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Swedish University of Agricultural Sciences

Department of Economics

The strategic decision making process and influence of personality

-Six case studies of farms in Sweden

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Abstract

Decision making is very critical to any organization's success. This paper studies the strategic decision making processes in five farms and one forest plant school farm, and the individual personality of the managers. The question is whether personalities of the managers play any role in their decision making. To understand the decision making process and managers' personality, case studies were done in six rural farms in the Uppsala region in Sweden. The results suggest that managers use both the intuitive and analytical approaches in the decision making, and that personality play a part in their decision making behavior. However, other factors such as farms' organization, managers' formal education etc, also influence the decision making behavior of the managers.

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1 Introduction

Decision making is a fascinating subject to study. Every human being need to make decisions whether it might be small or big. The ability to make the right decision influences the success or failure of individuals, organizations and even nations to reach to purpose of the decision This paper is going to examine how the decisions are carried out in farms in Sweden and whether personalities of the decision makers play any role in their decision making, especially whether the intuitive characteristics (Sharp 1987) influences the use of intuition in strategic decision making (Sadler-Smith and Sparrow, 2008).

1.1 Problem background

There are different theories about how strategic decision making is made in farms, and one way to look at this process is by using the conceptual model of the decision-making (DM) process (Öhlmér et al. 1998). This model consists of 4 phases: problem detection, problem definition, analysis & choice and implementation. Each of these phases has four sub processes, searching & paying attention, planning, evaluating & choice and bearing responsibility. Basically there are two types of decision making process (Sadler-Smith and Sparrow, 2008). One is analytical and another is intuitive. Different factors play an important role in the process. In this paper more emphasis has been given on the impact of intuitive personality chateristics.

“According to behavioralist Isabel Briggs Myers, a person's decision making process depends to a significant degree on their cognitive style. Myers developed a set of four bi-polar dimensions, called the Myers-Briggs Type Indicator (MBTI). The terminal points on these dimensions are: thinking and feeling; extroversion and introversion; judgment and perception; and sensing and intuition. She claimed that a person's decision making style correlates well with how they score on these four dimensions. For example, someone who scored near the thinking, extroversion, sensing, and judgment ends of the dimensions would tend to have a logical, analytical, objective, critical, and empirical decision making style.”
(www, websters-online-dictionary, 2010)

Öhlmer’s model (Öhlmér et al, 1998) has been used in this paper to explore the decision making behavior in six rural farms in Sweden in order to observe whether personality types as to MBTI have an effect on the individual’s decision making. To the knowledge of the author, no such study has been reported previously. Use of analysis instead of only intuition increases the efficiency in farms (Hasson, 2007), so knowledge in this issue may be valuable for the advisory service.

There are two definitions of right decisions (Beach, 1993, P 4) :

- “Right decisions are made in the right way
- Right decision yield the right results.”

The first one refers to the process and the process influence the results. Therefore, the two definitions are interdependent. Here strategic decisions are studied, which yield results such as a long time after the decision is made that the environment may change during that time affecting the results. Following Beach (1993), we therefore use the first definition.

1.2 Aim and delimitations

The aim of this paper is to investigate whether a decision maker's intuitive personality characteristics influence the degree of using analysis versus only intuition in strategic decision making. If such influence found in the cases, deeper studies may be motivated. If not found the hypothesis of such a relationship is falsified and more studies may not be necessary. The aim is further developed in subsection 2.6 using concepts defined in chapter 2. Because of time and logistics constraints this study is limited to case studies of the six rural farms in the Uppsala region.

2 A Theoretical perspective

2.1. Decision making

Due to the fact that decision making is often complex and can be influenced by a large number of factors, there is no universal technique to make the right decision (Lee *et al.*, 1999). A decision is about choosing between alternatives that creates a desired outcome. Making decisions, and especially making right decisions, is not always an easy thing to do. Many decisions are considered to be rational and conscious, but most of the decisions an individual takes during his or hers every-day life is subconscious (Sadler-Smith and Sparrow, 2008). This means that the decision is based on other things than pure rationality such as feelings. Important factors that affect the subconscious decision-making process are the individuals experience and knowledge (*ibid*). These factors are often not quickly absorbed.

2.2. External factors

When managers make strategic decisions many factors may influence the outcome of the decision. Some of these forces are external to the firm, while some are internal. Figure 1 shows what factors in the internal and external environment that can have an affect on the decision making process.



Figure 1. External factors, (Lee *et al.* 1999)

External factors that affect the process of decision making could be divided in economical, political, social-cultural and technological etc. In the operating environment, there are forces like suppliers, competition, customers, pressure groups and the labor market (Lee *et al.*, 1999).

2.3. Mental approaches towards strategic decision making

The following section is devoted to sort out two kinds of approaches towards decision making, the analytical approach and the intuitive approach. Analytical and intuitive decision making can be viewed as two end poles on a continuum on the approach to make decisions. In real life, most decision making approaches are often a mix of the two, depending on, for example, the situational context and characteristics of the decision maker i.e. the psychological orientation toward problem solving (Lee *et al.*, 1999).

