possible since we were aware of the restricted possibilities.

When we first started to collect empirical data for this thesis, we noticed that we had to draw a line somewhere because the studied phenomenon is developing on a continuous basis. Therefore, we decided to frame the empirical data collection period with a starting point in the late summer of 2005, the period in time when the innovation first appeared in the entrepreneurs' heads, and a final date on May 25<sup>th</sup> 2007. This in order to be able to work with the collected empirical data and draw our conclusion without having to consider the daily changes that appear within the entrepreneurial process and surrounding the innovation after May 25<sup>th</sup> 2007.

Focus in this study will be on a combination of the empirical material collected and the theories we base our research on. Therefore, we are aware of the fact that studying current theories will increase our understanding and pre-understanding in the research area and this will also increase our understanding of the chosen topic. We also believe that our increased knowledge derived from the general theories has helped us in presenting the respondents with more thorough and profound questions during the interviews. With the theoretical starting point as a base, we have been able to analyze and interpret the collected empirical data as well as the impressions we encountered when visiting the company which in the end allowed us to draw conclusions that answer our questions and discuss our problem statement.

## **2.4 Deduction**

When conducting research there are different points researchers can start from. They can either choose the inductive approach, the deductive approach, or a combination of both called abduction (Alvesson & Sköldbberg, 1994). With a deductive approach the researcher evaluates the studied object based on theories, while an inductive approach means that by studying a phenomenon one



aims to draw general conclusion (Andersen, 1998). With our study being deductive, we will interpret the phenomenon using the theories we base our study on. In other words, we want to test the theories we have studied and find out if they are applicable in reality. Later on, we will re-evaluate and complement our interpretations and the theories applied using the discoveries we make when studying the phenomenon (Bryman, 2004). The deductive approach caught our interest because we believe that it is the best way to approach a study like this and at the same time combine it with the reality we face. This has become more and more evident to us while writing our thesis. New theories lead to new questions and unexpected answers make search for new theories inevitable. By using the deductive approach, we hope to have accomplished a well written paper with a continuous train of thought.

## **2.5 The quality of the study**

The quality of every academic study depends on its achievement in relation to the terms validity, reliability, and generalization. For all data collection research processes it is important to understand how well they actually measure what they claim (Kvale, 1997). According to Kvale (1997), high validity and reliability should always be sought after. Furthermore in a study using the qualitative approach, validity and reliability have to be considered both when collecting data, but also for the following analysis.

### **2.5.1 Validity**

In general, validity is the ability to measure what one sets out to measure (Andersen, 1998). The validity of a study is affected by how the information gathered really corresponds with reality (Eriksson & Wiedersheim-Paul, 2001). Since qualitative research bases itself within hermeneutics and social constructionism, the search for absolute and true knowledge is almost impossible (Kvale, 1997). In order to control the validity of a qualitative study, the researcher usually needs a variety of respondents so that the answers collected can be compared and analyzed in relation to each other, in the end allowing him to draw conclusions (Merriam, 1994). In our case study of JTC this was not possible. Due to the high confidentiality of the innovation, only the two entrepreneurs involved with developing the new method had knowledge of it and what decisions were made in their course of work. This can certainly have affected the validity of our study, but there was no other way to approach this situation since nobody else would have had any beneficial information to contribute. Our solution to this problem was to interview the entrepreneurs at different times over a longer period of time in order to receive as much useful and applicable information as possible. Again, we were not able to gather any detailed technical data regarding the multi component method due to

the high confidentiality of the matter. However, we do not believe that this has affected the validity of our study in any way. Of course, our relation and attitude towards the studied object can have affected the results of this study. One of the authors is closely related to one of the entrepreneurs at JTC which in the end can have affected the way either side approached the interviews and also the way we as authors interpreted the empirical findings. Furthermore as mentioned above, there has been another development during our work on this thesis that can have affected the validity of the study. One of the authors has found that his interest in the innovation and its development has become stronger while working on this paper. At the same time, the two entrepreneurs at JTC have indicated that they would like to see the author take on an employment at JTC in order to develop an appropriate launch strategy for the new method. This situation has developed over time and was not intended when we started our work on this thesis. As long as we are aware of the potential side-effects these changes can have when it comes to the validity of our study, we should be able to avoid any negative consequences.

### **2.5.2 Reliability**

The reliability of a study is affected by how accurate and proper the study is conducted and how trustworthy the results are that one achieves. In the classical approach, reliability means that a study has to show the same result if the study is repeated (Andersen, 1998). Since our thesis follows a qualitative approach, the reliability throughout our study will be an indication of the quality we hold as researchers.

In order to achieve as high reliability as possible, both authors have been present at all interviews while at the same time the interviews have been recorded. This allowed us to study the empirical data several times and also made up for missing or misleading formulations in our notes. Complementary follow-up questions via phone calls and email contact have also been forwarded to the interviewees in order to complement the collection of empirical data and clarify misleading formulations. Furthermore, the three interview sessions were held at different stages over a period of time in order to give us an overall picture of the entrepreneurial process concerning the new method and the decision-making at different stages of the process. Since we are studying such a small company, access to relevant information concerning our thesis has not been a problem. One of the authors is closely related to one of the entrepreneurs at JTC and this only facilitates the access to important information. Considering the reliability of our study, we have to mention that we used a socially constructed perspective approach which means that our thesis should be regarded as our subjective interpretation of the studied phenomenon. Therefore, it is possible that other researchers might draw different conclusion from the statements made by the respondents.

However, we here would like to point out that we have conducted an extensive in-depth study and by that reached empirical and theoretical exhaustion. This can, but does not have to, indicate that the results of our study may be applicable to other cases than the studied phenomenon.

### **2.5.3 Generalization**

According to Yin (2003), generalization means whether the results of a study can be applied to companies and areas outside the actual area of study. He also mentions that generalization may not be achievable in qualitative studies and case study research (Yin, 2003). For our thesis, we have specifically chosen a qualitative and simple case study approach and our aim is not to generalize our findings; rather, we want to analyze and interpret the actions and decision that occurred during the market introduction of JTC's method. Furthermore, a qualitative study is exemplifying rather than generalizing (Svenning, 2000) and the restricted possibility when it comes to generalization is based in the nature of the case study, since the purpose is to delve into a specific phenomenon rather than trying to deliver a relevant sample (Merriam, 1994).

## **2.6 From propositions to conclusions**

This section of the paper aims to give the reader an overview of how we made our way from the theoretical propositions, via empirical data collection and an analysis to finally reach a conclusion on the studied subject. In order to be able to follow our train of thought and in order to gain similar theoretical understanding, one has to base ones research on Shane (2003) and his studies of the individual opportunity nexus. Furthermore, one has to base oneself in the empirical data we collected, in the semi-structured as well as the open discussion interviews.

After collecting the empirical data, we compiled the results and created the categories we wanted to use in our analysis. In line with the qualitative approach in our study, we decided to follow the basic outline of our frame of reference in order to focus and rely on theoretical propositions (Yin, 2003) when analyzing the empirical findings collected during the interviews with the two entrepreneurs. Our first theoretical proposition is that the decision-making follows the sequential steps of the entrepreneurial process. The second part of this first proposition consists of the theoretical foundation that the entrepreneurial decision-making tends to be informal at the early stages of the process and evolves into a more formal and rational way of making decisions. The second proposition we are using to guide our work on this thesis with is that uncertainty and information asymmetry will be higher in the first steps of the entrepreneurial process and decrease when the entrepreneurs gather more information as well as the market becomes more aware of

the advantages the innovation brings. When analyzing the empirical data collected, we focused on the decision-making associated with the basic outline of the entrepreneurial process. Starting off with subheadings similar to the steps of the entrepreneurial process in order to find what characterizes decision-making throughout the different steps of the process, we later on adjusted these to be more decision-making related also in order to capture the effects and the impact of uncertainty and information asymmetry on decisions in the various phases of the entrepreneurial process. After finalizing our analysis, we focused on the conclusion that we based on the main analytical topics and from which we could create a new and more adjusted model that shows how the different stages of the entrepreneurial process really are related.

### **3 Frame of reference**

*In this chapter of the thesis, our aim is to give the reader an introduction to the frame of reference that we base our research interpretation on. It starts with a theoretical discussion of the entrepreneurial process, then delves into general decision-making theory, and finally focuses more specifically on the opposing choice paradigms of causation and effectuation.*

#### **3.1 Entrepreneurship and Intrapreneurship**

In order to introduce the theoretical framework which guides this thesis, the concepts of entrepreneurship and intrapreneurship are presented. These concepts are underpinning the theories of the studied process and the associated decision-making and the latter is emphasized as the studied entrepreneurs are pursuing an opportunity in an existing organization.

##### **3.1.1 Entrepreneurship**

Entrepreneurship as an academic field is attracting increasing attention, but does according to Shane and Venkataraman (2000) need a clarification of what entrepreneurship is really discussing. This remark illustrates that entrepreneurship research has given several interpretations and thus has slowed down the progress of the field. Furthermore, entrepreneurship as an academic field can be viewed as in need of some clear boundaries covering factors not explained in other academic fields in order to be a useful and accepted domain (Davidsson, Low & Wright, 2001; Shane & Venkataraman, 2000).

Shane and Venkataraman's (2000) definition offers these boundaries by claiming entrepreneurship to be an activity including the discovery, evaluation, and exploitation of an opportunity to offer something new to the market. The notion of newness is the key and the research on these new activities thus distinguishes the field of entrepreneurship (Shane, 2003). The latter is in line with Schumpeter's (1934) view on entrepreneurship which focuses on the entrepreneur as a change agent who creatively destructs the institutionalized patterns and on entrepreneurship as value creation by new combinations.

With a more narrowed focus, Gartner (1988; 2001) suggests that entrepreneurship is a behavioural phenomenon which can explain the new organization creation. Hence, Gartner's contribution could be that certain intentions and behaviour will distinguish entrepreneurial initiatives from those associated with the management or administration of existing processes. Davidsson (2002) argues that Shane and Venkataraman's framework could be the most appealing to explain entrepreneurship. Even though he criticizes Gartner for being too narrow, he also acknowledges

that the behavioural and organizing aspects are compatible with Shane and Venkataraman's (2000) perspective on entrepreneurship as long as it regards new economic activity.

By considering both the mentioned perspectives, entrepreneurship could be regarded as a topic which focuses on the behaviours related to the process of discovering, evaluating, and exploiting an opportunity for new economic activity (Davidsson, 2002). In line with this, Antoncic and Hisrich (2003) suggest that entrepreneurship aims to develop explanations for the processes related to new economic activities. Consequently, phenomena such as innovation, new venture creation, firm growth, characteristics of entrepreneurs, resource acquisition under uncertainty, entrepreneurial activity in existing companies, and entrepreneurship's influence on economic development could all be included in the academic field of entrepreneurship (Antoncic & Hisrich, 2003). The mentioned phenomena can be considered to be sub-fields and one of them is as noted entrepreneurship in existing firms. This will be further elaborated on in the next section.

### **3.1.2 Intrapreneurship**

Intrapreneurship is in a broad sense entrepreneurship in an existing organization (Antoncic & Hisrich, 2003). In other words, it is the discovery, evaluation, and exploitation of a perceived opportunity by individuals in an organization. Corporate entrepreneurship is a synonym widely used, but could according to Antoncic and Hisrich (2003) be experienced as only referring to large organizations. Therefore, they propose intrapreneurship to be a more correct term as entrepreneurship can emerge in all companies regardless of size.

One dimension of intrapreneurship is new venture creation, i.e. the formation of an entity which can be connected to the existing organization's business area or be aimed at a new market (Antoncic & Hisrich, 2003). In addition, Lumpkin and Dess (1996) offer multiple dimensions of intrapreneurship. One of them is innovativeness and this refers to both products and processes. An entrepreneurial orientated organization will continuously strive for the leadership when it comes to offering a high frequency of enhancements on products or development of new products offering higher customer value (Lumpkin & Dess, 1996). Knight (1997) adds that intrapreneurship is characterized by the pursuit for internal process innovations, e.g. technology improvement in order to produce at a lower cost in a manufacturing company, which could increase the competitiveness.

Self-renewal is another dimension which reflects an organization's strive for changing the ideas it is built on in order to better fit with its environment (Antoncic & Hisrich, 2003). This dimension of intrapreneurship is thus concerned with achieving or maintaining adaptability and flexibility to

sense what the customers demand. Consequently, entrepreneurial organizations will reflect on its strategic direction and assess whether it is in line with what the direction of the environment. A certain level of risk taking is one dimension Lumpkin and Dess (1996) put forward to characterize intrapreneurship. This implies that entrepreneurial companies will pursue uncertain opportunities by committing resources and taking decisive actions which support the needed development of products or processes.

Knight (1997) argues that proactiveness is one of the dimensions of intrapreneurship. The author continues with the claim that proactiveness is associated with a focus of leading rather than following competitors. Lumpkin and Dess (1996) add that proactiveness is based on anticipation of future needs and an entrepreneurial firm will act according to these expectations. A final dimension put forward by Lumpkin and Dess (1996) is competitive aggressiveness. This refers to an organization's degree of willingness to challenge competitors and aggressively pursuing areas where competition could be fierce.

According to Burgelman (1983), entrepreneurial activities can be developed in existing firms if the employees act autonomously against the structure which is intended to generate a certain behaviour in order to create order. This is supported by Antoncic and Hisrich (2003) who claim that individuals who act outside the customary processes will be able to initiate entrepreneurial activities. However, existing companies have characteristics which will both motivate and constrain entrepreneurial behaviour.

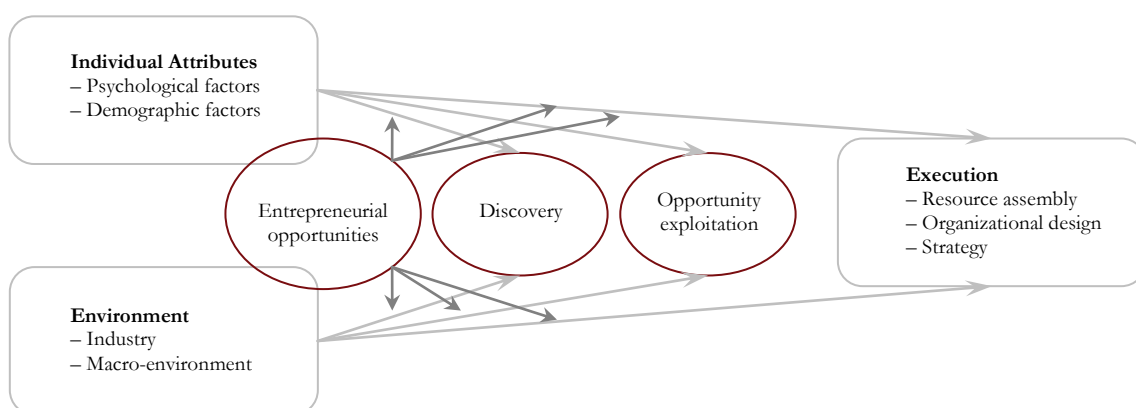
For example, an existing organization can offer adequate funding and availability of competent staff for an entrepreneurial initiative. Moreover, there can be extensive experience available about the potential market and customers as well as the security of having a fixed compensation from the start of the initiative (Burgelman, 1983; Carter & Jones-Evans, 2000). On the other hand, while the benefits are removing many of the obstacles encountered by entrepreneurs aiming for a start-up of a new venture, there are restrictions due to the nature of existing organizations. An example of this is that an internal venture will be strongly influenced by the existing structure, norms, and values which might not be optimal for the particular opportunity. Furthermore, the existing firm will due to competitive pressure usually push the intrapreneurs to be able to show a result relatively quickly which can lead to rushed investments and various mistakes reducing the potential for growth. As a result, the existing firms which aim to achieve an entrepreneurial orientation must find ways of allowing the internal initiative to act autonomously, but within the long-term direction of the

existing organization as well as monitoring the development without causing discomfort in the group pursuing an opportunity (Carter & Jones-Evans, 2000).

### 3.2 The entrepreneurial process

In line with Shane's (2003) individual-opportunity nexus it is possible to claim that the entrepreneurs are the important entities to study as it is them who discover, evaluate, and exploit the potential for new economic activities. Therefore, the entrepreneurs and their perception of the entrepreneurial process can be studied regardless of the setting, i.e. whether the individuals are entrepreneurs or intrapreneurs. However, the section above is important for the theoretical framework as it does add an understanding of the possibility of the setting having an impact on the process, even though, the individual-opportunity nexus implies that the process will be similar regardless of context.

The entrepreneurial process is initiated by situations which allow for resources to be transformed in a new and more valuable way (Venkataraman, 1997). When this possibility is discovered and evaluated by the entrepreneur(s) it is followed by a decision whether to exploit or not. The last step of the process is related to the exploitation as it is concerned with the obtaining of resources, development of a strategy, and organizing of the new venture (Shane, 2003). Moreover, the entrepreneurial process is illustrated in figure 2 and the steps will be presented in that sequence followed by a presentation of uncertainty and information asymmetry's impact on the process.



**Figure 2** - A model of the entrepreneurial process (Shane, 2003; p. 11)



### **3.2.1 Entrepreneurial opportunities**

According to Shane (2003), an entrepreneurial opportunity can be regarded as a situation where a new means-end solution will create new value from the recombination of resources. In addition, this act refers to the development of economic value and thus gives entrepreneurs and firms the possibility to make a profit by exploiting the opportunity (Sarasvathy, Dew, Velamuri & Venkataraman, 2002). However, it is important to emphasize that it is newness which distinguishes entrepreneurial opportunities from profit seeking in an established business setting. The latter has a means-end framework where market participants e.g. sell products and services in a certain way. Consequently, the entrepreneurial opportunity is the possibility to change this setting by offering something that creates more utility for the users or to create a new business framework (Shane, 2003; Wickham, 2001).