2.3.1 The analytical approach

In the analytical approach, an individual makes decisions based on rationality. To be rational, one must be completely objective when choosing among different alternatives. Rational decisions are, according to Lee, decisions where 1) the problem is clearly defined, 2) the goals are clearly defined, 3) all alternatives outcomes are known, 4) preferences are clear, constant and known, 5) there are no constraints, 6) the chosen result will maximize the utility for the decision maker. Furthermore, a problem is divided into smaller parts which are analyzed separately and then summed up, it is a conscious and deliberate process. Calculations or listings of pros and cons for reaching goals can be used as tools. The assumption of full rationality follows by the thought that humans are maximizing utility (Jacobsen & Thorsvik, 2002). The rational decision maker chooses the absolute best option under given information. The same authors argue that this is more of an ideal picture rather than the state of decision makers acting in the real world. It is known that human being face mental limitations regarding endless processing of information which leads to bounded rationality. Bounded rationality is a consequence of the environment and context that the decision maker operates in (Jacobsen & Thorsvik, 2002).

2.3.2 The intuitive approach

Intuitive decision-making can be described as an “instinct” or a “gut feeling”. These feelings are subconscious, based on individual experiences, expertise, the structure of the task, and the social environment. According to Sadler-Smith and Sparrow (2008), the intuitive ability is stored as tacit knowledge. The information is processed automatically, and people may often know more than they can tell. A study conducted revealed that decision-makers relied more on tacit and informal data, such as opinions, stories, analogies and metaphors, than on formal data and facts when a decision was made (Sadler-Smith and Sparrow, 2008). This does not equal wrong decisions but rather irrational decisions. Intuitive thinking starts with knowledge and experience. It is stored in the brain as tacit information. The individual is often not aware that an intuitive decision is being made. Time is an external factor that affect whether the decision is intuitive or not. With little time to make a decision, intuitive thinking is favored. The individual influence over the subconscious system does also affect the intuitive thinking (*ibid*). Decision makers are always more or less intuitive when making decisions. It is the degree of analytical thinking that varies. Klein’s Recognition Primed Decision Model (RPD) (Klein et al , 2003) is one way of explaining the intuitive information processing.

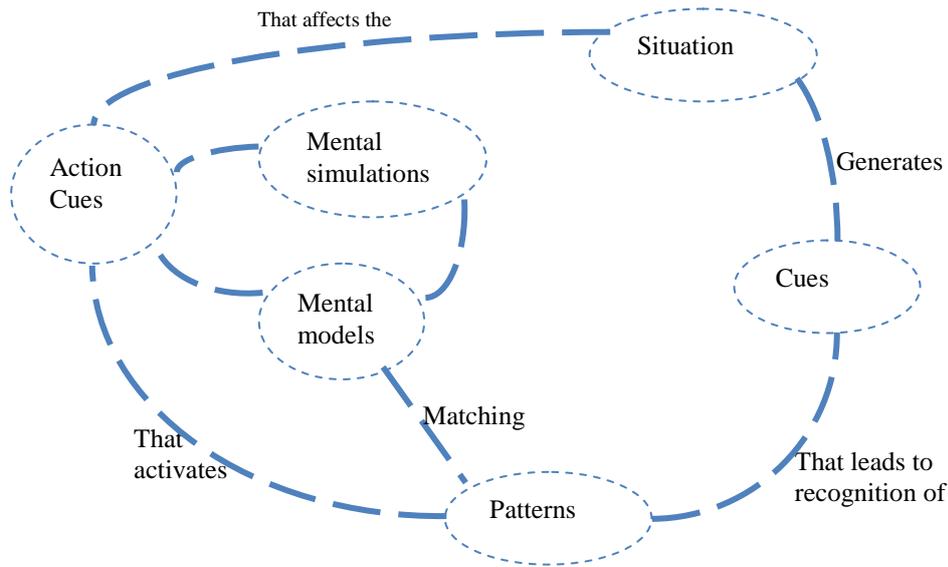


Figure 2 :Klein's Recognition-Primed Decision Model (Klein et al, 2003,)

His model has been illustrated in Fig 2, The decision situation generates cues about the causes of the problem which may trigger recognition of the similar situations previously that the decision makers has experienced or heard about it. A pattern may be recognized that activates cues about actions which may solve the problem. The decision maker simulated mentally what would happen based on his/hers mental models of the relevant part of the reality which may produce an intuition of what to do. The model shows the importance of experience and well developed mental models for intuitions.

2.4. Öhlmér's decision making model - the matrix

To describe and explain the behavior in strategic decision making, we need concepts. The conceptual decision making model developed by Öhlmér et al. (1998) (see Table 1) can be considered as one appropriate model for this type of study. It is one of the few models that includes the entire process from problem detection to implementation, and it contains concepts explaining each part in further detail. It describes the decision making process as a matrix of four functions and four sub processes. The functions consist of problem detection, problem definition, analysis and choice, and implementation. The four sub processes of information search and paying attention, planning and forecasting, evaluating consequences and choice, and finally bearing responsibility are a part of each function of decision making. The fact that the model is a matrix allows jumps back and forth between the different functions and processes and the process is not bound to a certain linear process.

According to Olson (2004), when using this matrix model in a farm context, the farmer's values and goals should have been developed before any decision process is started. Observation (included in the sub process of information search and paying attention) is part of every phase of the matrix in addition to bearing responsibility. For example, a farmer knows that he or she is responsible for considering certain values and goals; this concern is what starts the process. Bearing responsibility is the driving force behind searching for problems and opportunities, defining the problems and solution alternatives, analyzing and choosing the best alternative, and implementing the decision (ibid).

Table 1: Öhlmér's decision making model including the four phases and sub processes (Öhlmér et al 1998)

Sub process Function	Information search and paying attention	Planning and forecasting consequences	Evaluating consequences and choice	Responsibility bearing
Problem detection	Information scanning, paying attention	Forecasting consequences	Consequence evaluation; Problem?	Checking the choice
Problem definition	Information search, find possible options	Forecasting consequences	Consequence evaluation; choice of option to study	Checking the choice
Analysis and choice	Information search	Planning and forecasting consequences	Consequence evaluation; choice of option	Checking the choice
Implementation or action	Information search cues to outcomes	Forecasting outcomes and consequences	Consequence evaluation; choice of corrective action(s)	Bearing responsibility for final outcomes, feed forward information

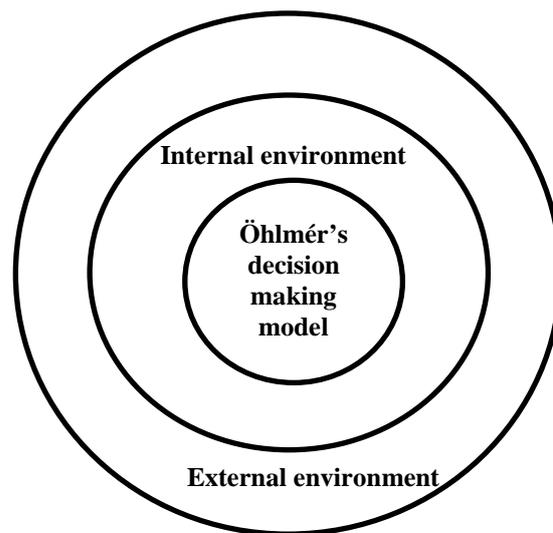


Figure 3: Öhlmer's decision making matrix model within the external and internal environment.

In the figure 3 , it shows that factors internal and external to the firms influence the behavior in the decision making process. The manager's values, goals, and personality belong to the internal environment as well as the farms's resources. Customers, suppliers, competitors, product substitutes, national economic policy etc belong to the external environment. The focus in this study on the influence of the personality.

2.4.1 Problem detection

Problem detection includes scanning and searching external and internal information in order to discover a problem or an opportunity (Öhlmer et al., 2000). A problem is defined as a perceived difference between status quo and a desired situation and can be considered a threat for a person. Such a difference can also be regarded as an opportunity to improve the current perceived situation. A change might occur in the farm's external environment or a manager can realize that his goals and values are unclear, inconsequent or under change. The problem detection is a highly important phase as it triggers the individual's motivation to engage in the decision ahead. This phase results in whether a problem is discovered or not. Since individuals have different perceptions of the same situations, and are likely to have different values, then different managers will think of situations in their own personal way. What is considered to be a problem by one person does not have to be considered the same by someone else.

A problem is either identified and accepted or ignored depending on whether the decision maker detects it or not. It can be detected pro-actively by creative thinking, or in a passive way through other persons. The sub processes in problem detection are: information scanning, evaluation of consequences and evaluating whether this problem is important enough to be dealt with. If it is decided to deal with then the decision maker make a judgment of the scope of the problem. Should the problem already be specified (e g new policies or rules) then the

decision maker will not have to characterize the problem by himself. The level of information search varies between individuals. Öhlmer et al (2000) found that farmers with an evasive mind do not pay as much attention to information as others. Nevertheless, the amount of processed information has a direct impact on the assessment of the problem and its perceived scope.

2.4.2 Problem definition

Problem definition is a process of specifying the problem, identifying decision options and choosing options to develop further. Correctly defined problem is an inevitable process in problem solving. Properly defined problem is half way to success. The behavior in problem definition follows the pattern of information search, ideas of options, perceived consequences of options and options chosen for further studies (Öhlmer, 1998). Based on behavioral literature (Kleindorfer et al,1993), presented a hypothesized model of problem definition (figure 4).

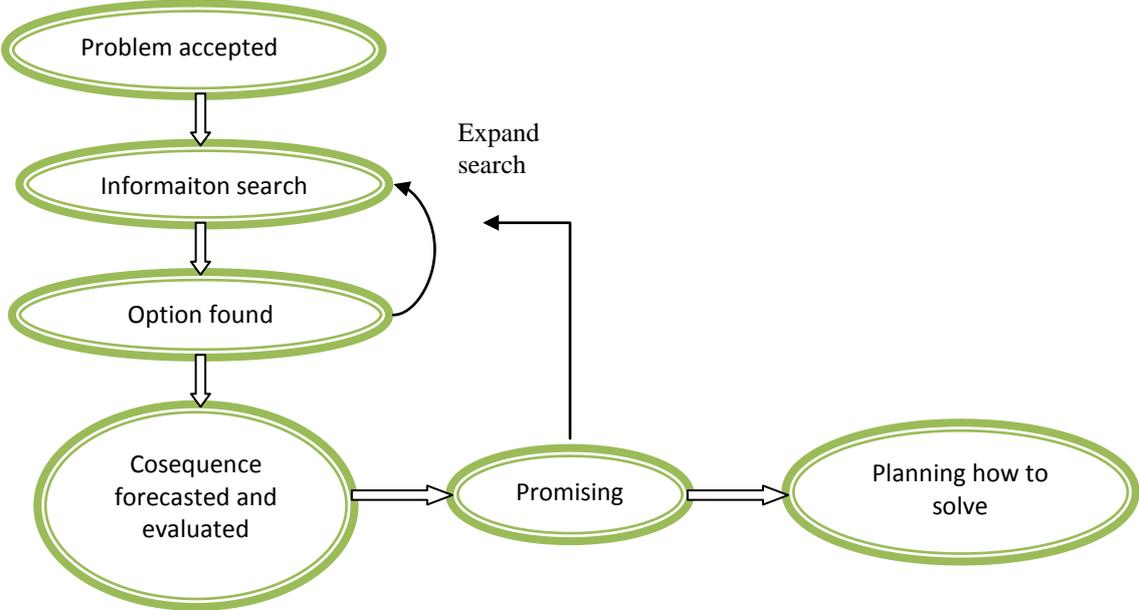


Figure 4: A hypothesized model of problem finding (Kleindorfer et al., 1993)