#### **3.2.1.1 The Schumpeterian and Kirznerian perspectives**

Researchers have debated whether entrepreneurial opportunities are socially constructed through interacting people or existing in an objective sense (Shane & Venkataraman, 2000). According to Sarasvathy et al. (2002), this discussion is somewhat futile as all opportunities could be claimed to be unique. Shane (2003) adds that the discussion most likely refers to different perspectives of opportunities which can be present simultaneously on a market; Schumpeterian and Kirznerian opportunities.

These two perspectives differ in the way they explain how situations for new means-end frameworks emerge as well as how they affect economic activity. For instance, Schumpeterian opportunities disrupt the existing system by innovative reconfigurations of resources (Shane, 2003). Schumpeter (1934) claimed that this was the result of the new information created by changes in technology, political forces, regulations, macro-economic factors, and social trends. Moreover, the new information can then be used by entrepreneurs to elaborate on novel ways of approaching products and services, organizing, combining raw materials, markets, and production processes. In contrast, Kirzner (1997) suggests that existing information is the basis for entrepreneurial opportunities as people have different access to certain information. As a result, some people will interpret the existing information in relation to their experiences and find ways to better recombine resources (Shane, 2003).

Consequently, as they build on existing information, Kirznerian opportunities can be argued to be more common and thus most entrepreneurial opportunities are more concerned with improvements on established processes (Shane, 2003). The implications on economic activity and

the entrepreneurial process are that Schumpeterian opportunities are rarer and potentially significantly more valuable for those exploiting them as well as the economic development from a macro perspective (Bull et al., 1995). Furthermore, Shane (2003) claims that the Schumpeterian opportunities will affect the entrepreneurial process by demanding creativity and innovativeness to a greater degree than the Kirznerian opportunities. According to the author, two main factors, which will be discussed in detail later, are uncertainty and information asymmetry. These factors and their impact will be different for the two types of opportunities as e.g. Schumpeterian opportunities are regarded to be more risky and associated with difficulties to make future predictions. Moreover, when the opportunity is innovative it is more likely that a few individuals have superior understanding and information about the opportunity's potential value which leads to an unevenly balanced situation between e.g. potential investors and the entrepreneur (Smith & Smith, 2000).

### **3.2.2 Discovery**

An opportunity for new value creation can as noted above develop from both existing and new information, but someone must realize the value given by the entrepreneurial opportunity in order for exploitation to occur. This implies that it is an individual who discovers the opportunity as it is a cognitive act to interpret the available information (Shane, 2003, Wickham, 2001). Consequently, the discovery process is influenced by certain characteristics making specific individuals more apt to recognize entrepreneurial opportunities. Shane (2003) has identified characteristics associated with access to information and absorptive capacity as important explanation factors. These will be covered in this section.

#### **3.2.2.1 Access to information**

Information has as discussed an essential role in the discovery process. Obtaining information earlier than others thus becomes vital for the possibility to discover and exploit an opportunity. Objectively the information is there for everyone, but factors such as experience and social networks make the access to information unevenly distributed (Shane, 2003).

Experience is gained through various sources continuously during a career. The foundation for the variation of access to information can be built by an education. Evidently, the education can provide the entrepreneur with information and skills facilitating the discovery as well as the other steps of the entrepreneurial process. Furthermore, it gives the individual a platform of abilities needed for starting a company or pursuing a career leading to a potential discovery of an entrepreneurial opportunity (Shane, 2003; Wickham, 2001). An individual's experience through a career can,

according to Shane (2003), greatly benefit the access to information. Moreover, the career experience can be divided in functional and industry experience. Functional experience is associated with the individual's job function and Aldrich (1999) suggests that people working with research and development or marketing will be well placed to discover entrepreneurial opportunities. This can be coupled with industry experience in order to explain why some have better access to information. Understanding about an industry's market conditions provide the person with information that outsiders will find difficult to gather. Furthermore, it is also likely that specific industry experience facilitates the discovery through the network gained during the career and interactions with customers and suppliers (Aldrich 1999; Vesper, 1991; Wickham, 2001). Aldrich (1999) further shows that people tend to develop innovative ideas and start businesses in the specific industry or related industries in which they have been employed. This emphasizes the fact that particular career experience will facilitate the discovery of an entrepreneurial opportunity.

As noted above, the entrepreneur's network can be essential for the access to information about an opportunity. A network's major impact on the discovery process, as well as the entire entrepreneurial process, is that it gives access to non-public information. As an early recipient of the new information, the entrepreneur will find it difficult to determine the accuracy of it. Therefore, strong and trustworthy relations become important for the entrepreneur's information gathering (Aldrich, 1999; Shane, 2003). However, weak and diverse relations are also beneficial because essential information might be spread across several sources related to various areas (Aldrich, 1999; Granovetter, 1973). In addition, these heterogeneous ties assure the entrepreneur of access to complementary information necessary for opportunity discovery (Aldrich, 1999).

### **3.2.2.2 Absorptive capacity**

In relation to having access to information, the discovery process is suggested to be facilitated when the entrepreneur possesses absorptive capacity. According to Shane (2003), this factor is instrumental for discovering opportunities in the available information.

According to Cohen and Levinthal (1998), an individual's absorptive capacity is influenced by prior knowledge and experiences. This concept could, therefore, be claimed to be strongly related to the factors resulting in access to information. However, prior knowledge gives the individual the capacity to add information it encounters about e.g. markets, technology, and production processes to the stock of knowledge. Moreover, the absorptive capacity helps to make the new information meaningful for a person and it can also be interpreted in relation to earlier experiences in order to recognize new solutions to identified problems (Venkataraman, 1997). In other words, knowledge

about specific areas gives an individual the ability to absorb the new information in a way that solves e.g. process problems or underlying market needs. This is important for the entrepreneurial process as it improves the ability to realize the potential for new means-end frameworks (Saunders, 1997).

Shane (2000) presents knowledge about markets and how to serve them as an enhancer to the absorptive capacity. Market knowledge will give the entrepreneur insights in demand conditions and important relationships between customers and suppliers. Complementing this knowledge, which in many cases is tacit, with new information will lead to an advantageous situation for opportunity discovery. Furthermore, prior knowledge about how to serve a market benefits the entrepreneur by knowing how to present the discovered solution's advantages in an appealing way for the concerned stakeholders of the firm (Bhave, 1994; Shane, 2000). One indication of the impact of market knowledge when it comes to opportunity recognition is that entrepreneurs often pursue opportunities which can serve their earlier employer's customers better. Consequently, the discovered opportunities are often related to the business and market in which the entrepreneurs have had the possibility to absorb information indicating a window of opportunity (Wickham, 2001).

### **3.2.3 Opportunity exploitation**

In relation to the discovery of an opportunity the individual must, alone or in a team, decide whether to exploit it or not (Stevenson & Sahlman, 1990). This often means that the concerned individuals must leave a perceived safe haven in their current employment in order to pursue an uncertain opportunity (Wickham, 2001). Therefore, certain characteristics could be influencing the decision. Shane (2003) has identified both psychological and non-psychological factors which tend to explain why some people exploit and others stop their pursuit in the discovery phase of the entrepreneurial process.

The non-psychological factors can be regarded as tightly related to the factors affecting access to information and absorption capacity. Subsequently, they will not be repeated but it should be emphasized again that certain experience is believed to increase the perceived value as the individual will have higher expectations on succeeding with the exploitation (Shane, 2003). This section will thus focus on the psychological factors influencing the exploitation phase of the entrepreneurial process. However, the entrepreneur must also consider the industry context in order to evaluate the opportunity's value with greater accuracy. Hence, factors associated with the industry context will also be covered in relation to opportunity exploitation.

### **3.2.3.1 Psychological characteristics**

Characteristics associated with people's personalities and the way they perceive themselves are believed to affect the exploitation decision as similar experience and access to information make some people pursue the opportunity and others decline it. An important point to add here is that these are general characteristics increasing the possibility for exploitation, but they do not exclude people which cannot be attributed to them (Deakins, 1999; Shane, 2003).

One personality and motivation factor making entrepreneurial activity more likely is extraversion (Shane, 2003). Extrovert people can be attributed as assertive, social, and competent at getting their message out (Wickham, 2001). These attributes are believed to be valuable for an entrepreneur as they, under uncertainty, have to be able to persuade stakeholders about the opportunity's value. Moreover, enthusiasm must be generated in order to get support and extrovert people can be argued to be successful at it (Shane, 2003). Bhidé (2000) adds that extrovert people often are able to put themselves in the customers' perspective and thus enhance the understanding about how to satisfy these better. In addition, high levels of extraversion can also lead to reduced perceived uncertainty for the stakeholders, resulting in easier access to resources.

Need for achievement is another characteristic increasing the possibility for someone to exploit an entrepreneurial opportunity (Shane, 2003). This motivation concept suggests that people with high need for achievement strive for activities which demand personal responsibility for results, take individual skills to succeed, and provide direct feedback. Exploiting opportunities is attractive for people with this achievement need as it is a challenging task and it needs certain drive to take an idea to the market (Stevenson & Sahlman, 1990).

Wickham (2001) suggests that people exploiting perceived opportunities can be regarded as more tolerant of risk. According to Shane (2003), risk bearing is fundamental to entrepreneurial activity; hence, risk averse people will most likely not engage in opportunity exploitation. This is evidently a significant personality characteristic as it singles out risk takers as people who will pursue entrepreneurial opportunities.

Internal locus of control is a psychological factor focusing on how an individual perceives himself in relation to its environment. More specifically, internal locus of control is a person's belief that he or she can dictate the environment he or she is interacting in. As a result, these people are assertive enough to evaluate their abilities to be sufficient for successful opportunity exploitation. It can

further be claimed to be related to extraversion as it is an important factor in order to influence the environment about the opportunity's value (Shane, 2003).

A person believing in his or her ability to perform a task is referred to as having a high degree of self efficacy. People with high self efficacy will be more likely to pursue an opportunity than those who do not believe in their ability. This is an important concept in the sense that entrepreneurs must trust their own abilities and perceived belief of the new solution's value in order to evaluate it as worthwhile to exploit (Shane, 2003; Wickham, 2001).

As individuals and teams on the verge of pursuing an opportunity will face great uncertainty it is believed that intuition becomes important (Shane, 2003). Schumpeter (1934) even argued that intuition, i.e. the feeling that something is correct without information to back it up, would be better than analytical decision-making when pursuing an opportunity. However, as noted above, the author focused on innovative opportunities and formal analysis might be valid for opportunities related in established settings. On the other hand, Shane (2003) claims intuition to facilitate entrepreneurial activity as it deals better with uncertainty than formal analysis which instead could increase it (Brunsson, 2000).

### **3.2.3.2 The industry context**

The industry context influences the opportunity's perceived value as certain industry characteristics can encourage or hinder opportunity exploitation. The entrepreneur will therefore consider factors such as knowledge, market, and appropriability conditions in order to find out whether the opportunity is attractive to pursue or not (Shane, 2003).

Knowledge conditions in an industry determine how people can collect information about e.g. industry specific processes and important relationships between customers and suppliers. For example, the mentioned processes can be built on tacit knowledge which could deter those without experience of them as they will find it more difficult to add value sufficiently (Dollinger, 1999; Shane, 2003). In contrast, a knowledge condition that encourages new entry is when innovations are created by public institutions or when developments in technology spill over from private companies. This is an illustration of an industry's locus of innovation and regards whether innovation takes place within the industry's value chain or not. In other words, technology creation without any clear spill over effects will make opportunity exploitation less attractive for an outsider (Shane, 2003). According to Muzyka (1997), the size of the innovative firms is also an important knowledge condition as industries where innovations predominantly are small will result in more

people exploiting perceived opportunities. One reason for this is that the capital requirement in this setting is less demanding than if large firms are the innovators. Another reason is that competition becomes based on flexibility and responsiveness in this setting and a small organization is regarded to be better in such a situation (Drucker, 1985).

Market conditions are related to demand, and changes in demand affect the size of the market as well as they trigger changes in market growth and segmentation (Shane, 2003). The author further claims that the larger the size of a market and growth in an industry, the more likely it is to generate more opportunities. Moreover, in a growing market it is possible to find space for new means-end frameworks and thus attract customers from established firms and processes (Longenecker, Moore & Petty, 1997; Shane 2003). However, industries with clearly segmented markets are perhaps the most attractive for an individual entrepreneur or firm to pursue an opportunity in (Wickham, 2001). Exploitation of opportunities in niches offers the entrepreneurs a foundation for their businesses without the need for scale economies or large capital requirements. Conversely, small scale can be essential in order to satisfy the niche and make quick adjustments to fast changes (Longenecker et al., 1997).

Appropriability conditions are regarded to have significant influence on the decision to exploit as they determine the possibility to retain the created returns (Shane, 2003). An industry's appropriability conditions are mainly affected by the power of patents. Other types of appropriability such as learning curves and complementary assets are not of equal importance in the exploitation phase as they are reliant on capabilities which take time and experience to create. Complementary assets, i.e. skills in e.g. marketing, manufacturing or distribution, are thus essential as the firm matures. Hence, in industries where these skills are a must to compete, it will be difficult to exploit an innovation successfully as others might have capabilities to capture the created value faster than the new venture (Longenecker et al., 1997; Shane, 2003).

However, this can be counteracted in settings where strengths of patents are strong. The reason is that the recombination of resources presented by the entrepreneur is protected against imitation by companies with superior complementary assets (Shane, 2003). An entrepreneurial opportunity can thus be pursued with the necessary early protection while developing the other skills needed for appropriation in the long term (Wickham, 2001). Moreover, the power of patents is also beneficial for the entrepreneur when it comes to resource acquisition. Being able to show that an entrepreneurial opportunity's returns are protected will signal value to potential stakeholders in the new firm's value chain (Smith & Smith, 2000). Nevertheless, patents can be ineffective in fast

changing industries where technology switches quickly. This can make patents obsolete or relatively easy to by-pass with further adjustments to the innovation. Thus the entrepreneur must consider the strength of a patent in a specific setting in order to evaluate the possibility to retain the value created by a potential exploitation (Longenecker et al., 1997).

### **3.2.4 Execution**

The final phase of the entrepreneurial process is to support and strengthen the exploitation of an entrepreneurial opportunity. This is done by obtaining resources, developing a strategy for value retention and development, and designing an organization which can underpin the launch of a new means-end framework (Shane, 2003). Consequently, these factors will be covered in this section.

#### **3.2.4.1 Obtaining resources**

The entrepreneur must acquire the necessary resources in order to be able to offer the new solution on the market. Access to resources, or at least a belief that there will be access to them, is needed from the moment the opportunity is discovered. However, the expenses are often smaller at the first steps of the entrepreneurial process, apart from when research and development is necessary, and when it comes to the execution step the need is usually dramatically higher for obtaining resources (Smith & Smith, 2000). Wickham (2001) identifies three types of resources needed to pursue an entrepreneurial opportunity successfully; financial, human, and operating resources.

The recombination of resources in an innovative way constitutes the value of an entrepreneurial opportunity, but it will be extremely difficult to achieve without some form of financing (Shane, 2003; Smith & Smith, 2000). Financing can be regarded as imperative to obtain in order to handle the cash flow restraints associated with the initial stage of the exploitation (Deakins, 1999; Smith & Smith, 2000). Smith and Smith (2000) add that it takes certain creativity to obtain financing with reasonable terms as the new venture has limited proof of its long term viability and thus is associated with great uncertainty. Therefore, entrepreneurial financing has specific features which deviate from the financing of established processes. One major feature is that investors want to see some tangible evidence on the opportunity's value. This can e.g. be shown by a first sale and feedback by customers or by a strong patent. The investor will most likely also evaluate the entrepreneur's abilities in order to assess the potential for successful exploitation. Another feature is that entrepreneurial financing in a majority of cases is staged instead of committed upfront. As a result, the entrepreneur must reach certain milestones to get to the next stage of financing. However, this is not only a way of the investors to hedge the associated risk. Conversely, the



entrepreneur gets to retain a larger share of the firm while attracting the needed financing as small parts of ownership will cost more in the late stages of financing if a company shows signs of long term success (Bygrave, 1999; Smith & Smith, 2000).

The sources of entrepreneurial financing can be regarded as different to the alternatives available to existing companies. Financial institutions such as banks are often reluctant to loan money to new ventures and will be an expensive alternative even if a collateral is used. However, this could be a valid source for established firms exploiting entrepreneurial opportunities. Except for financial institutions, there are several sources available and two alternatives commonly used are personal resources, i.e. self-financing, or friends' and family's capital (Shane, 2003; Smith & Smith, 2000). These are sufficient means to get the firm running and build the foundation on which outside financing can be sought for. It is also referred to as bootstrapping and could be described as taking an idea to the market with minimal use of own resources (Bhide, 1992). Third party investments in entrepreneurial opportunities are primarily done by business angels and venture capitalists (Smith & Smith, 2000). Business angels seldom participate actively in the firm they are investing in and do instead seek for high potential ideas and entrepreneurs to support these ideas in the early stages of the exploitation. If larger investments and experience of a certain industry are needed, the new venture might be better off by approaching a venture capitalist. These investors usually have some expertise in an industry as well as in helping with the development of promising companies. However, they have shorter time horizons when it comes to harvesting the investment and will therefore often demand to be a part of the active management of the company which might be unattractive for the founders (Smith & Smith, 2000, Wickham, 2001).

Skilled human resources are essential for the execution of an entrepreneurial opportunity (Meakin & Smith, 1997). Compared to financial resources and operating resources, human resources are unique and a basis for the new venture's competitive advantage (Wickham, 2001). However, at the initial stage of the exploitation, there will be limited possibilities to employ people as resources are scarce. As a result, the entrepreneur must be very careful with the team he or she assembles and that the needed skills are present. In a majority of start-ups, the entrepreneur and the possible team will take on a number of tasks and thus the human resources should be multi-skilled (Shane, 2003; Wickham, 2001). However, attracting highly skilled human resources can prove difficult for a new firm in line with the associated uncertainty and people will often demand some sort of ownership deal in order to leave an employment for a newly started and unproven company (Meakin & Smith, 1997).

Together with the other set of resources, operating resources are used to produce and deliver the new solution to the market. They can be regarded as the capacity to offer a certain output to the market. As is the case with human resources, the entrepreneur must be cautious with which operating resources and capacity level he is going to invest in. For these resources it can be beneficial to utilize the entrepreneur's network in order to find possibilities to build some partnerships over certain resources without having to commit significant resources. The latter will ensure that the fixed costs are kept low until the firm has sufficient financial resources to make a sound capacity investment (Dollinger, 1999; Wickham, 2001).

#### **3.2.4.2 Entrepreneurial strategy**

Entrepreneurial strategy is solely concerned with how to gain and retain the entrepreneurial opportunity's inherent value (Shane, 2003). In other words, important aspects of how to develop a sustainable competitive advantage in order to prevent others from appropriating the created value are described in this section.

As soon as the entrepreneur starts exploiting the opportunity, this will be observed by potential competitors. They will study how it can be imitated in order to take part of the new possibility and capture some value (Bull et al., 1995). When the opportunity relies heavily on tacit knowledge, this will serve as a natural barrier which will take some time for the competition to decode. However, when this is not the case, the entrepreneur must create strategic barriers against the competitors' attempts to exploit the opportunity (Shane, 2003). From this discussion it implicitly seems like the strategy can be planned. However, some parts of the strategy are likely to emerge as the opportunity is exploited (Wickham, 2001). Therefore, the strategy can be regarded as an entrepreneurial vision where there is no definite predetermined destination. Rather, clear objectives are developed and guide the firm on the way towards value appropriation. Linking this with Shane (2003) indicates that the entrepreneurial strategy could consist of a vision of how to create scale, control of resources, reputation, legal barriers, and an innovation capability.

Achieving scale quickly with the new means-end framework would give the new firm a strong position on the market. The reason for this is that it would create a low cost structure for the competition to cope with in addition to the knowledge disadvantage (Longenecker et al., 1997). For a new venture it could be advised to have a clear focus on one product or service in order to facilitate the achievement of scale advantages. Furthermore, creating alliances with chosen and trusted partners could aid the objective of scale advantages. The latter is also a viable strategic

component to help speed up the exploitation process by getting access to existing capabilities in return for sharing some of the opportunity's value (Shane, 2003; Wickham, 2001).

By establishing partnerships or long term relationships with suppliers, competitors could get excluded from the access to certain resources. The strategic barrier could thus be achieved by negotiating exclusive contracts with specific partners in order to get an advantage as long as the competitors cannot find a way around it. In practice it is difficult to restrict others from the access to resources, but succeeding with it for a limited time can be enough to build a knowledge and reputation advantage (Dollinger, 1999; Shane, 2003).

Reputation is a strong barrier when a new solution is offered to the market. When an entrepreneur launches an innovative recombination of resources it gives the firm a head start towards the development of a good reputation as well as becoming the customers' preference (Shane, 2003). The reputation will serve the firm well as it signals a certain level of legitimacy and competence which the imitators will lack for the specific offering. In order to build this goodwill it is imperative to deliver what the offer promises. This barrier is hence relying on developing the capabilities needed in order to excel at offering a great product or service. The firm must also be flexible and adaptive enough in the initial stage of the exploitation to react to the feedback given from the first sales. This is fundamental for the achievement of satisfied customers and creation of goodwill (Bull et al., 1995; Shane, 2003).

In line with the discussion on preferable industry conditions above, the entrepreneurial opportunity benefits from being legally protected by a patent. However, the setting must be right for the protection to serve as strategic barrier against competition. Consequently, the patent must be well written and founded on a solid technological invention which makes it difficult to imitate without trespassing the proprietary rights (Kuratko & Hodgetts, 1998). The vision associated with this barrier is to ensure some time in order to develop the other barriers (Shane, 2003).

The patent discussion has shown that the entrepreneur cannot expect that the competitors will be deterred in the long term. As there is the possibility for them to appropriate some of the created value if they find a way to by-pass the protection, they will obviously work hard to catch up with the leading company. Thus, the strategic answer for the original exploiter is to continually develop the product or method. One strategic vision could then be to develop an innovation capability which could help the company to continue with the opportunity exploitation (Shane, 2003; Wickham, 2001).

### **3.2.4.3 Organizing the new venture**

In relation to obtaining resources and developing a strategy, an organization must be established in order to exploit the opportunity (Venkataraman, 1997). Shane (2003) adds that organizing is a dynamic process which incorporates the establishment of a legal entity, attracting human resources, and the creation of an organization structure as well as production processes. Gartner (1988) suggest the organizing of a new venture to be a central part of the entrepreneurial process as it captures the intentions and behaviours of the entrepreneurs.

Founding a legal entity is essential for the entrepreneur as it legitimizes the new venture and establishes property rights for the pursuit of an entrepreneurial opportunity (Deakins, 1999; Shane, 2003). Basically, there are three types of legal entities to choose from and these are a sole proprietorship, a partnership, and a corporation. The first two types make the owners liable for the venture's actions while the latter is associated with limited liability. Therefore, a corporation is considered to encourage entrepreneurial activity as the entrepreneur's liability can be limited to the invested amount (Wickham, 2001). According to Shane (2003), the choice of corporation as the legal entity will have positive impact on performance compared to the other forms of legal entities. A suggested reason for this is that entrepreneurs who choose the corporation as a legal entity are more focused on growth and achieving the vision than those who found businesses using the other types of entities (Shane, 2003).

The attraction and organizing of human resources is dependent on the effort needed to reach the market successfully (Wickham, 2001). In relation to the effort needed, it is hence important to determine whether to initially pursue the opportunity alone or to assemble a team. Generally, exploiting an opportunity in a team rather than alone has several advantages. For instance, a team gathers complementary knowledge and different areas of experience. The collective ability to process available information is also beneficial for the exploitation. However, the size of the team is naturally relying on the financial capability to employ the wanted number (Shane, 2003). Aldrich (1999) claims that entrepreneurs often utilize their networks to find suitable team members. This gives the entrepreneur the possibility to hire his or her close social contacts or from recommended indirect contacts (Shane, 2003). The first option is most common as new venture's lack the legitimacy and generally the ability to offer competitive compensation in order to be able to attract skilled people outside the entrepreneur's close contacts. In addition, the latter have better insights in the entrepreneur's ability to succeed with the venture which put them in a better situation to decide whether to join the team or not (Shane, 2003).

The third area of new venture organizing is the creation of organization structure and production processes. This is fundamental for the capability to achieve the recombination of resources in line with the discovered opportunity (Venkataraman, 1997). Therefore, certain organization policies and processes must be developed in order to support the wanted patterns of actions. When it comes to policies, such as how decisions should be taken and activities be reported and documented, they will go from informal to formal with time and be highly influenced by the entrepreneur's earlier experiences. Shane (2003) suggests that this is the case as the entrepreneur must be able to manage and make decisions with the available information which becomes impossible at a certain size with informal policies. Therefore, the policies can be seen as delegation mechanisms (Wickham, 2001). Moreover, communication mechanisms are important to develop in order to generate a shared perception internally and externally on what the opportunity offers the market. A shared perception internally facilitates the coordination of production of new products and services and gives the organisation's members an understanding of the venture's strategy and the values underpinning the emerging culture (Shane, 2003; Wickham, 2001). The external communication can enhance the ties with important stakeholders. This is evidently important for the new venture as it needs others to understand what the opportunity can offer for it to be successful on the market (Shane, 2003).

### **3.2.5 Uncertainty and information asymmetry's impact**

According to Brunsson (2000), uncertainty can be defined as lack of confidence in the existing information about the future. Sarasvathy et al. (2002) add that uncertainty can be distinguished in situations where the distribution can be estimated and situations where the future is unknowable. The latter is referred to as true uncertainty and is also associated with the situation of entrepreneurs pursuing entrepreneurial opportunities (Sarasvathy et al., 2002). Consequently, when referring to uncertainty in entrepreneurship, it means situations characterized by new settings in line with the possibility to create new means-end frameworks.

Information asymmetry is a situation where information is unevenly distributed which puts the one possessing information in a more advantageous position (Shane, 2003). This can have great effects on perceived value of an entrepreneurial opportunity. These two concepts can have significant impact on the entrepreneurial process and this will be elaborated on in this section.

#### **3.2.5.1 Uncertainty**

A major implication of the uncertainty inherent in the entrepreneurial process is that it makes it very difficult to evaluate the true potential of the entrepreneurial opportunity (Shane, 2003). This is

true for both the entrepreneur and the potential stakeholders, but it could specifically constrain the pursuit of an entrepreneurial opportunity in the later stages of the process. In other words, the person who has discovered an opportunity to recombine resources in a more valuable way could be discouraged by the fact that significant personal commitment, gathering of resources, the development of a strategy, and organizing must take place before accurate information about the market impact is known (Shane, 2003; Wickham, 2001). The response for people not fond of encountering this uncertainty is often that they start to plan for the potential exploitation. Harper (1996 in Shane, 2003) suggest that planning can be beneficial for the entrepreneurial process as it challenges the entrepreneur to make assumptions and hypotheses about e.g. market demand, resource needs, and organizing to handle growth. Planning can if adhering to this line of thought be considered to open the eyes of the entrepreneur and facilitate the creation of strategic objectives. Conversely, Brunsson (2000) argues that planning can make a process even more uncertain as considering several factors increases complexity. Uncertainty thus creates a paradoxical situation as planning is perceived to be legitimate and a good communication tool for the entrepreneur, but could also serve to discourage the pursuit of an entrepreneurial opportunity (Brunsson, 2000).

Moreover, uncertainty influences the possibility to obtain resources such as financing and skilled workers (Shane, 2003). Regarding the financing issue, the entrepreneur will have bargaining disadvantages as the investor can make its offer based on negative scenarios which are difficult to argue against as the true value cannot be known. Additionally, this enhances the vulnerable position of the entrepreneur when assembling financial resources. The reason is the financing's essential role in the exploitation and could lead to the entrepreneur accepting a contract with unfavourable terms just to be able to pursue the discovered opportunity (Smith & Smith, 2000). When it comes to human resources it was, as noted above, evident that the entrepreneur in a majority of cases will have to rely on his direct contacts as skilled people outside the network will be unwilling to join a venture with an uncertain future (Shane, 2003).

#### **3.2.5.2 Information asymmetry**

The entrepreneur's information advantage is what underpins the possibility to profit from the entrepreneurial opportunity, and thus he or she wants the information to be unavailable to others (Shane, 2003). Disclosing this information could allow others with greater resources to exploit it without the entrepreneur. Moreover, disclosure signals the potential for profit to others which could increase the price of the required resources and at the same time decrease the entrepreneurial profit. Therefore, the entrepreneur will not be willing to disclose all information when exploiting an entrepreneurial opportunity (Smith & Smith, 2000). However, as presented

above, there is a must to disclose some information in order to obtain e.g. financing and to apply for a patent. There is thus a disclosure problem caused by the information asymmetry which will have to be dealt with in order to manage the entrepreneurial process successfully (Shane, 2003). This is linked to uncertainty as the entrepreneur can counteract this problem by, for example, quickly establishing a position on the market or by negotiating e.g. licensing contracts with major stakeholders. This discloses information, but with the possibility of fast market impact in order to create a first-mover advantage (Wickham, 2001).

Opportunism is another problem related to information asymmetry and which also influences the entrepreneurial process (Shane, 2003). To act opportunistically means that a person can take advantage of others lack of information. For instance, it is not possible for resource providers in the entrepreneurial process to fully know the commitment and the abilities of the entrepreneur. The providers are usually aware of this which could mean that the entrepreneur must work even harder in order to convince others about a genuine interest in pursuing the opportunity (Deakins, 1999). This problem is especially apparent in the obtaining of resources. The awareness of opportunism will influence the entrepreneur's pursuit as he or she will have to pay a premium for the obtained resources. According to Smith and Smith (2000), this problem could be most obvious when it comes to financing as investors will demand a high interest rate in the form of a certain ownership stake and clear exit possibilities.

### **3.3 Decision-making**

This part of our thesis aims to give the reader an insight into the world of decision-making. We start with a more general description of rational and irrational decision-making, then discuss entrepreneurial decision-making more specifically, and conclusively take a closer look at the opposing choice paradigms of causation and effectuation. Deliberately, we have not chosen to discuss organizational decision-making even though the studied phenomenon first appeared and still develops within an existing organization. This is due to the delimited nature of the phenomenon and the fact that it only occurs in relation with the two entrepreneurs and not with the organization itself. Therefore, we have decided to tackle this phenomenon with the individual decision-making theory applied by Sarasvathy in her studies.

#### **3.3.1 Decision-making in general**

People make decisions in all kinds of situations in their every-day life. Rational choices have always been accepted as the one and only way of making decisions, since researchers have expected

people to act in a rational way when it comes to important decisions that affect their future. Rational decision-making is based on the fact that the individual has a certain problem that has to be solved while at the same time he or she also has clear preferences and goals that have to be attended to (Brunsson, 2000). After an accurate collection of all the possible alternatives and information about their consequences, the individual compares his preferences with the consequences of the different alternatives in order to make a decision that leads to action (Brunsson & Jönsson, 1979). But nowadays many researchers agree that people cannot be expected to make rational choices all the time, at least not as rational as described above. In fact, researchers have come to the conclusion that people tend to be more and more irrational when making decisions, especially when they are supposed to make choices in groups (Janis, 1971) or under pressure (Staw & Ross, 1987). But even on the individual level an increased occurrence of irrationality is to be found in studies of individual decision-making. People tend to ignore relevant information in order to make choices based on irrelevant information (Brunsson, 2000). Furthermore, people rather use easy accessible information as a base for their decisions (Brunsson, 2000). As Janis (1971) points out, human beings are more inclined to act irrational when they are supposed to make decisions in groups, especially because of the group pressure prevailing. This is in line with what Staw & Ross (1987) present in their article on how individuals act in escalation situations. The worse a situation gets considering the individual's reputation that could be harmed; the more inclined people are to make choices on an irrational basis. Staw & Ross (1987) explain the individual's actions with different groups of determinants that affect the individual's activity throughout the course of the escalation cycle. Obviously, the escalation cycle is a pattern that will occur to many entrepreneurs as they try to explore an innovation in order to bring it to the market. In their garbage can model of organizational choice, Cohen, March, and Olsen (1972) explain how difficult it is for an organization to make choices when the preferences are problematic, the technology is unclear, and the participation of its members is fluid. Even though these theories are formulated for decision-making in organizations, they have consequences for individual decision-making to the extent that every individual is part of an organization or at least affected by the actions of organizations.

### **3.3.2 Entrepreneurial decision-making**

Shane (2003) argues that entrepreneurial decision-making involves non-optimizing decision-making through the formation of new means-ends frameworks. The entrepreneurial decision-making being non-optimizing is in line with research pointing out that individuals more often make choices based on irrational decisions. According to Shane (2003), entrepreneurial decision-making is non-optimizing for three reasons. First, in order to optimize one's decisions, future outcomes and



information about future behavior and markets need to be known. However, this is seldom the case in the markets of today and therefore entrepreneurs need to make decisions about future actions and situations based on insufficient data and their own judgment. In line with this, Wickham (2001) argues that entrepreneurs have to make numerous decisions such as identifying, analysing, and resolving in order to become aware of the knowledge they possess, the knowledge they need, and the learning they must undertake. Second, even if the necessary information for future actions was accessible, entrepreneurs would have trouble using it in an effective way since they would still have to overcome information problems (Shane, 2003). Third, in order to make entrepreneurial decisions, entrepreneurs must interpret and make decisions about the information the market supplies in a different way than the other actors active in the same market (Shane, 2003). If all the actors in the market would be able to interpret and explore an opportunity in exactly the same way, then everybody would end up with the same conclusion and result and none of the entrepreneurs would gain any profit.