Once a problem is recognized it should be framed and accepted. Frame is a construction of mental picture which guides the decision maker’s interpretation of what is going on. The frame does not only set the outlines for a problem, it is also a language for communicating the issue to co-workers and other stakeholders. The frame is the foundation of understanding the situation and deciding what to do about it (Beach & Connolly, 2005). Usually information is obtained from the person’s memory but when that is not enough other external sources such as magazines and colleagues are used. According to Kleindorfer (1993), individuals often generate alternatives by local search which is associated with anchoring, business as usual, narrow problem focus and non creative decision making. Such isolation effect refers to the tendency of simplifying the problems and breaking them to manageable size.

Choice of option involves generation of ideas. It involves conscious and subconscious processes and it is partly under rational control. Evaluation of the options was studied by Beach (1993) who found that decision makers try to find options that address the problem, while at the same time fit in with farm's beliefs, values and goals. The initial evaluation results in the identification of an option for further study. However, the choice of option is constrained by social norms and cultural taboos. Going against established norms may, however, be the key to solving a complex problem. Moreover, personality type also affects evaluation process and depends on whether person is risk averse or risk taker (Kleindorfer et.al., 1993).

2.4.3 Analysis and choice

Analysis and choice includes more information search of the options that have been selected for further investigation. This phase also involves planning actions, estimating consequences, evaluating, and choosing action(s) (Öhlmér et al., 2000). This phase is seen as the decision event however analysis and decision can also be seen as part of studying and eliminating options with problem definition. A choice means that the decision maker has made up his mind on what he considers to be the best option. This can be discussed and evaluated with trusted people in the decision maker's network. Risk and evaluation of consequences are important in this phase. However, making a choice does not guarantee implementation. The decision maker is checking the choice in order to develop an intention to implement the chosen option(s) based on social norms, personal norms, habit and direct situational influence.

2.4.4 Implementation

The decision maker has to make up his mind in the implementation phase (Öhlmér et al., 2000). The chosen option(s) are decided on to be implemented and the decision maker becomes aware of the uncertainty regarding the consequences of a chosen option, and moreover aware of how great the importance is regarding the uncertainty. The outcome of a repetitive decision is mostly more certain than that of a unique decision. A way of handling risk and uncertainty is incremental implementation.

The implementation has to be coordinated with other activities in the organization. The decision maker gathers information on outcome(s) of a decision and might write it on paper or use a software program. When the implementation gets evaluated, it is compared to expected outcomes before the actual implementation took place.

2.4.5 Sub-processes

Information search and paying attention is about overviewing the internal and external information, comparing observations with expectations and perceiving eventual differences. Planning is a part of the analysis and choice phase. When planning occurs, the decision maker is calculating the outcome of the chosen alternative. Evaluating and choosing is within all four phases and is about evaluation of different consequences that may occur. Taking responsibility is also within all four phases and is about comparing alternatives with trusted persons thoughts, such as family or counselor and following up the results.

2.5 Personality

Whether the decision makers use conscious thinking and analysis or only the tacit system and intuition depends on many factors as illustrated in Fig 3. One of these is the personality.

“Personality can be defined as a dynamic and organized set of characteristics possessed by a person that uniquely influences his or her cognitions, motivations, and behaviors in various situations” (Ryckman, 2004).

The Myers-Briggs Type Indicator (MBTI) is one of the most popular personality tests. It is claimed by its publisher Consulting Psychologists Press as "the best-known and most trusted personality assessment tool available today" (www, cpp, 2010). It has four pairs of preferences or dichotomies. These are shown in the table 2.

Table 2. Dichotomies in the Myers-Briggs Type Indicator (MBTI)

Dichotomies	
Extrovert	Introvert
Sensor	Intuitive
Thinker	Feeler
Judger	Perceiver

2.5.1 Extrovert and Introvert

The choice for extroversion and introversion are often referred to as attitudes. People with extrovert attitude direct towards outside world. They get energy by being socially active, they like to share their thought, they are out going. These people are naturally socially active, expressive, social and with lots of interest. They develop ideas thorough conversations with others. On the other hand introverts energy intend towards internal world. These people tend to be reserved, private, cautious. We can see the basic characteristics extrovert and introvert in the table 3.

Table 3. Introvert-Extrovert Characteristics (www, austincc, 2010)

Introverts	Introverts	Extroverts	Extroverts
Can be happy alone	Reserved, quiet and deliberate	Are social-need people	Establish multiple fluid relationships
Dislike attending parties	Form a few deep attachments	Demonstrate high energy and noise	Engage in lots of activities
Need time alone to recharge	Concentrate well and deeply	Communicate with excitement	Have many best friends and talk to them often
Prefer non-group work	Communicate best one-on-one	Draw energy from people-loves parties	Prefer face-to-face communications
Cautious in meeting people	Think carefully before speaking	Lonely and restless when not with people	Respond quickly

2.5.2 Sensing and Intuitive

According to the Myers-Briggs typology model the sensing and intuitive characteristics are regarded as information gathering (perceiving) functions. These characteristics indicate how people process and interpret data. Sensing people tends to focus on facts and concrete data and they process information through five senses. Intuitive people tend to prefer abstract data and they process information through patterns and imagination.