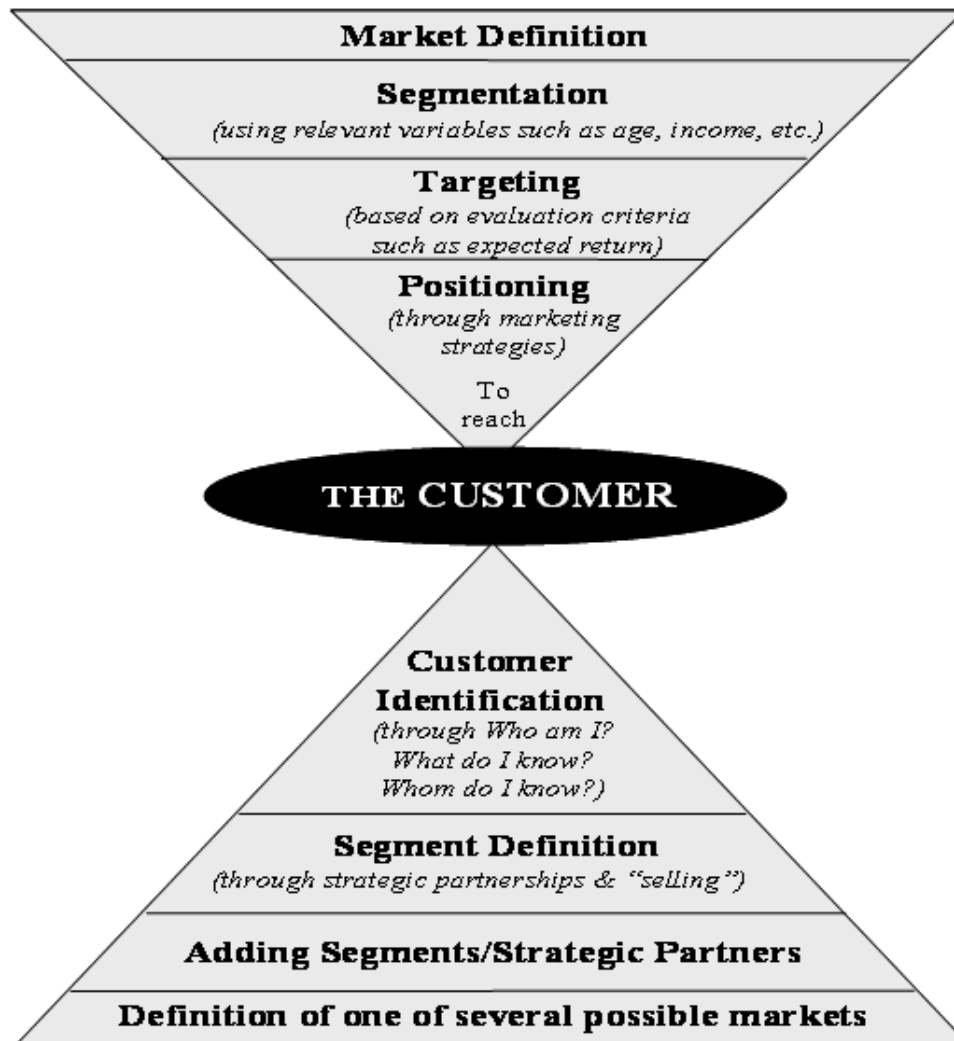
Shane (2003) argues that people develop different beliefs about the information they receive from the market. In other words, they develop new means-ends frameworks, i.e. the way they think about the relationship between their actions and the following outcomes. An entrepreneur's belief that he can come up with a new way of generating profit is central to making entrepreneurial decisions (Shane, 2003). This new way of generating profit through the creation of new means-end frameworks involves judgmental decision-making (Shane, 2003). This is in line with the fact that an entrepreneur must believe in what he is doing and that his efforts will pay off in the end. Furthermore, entrepreneurial decision-making involves creativity to the extent that the entrepreneur has to create a new framework and sometimes even a new market for his idea, mainly basing his decisions on uncertain future events (Shane, 2003). Creativity is also part of Wickham's (2001) active learning cycle when it comes to the modification of the framework for thinking. This framework is important since it is used as a framework for the future decisions an entrepreneur wants to make.

### **3.3.3 Causation vs effectuation**

Effectuation underlies human behavior and accordingly also human decision-making (Dew & Sarasvathy, 2001). As will be elaborated on below, the effectuation approach sees future uncertainty as controlled by a continuous and renewed change of goals and assumptions (Helmersson & Mattsson, 2003). We will now present two ways of decision-making and by that explore the terms causation and effectuation as they are used by Sarasvathy in her studies in order to display the rational choice process (causation) and the distinct form of rationality called

effectuation. The main characteristics of the two decision-making perspectives are summarized in figure 3 below.

### Classic Causation Model from Marketing Textbooks



### Process of Effectuation Used by Expert Entrepreneurs

Figure 3 - A model of causation and effectuation (Dew & Sarasvathy, 2001; p. 34)

#### 3.3.3.1 Causation

The model of causation is mainly used in marketing and implies that future uncertainty is managed by plans and forecasts (Helmersson & Mattsson, 2003). In the causation type of behavior, the entrepreneur often starts off with a given set of means, a pre-determined goal, and a market defined as a universe of all possible customers (Sarasvathy, 2003). This universe is then narrowed down to relevant segments based on thorough market research, followed by the choice of a target segment after an analysis of possible returns and risks for each segment. This process is

characterized by accurate market research, detailed information search, strategic market planning, segmentation, identification, tracking methods, benchmarking, positioning, and rational decision-making (Best, 2005). This strategic market planning process can be viewed as a very rational process since all possible information is gathered and analyzed in order to make the best rational decision while at the same time eliminating all uncertainty factors (Best, 2005). Furthermore, marketing strategies are designed in order to address the target market indicating that there already is a picture of a future target market embedded in the entrepreneur's goals and preferences. In causal reasoning, the wide selection of alternatives that the entrepreneur starts with is often narrowed down to just the best, most economical, and most efficient way of achieving the pre-determined goal. In other words, one is looking for the optimal alternative to achieve a given goal (Sarasvathy, 2001). While looking for the optimal alternative, entrepreneurs employ the classic rational decision-making model in order to avoid uncertainty. For a start, they experience a certain problem that needs to be fixed while at the same time they have their own clear preferences and goals of how this problem has to be solved. They start gathering all the possible alternative solutions for the problem and back up each alternative with the needed information and consequences (Brunsson, 2000). When the entrepreneurs have compared the preferences and consequences of the different alternatives, they make rational choices which in the end lead to actions. Therefore, the causation approach finds decision-making without any clearly specified and predetermined goals to be a psychologically uncomfortable activity (Dew & Sarasvathy, 2001).

### **3.3.3.2 Effectuation**

On the other hand, the theory of effectuation suggests ways to make effective decisions when markets are non-existent or not-yet-existent (Dew & Sarasvathy, 2001). Effectuation is not a process of choosing among given alternatives, but rather of generating these alternatives themselves (Sarasvathy, 2003). In other words, the entrepreneur has a general idea of what he thinks might lead to a product that could be marketed profitably, but does not have a specific goal to start with. Instead, the entrepreneur begins with a given set of means and the goals will emerge over time depending on the imagination and aspirations of the founders and the people they interact with (Sarasvathy, 2001). In effectual processes, entrepreneurs try to expand the narrow choice set they are given to a more and more complex constellation in order to reach the potential customers. The same entrepreneur can use both effectual and causal reasoning at different times depending on the circumstances this person faces in different situations. Skilled entrepreneurs are able to use both approaches, but prefer effectual reasoning in early stages of a new venture (Sarasvathy, 2001) since it allows them to act more spontaneously. Effectual reasoning is considered to be inherently creative because it demands imagination, spontaneity, risk-taking, and also salesmanship from the

entrepreneur. In other words, a future market is not taken for granted; rather, it has to be created in order to gain the benefits from it (Helmersson & Mattsson, 2003). Entrepreneurs that try to commercialize a radical new technology cannot rely on predictions about potential demand, since the potential market does not yet exist (Sarasvathy, 2001). In other words, when markets are absent, predictions are useless (Dew & Sarasvathy, 2001).

#### *The process*

In the effectual approach, all entrepreneurs begin with three categories of means. First, *who they are*, i.e. their traits, tastes, and abilities; second, *what they know*, i.e. their education, training, expertise, and experience; third, *whom they know*, i.e. their social and professional networks (Sarasvathy, 2001). Given only this, the entrepreneur is forced to begin acting on a small scale, working restlessly trying to exploit his limited resources. While searching for sources of funds to get started and generating plans to create an adequate market, the entrepreneur is continuously modifying his plans through the knowledge gained along the way (Dew & Sarasvathy, 2001). Through these actions that are carried out relatively fast compared to a more strategic approach, the entrepreneur constantly revises and reconfigures his plans all the time. Eventually, initially very unclear effects develop into goals.

#### *The principles*

Effectual reasoning has three principles that are the direct inversions of their counterparts in causal reasoning. In the effectual approach, entrepreneurs talk about affordable loss rather than expected returns, partners rather than competitive analyses, and leveraging contingencies rather than avoiding them (Sarasvathy, 2003). First, there is the affordable loss principle that describes the entrepreneur's effort when trying to reach the market with a minimum of expenditures when it comes to resources such as time, effort, and money. Entrepreneurs apply a just-do-it style when trying to reach their yet unknown target market instead of trying to plan every single step ahead as in causal reasoning. As Sarasvathy (2001) put it, they are working by the zero resources to market principle. This is done by looking for customers in their own close vicinity in order to explore any possible market. They do not limit themselves to any market or even which new markets they will end up creating. By looking for customers and partners in their immediate surroundings, risk is reduced since possible failure and damage can be controlled locally (Sarasvathy, 2003). Second, there is the strategic partnership principle describing the entrepreneurs focus on building partnerships rather than on doing competitive analyses of their surroundings and possible markets. Entrepreneurs start their venturing process without assuming the existence of any market for their idea so competitive analyses would not really be of any use (Sarasvathy, 2001). Instead they focus on building partnerships right from the start by inducting customers into strategic partnerships. This

works well with the affordable loss principle in how to bring an idea to the market at really low costs. Also, creating partnerships at an early stage of the venture reduces uncertainty because partnerships give the entrepreneur more resources, increased flexibility, and most importantly they move the entire financial risk of the venture onto the stakeholders (Dew & Sarasvathy, 2001). Furthermore at these early stages of the venture, entrepreneurs are not bound to any particular market and the network of partnerships they manage to accumulate determines where their ideas will end up. Third, there is the leveraging contingencies principle explaining the entrepreneur's ability to turn the unexpected into the profitable. Sarasvathy (2001) mentions that great entrepreneurial firms are products of contingencies and that the way these contingencies are directed and combined by the entrepreneur are crucial for the form of effectual reasoning models. Furthermore, in effectual reasoning, surprises can be used as inputs in the creation of a venture, while in causal reasoning surprises are to be avoided at all times. These three principles that effectuation bases itself on make uncertainty more of a friend, a resource, a process, and an asset that the entrepreneur can use when exploring an opportunity in order to create his own future (Sarasvathy, 2003).

#### *The logic*

The logic of prediction in causal reasoning can be summarized by 'to the extent that we can predict the future, we can control it', while the logic of control in effectual reasoning can be summarized by 'to the extent that we can control the future, we do not need to predict it' (Sarasvathy, 2001). Considering that the future always is uncertain, there is certainly a risk involved when exploring a venture. But by simply acting as if the future does not exist, entrepreneurs can avoid this risk to a large extent and instead discover and create the future themselves over time. Effectuation is not only about adapting a new venture or firm to its environment; it also involves re-shaping existing parts of the environment and creating new parts for the environment to align with its own structure (Dew & Sarasvathy, 2001). In other words, in the effectual approach, entrepreneurs believe the future gets created through the strategies of the players involved. Because of this, entrepreneurs do not want to act in predictable markets since competition following causal reasoning would outwit them by simply predicting the market better due to the research they undertake. Therefore, entrepreneurs rather like to be active in unpredictable markets where they can shape and create the future through their decision-making, the actions they carry out, and the partnerships they engage in. Furthermore, effectual reasoning is people dependent since it is built up on long-term human relationships (Sarasvathy, 2001). It is therefore of great importance to find and lead the right people in order to create an enduring venture based on person-centered collaborations with others (Helmersson & Mattsson, 2003).

Effectual reasoning may not increase the probability of success of a new enterprise, but it reduces the costs of failure by enabling the failure to occur earlier and at lower levels of investment (Sarasvathy, 2001). Furthermore, entrepreneurs are entrepreneurial because they think effectually and believe that a kind of yet-to-be-made future can be shaped by human actions and decisions. Conclusively, since the future is shaped by human actions, it is not much use trying to predict it.

## 4 Empirical findings

*In this section, we present the results from the interviews with the studied entrepreneurs carried out in order to capture their backgrounds, personalities, and foremost their perceptions on the process of taking the multi component method to the market.*

### 4.1 The making of two entrepreneurs

The first part of the empirical findings covers the entrepreneurs' backgrounds, how they started their firm JTC and how they perceive their external environment.

#### 4.1.1 The entrepreneurs' backgrounds and personality characteristics

Even though the studied entrepreneurs Ulf Olson and Tomi Yrjölä have been active in the same industries during their careers, the ways how they reached their positions differ to a certain extent. Ulf entered the business world with a degree in mechanical engineering and started out as a product developer with a family owned manufacturer, Holmberg's Business Group (HBG), specializing in sheet metal components for the automotive industry. From there the responsibility increased and during his 18 years at the company the technical focus changed to roles such as sales manager and market director for a branch of the Kendrion Group which acquired HBG at the end of the last century. These years he believes gave him a good understanding of especially the market for subcontractors in the automotive industry as well as how to approach the different actors in the value chain in order to increase the chances of success with projects.

*"The automotive industry is highly competitive, but having worked with this for a relatively long period gives a certain level of assertiveness about the ability to find ways of exceeding the customers' expectations (Ulf Olson, 2007-05-16)."*

In line with this, Tomi assesses Ulf to be strong when it comes to spotting market opportunities in the die manufacturing industry, or perhaps more specifically to see possibilities and find ways to offer added services which appeal to industrial manufacturers. From the years at managerial positions, Tomi claims that Ulf has several strong connections to important decision-makers in large companies which have given them some unique possibilities to join projects which had been impossible to approach as a "regular" die manufacturing company.

*“As a direct result of Ulf’s relations with especially large first tier suppliers we have been invited to join projects such as designing components for Autoliv (Tomi Yrjölä, 2007-05-16).”*

A personality trait that is especially valued by Tomi is the calmness with which Ulf takes on seemingly tough situations, and where many others would see problems instead of opportunities. Moreover, Ulf is argued to be an asset when it comes to communicating the value of improvements and new services to their customers. Nevertheless, Tomi indicates that Ulf’s diplomatic stance and willingness to keep everyone happy can work against them in projects with several companies involved. Admittedly, it helps to build strong customer relationships in most cases, but it can also lead to some partners getting more than their effort deserved.

*“I guess I have always been curious about how technologies actually work and I have learnt by testing and experimenting. As a result of this practical background, I strongly believe the way I approach a problem is different than many with formal training and less experience (Tomi Yrjölä, 2007-05-16).”*

On the contrary to Ulf, Tomi had less formal training but had experience from learning by doing prior to taking the same initial job function at HBG as Ulf had done a couple of years before him. This experience had been gathered at a similar company where he had gained practical insights in operational problems and how improvements can be made. From the product developer position, Tomi specialized in the optimization of the company’s production processes as well as industrial dies. This deepened his knowledge of specific problems and improvement possibilities associated with manufacturing. Furthermore, the new experience gained from the area of industrial dies could be combined with product development in order to see how a component could be produced more efficiently.

Ulf regards Tomi to have several advantageous characteristics when it comes to entrepreneurial activities. Since they got to know each other, he has always shown a great need to prove himself and as a result constantly looks for improvement possibilities. Moreover, Ulf finds his colleague to have a fantastic ability to see further than others in problem solving. Where many other sharp individuals he has encountered stop after the sought improvement has been reached, Tomi will ask what the effects are if further actions are taken and then go on to test the additional ideas.



*“Tomi’s creativity has been instrumental for the discovery and development of the multi component method, without the out of the box thinking he possesses it would have been difficult to make this breakthrough (Ulf Olson, 2007-05-02).”*

Furthermore, Tomi is suggested to be a good communicator and to give an assertive impression which can help to convince customers about certain services’ value. However, Tomi can tend to be overly optimistic about some opportunities, but Ulf adds that many technicians have this personality trait. In addition, Ulf thinks that this comes with Tomi’s innovative capability and the latter characteristic he values highly.

*“As a team I honestly see us as a great match and there are areas where we complement each other perfectly such as his focus on creativity with my focus on business development. In other words, we get both an internal and an external orientation by working together which should benefit the company and our customers (Ulf Olson, 2007-05-16).”*

Tomi adds that Ulf’s leadership and more administrative responsibilities make it possible to balance his strive for finding new solutions with finding ways to offer them to the market. Moreover, Tomi believes that the fact that they have certain characteristics which are relatively different have made the team stronger and more all-round. However, both acknowledge that their team could be even stronger as they do not cover all the needed knowledge. For example, Ulf notes that they tend to treat economic issues such as cash flows and investments without any greater depth and the reason is simply that they never worked with it and frankly find other areas more fun to work with.

#### **4.1.2 Joining forces and laying the foundations for the multi component method**

As mentioned above, the company both worked for was acquired by the industrial group Kendrion, which in turn is a part of the major player Schuttersveld. This substantially changed the business climate at HBG. In line with Kendrion’s principles, everything became more formalized and both Ulf and Tomi specifically point out the decision-making which became extremely slow.

*“[...] after having identified an opportunity it could take six months to get a green light from the company parent, but by then much of the opportunity was gone which was frustrating (Ulf Olson, 2007-05-16).”*

Although having had differing responsibilities, they had kept close contact and worked together in certain projects where they aired their mutual frustration with the increasing bureaucracy. From this point, which is 1999, they started discussing opportunities where they could act independently again and develop solutions in line with the demand that according to their experience existed for certain products and services regarding subcontractors to the automotive industry.

However, it was not an industrial manufacturing company which became the arena for fulfilling the feeling that they were ready for a new challenge. Instead, it came to their attention that the owner of one of the die suppliers to HBG wanted to sell his company. The company, Jano, had nine employees and yearly revenues of eight million SEK. In relation to these facts, the entrepreneurs did see substantial improvement possibilities in an industry characterized as conservative.

*“The industry had lived in isolation! An example of this was that it was still common practice to use one daily shift and thus only utilize the assets for a maximum of ten hours a day. Another one was that there were hardly any additional services being offered to the manufacturers (Tomi Yrjölä, 2007-05-02).”*

As Ulf and Tomi had been on the other side, working for the buyer of these dies, they knew what they were lacking from these companies and consequently saw the potential of offering additional services and rationalizing the production process. As noted above, Tomi had developed a deeper understanding of industrial dies and together they had complementary experience in business development, product development, and what was needed to optimize the production process for both themselves and their potential customers.

With this and a strong belief in the ability to actually change the industrial die industry, they committed themselves to a leveraged buy-out in the summer 2000 and founded Jano Technical Center (JTC) with the business vision to offer their customers improved competitiveness and efficiency. This would be achieved by becoming a creative partner and to extend the offer to include services such as concept development, prototypes, production optimizing, and post sale service of dies in addition to the actual production and sale of the machine dies.

*“At the time, this vision felt like an entrepreneurial move which would increase the customers’ satisfaction and also allow us to prolong the business with every customer as we were first with this kind of focus (Ulf Olson, 2007-05-16).”*

In order to fulfil this vision, they implemented the evening and night shifts which were standard in the manufacturing industry to increase the asset utilization. The entrepreneurs note that the transformation to become the creative partner did not happen overnight, but took a couple of years due to the investments needed and constrained resources. In addition after completing the vision, they are today 25 employees and have had revenues at close to 30 million SEK. Ulf and Tomi claim that the creative focus and the strive to be a technical centre offering customers a more complete package laid the foundation for the development of the multi component method (henceforth referred to as MCM). Their thoughts on this will be further presented below in relation to the entrepreneurial process of the method.

#### **4.1.3 The external environment and its influence**

When it comes to the perceived environment, the entrepreneurs have identical experiences of its characteristics. At large, the surrounding business climate of the area where JTC is situated is encouraging and beneficial for entrepreneurial initiatives. The company is located in Gislaved, close to the renowned Gnosjö area which has the image of being a cluster of small and innovative companies. This has resulted in an area where the community is very friendly to small business initiatives; there is cooperation among suppliers and customers and there are complete value chains available for efficient flows.

*“[...] but it should be said the cooperation atmosphere is changing from being quite open with favours being given and returned to most companies considering the value for themselves before accepting to cooperate (Ulf Olson, 2007-05-16).”*

Tomi adds that the changing openness to cooperation could be an effect of the fact that competitive pressures have been hitting the region, but it is still possible to find good arrangements where both parties win even though it can take more energy to get them in place. In relation to this, one thing the entrepreneurs have noted is that new product development is extremely rarely carried out through cooperation. This is instead mainly done by individuals in the small companies and in product development departments at the larger firms as in the company Ulf and Tomi spent a large part of their careers in. Ulf suggests that the lack of creative cooperation has to do with many companies being small and fearing that the sharing of secrets could hamper their progress. They conclude that the business environment offers every possibility to exploit opportunities, but the idea generation is up to each and every company in the region.

They still consider the industrial die industry to be somewhat conservative as there are further improvement possibilities. However, the industry to which they are offering their products and services is receptive to improvements and this could be claimed to influence them as well as JTC as this fact increases the awareness of the constant need of finding creative solutions to their customers' problems.

## **4.2 The entrepreneurial process of the multi component method**

In this section, we aim to describe the MCM as it was illustrated by the two entrepreneurs. Furthermore, we will display the entrepreneurial process and how it was experienced by Ulf and Tomi.

### **4.2.1 The multi component method**

*“Well, in short the method is revolutionizing as it makes sheet metal manufacturing significantly cheaper, more resource efficient, and faster for production settings where two or more components need to be assembled (Tomi Yrjölä, 2007-05-02).”*

This is done by a unique approach where the newness is that a specialized die is able to sense the exact positions of the incoming steel into the press, a machine which with a punch cuts and forms a component and simultaneously assembles the individual components into a finished article.

In order to illustrate the major benefits, the entrepreneurs contrast this approach with the two current standards in industrial manufacturing involving steel components. The first is the traditional approach where each component is produced in a separate machine and then assembled by a person to a finished article. The manual assembly at the end of the process makes this type of production labor dependent; when companies have found this approach to be the most appropriate, they have moved the production to low cost countries. Standard number two is the highly industrialized countries' method of reducing the involvement of labor, i.e. an automation approach. The latter is dependent on having the automation fully set up when starting the production and then it is a must to achieve a certain volume in order to become competitive with the manual assembly when low wage labour is utilized. However, many companies are unable to get volume guarantees from their customers which in turn increases the uncertainty associated with the decision to commit resources to an automation setting with its necessary equipment. Ulf explained that the cost of automation equipment in a majority of cases is slightly more costly than

the initial costs incurred by the need for the dies. In other words, the automation approach is associated with at least the double initial cost compared to the setting where manual assembly is used.

The MCM erases the low cost advantage by incorporating the assembly phase in the same step as the production of the individual components. At the same time, it is not associated with the need for extra automation equipment.

*“[...] and the main consequence, which we strongly believe will appeal to the customers, is that the method is more cost effective from the first produced component, i.e. it does not matter if the manufacturer runs small or large batches for the method to offer a better price per detail (Ulf Olson, 2007-05-02).”*

As mentioned, this is possible only due to the breakthrough invention of a specialized die, but also by the fact that standard machines and sheet metal coil feeders can be used, i.e. the same equipment which is used anyway in the other two approaches. The only thing that becomes slightly more costly is the die which has to incorporate the capacity of two or more regular dies. To sum up, the method is the most cost effective sheet metal production method as it removes the assembly step as a separate process as well as the need for additional equipment.

Eliminating the assembly step and lowering the initial cost were the aims of the method as will be covered in greater detail below. However, the entrepreneurs have identified several positive side effects which were not thought of during the development phase. One of them is the potential for substantial savings when it comes to material usage. This is a very important implication as the entrepreneurs argue that material can account for up to 70% of a details total cost. The method allows for the combination of materials of different width and depth and this option offers the manufacturer the opportunity to optimize the incoming flow of materials.

Another side effect is the elimination of the need for stocks and storage areas between steps in the manufacturing process. Ulf revealed that he believes that this is an effect that will appeal to business administrators as his experience is that they often are occupied with optimizing these flows. Furthermore, the set-up time is reduced as only one die and one machine need to be prepared before being able to start the process. Tomi further mentioned that the use of one die instead of many in separate steps obviously makes it more convenient to make small adjustments if they are needed to optimize the detail.

An unpredicted but yet very positive event during the testing of the method was that it was possible to produce at a speed which is double of what was thought to be possible. This insight was made as a result of some experimentation and the test thus by far surpassed the entrepreneurs' expectations. Not only could they produce cheaper, they could do so at a higher tempo than the automation setting which further added to the strength of the MCM.

#### **4.2.2 A lost contract triggers the process with a straightforward discovery**

When asked about what made them discover the potential to produce in line with the MCM, they suggest that a lost contract *for* one of their biggest customers where JTC had been consulted in order to help optimizing the set-up, after the summer 2005 made them realize that something had to be done in order to avoid a similar outcome in the future. The outcome they refer to was as Ulf (2007-05-02) puts it:

*"We knew the customer very well, we knew exactly what the customer had to be able to deliver, we knew the technology, we knew how to optimize the process and the produced components, yet the set-up we developed together was not competitive enough and instead a Baltic company won the order. It sparked fears about how we would be able to compete in the future"*

However, the customer did not react to any greater extent and seemed to accept that it also would have to outsource some of the production to a low wage country in order to survive. Conversely, Ulf and Tomi asked themselves what was the root to the trend of not being able to compete while mastering the technology and knowing the customer well. Their analysis, which included some basic calculations and discussions about the two standard production approaches, pointed to the initial cost and occurrence of the separate assembly phase as the drivers which made the price per detail too high and unable to compete with a low cost set-up. Ulf recalls that what was surprising was that most customers accepted the situation and had plans of surrendering in order to save themselves. Both entrepreneurs claim that this fact was a threat to their own business as they rely on the long term relationships they have developed with these companies.

*"Even though there was an evident threat for us that some customers would outsource their production, the situation also brought a sense of curiosity whether we could find a creative solution to counteract this problem (Tomi Yrjölä, 2007-05-16)."*

It is also at this point in time, i.e. a couple of months after the customer lost the contract, which the entrepreneurs believe that the discovery was made after Tomi got an idea of how the root of the

perceived problem could be solved technically. At this stage, the method is a conceptual idea, or as Ulf claims a sketch of how the assembly phase and automation in combination should work in theory. As they recall the discovery it was foremost Tomi who worked on the conceptualizing, but he also wanted to validate the progress by discussing it with Ulf. After some alterations to the first sketch there was a feeling that this solution would work and that it would be revolutionizing. The latter belief brought an obvious need to proceed with the development as the idea seemed so promising to counterfeit the problem they had identified.

*“I think that the fact that the innovation is based on existing information and technology facilitated the discovery and it definitely made it easier to envision it (Tomi Yrjölä, 2007-05-16).”*

Ulf adds that the existing information was used in a new way and this takes a creative and highly critical perspective on the existing information in order to make the breakthrough. Once again, Tomi's innovative capability is put forward as a reason to why it was discovered as well as they both acknowledge that it does take experience from manufacturing dies, product development, and sheet metal production processes to mix the information in a way that results in such a revolutionary method. The latter claim is followed by the argument that even though the information has been available for everyone in the industry it would be difficult to see the solution without several years of experience in the areas mentioned above. This is emphasized by the fact that they certainly are not the first two who have worked towards a solution offering a production process of two or more details in one production step. However, these attempts have seldom been successful. Consequently, there are few examples of complex processes where two details have been produced together. The obvious disadvantages with these projects have been that the approach has only worked for those specific components and also quality, speed, as well as accuracy have been unsatisfactory for a high volume manufacturing setting.

#### **4.2.3 Developing the multi component method**

Due to the fact that the die used with the method incorporates a couple of new features the entrepreneurs do not want to describe the development of these specific parts of the method as they are confidential. However, the development in general was discussed and the entrepreneurs claim that this phase covered the time period between autumn 2005 to early summer 2006 and the initial focus was as touched upon above quite narrow as it included the aim of being able to produce a complete detail in one step.

Tomi was responsible for the development of the method as he had the vision of how the machine die could actually help to eliminate some initial investment needs and yet become automated as well as including an assembly feature. The die can be seen as the focal point of the method and consequently the development of it was the starting point. This work included extensive work during evenings for two reasons. The first and major reason was as Tomi explained:

*“The regular business of course had to be run as usual which automatically meant that there was little time and room for the development efforts during the day, so there was no choice other than to spend a couple evenings a week with the development (Tomi Yrjölä, 2007-05-16).”*

Another reason was that they decided to keep the concept of MCM secret and hidden from the employees in order to avoid confusion or unrealistic expectations as well as that no information would leak to competitors. This was achieved by claiming that Tomi worked on a special prototype to one of the most important customers, a procedure which had been carried out a couple of times before and thus appeared to be business as usual.

As a result of not focusing solely on the development, Tomi admits that the development of the die could have been done faster. Now it took approximately three months to construct and complete the first tests of the die's features. These tests were done in a press which JTC has for testing the regular dies' performance and with a provisional setting as the aim was to fine tune the features needed to assemble several details in one step. At the same time the temporary set-up made it look like they were just testing the supposed prototype's ability to handle different materials and not the real capability. The results of the first tests were always discussed in order to identify possible implications with changes and fine tuning. This procedure is described as happening at a change for change basis and there was never any planning on how to structure the development of the MCM; rather, it was a process where the identified issues along the way controlled the progress.

*“Obviously, we were a bit uncertain about the outcome of the combination of the method's features and therefore it felt natural to discuss and experiment towards a solution (Ulf Olson, 2007-05-16).”*

When the die and its subsequent tests were completed, the method still needed to be refined and put to the test with a set-up which resembled the visualized process. These tests were made during the next two months and it quickly became clear that the MCM would work. A breakthrough was



when the required pin point accuracy was achieved after some experimenting and at the same time they tried a set-up with standard coil feeders and controllers used in the manufacturing industry with successful result. According to Ulf, this discovery was one of the highlights of the development phase as it increased the added value of the method and enhanced the belief in its inherent potential. As a result, they never really had to approach a specialized solution regarding what they initially thought would be a problem with how to supply the material and this saved them some development costs. It should be noted that these stages of the development still only included Ulf and Tomi, which the entrepreneurs believe allowed for a development atmosphere where the decisions were quickly taken as soon as something felt right.

*“I do not think that a more formal approach would have helped the process. When testing and making small changes you have to go with the gut feeling and prior experience in order to solve the upcoming problems properly and my belief is that a development plan would have constrained the needed creativity (Tomi Yrjölä, 2007-05-16).”*

#### **4.2.4 Applying for a patent**

When it comes to the patent issue and whether to apply or not, the entrepreneurs carefully discussed the pros and cons with disclosing the information. They reasoned that there will be an imitation risk, but saw several advantages with applying for a patent. The first reason was that it would give them an indication of the newness and if there was something similar being developed. Moreover, a patent was believed to add credibility to the upcoming marketing of the method. Another advantage was that it would at least give them some sort of first mover advantage and it would also discourage local competitors to imitate as there would be a good chance that Ulf or Tomi would hear about a patent violation through the local network. They emphasize that they are fully aware of the possibility that some company outside their scope could copy the method. Nevertheless, they find it difficult to monitor this threat, but to their knowledge, there has not been any attempt of trespassing the patent rights.

Furthermore, the Swedish patent application was approved in February 2006 and they have after that sent in a PCT (Patent Cooperation Treaty) application, which could be likened to what many call a world patent as it regards approximately 120 countries. This application has taken more time, but the first indication was the same as for the Swedish patent and they are confident that the application will be granted. When it is approved, Ulf and Tomi must decide which specific countries to include in their patent, and this will cost between 20 000 to 25 000 SEK per country. The PCT

application has been submitted in case of any international exploitation opportunity that could present itself and of course to protect the MCM in a wider geographical area.

*“International expansion plans? No, there are currently no such plans as we believe that there is a lack of the needed knowledge and our organization is not sufficient in size to support an international exploitation (Ulf Olson, 2007-05-16).”*

On the other hand, the entrepreneurs hope that the PCT will add value to the company if there are interested investors for the method in the future.

Before making the innovation public, they contacted a legal expert on patents in order to get a second opinion on how well it was written. He found the patent to be strong, but they are still vary of the fact that a patent dispute with one of the major companies would be impossible due to time and resource limits compared to the hypothetical opponent. In order to avoid such a situation, the legal expert gave the advice to approach two corporate giants simultaneously. The reason is that it gives both of them incitements to use the method according to the agreement as a violation would be met with actions from the major actor who plays by the rules.

The overall impression they have from reflecting about the patent is that it reduced the uncertainty when they were about to make the method official. This uncertainty had been put on them from both internal and external factors. They mentioned that the internal uncertainty in a sense was close to the fear of someone being able to imitate the concept, but the patent has significantly lowered their fears for such a scenario in the short term. According to Tomi, external uncertainty was the perceived worry of the market to react with suspicion of the possibility of really being able to produce in the way they promised. Nevertheless, this was also eased by the patent as it really indicated the newness and as will be described below has helped to increase the interest in the MCM.

#### **4.2.5 Initiating the exploitation**

When it came to the launching of the MCM, Ulf and Tomi had, after completing the MCM in early summer 2006, set their sights on the Subcontractor Fair at Elmia in Jönköping in November 2006. The prototype had thus passed all the tests a couple of months ago and there was no doubt that the method worked. Tomi admits that they could have started presenting it to the market earlier, but there were some big core business projects at JTC which needed their attention. Moreover, the fair

would have a greater impact when it comes to gaining awareness. They had their hopes on a positive reaction, but the interest shown was way above their expectations.

*“Compared to the years before, we had four times the number of visitors and the method became one of the hot topics and attracted media coverage, mostly from local papers and industry specific magazines (Ulf Olson, 2007-05-02).”*

The creation of initial awareness had thus been successfully achieved, but it covered the fact that they were not offering the method to the market. Why? The entrepreneurs had not found a proper business model on how to get round the fact that the created value was passed on to the customers, i.e. the industrial producers, unless a proper revenue strategy could be found. Therefore, they contacted two consultants which they had met on the Subcontractor Fair and who had extensive experience from manufacturing industries. Together they reviewed nine business models and some of them were according to Ulf quite unrealistic or insignificant in value retention, but two were singled out for further investigation. The first considered a vertical integration with one of their closest customers. An innovative business model that they both liked was proposed as the second possible path, i.e. licence the method to the industrial design and product development consultancy Caran. Caran had superior contacts with e.g. Volvo and Ulf and Tomi saw the possibility for Caran to influence Volvo to distribute the method to its subcontractors in order to lower the overall prices of the metal components. A long shot with this model was that if it proved to be a success it could spread to other parts of the Ford Group which would open the doors to earning substantial royalties or becoming one of the preferred machine die suppliers and thus have great growth prospects. However, and to their disappointment, Caran was not interested in taking on such a substantial project even as majority owners of the patent for a good price and the plans stranded quite quickly. Simultaneously, the bad luck continued as their integration proposal to the close customer was turned down as it wanted to continue the focused efforts on being an excellent supplier to IKEA. The point of time was now January 2007 and they decided to keep looking for new approaches to take the method to the market.

*“The initial boost we got from the fair was of course hampered by meeting resistance from the two companies we thought would be thrilled to work with this kind of opportunity. How they could turn this down was somewhat of a mystery, but we had to get on with it (Tomi Yrjölä, 2007-05-16).”*

Another lead they had received at the fair was that one of the world's leading truck manufacturers had spoken informally about making a test case where the MCM was implemented at one of its subcontractors. This company seemed very eager to get more information about the technology and the entrepreneurs decided to follow the legal expert's advice and contacted the major competitor. Nevertheless, the latter company turned out to have the opposite mindset on how to relate itself to the subcontractors. Consequently, the company would not be willing to actively participate as the philosophy seemed to be that the chosen subcontractors continuously work with improvements and could be contacted directly and not through the truck producer. In other words, the test case got postponed as Ulf and Tomi believed that better possibilities existed than granting a major company free access to study the method.