Table 4 . Sensing and intuitive characteristics (www, mypersonality, 2010)

Sensing Characteristics	Intuitive Characteristics
Concrete	Future-focused
Realistic	Sees possibilities
Lives in the present	Inventive
Aware of surroundings	Imaginative
Notices details	Deep
Practical	Abstract
Goes by senses	Idealistic
Factual	Complicated
Concrete	Theoretical

2.5.3 Thinking and feeling

Thinking and Feeling characteristics refer to the way people make decisions. Thinker people are objective decision makers. They are inclined to make decisions based on facts and logical point of view. The decision is influenced by their head rather than their heart. Feeler people are subjective decision makers. Their decisions are influenced by their heart instead of head.

Table 5 Thinking and feeling characteristics (www, mypersonality, 2010)

Thinking Characteristics	Feeling Characteristics
Logical	Decides with heart
Objective	Dislikes conflict
Decides with head	Passionate
Wants truth	Driven by emotion
Rational	Gentle
Impersonal	Easily hurt
Critical	Empathetic

2.5.4 Judging and Perceiving

According to the MBIT model people have a preference of using judging or perceiving function in dealing with the outside world. Judging people prefer order, structure and planned. Most decisions are pretty easily made by judges but perceivers may have difficulty in the decision making. And perceiving people are flexible and keep their options open. Judging people rather want to finish tasks where perceiving people want to keep things open ended.

Table 6: Judging and Perceiving Characteristics (www, mypersonality, 2010)

Judging Characteristics	Perceiving Characteristics
Decisive	Adaptable
Controlled	Relaxed
Good at finishing	Disorganized
Organized	Care-free
Structured	Spontaneous
Scheduled	Changes tracks midway
Quick at tasks	Keeps options open
Responsible	Procrastinates
Likes closure	Dislikes routine
Makes plans	Flexible

2.6 Research questions

As mentioned in 1.2, this paper is going to study the decision making process in six Swedish rural farms and effects on the decision process by the individual personality of the decision makers. The literature review shows that intuition is defined differently by the decision making researchers, such as Sadler-Smith and Klein, and by personality researchers, such as Myers-Briggs and Sharp. In the study, Klein's RPD model has been used as an operational definition of the intuitive thinking process because intuitive decision making is an intuitive thinking process, which is not the same as Myers-Briggs concept of intuition, which is defined as an intuitive information gathering function. Still it remains to find out whether the use of analysis versus only intuition (according the RPD model) in decision making is influenced by personality, as stated by Myers-Brigg.

To make the research objective precise, research questions have been formulated in the form of one research question for each of the four dimensions in Myers-Briggs typology using the concepts defined in the chapter 2. Here are the four research questions accordingly:

RQ1: Both Extrovert and Introvert can be combined with the RPD

RQ2: Both Sensing and Intuitive can be combined with the RPD model

RQ3: Feeling is consistent with using the RPD model and Thinking with using Analysis

RQ4: Perceiving is consistent with using the RPD model and Judging with using Analysis.

3 Method

The aim of choosing the right method is to understand what is the most suitable strategy for the given study (Yin, 1991). The nature of the research is one of the factors that determine what method to use. When analyzing the research questions, managers strategic decision making has to be studied as for whether they use analysis or only intuitive thinking. In addition, their personality should be analyzed. Asking whether analysis was used could cause overestimating the degree of analysis used because after rationalization. Therefore, they were asked to describe how the decision was made without any further comments until after the story was told. This procedure excluded the survey method for data collecting. Six case studies have been performed in this paper along with qualitative interviews. The point is to try to find counterexamples falsifying the suggestions of the research questions.

. There are different personality tests available to identify people's personality. Myers-Briggs Type Indicator (MBTI) test has been used in this paper as it is one of the most widely used (www.counseling.mtu 2012 and Sharp 1987) personality testing tools for this kind of study.

3.1. Case studies

Yin (1991) uses a quote taken from Schram (1971) to create a definition of case studies as "the central tendency of a case study is that it tries to illustrate a decision or set of decisions: why they were taken, how they were implemented, and with what results".

A case study is a strategy according to Saunders et al., (2007) for doing research that involves empirical investigation of a contemporary phenomenon within real life context. Case study has considerable ability to generate answers to why, what and how questions. It is mostly associated to qualitative research method and in the use of study organizations. A case study can be related to social science or socially related (Yin, 1991). It is often an in-depth investigation of a single individual, group or community and moreover this method examines a single instance or event, i.e. the case. The researcher tries to understand why things happened the way they did and may also suggest future research. Yin (1991) suggested that researchers should decide whether to do single-case or multiple studies and chose to keep it holistic or have embedded sub-cases. When selecting a case study, researchers often use information oriented sampling, as opposed to random sampling, which is because an average case might not contain the richest information.

Case study method is appropriate here as this paper wants an in-depth examination of the decision making behavior in real life context. Six rural farms in the Uppsala region of Sweden have been chosen for the cases due to logistics reasons. The managers were asked to describe their last strategic and high involvement decision which should be easier to recall.