*"So the question: how do we commercialize this was still pretty much open for discussion after having tried these paths. We therefore switched focus from achieving a widespread cover through major players to local exploitation with a concentration on our existing customers (Ulf Olson, 2007-05-16)."*

This switch of focus was applied in April 2007 and the idea is to let interested customers come to JTC and get a presentation of the method as well as see it in action. In relation to these presentations, the entrepreneurs have prepared questionnaires which will help them gather information about e.g. the perception of the method, potential usage areas on the customers' applications as well as when in time the company could see itself starting to use the method. This is a direct way of getting some valuable feedback as well as raising the interest further. Ulf has been very pleased with the first visits and does not see any obstacles in the fact that they still have not focused on a specific business model. This is mainly due to the fact that the visitors are interested in saving money. In addition, this could be done by e.g. licensing the method or by letting someone else produce the components for them using the new method; therefore, an important objective is to spread that the opportunity for cost savings exists.

*"After all, who would say no to the possibility of significant cost reductions, especially in the highly competitive automotive industry? Hopefully this opportunity for savings will create a dialogue resulting in the market's preferred way of using and paying for this (Ulf Olson, 2007-05-16)."*

When it comes to how they have proceeded to assess the market, both of them claim to see a large number of applications where the MCM can be applied to increase the production efficiency

significantly. However, Ulf has no absolute numbers, but has estimated a potential initial market size by first looking at JTC's customers' product lines. He is of course aware of the fact that this will not reflect the total size; in order to estimate it, one way could be to look at for example an automotive segment and try to estimate how many parts of the car could benefit from being produced with the MCM and in what volumes. This would then have to be added with several car models or brands. However, it is not an easy task to determine the market size. Anyway, Ulf considers the issue of finding a solution on how to capture the majority of the created value to be most important and if that can be solved the market size assessment will be a minor problem as they will be fully occupied with supplying as much as they have capacity for.

#### **4.2.6 Resource acquisition**

Tomi informed that there has not been much external resource acquisition as the capital need has not been that great, between 1 000 000 and 1 500 000 SEK. The fact that they have a business as a backup has clearly helped to decrease the perceived uncertainty and risk. Nonetheless, NUTEK has contributed with 350 000 SEK to cover for expenses associated with patent applications, material to develop the prototype for the tests, and the Subcontractor Fair among other things. The entrepreneurs had to invest the same amount of money in order to get the contribution granted by ALMI and paid out by NUTEK.

Another form of resource acquisition is that the entrepreneurs have managed to borrow a machine and two sheet metal coil feeders with state-of-the-art controllers from a company which sells industrial machine equipment. The aim of this was to be able to make presentations of the MCM to the potential customers. JTC gets to borrow the set-up for six months, to June 2007, and in return the company wants Ulf and Tomi to mention the brand name as well as what type of equipment they are borrowing. According to Ulf, the patent facilitated the possibility to reach such a valuable agreement as the machine supplier expects many companies to come and watch the method in action. Both entrepreneurs also feel that them being able to show the customers the method instead of only describing it has been essential for the marketing of it.

*“At first, we probably failed to realize the importance for the customer to see the method in action. With the presentation equipment in place, there was the possibility to erase any kind of suspicion about the functional ability of the method as well as it also gives the visitors an “aha” feeling (Tomi Yrjölä, 2007-05-16).”*

As described above, the resource acquisition has mainly consisted of internally generated money. Ulf and Tomi share the view that this has not had any negative impact on the rest of the business, but there has never been any budgeting for the project as it is seen as a splendid market investment. Having JTC as a back-up has also helped as they e.g. would have gone to the ELMIA fair anyway which meant that the launch did not incur any direct extra costs. The same goes for some of the presentations which are made in relation to customers coming to discuss issues related to the core business of JTC and can then be presented the method as well. However, at the same time, they both argue that they will not put much more internal resources in the MCM before a viable business model is spotted as they simply want to start getting money back. In addition to this, Tomi explains that this is more of a guideline and no decision has been taken on this matter. From the point of discovery, the internal financing has more or less been taken for granted in relation to their development and marketing decisions.

*“We have never discussed sums or a maximum level of investment for development or marketing. Feedback and a gut feeling have guided these kinds of decisions as well as our belief in the method, i.e. this is a must to invest in as it is revolutionizing (Tomi Yrjölä, 2007-05-16).”*

#### **4.2.7 Strategic considerations**

Neither Ulf nor Tomi claim that there was a formal plan with a detailed outline on how to proceed after the discovery was made. There was, however, a strategic vision and that was to find a solution which could change the trend of Swedish companies surrendering to easy and moving their production to low cost countries. As has been discussed, this could be done by removing the assembly as a separate phase and by reducing the initial investment needed. According to Ulf, the vision has guided them as they first worked hard with finding out how to integrate the assembly step in the machine die and to find a solution where standard equipment could be utilized. The next step was to show the method's superior performance and how it translates into financial terms. Finally, the third step is where they currently stand and that is the strategic work concerned with convincing the market of the MCM's capability to lower a producer's operational costs.

An important, and according to Ulf probably the most important, strategic issue is how to retain the created value. As seen above, several business models have been considered, but the entrepreneurs remain uncertain on how to proceed. The feedback from the questionnaires will probably play a central role in the understanding of how the market would like to pay for using the method.

How to control that there are no patent violations is also an important strategic factor to consider carefully. Ulf and Tomi both believe that it will be difficult to actually have this control and instead aim to build a knowledge advantage in relation to the MCM. This could hopefully make potential customers expect a better financial result than if they try to copy it without the cooperation and support that JTC could offer.

#### **4.2.8 Getting organized with a surprising twist**

During the last interview, the entrepreneurs released information that they have taken aboard two new partners who have bought half of JTC, with Ulf and Tomi still being responsible for the exploitation of the MCM. The structural changes in ownership signal organizational changes which now have become an even more important issue as the strategic aim with JTC's core business is to become one of the leading companies in the industry. This move has been triggered by the need for a complementary set of skills than those that Ulf and Tomi possess, e.g. more international experience and greater business administration skills.

Most relevant for this study was the question whether the MCM's need for total focus and commitment interferes with the new strategic direction of the other part of the company. The entrepreneurs think it could and they are currently looking at putting the patent in a separate company and building an appropriate structure to meet the market needs.

*"Exploiting the method in a separate company would hopefully lead to a more focused effort where 100 percent of the time could be spent on the business development, sales, support etc. Another reason is that we would hedge some risk by exploiting it in a standalone business unit and external investors might be more interested in this kind of set-up (Ulf Olson, 2007-05-23).*

In relation to putting the MCM in a separate business unit, another interesting twist with the method is that the earlier rejected option of becoming an industrial manufacturer and thus solving the problem of retaining the created value is now back as the top choice again. Ulf and Tomi have always preferred this alternative as it is in line with their backgrounds, but has been put off by the high capital demands as well as that they have seen the process of acquiring external capital as difficult with the sums that are needed. Nevertheless, together with the new partners, they really believe in the method and will now work more formally with the development of a business plan and then contact potential investors. Another reason why this option has become the favourite again is that a manufacturer with the appropriate customer relationships in place to get started

relatively quickly has become available for acquisition. As a result, the obstacle right now is the financing need and it has become a top priority to solve.



## 5 Analysis

*In this chapter, we aim to analyze the empirical findings on the basis of the theoretical framework introduced in chapter 3. The analysis will follow a presentation of the decision-making associated with the different stages of the entrepreneurial process. Furthermore, we will discuss the importance and also the effects of uncertainty and information asymmetry regarding the decisions that occurred.*

### 5.1 Where do opportunities come from?

Within the field of entrepreneurial theory, the question if opportunities are ever-existent has always been discussed with great interest. Do opportunities exist all the time in the background and just wait for entrepreneurs to discover them; or do these opportunities have to be created through the persistent quest and driven effort by certain skilled individuals? While studying JTC, the two entrepreneurs, and the MCM for this thesis, we experienced that the opportunity to discover the MCM was more of a creation that was made up of the entrepreneurs' experienced need for change. In the case of our two study objects, the perceived need was that something had to be done in order to prevent the same situation from happening again in the future and to ease what they experienced as having *"fears about how we would be able to compete in the future"*. The entrepreneurs felt a threat from low-cost countries taking their contracts and therefore started spinning ideas and experimenting with the concept of a new method. So the entrepreneurs' actual scope was to develop something that could help their own company become more competitive in the future, which could be seen as the result of an implicit series of decisions to create a solution that would satisfy the experienced need. With the referral to an implicit series of decisions, we mean that the numerous discussions and reflections about the competitive situation led to the concrete scope and decision to develop the concept. As a result, we could not identify that the decision was preceded by a predetermined objective; instead in line with Sarasvathy (2001; 2003), the process starts with effectual reasoning where the initial discussion serves to generate the foundations for a new profitable activity. Obviously, satisfying the need could be regarded as a strategic objective, but it seems that the felt need created the opportunity and from there it guided the entrepreneurs towards further discussions about how to proceed.

That the actual finding turned out to be an innovation applicable to a very large industry, they only came to realize later on in the process. Had there been no failure for the customer in getting that contract, the entrepreneurs would not have felt the strong need to drive this project in order to discover a new method. This makes us think that the opportunity was created by the entrepreneurs' actions in order to prevent the same mishap from occurring again. Of course, if the

two entrepreneurs at JTC had not discovered the innovation, somebody else might have developed a similar solution to the apparent problem at a later point in time. But in that case, the individuals involved in the discovery actively would have driven the development by the need for change that they experienced at that time. This means that with high certainty, the innovation and perceived opportunity that they had discovered would not have been completely similar to the one discovered by our two study objects.

## **5.2 Decisions in an existing company**

When analyzing the decisions made by the two entrepreneurs regarding the entrepreneurial process and the innovation, we have to consider that these decisions all occurred under the influence of an existing organization. Since the MCM was discovered and exploited in the existing company JTC, all the decisions that were made during the different stages of the entrepreneurial process were affected by the underlying fact that the entrepreneurs had to consider their decisions in relation to their company. The fact that the two entrepreneurs discovered the opportunity within their existing company and also decided to exploit it with the company as a safety back-up has had great influence on the way they proceeded. In line with Burgelman (1983) and Antoncic and Hirsch (2003), having JTC as a safety net when developing and exploiting the new method leaves the entrepreneurs with less uncertainty concerning financing, experimenting possibilities, contact network, and their own employment.

Furthermore, the fact that JTC is a small company reduces the impact of potential constraints mentioned by Carter and Jones-Evans (2000) since the two entrepreneurs do not have to take into consideration other decision-makers or managers who might have had doubts about how to exploit the opportunity. In other words, the ability to take entrepreneurial initiatives is good because there are only two decision-makers indicating limited bureaucracy. This means that the decision-making has been of the more informal sort and therefore more or less frictionless. In addition to this, the impact of information asymmetry is also reduced because the entrepreneurs do not have to explain themselves to potential investors since there is internal financing available.

However, the statement that *“the regular business of course had to be run as usual which automatically meant that there was little time and room for the development”* implies that the entrepreneurial process and its associated decision-making as well as actions were slowed down in this setting. In other words, having only two managers and decision-makers thus has the advantages noted above, but also the disadvantage of them being occupied with JTC’s core business

activities and as a result unable to solely focus on the development and exploitation of the MCM. Consequently, the studied entrepreneurs have created an atmosphere where the process of discussing and reflecting leads to quick decisions, but cannot fully take advantage of it as the regular business continuously interferes. There thus appears to be a gap between the potential for smooth decision-making and the potential for carrying out the needed actions in this setting, i.e. with having two involved individuals which also act as managers. One implication of this is that if the decisions in every step are made in line with the environment, delayed action could mean that when it is executed there will not be the desired effect. Another implication is that uncertainty could increase as time is allowed to pass between decisions and actions. This is elaborated on in detail later on in this analysis when we discuss uncertainty's affect on decisions.

### ***5.3 Decisions in relation to the discovery***

In the case of the two entrepreneurs, the decision process around the time of discovery were basically concentrated around the issue if it was worth to continue working on a solution for the existing problem and once the innovation was discovered if it was worth exploiting it. As mentioned above, the decisions made by the entrepreneurs were affected by the existing company in the background. When it came to the issue of the benefit continued experimenting would bring the company, the two entrepreneurs agreed on that it would be worth finding a solution to their problem, even though, it would take a lot of time, effort, and resources to proceed with their testing.

The decision to continue working on a better way to serve their customers was a unanimous series of decisions made by the two entrepreneurs in order to satisfy their experienced need for change. The experienced need for change in this situation was stronger than the experienced uncertainty and risk that the entrepreneurs would have to face if they continued working on the new solution. Having their own company as a back-up and safety net when it came to the point of making these decisions definitely decreased the uncertainty and risk experienced by the entrepreneurs. They did not have to leave their positions in order to experiment and explore the opportunity; they did not have to fight for financing and explain themselves to investors in order to be able to continue work on the development; they did not have to argue with other managers and decision-makers in order to carry their point; rather, they could just carry on working towards a new solution for their problem and keep spinning ideas freely. Once they came to realize that they had developed an innovative method and that this would really work, the decision was made to exploit the innovation in order to take it to the market. This decision was unanimous as well and was made rather quickly

since the experienced uncertainty was decreased by the fact that the company could support a failure if it had to. Furthermore, the entrepreneurs' intuition and gut feeling was high due to their strong belief in their new method which further lowered the perceived risk level.

One interesting question that popped into our heads while analyzing the decision-making regarding the entrepreneurial process and the new method was if it is possible to decide on the exploitation of an opportunity before it is discovered? One could argue that this is impossible since the entrepreneurs would have no knowledge about the innovation before they really discover it and therefore would not be able to make a decision regarding the exploitation. However in contrast to Shane's (2003) argument of discovery preceding the decision to exploit, we found that the two entrepreneurs had such a strong focus on finding a solution to their existing problem that they already beforehand had decided to exploit the innovation whatever they would develop in their experiments. This can again be viewed as a consequence of the reduced experienced uncertainty due to their company as a safety net, but could also be ascribed to their personalities which we will elaborate on further below.

#### **5.4 Access to information facilitates decisions...**

According to Shane (2003), the early access to information is vital when it comes to the possibility of discovering and exploiting an opportunity. In our case study, the two entrepreneurs did not obtain the information earlier than others since it was there for everyone to access, but the lost order made them look at the problem in a different way and from different angles and this led to the discovery. In other words, the two entrepreneurs combined the different sorts of input earlier than others and therefore were able to discover the new method.

One explanation for why they were able to combine the existing information in such an innovative way might be that they have experience from various different areas of the industry. This gives them an advantage when it comes to matching solutions and problem solving with existing and new information. Furthermore, this might also be the reason for the fact that their network was not of great importance for the discovery. Since the two entrepreneurs could combine their versatile skills, experience, and knowledge from their many years of industry experience, they did not need to address or explore their network connections in order to get access to the necessary information. This is also in line with what Shane (2003) says about an individual's industry experience and that it greatly can benefit the access to information.

The two entrepreneurs' vast industry experience does not only facilitate their access to information; it also eases their ability to make decisions involving this information. This is due to the experience they have gained over the years when it comes to processing and applying information and knowledge regarding industry specific phenomena. We experienced the decisions made by the two entrepreneurs to be mostly informal, especially in the early stages of the entrepreneurial process. However, when it came to more formal decisions, like e.g. the decision if they should apply for a patent, the entrepreneurs seemed to be very determined and could agree with each other rather quickly. This we interpret as a consequence of the long business partnership these two individuals have had as well as a built-up routine of handling industry specific information.

### **5.5 ...so does absorptive capacity**

We found that the two entrepreneurs have a great deal of absorptive capacity because they can combine their vast industry experience with a very open-minded thinking when it comes to exploring new ideas and processing new information. This is also in line with what Shane (2003) mentions about absorptive capacity being instrumental for discovering opportunities in the information available at that time. In addition to this, we also believe that the entrepreneurs' complementing knowledge enhanced their chances of discovering the opportunity.

Furthermore, we figure that the entrepreneurs have more absorptive capacity as they challenged the wide-spread notion of having to outsource production in order to stay competitive. This larger absorptive capacity when it comes to handling information accessible has also influenced the way the entrepreneurs make decisions since the increased information input leads to increased knowledge which results in new options and possibilities that have to be decided on. Moreover, we experienced that the two entrepreneurs already started to think about how to present the innovation to customers and partners at the time of discovery. We think this is due to their former working experience at HBG where they were able to experience the same situation from a customer point of view. In other words, they already knew from former experience how to serve a market and how to present a product or service, which is emphasized by the claim that *"having worked with this for a relatively long period gives a certain level of assertiveness about the ability to find ways of exceeding the customers' expectations"*. This is in line with what Bhawe (1994) and Shane (2000) say about how prior knowledge of how to serve a market benefits the entrepreneur.

The fact that the entrepreneurs already started to think about how to present the new innovation to the market at the time of discovery is an interesting development. This could imply that the

traditional linear sequence of the entrepreneurial process is affected and abolished since the entrepreneurs already had their minds on the market introduction of their new method when they first discovered it. In fact, this indicates that they, at the time of discovery, already started to piece together an entrepreneurial strategy for how to continue working with the innovation.

### **5.6 *The decision to exploit***

As mentioned above, the process of deciding to exploit was, if not already made before the discovery, made rather quickly once the new method first was discovered. The informal nature of these discussions leading to a decision can be ascribed to the facts that the entrepreneurs strongly believed in the new method and immediately saw its potential, but also that they have a long experience of working together in this industry and now could exploit their own invention in their own company. The decision to exploit was extremely facilitated because the entrepreneurs did not have to leave their experienced safe haven in order to continue working with the new method. This is due to the fact that they could exploit the idea within their own existing company without having to leave their present positions in the firm and without having to restrict any other business area in the company. While experimenting and developing the discovery in their existing company, the two entrepreneurs could carry on with their usual business and always had the safety net provided by JTC as a back-up. Even the industry context was not discussed in greater detail because the entrepreneurs immediately noticed that their new method would be applicable to virtually all sheet components currently being produced with an assembly step. They just decided quickly and very informal that there was enough reason to exploit and with the belief that the created value would restructure the industry it could in line with Sarasvathy (2001; 2003) be claimed that they skipped the prediction phase and instead reasoned that they could control the events such as the future market introduction.