3.2. Interviews

Interviews can be performed in many different shapes however there are relatively few standard procedures applied to interview research (Kvale, 1997). The lack of standardized procedures brings pressure to the interviewer to make methodological analysis while the interview is conducted. It is before conducting an interview important to have a clear aim (*what*- gain prior knowledge, *why*- purpose of the interview and *how*- knowledge on different interview techniques and determine one) and to plan it as a part of the whole study, while at the same time being aware of what knowledge that is desirable. What has been said in the interview needs to be written down and analyzed in accordance with the aim of the study. The interview results should be evaluated in terms of possible generalization, reliability and validity before the results are reported.

The level of structure differs between interviews due to the how a study is approached. All were asked to describe how the chosen decision was made: Following up questions were made depending on how detailed their story was. The interview conducted within this study is of a half structured and of an explorative kind. Follow up questions are open-ended with the aim of encouraging a deeper thinking regarding the answers. As the conducted interview are concerned with retrospective matters the deeper thinking along with a large number of posed questions help bringing old information and memories back to life.

3.3 Method of analysis

Personality is measured by the Likert type questions from the Myers-Briggs personality test. Whether a decision is made analytically or intuitively is judged according to answer given by the manager in the questionnaire. The hypothesis is tested by comparing the outcome of the Myers_Briggs test with whether interviewee made the decision intuitively (i.e. used RPD model) or analytically.

4 The empirical study

4.1 Case 1

The first interview was conducted on Manager 1 who runs the farm in case 1 which is situated 20Km from Uppsala city. He bought the farm in the 1989.

Before buying this farm, he leased a neighboring farm. The farm currently has two divergent approaches for the business. The first one is breeding business of high quality horses and the second approach is production of hay and silage. The owner is running an insemination station for horses where they both have their own stallions for insemination and let other owners of stallions put their stallions on farm in a sperm donor purpose. For some time farm delivered sperm all around Europe. In the peak season, there are three employees but in the low season the owner is the only working person in the business. From the beginning, the breeding line only was a side-line to the farming but eventually the breeding line grown bigger. Their clientele are mostly private individuals and they work largely in Mälardalen region. particularly in Uppsala and Stockholm.

The big decision that the farm owner made was the selling of land for the riding house and the stable. The motivation was to get some quick money and keep the money in the bank in case something happens. But the real reason was old age. He wants to reduce his work load and his children do not want to be farmers. Otherwise, if he was younger then he could produce hay in that land and get more money in 11-12 years than selling the land. In executing the decision of selling the land, he talked with the municipality and others farmers but his experience played the crucial part.

The farmer does not have a clear goal in his business but rather follow arisen opportunities and tries to catch them. It seems like he never had such goal and the business grew “naturally” through passion and interest to the work. Having no goal but having present success was driven by deep personal values such as people, horses and farming life style. The farmer has tried different jobs on the market but the value of freedom and nature took over and he started his farming business. Through the presented values a motivational drive can be noticed, which plays a role in decision making process.

The way the business is run to large extend is defined by internal factors. The decision not to expand the business was constrained by human resources. Not having the right people who could take over and develop the business lead to decrease in business activities. Nevertheless, financial situation, physical and information resources are on very satisfactory level which allows the business to grow and the operational environment also favours good development because of good relationship with customers and suppliers. The farmer position on the market is quite strong and the threat from new entrants does not influence his business: as the farmer says, “it’s easy to be number one”. In the external environment, the biggest influence have legal issues and competition factors. Legal issue can effect in many different ways such as: how to handle sperm, stable standards for horses, how to transport horses, handling of disease and running farming business. Competition has not been a problem for the farmer so far but a number of new established farms in the region gets some notion of attention which has to be taken into account in the future.

4.2 Case 2

This farm is located just south of Uppsala. It consists of a total of 650 hectares of farm. The farm is owned by a foundation and managed by Manager 2 and his family. They have been managing the farm for the last 25 years. Manager 2 is also the estate manager of the neighboring farm, Kungshamn, this is the sister farm to Fredrikslund and is owned by the same foundation.

In the beginning, the farm was a dairy producing farm but this was abandoned later. Now the production on the farm is highly diversified with, cattle, horses, potatoes, asparagus, strawberries and a store. The diversification is a deliberate choice to spread the risk, and also because the soil is not really suited for getting a high return when growing crops. There is, however, some crop production on the farm, but this is to some extent “only to keep the tradition going” (quote from the Manager 2). In the beginning, the products they grew were sold as self-picking; the customers came and picked the things they wanted on the farm. They stopped with the self-picking a few years back, now they have employees that are doing this. The greater part of these products is sold at the farm, only a minor part is sold in local supermarkets. There are some beef cattle on the farm, but the meat is not sold at the farm. There is a horse stable for 18 horses and these places are rented out. There is also some housing around the property that they rent out.

The farm's shop is part of a concept called “butiken på landet”, the shop in the country sidefarm. This is a concept consisting of in total 16 stores, of which 12 is located in Sweden and 4 in Finland. They are separate companies but are working together with marketing and contacts with suppliers. Their aim is to provide their customers with high quality merchandise and services. Most of these stores are located at farms in scenic environments where the customers meet in a relaxed atmosphere.

The farmer started a shop in the farm in 2004, and it has been very successful. The sales are at a satisfying level and the profit is good. The farmer has been so pleased with the outcome that during the fall of 2009 that he expanded this shop, so that, it could also contain the products the farm is producing as well.

For many years, the products that the farm produced were sold directly to customers at the farm. However, they did not have any good place at the farm to welcome the customers. The demand for the products raised and the farmer decided to make a place for the products to be sold at. On the farm there were buildings that were not used for any specific purpose, therefore the premises were not an issue. They opened a shop in 2004, but this was not the type of shop they initially had planned for. The idea was to open a shop and sell the farm's own products. The farmer and his family went to another farm in the south of Sweden, which had such a store, to do some research and look at it to get some ideas. When visiting this farm the farmer got an offer. The organization behind the concept ‘shop in the countryside’ was looking for a place for a new shop in the same region as the farm is located. The thing about this proposal was that the farmer had to give his answer within a short period of time. Hence, the decision to open the shop was taken in the car on their way to home. Because they had already planned to open a shop and it was not hard to switch their planning in to this new concept. The shop at the farm has been a success for the farmer, and today the turnover from the store contributes about half of the farm's total turnover.

However, the idea to sell their own products in a shop shop in the countryside farm has been with the farmer during the years. Up till now they have sold their own products just a few hours every week and not in the same premises as the shop at the farm. This has, accordingly to the farmer, not been the optimal way to handle the sale of the farm's products. So, during the fall of 2009 they have expanded the space of the store, about twice the size. In this new space they are planning to sell their own grown products and also other food stuffs from local producers. The decision of expanding the shop was taken partly because it was something they have wanted to do for a long time, and partly because the customers have asked for it.

4.3 Case 3

Farm of this case is located approximately five kilometers outside Uppsala. It is a dairy farm producing organic milk. The farm has 140 hectares of natural pasture, 286 hectares of arable land and 100 hectares of rented organic land. Grain cultivation includes wheat, barley, oats and field peas. The total number of cows is 180. All the milk is delivered to Sju Gårdar which is a cooperative of seven farms that all produce KRAV-certified organic milk and sell the milk as a local product under their own brand in the Uppsala region. Other activities of the farm include lamb production and horseback riding Upland tourists.

Farm is in the owner family since 1923 and is today run by the second generation; From January 1, 2010 the two oldest sons i.e. the third generation take over the management of the business. This farm employs 2 full time employees and extra help on weekends and holidays.

Manager 3 is a SLU graduate in animal husbandry and buildings. She ended up here after having conducted her work practice on the farm and had met her husband, who was the son of the owner of the farm at the time. This is a shareholding company and is located on land owned by Uppsala University. The farm receives funding from the EU.

The most recent big decision at farm was an investment in a lagoon manure pit. This interview focused therefore on this strategic decision and how the decision making was conducted. In general, the decisions are conducted as a family, taking into consideration each others' opinions. From the last few years two of the children have been involved in strategic decision making. The involvement of the new generation has also meant that the business has become more structured and a better control system is in place. The family conducts regular work plan meetings and make "wish lists" in the beginning of the year about how they would like to develop the farm. The ideas in the wish list are in written format and monetary estimates and budgets are made for each wish and their feasibility is analyzed. Payback times for each "wish" also play an important role in decision making. Decisions are made jointly with equal bearing of responsibility and therefore consensus is sought for in each decision. The farm makes its decisions independently from the other farms in the Sju Gårdar cooperative.

This has been an organic farm for the last 5-6 years. As an organic farm the manure is used as the only fertilizer and spread onto the fields during the planting season in spring to optimize the nutrition value. During the last few years our farmer has noticed a change in the climate and due to the warmer weather the fields are more often softer and of clay, making it difficult to spread the manure with the tractor. In addition the manure has to be stored for over a year. Operational and external factors such as neighbors living nearby limit the possibilities for spreading manure. Internal factors such as the need for more manure storage capacity also

drove them to search for a solution to the problem. There is also a plan for expansion of the dairy business, to several hundred cows, in the future which affected the need for more capacity. In addition the farm has nearly 400 hectares of cultivated land which needed manure for fertilizing. To define the need for more capacity and to define the problem has been a process of about 3 years. One of the missions of Sju Gårdar cooperative is to be climate friendly and the manure pit should be in accordance with this requirement.

After detection of the manure problem the two children involved in the management of the farm started an information search process, gathering information for the investment decision, making calls to different suppliers of manure storage facilities and made study tours to other farms to see how they had solved similar problems. The consequences of different options such as a concrete or plastic lining lagoon were estimated as the farm is on rental land and located on a Natural Reserve which requires extra safety margin against leakage. Therefore the lifespan of both concrete and plastic lagoons had to be considered. The concrete lagoon was more robust, but had a too long a life span, in case the family decided to divert from the dairy business.

The plastic lining lagoon was considered cheaper and easier to restore due to the farm being located on a nature reserve. However, it was more difficult to build a roof over the plastic lagoon. The option “plastic lagoon” was finally chosen also due to its fast payback time, only 18 months. Where to build the lagoon was also a part of the decision making process, whether to build it on the farm or closer to the fields. This decision had an impact on the logistics of the farm. According to the farmer “our choice depends on how much money we are interested to invest now and analyzing the pros and cons of each investment”. The consequences of this decision will last for a long time as it enables the future expansion of the dairy business. The lagoon has a capacity of 4600 m³ and the spreading of manure is now no longer dependent on the weather, and therefore there is more flexibility. The economic reasons, however, weighed the most in favor of the plastic lining model over the concrete option. This decision also implied a risk, because as the tenants would not receive any compensation for the manure pit in case their rental agreement was ended and the next tenant would not need the manure pit.