### **5.7 *Characteristics that make up a decisive personality***

The personality characteristics are normally more applicable to situations where a new company is founded and therefore these are not so important in our case. They may have been more applicable if we had studied the start-up of JTC. However, the personality characteristics do still influence the development of the situation as the entrepreneurs have personalities that want to challenge the situation with its apparent problem while other individuals would choose not to undertake anything. With all the information these two entrepreneurs have access to due to their absorptive capacity and industry experience, they basically had to decide on doing something when they felt

that their company and, for that matter, also the whole Swedish industry was becoming a victim to the production in low-cost countries. Furthermore, in line with what Bhidé (2000) says about extrovert people is that these are able to put themselves in the customers' perspective. The two studied entrepreneurs were definitely able to take the customers' perspective and thus enhance the understanding of how to satisfy these in a better way. This is due to their prior industry experience and knowledge of how customers look upon the contact with their suppliers. The MCM is clear evidence that the entrepreneurs were able to adopt the customers' perspective since it improves various factors regarding the business relationship between the supplier and the customer, including price and delivery time.

The internal locus of control is a psychological factor with a focus on how an individual perceives his environment and how he tries to change it. This can be linked to the studies of Sarasvathy (2001) where she is discussing effectuation and how entrepreneurs try to adapt to their environment while at the same time they are trying to adapt the environment to themselves. In the case of the two entrepreneurs we studied, they continuously tried to adapt to their environment in order to be accepted by their partners and customers, but at the same time, they are trying to adapt their environment to their own beliefs when introducing the new method.

When talking about the internal locus of control, intuition is an important factor as are gut feeling, the so-called out of the box thinking or the just do it style applied by many entrepreneurs. These are all factors that affect the entrepreneurs' tolerance for risk and uncertainty and are predominant in most entrepreneurial personalities. The stronger the intuition or gut feeling an entrepreneur has, the bigger the decrease in that entrepreneur's perceived uncertainty. In other words, an entrepreneur acting very intuitive does not experience high uncertainty and is therefore willing to risk more in order to go by his gut feeling. Considering the decisions entrepreneurs make when there is a strong intuition involved, one can say that these are of the more informal kind and not reflected over a lot, but rather made quickly and following the intuitive just do it style. As mentioned by Sarasvathy (2001), intuition and a just do it style are emphasized quite regularly in entrepreneurial decision-making. In the case of our two entrepreneurs, we believe that they have a very strong intuition guiding them in their quest for an improved production method and they are therefore much more inclined to take risks and face uncertainty, even though, this also is affected by the fact that they have their company as a safety net.

According to Brunsson (2000), the existence of many alternatives increases uncertainty and reduces decision-making ability. We were able to spot this when the entrepreneurs talked about how they

had had trouble coming up with an adequate business model in order to launch their new method. For a start, they had nine different alternatives to choose from and then they narrowed these down to two which they found worth exploring further. But even though they had narrowed the alternatives down to two options, they still were not able to find the most adequate business model. We are interpreting this as increased perceived uncertainty experienced by the entrepreneurs which lead to reduced decision-making ability. This will be covered in greater detail when elaborating on uncertainty's impact on decisions. However, it can also be ascribed to the entrepreneurs' lack of interest in the more business related issues which they distinctively pointed out to be less exiting.

### ***5.8 The industry context and its effects on decision-making***

The industry context as a whole influences how and when entrepreneurs in an existing company decide to search for and exploit opportunities. Many industrial innovations are built around tacit knowledge and this does of course affect the decision-making surrounding the innovations and their exploitation. For a start, the entrepreneurs at JTC did not believe that they had a knowledge advantage on their competitors, but they came to understand that they have some tacit knowledge which others do not possess since they have managed to piece together the different parts of information in order to create a new method. In hindsight, we believe that this has affected the decisions the two entrepreneurs made while exploiting the innovation. The fact that they were aware of the knowledge advantage was on their side made them more open-minded when it came to making decisions for the further exploitation of the innovation.

Another important factor concerning the industry context is the market conditions. Shane (2003) claims that the larger the size of a market, the more likely is it that there will be opportunities to discover. The industry of sheet metal components manufacturing that JTC is active in and supplies dies to is a big industry and at the same time also very competitive. Conclusively, this should be a good ground for opportunities to occur on. Especially, the niche market for assembled products is what is attractive for the MCM. With a successful launch of the MCM in this niche segment, the market conditions would be totally restructured which is why the entrepreneurs see a great market value in their new method. Again, this has affected their way of making decisions regarding the new method. Since they see a great market value and potential in their innovation, they will direct all the decisions they have to make towards a market introduction of their new method. Even if those decisions did involve great uncertainty and risk, the entrepreneurs experienced their new method to have such great potential that they would do almost anything to take it to the market. One could



claim that they were somewhat blinded by this subjective perception regarding the quality of the method so that they made spontaneous and intuitive decisions rather than acting in a causal way. This is in line with what Sarasvathy (2001) says about entrepreneurs being more effectual in their decision-making and also trying to manoeuvre their way towards a desired outcome.

Regarding the appropriability conditions of the industry JTC is active in, one can say that the strength of protection that a patent gives a novel innovation is rather limited. This is due to the fact that large players with an abundance of resources and financing can outplay any small or minor player just by taking a patent issue to court. Furthermore, the vast industry makes it hard to control if there is any patent violation taking place in other parts of the world. The two entrepreneurs have come to realize this which is why they have tried to keep their new method as confidential as possible. This has also affected their way of making decisions since they always have to consider the fact that important and vital information could leak out. They have also reduced their scope regarding this in order to focus on the local industry players and competition and try to keep these from illegally copying anything that is protected by the patent. The two entrepreneurs have realized that there is no way to protect their invention from being copied if a big player would show any sign of interest. However, they do not have any fear of China because they believe that the new method would do more harm than good in China since the country has a big industry built around the low-cost production for other countries.

What the entrepreneurs want to achieve is in line with what Wickham (2001) claims. The patent is used to protect their new method locally for the first period of time until they have managed to develop other skills and some sort of knowledge advantage which will serve as appropriation in the long run. Furthermore, the two entrepreneurs feel that other technologies not really are a threat to their new method; rather, other players trying to by-pass the patent could be viewed as a risk. In addition to this, only small improvements characterize the sheet-metal industry; in other words, it is unlikely that another technology will make the patent obsolete. However, the fact that the patent only guarantees limited protection makes value appropriation an important part of how to address the industry, including competitors, partners, and customers.

## **5.9 Decisions when it comes to obtaining resources**

When it comes to obtaining resources the experienced resource need is relatively large for the two entrepreneurs and their new method. This is due to the fact that they need a machine set-up in order to be able to test their method when developing it. Here they could use resources from their

own company which very much facilitated the development. Consequently as indicated in the empirical findings, the perceived resource need has not been substantial due to the agreement where the entrepreneurs were able to borrow the presentation equipment. Furthermore, we think that obtaining resources becomes much less of a problem if you really believe in what you are doing and that it will work later on. This is definitely the fact with our two study objects because they have found it rather easy to decide on investing their own capital in the development of the new method.

Another advantage was that they could use some internal resources. There really is no need to be restrictive and increase the formality when you believe in what you are doing. The two entrepreneurs invested their own money and time in the development and exploitation of the new method. This decision was made without further ado since the entrepreneurs' belief and intuition told them that they were doing the right thing. Furthermore, they were able to test the new method step by step in their own machine hall which made them realize that they had developed something innovative. Since they had to keep the information as confidential as possible they did not get too much feedback from partners or customers, but still found that they wanted to exploit the innovation further by using their own resources and having a company of their own as collateral only facilitated this decision.

After presenting the new method at the fair in Jönköping, the entrepreneurs experienced a boost from positive feedback which they received from different directions. This also enabled them to lend a machine set-up for display which they since then have used to show interested customers and partners in order to improve the effect of their presentation. In addition to this, the display set-up has made it possible for the entrepreneurs to show investors tangible evidence of the capability of the new method. The idea of lending a machine set-up can be described as a creative financing skill which was considered because the purchase of a new machine would have been too big an investment. This can be linked to Sarasvathy (2001) and her discussion on creative partnerships that the entrepreneur strives for. Furthermore, entrepreneurial financing does not really apply to the entrepreneurs in this case because they have the established company as a back-up. However, they never did approach any banks in their strive for financing. In the next and final step of the entrepreneurial process, the financing issue will be of much greater importance because the needed investments will increase in number and size.

When it comes to human resources, the two entrepreneurs have recently taken aboard two new members for the management team at JTC. This was a unanimous decision made by the two

entrepreneurs because they believe that these new members will add further knowledge and experience regarding the market introduction of and the construction of a business model for the new method. In other words, by adding two new members with differing skills, the entrepreneurs increased the skill-level of the management team at JTC. However, the diversification of the skills at the management level can also lead to a reduced decision-making flexibility since there now are more interests and ideas to take into account. This is in line with what Brunsson (2000) says about how an increased number of alternatives make way for a decreased decision-making ability. When it comes to operational resources, these still are a big investment for a small firm exploiting an opportunity, especially in this industry. The huge investments are a reason for why the entrepreneurs did not choose to consider production as a business model for a start. However, in the latter phases of the entrepreneurial process, they have changed their strategy and now consider exploiting the innovation with their own production company.

### ***5.10 Entrepreneurial strategy decisions that will organize the new venture***

The two entrepreneurs have had problems with the creation of an entrepreneurial strategy all the way from the beginning when they first discovered the new method. We think this might be a combination of two factors that has hindered the entrepreneurs from finding the entrepreneurial strategy best suited for their ambitions. First, they have had too many possible business models for a start and that increased uncertainty as well as led to a decreased decision-making ability. Again, this is in line with what Brunsson (2000) says about too many choices leading to increased uncertainty. Even the attempt to narrow down the business models to two options did not improve the entrepreneurs' ability to find a suitable choice. This might be due to the second factor that kept the entrepreneurs from deciding on an option. We believe the second factor to be the entrepreneurs' disinterest in these kinds of issues. The entrepreneurs continuously mentioned that they were not that fond of these tasks and viewed them more as a necessary hassle. This might also indicate that the entrepreneurs actively looked for more business models to compare with each other in order to not have to decide on one of them.

Another important issue to address is in what type of company the new method should be placed and developed. Even though it seems like the entrepreneurs have struggled with this for a long time, it actually only becomes important to consider in the last part of the entrepreneurial process. In order to be more prepared when it comes to discussing possible business models and initiating a market entry, the entrepreneurs found it would be worth it to take aboard new team members due to the complementary knowledge these members contribute. Since one of the new members is a

local actor this will increase and strengthen the local network relations further which also leads to improved safety when it comes to patent violations. Considering the structure of the new company or business model, this should be influenced by the existing firm's pattern.

### **5.11 *Uncertainty's affect on decisions***

The impact of uncertainty on decision-making is normally considerably large throughout the different stages of the entrepreneurial process. It starts off with the uncertainty about if the significant personal commitment can be put in relation to the expected outcome of the discovered opportunity. Or as Shane (2003) and Wickham (2001) put it, can the individual that has discovered an opportunity be discouraged by the significant personal commitment involving the gathering of resources, the development of a strategy, and the organizing that must take place before any knowledge about the market impact is known? However, we believe that in the case of our two study objects there was much less uncertainty involved due to the fact that they had their own company as a safety net in the background all the time. Of course, there were times when the two entrepreneurs felt slightly discouraged by developments in their experimentation or developments in the industry, but they never perceived enough uncertainty to abolish the idea of finding a new production method. As much as this can be ascribed to the experienced safety net, i.e. the company, it can also be associated with their personalities and how these characteristics work in relation to uncertainty. Both entrepreneurs have an outgoing personality with a strive for facing challenges and the fact that they really believed in their new method made them put in all their effort in order to achieve the anticipated goal.

As discussed above, a potential implication of the suggested gap between decisions and corresponding actions in the setting with two decision-makers in an existing firm is that it could allow for uncertainty to enter and affect the process more than it would if the entrepreneurs could act directly after their decision process. To illustrate this, we could consider what could be regarded as effective entrepreneurial decisions in line with Sarasvathy's (2001; 2003) effectual reasoning and how these are aimed at creating the next action in order to take an innovation to the market. However, if there is a gap between the decision streams, e.g. as in this case with discussions, experimenting and feedback leading to a certain choice and the actual actions, it will inevitably give the entrepreneurs time to contemplate on alternative paths. Adapting Brunsson (2000), this means that the perceived uncertainty will increase as the entrepreneurs will become aware of more variables that could affect the chosen course of action.

This has also been identified in the empirical findings as the entrepreneurs' subjectively held perceptions about the method, especially in the discovery and development steps. The perception made them believe that there would be a straightforward exploitation as the method had its clear advantages. However, when the entrepreneurs reached the point where the MCM was intended to be introduced to the market after the fair, there seems to have been an increase in the perceived uncertainty. We believe that this is a combination of the time factor and that the subjectively held perception was challenged when it met the market's objectively held perception. The time factor is apparent as they considered nine different business models and then had to decide to eliminate some of them. This took some time as they had to be reviewed and discussed before being considered as insufficient, which as a result also gave them insight in more variables that could be considered. Suddenly, the decisions about the path to choose was not as straightforward as they had been in the development phase and the time it took between the decisions and initiating the market introduction actions clearly made them more uncertain about how to proceed in order to retain the created value.

The clash between their subjectively held perception and the objectively held perception was a result of the MCM having to leave the safe internal environment where the entrepreneurs had nurtured as well as boosted the belief in the method's advantages. As noted above, this was specifically apparent in the first steps of the entrepreneurial process. Consequently, the perceived uncertainty was low and the decisions were quickly made when in fact the objective perception would indicate that the uncertainty should be high. How come? From the outside, the situation will be perceived as uncertain in the early phase of the entrepreneurial pursuit as it is nothing in the discovery and development phase which can be taken for granted when it comes to the method's eventual functionality. Therefore according to the rational decision-making process put forward by Brunsson and Jönsson (1979), the decisions would consist of several alternative paths being weighed against each other. Conversely to this and in line with the perceived low uncertainty, the entrepreneurs instead discussed and experimented towards a solution and they believed that *"a development plan would have constrained the needed creativity"*. Once more, the effectual reasoning (Sarasvathy, 2001; 2003) can be put forward as the entrepreneurs' way of trying to control the situation and act accordingly rather than predicting the future in order to move towards the introduction of an innovation. However, the studied entrepreneurs thus perceived an uncertainty increase when it came to the market introduction. This is interesting as the entrepreneurs in an objective sense knew more about variables such as the MCM's advantages from the successful tests and the market's positive feedback at the Subcontractor fair in Jönköping which should facilitate the decision-making. Yet the subjective perception was that the process had

become considerably more difficult and suddenly they experienced the threat of others appropriating the created value if not being careful when exploiting it. In other words, the predicted theoretical outcome was the opposite of what happened in this case. As suggested in the first sentence of this paragraph, it is possible that the reason for this is that the entrepreneurs are forced to expose the MCM to the external environment. The empirical findings suggest that the uncertainty surrounding the appropriability conditions is a major explanation factor. This is in line with Longenecker et al. (1997) and Shane (2003) which claim that the strength of patents will influence the exploitation. Furthermore even though the entrepreneurs believe that it is advantageous to protect the innovation, they are still wary of the possibility of a major company getting their hands on the method and this clearly has affected the exploitation.

Would more specific planning have done any good in order to outmanoeuvre uncertainty and structure the process? Probably not, since the entrepreneurs would have felt too restricted in their creativity and this would have slowed down the process even further. This is also in line with what Brunsson (2000) mentions about how uncertainty can create a paradoxical situation since planning can be perceived as a good communication tool, but also can discourage the pursuit of an entrepreneurial opportunity. Since uncertainty is present in every step of the process one could wonder how the entrepreneurs handle this permanently present uncertainty? Again, we believe that a big part of the uncertainty that would be experienced by other entrepreneurs in this case is filtered out by the existing company in the background and the strong belief that our two entrepreneurs have for their new method.

### ***5.12 Information asymmetry's affect on decisions***

Another factor that has an impact on the decision-making throughout the process is information asymmetry. Since the development and experimentation surrounding the new method has been highly confidential from the start, the two entrepreneurs will always have an information advantage over others when it comes to knowledge regarding the innovation. This has both negative and positive effects on the way the two entrepreneurs can make decisions. They always have to consider the confidentiality when they are presenting the new method to potential investors, partners, and customers since the patent only protects the innovation to a certain degree. This does limit the possible decision-making, but is necessary in order to keep the same level of information asymmetry. On the other hand, the knowledge advantage that the two entrepreneurs have gives them an edge over competition when it comes to introducing the new method on the market. The two entrepreneurs can build up a considerably good reputation advantage before anyone will be

able to copy the method. This will give them an advantageous starting point with the customers they have managed to attract up until then. As mentioned by Smith & Smith (2000), entrepreneurs will not be willing to disclose all information when exploiting an entrepreneurial opportunity. This in order to build a knowledge and reputation advantage before introducing the innovation on the market and risking that somebody might copy it. We have experienced that our two entrepreneurs are quite cautious when it comes to disclosing information; they e.g. turned down the cooperation with a major truck producer as there was potential for the producer to exploit the method once the cooperation was initiated.

In line with the discussion above on subjectively and objectively held perceptions on e.g. the value of the MCM, this is also evident when it comes to information asymmetry. When exposing the innovation to the market, the entrepreneurs met the customers' objective feedback which as seen in the empirical findings was mainly positive. However, there was a discrepancy between the perceptions which can be explained by the information being distributed asymmetrically between the entrepreneurs and the market. For example, the potential customers indicated that they would want to see the innovation before fully believing in the newness and the stated advantages. This is further emphasized by the quote *"we probably failed at first to realize the importance for the customer to see the method in action"*. In addition, this information asymmetry prompted the decision to borrow the equipment needed for the presentation of the MCM and has served to erase some of the differences in held information.

### **5.13 Informal decisions become formal**

Throughout the course of the entrepreneurial process, we have experienced that the decision-making has shifted from being more informal and direct at the beginning to becoming more formal and bureaucratic in the latter stages and closer to the market introduction of the method. During the early experiment and development stages of the new method, the entrepreneurs applied a very informal decision-making since they were only handling the innovation between each other and with no other actors involved. Once the new method had developed further so that the entrepreneurs had to start thinking about a market introduction and therefore had to present it to other actors, the decision-making became more formal. The more formal decision-making can especially be experienced when it comes to the patent application or the contact the two entrepreneurs had with potential partners and customers. At the latter stages of the process the decision-making has become more formal also due to the two new members that have joined the team at JTC. Adding two new decision-makers obviously makes the decision process more formal

and prolongs the time it takes to make decisions. Regarding the garbage can model presented by Cohen et al. (1972), one could wonder if with only the two participants and frequent meetings or discussions, would there be better and more situations to make decision without the in theory mentioned difficulties? We found that the two entrepreneurs used all their spare time available to develop the new method and also devoted many other resources from the company in order to achieve a solution to the experienced problem. One has to remember that the entrepreneurs had the company to run while they were developing the new method; therefore, we think that there could not have been any better or other situations for the two entrepreneurs to make decisions.

#### ***5.14 The actual course of the entrepreneurial process***

Finally, we would like to devote a few lines to the course of the entrepreneurial process. In theory, the entrepreneurial process is described as a linear chain with one step following the other, starting with the existence of the opportunity and ending with the organizing process. However, we have experienced that this might not be the case, especially not when it comes to the case studied in this thesis. Therefore, we do believe that the different phases of the entrepreneurial process are not that ordered and strictly sequential as described in literature. As mentioned above, in the case of our two entrepreneurs discovering the new method, we feel that the opportunity did not exist for a start, but was created by the entrepreneurs and their experienced need for change. Considering the exploitation and entrepreneurial strategy phases of the entrepreneurial process, we experienced that these occurred much earlier in the chain of actions than described in theory. The two entrepreneurs already started planning the exploitation and market introduction at the time of discovery much due to their former industry knowledge of how the customer experiences such a situation. Furthermore, the two entrepreneurs also had decided on exploiting the new method before they even knew what exactly it would turn out like. Again, this can be explained by their experienced strong need to change the problematic situation with JTC losing orders to low-cost countries.



## **6 Conclusions**

*In this chapter we aim to answer the research questions by stating our conclusions on the issues of decision-making, uncertainty, and information asymmetry related to the entrepreneurial process.*

### **6.1 A recap of the research aim**

In line with the individual-opportunity nexus, the aim of this paper was to find what characterizes the entrepreneurial decision-making practices under uncertainty and information asymmetry by describing and analyzing the entrepreneurial process associated with the studied entrepreneurs' pursuit of an entrepreneurial opportunity. Furthermore, we commenced our research with our first theoretical proposition that the decision-making follows the sequential steps of the entrepreneurial process. The second part of this first proposition consisted of the theoretical foundation that the entrepreneurial decision-making tends to be informal at the early stages of the process and evolves into a more formal and rational way of making decisions. The second proposition we began our work on this thesis with was that uncertainty and information asymmetry will be higher in the first steps of the entrepreneurial process and decrease when the entrepreneurs gather more information as well as the market becomes more aware of the advantages the innovation brings. With this in mind, we have reached the following answers to our research questions.

### **6.2 What characterizes the decision-making associated with the entrepreneurial process?**

The decision-making associated with the entrepreneurial process for our two entrepreneurs and their innovation is characterized by being non-sequential and the decisions are more of an unstructured process over time rather than single choices made at a specific point in time. Consequently, the first part of our first proposition was found to differ from our initial assumption. First of all, the entrepreneurial process does not seem to be sequential as we found that the entrepreneurs felt the discovery to be a strategic need rather than a search for an opportunity. This makes us believe that the decision to exploit preceded the actual discovery of the innovation. Obviously, this does also affect the sequence of the decision-making in these stages of the process. As we believe that the decision-making is a process, we further identify that the entrepreneurs had concurrent decision processes simultaneously during the different phases of the entrepreneurial process.

The early stages of the entrepreneurial process were in line with the second part of our first proposition, i.e. they involved a high degree of informality and effectual reasoning. This was evident

as the entrepreneurs through informal discussion reached implicit decisions on the few alternatives considered. At times, these implicit decisions were reached by discussing thoughts on the potential of the MCM and by experimenting until they achieved further advancements. The entrepreneurs were able to reach a consensus without even stating their thoughts explicitly in words. This increased the potential to make quick decisions and act accordingly, but was hampered by the fact that they had to take care of their core business at JTC. At the beginning of the entrepreneurial process, the decision-making was also affected by the entrepreneurs' subjective perception. Since this perception was of the subjective sort, it was easier for them to make quick decisions as they believed these were correct in relation to their perception. Towards the end of the process, the objective perception held by people outside the company also affected the entrepreneurs' decision-making as it became more formal.

Furthermore, we have come to realize that there are no such things as template solutions for effective decisions in entrepreneurial situations. Even though it seems that effectual reasoning is more effective than causal reasoning when it comes to high uncertainty involving decisions in the early stages of the entrepreneurial process as it reduces the perceived uncertainty, we think that effectual reasoning's focus on controlling the future only benefits the entrepreneur as long as the decisions have a local setting and focus. As in our two entrepreneurs' case, the effectual reasoning worked to the point where they had to face the exposure of the innovation to a broader audience. When facing the broader audience's objective perceptions about the innovation's value, it is imperative to have the ability of adapting a more formal mode of decision-making in order to be able to exploit successfully.

### ***6.3 How do uncertainty and information asymmetry influence the studied entrepreneurial process and the decision-making?***

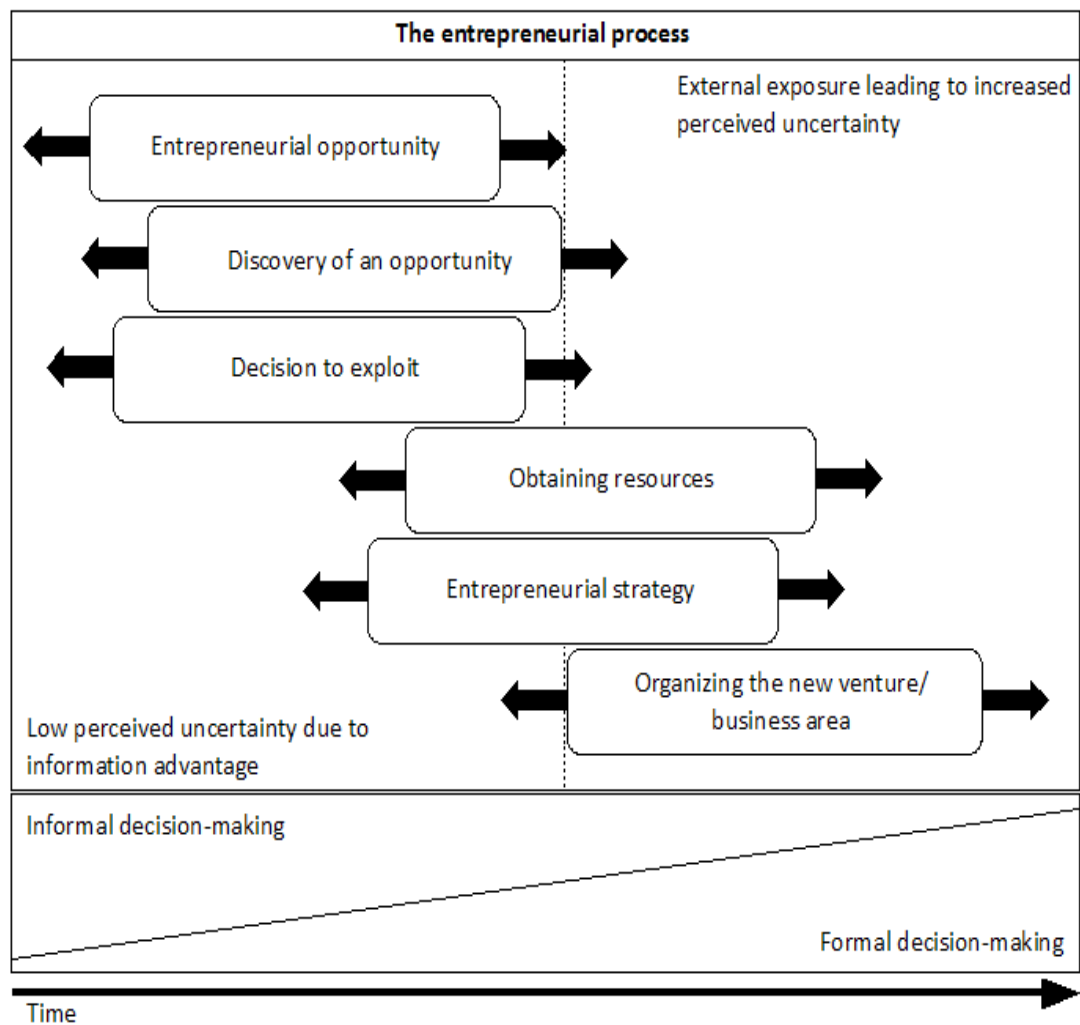
Uncertainty and information asymmetry have a prominent influence on the entrepreneurial process and the decision-making associated with it. At the early stages of the process, the actual uncertainty is high, whereas, the perceived uncertainty for the entrepreneur is very low. This situation arises as a result of the information asymmetry, i.e. that the entrepreneur holds all the knowledge about and the belief in the future of the innovation while, at the same time, outsiders do not possess any information at all. The gap between the subjective and objective uncertainty creates an interesting paradox. These circumstances allow for an absorbing development, in which the entrepreneurs for a start experience low uncertainty and thus find it easy to make decisions as these seem to be quite straightforward. However at the end of the process, the situation is the opposite and the

entrepreneurs perceive the uncertainty to be higher whereas it really is lower since the entrepreneurs know more about the innovation's market ability as well as the outsiders have learned to accept and know more about the value of the innovation due to the reduced information asymmetry. Throughout the entrepreneurial process, the formality of the decisions attached to it increases even though the objective uncertainty decreases.

The implication of this seems to be that the paradoxical situation arises where it becomes more difficult to make decisions although there are fewer alternatives to choose from. However, we believe that the reason for this paradox is that the entrepreneurs perceive the exposure and value appropriation as a threat that needs to be carefully considered and evaluated. From the entrepreneurs' perspective, the exposure of their innovation to the market releases strong forces that can harm the confidentiality, uniqueness, and potential for profit. Furthermore since the entrepreneurial process is a long and interwoven process, the entrepreneurs have become attached to their creation and have a hard time letting go. This is probably why the experienced uncertainty is much higher than the actual uncertainty.

#### ***6.4 The studied entrepreneurial process as a model***

The results and the subsequent conclusions from the study of the entrepreneurs' decisions related to the discovery, development and exploitation of the MCM can be summarized and illustrated as in figure 4. Firstly, the model summarizes the main findings discussed above regarding the information asymmetry's and the external environment's impact on the perceived uncertainty and resulting implications on the decision-making. Furthermore, and even though this paper is limited to one case, the arrows were added in order to demonstrate the possibility of a more general conclusion which is that the degree of concurrent decision-making will differ from process to process. In other words, the figure illustrates the specific process of the MCM, but also acknowledges that the order of the steps or their position can alter depending on unique situations.



**Figure 4** - A model of the study's conclusions

## **7 Final discussion**

*In this final part of our thesis, we aim to present the contribution of our work regarding the field of research. Furthermore, we will discuss possible future research directions that might be of interest in this particular field.*

### **7.1 Contribution**

Initiatively, we would like to mention that our contribution to the studied field by far is all-embracing and that there are some very interesting paths and trains of thought that should not be neglected in future research approaches. At the beginning of our work, we set out to study a phenomenon that in our eyes seemed very interesting and rare, i.e. the numerous decision and uncertainty dimensions surrounding the entrepreneurial process of an innovative new method. We hope to have accomplished a productive and fruitful research paper with a continuous train of thought analyzing the characteristics of decision-making surrounding the entrepreneurial process of an innovation explored by two entrepreneurs. Furthermore, our aim was to discuss the impact of uncertainty and information asymmetry on the decision-making attached to the different stages of the entrepreneurial process. At the end of this paper, we now have come to realize that entrepreneurs have to learn how to deal with two logics when addressing the development and market introduction of an innovation. It is not sufficient enough to be able to handle only one logic at one stage of the process; rather, entrepreneurs have to be adaptable to both logics and flexible enough to guard themselves against the ever-changing impact of uncertainty and information asymmetry.

### **7.2 Further research**

Considering the fact that we only studied one single company, it might be appropriate to conduct further research with multiple case studies as a starting point. This would make a comparison of the results from the various cases more applicable. Furthermore, we believe that it might be adequate to indulge in research on this topic that follows the study object over a longer period of time. Since the phenomenon studied here in fact is a protracted occurrence, but we solely gathered our data over a shorter period of the whole process, there might be room for other and more specific findings if a longer and more intensified research approach is applied. Regarding the paradox that uncertainty exists in rational decisions, we figure that there is more research to be done in order to saturate the experienced need for new research findings. Furthermore, we believe that studies in other industries would be of great interest in order to explore new thinking about decision-making associated with the market introduction of innovations in uncertain environments. One has to

remember that the company studied in this paper is active in an old and very traditional industry. To conduct research on similar assumptions, but in other industries, would be an interesting future research approach. In addition to this, further research could be attempted on similar innovations in other countries in order to widen the scope of the theoretical findings.

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## **Appendix I – Interview questionnaire**

- ➔ Tell us about your background, education, job- and industry experience, and how you came to work with JTC.
- ➔ Does this innovation build on new or existing information? What can be characterized as new information and what can be said to be existing information?
- ➔ Do you experience that others possess the information needed to discover such an innovation?
- ➔ How do you think your background can have affected the discovery of the new method?
- ➔ What was it that made you discover such an innovative thing?
- ➔ Do you have any former experience of product development or have you ever worked close to a market? If so, how do you think this can have affected the discovery of the new method?
- ➔ What role do you think your network had/still has in the discovery stage/exploitation phase?
- ➔ What, if any, affect have your customers had on you regarding the discovery stage/exploitation phase?
- ➔ Have your customers had any effect on decision-making in the discovery stage?
- ➔ What role/importance did strong (close) and weak (fluctuant) network contacts have for the discovery?
- ➔ During the discovery stage, did you two discuss about and decide on a lot of issues?
- ➔ How were decisions made? Did risk play a decisive role?
- ➔ How did you estimate the value of the opportunity and what did you compare it with in order to reach this decision?
- ➔ How long do you think it will take to establish the new method on the market?
- ➔ Was it self-evident for you to exploit the discovered opportunity?
- ➔ How do you experience that you two complement each other regarding your personalities?
- ➔ Regarding the fact that you have a company behind you, do you think this has affected you when it comes to taking risks and being more broad-minded? Do you think you would have exploited the opportunity the way you did if you had not had the company as a back-up?
- ➔ What kind of industry knowledge is required in order to be able to attend to opportunities of improvement or to invent totally innovative products/methods?
- ➔ Is the industry more open or secretively? How do you experience the access to information for those without any experience in the field?

- ➔ Do you experience that JTC is positioned in a cluster of innovative companies? If so, how do you think this affects opportunity recognition and exploitation possibilities?
- ➔ How big do you think the potential market is for the Multi Component Method?
- ➔ How is the market/industry composed regarding how companies do business?
  - ➔ Does the innovation affect the composition? If so, how and to what extent does this affect the exploitation?
  - ➔ Will a new market be created or will the innovation make up for a niche on an existing market?
  - ➔ If so, which one is the main market and in what industry?
  - ➔ Do you see any more segments where the innovation could be introduced?
- ➔ Have you applied for a patent in order to protect the innovation?
  - ➔ If so, was this self-evident? Why?
  - ➔ How do you experience that the patent actually protects the innovation? What is the picture regarding this for the entire industry?
- ➔ Do you think there are any other complementing resources/assets needed in order for you to be able to exploit and compete successfully?
- ➔ What kind of investments have you undertaken concerning the innovation? Financing, HR, and production resources?
- ➔ In what way has the patent affected the resource acquisition?
- ➔ What strategy do you have regarding the exploitation? Did you only address a certain well-defined market or did you strive for customers and contacts in your close proximity?
- ➔ What do you do in order to achieve competitive advantages?
  - ➔ Is this a planned process or do you adjust yourselves over time to the problems that come up?
  - ➔ What is your vision with the method?
  - ➔ Do you have any strategic goals?
- ➔ What are the problems/obstacles you have been confronted with? How did you master these?
- ➔ What decisions were made in the course of work and how were these made?
- ➔ What was done in order to avoid the problems you encountered?
- ➔ What do you do in order to control others trying to take advantage of the things you have developed?
- ➔ How are decisions made? Through discussion or by one person having the power to decide on everything?

- ➔ Do you think that you are more rational or irrational when it comes to choices made concerning the new method? What does it look like for the rest of the business?