The decision to build the plastic lagoon was implemented successfully in the spring of 2009. The contracted company built the lagoon and it has been considered a very good decision already, however the true results will be seen in 2010. Another farm from the Sju Gårdar cooperative has been to see farm’s new manure pit and has evaluated the process from their farm’s perspective and will implement the same type of manure pit in the near future. In general, many decisions are checked and discussed with colleague farmers from the Sju Gårdar cooperative. The checking of decisions is carried out at the end of the year when the family sit down to see what has actually been done during the year.

The business environment is much influenced by external factors such as the European Union’s Common Agricultural Policy (CAP) as well as Swedish regulations on agriculture and organic farming. The price of milk is an economic factor influencing the profitability of the business and social factors such as an increased concern about the origin of food; locally produced products and especially the positive effects of organic food may influence positively their organic dairy business. This can be seen in the future expansion plans at the farm. There is a strong confidence in the future of organic milk. The operational environment is characterized by the Sju Gårdar cooperative and its market position in regards to competitors such as Arla and Valio. Whereas the internal environment is strongly influenced by the

organizational culture of the family, which based on the interview can be considered very organized and analytical with strong values in animal welfare and environmental conservation. In addition, there seems to be adequate resources for running the business and even for expansion. Management of the family business is conducted in a harmonious and democratic manner, respecting each decision makers' opinions.

4.4 Case 4

The Farm in this case is part of one of the biggest forest cooperatives in Sweden. It is situated around 60 km from Uppsala and the interviewee works there as a production manager.. Their main products are conifer seedlings including spruce (65%), pine and larch. They also produce small amounts of broadleaf seedlings. The total amount of seedlings is five million annually. Seeds are collected from seed orchards (59%) and forest stands (41%). The 150 largest customers cover 75% of their turnover. They sell seedlings to Sweden, the Baltic countries and small amounts to Finland.

Depending on the tree variety it takes 1-3 years to grow them to desired size. During that time seeds get cold time treatment in refrigerators and are planted in containers in which they are also sold. Seedlings are growing in greenhouses in the beginning and then moved outdoors where they get long night treatment. During late autumn, early winter seedling containers are packed to cardboards and placed to the cold-storage room, from where they are sold during the spring and early summer. One of the best qualities with larch is that it is naturally resistant to decay; therefore it is used for timber rather than for pulp.

Five years ago they started to grow larch seedlings since the demand was higher than supply. Since then the company has tried to solve problems with larch production. We interviewed the production manager of the unit. He does not have many things to decide. Management above him decides what and how much will be produce. So he cannot decide exactly what he wants. He can decide how to produce and how to use the money and personnel.

The big decision that has been taken recently was the change of production of seedlings. Seedlings are growing too high and there is a problem with grey mould. Too long seedlings are a problem since they want as many seedlings as possible to fit to standardized cardboards and for the transportation. The grey mold, on the other hand, causes dead seedlings and they have to be picked by hand from the containers, being cost consuming. In other words reducing costs and increasing production are their main goals.

The decision is taken more of an analytical along with some help from intuition and experience colleague. Here they detected the problem that seedlings were growing too high. The problem with the height was found in the logistic process because they could not fit the transport boxes. The consequence was that high seedlings increased the costs and problems with storage and packing. They decided to solve the problem with the length of the seedlings. They decided to try the long night treatment and changed the time of sowing couple weeks later in a pilot study to see if it solves the problem with the height of the hybrid larch. They decided to have two options to solve the problem. Sow the plants later in the spring or try a long night treatment on the seedlings. The long night treatment is successful on spruce but had not been tried on hybrid larch before. They did not know how the hybrid larch would react on the long night treatment.

They made two pilot studies, one with the long night treatment and one where the seedlings were sown later in the season. The two pilot studies were conducted on the basis of gut feeling and long night treatment also was supported by a scientist involved in research on hybrid larch, no one else were approached since no other producers exist in Sweden. The seedlings from the two pilot studies were compared to the length of the seedlings from last seasons production and it was concluded that the late sown one time were indeed smaller which were also the case from the long night treatment. However, the long night treatment were delayed three weeks so the result were positive but not as expected, the delay was blamed for this.

During the implementation process the production manager is helped by his colleague who has 30 years experience in the profession. His academic knowledge along with establish formal structure of the company influences his decision making process.

4.5 Case 5

Sju Gårdar is a milk cooperative that is owned by seven farmers in Uppland that started during the year 2008. They produce ecological milk and other dairy products that they sell in and around the town of Uppsala. The farmers together Sju Gårdar control the whole value chain from cow to packaged milk. Starting up this new brand has been a big decision for the farmers that involve taking a lot of risk.

Sju Gårdar is a cooperative that is owned by seven dairy farms in Uppland,. Its business strategy is to sell locally produced ecological milk to the consumers in Uppland under the brand Sju Gårdar. The milk that the seven farms, that partly owns the company, produce is refined into drinking milk, yoghurt, sour cream and into a product that in Sweden is called creme fraische.

Our interviewee manager and her husband run the dairy farm . She decided 2007 that she should take over the farm from her parents. Working and living on the farm has become a lifestyle for the family. She has interest in cows and business, which is why she decided to take over after her parents. They have one full-time and one part-time employee that work at the farm apart from herself and her husband. Her parents are not involved in the farm any more. Prior to the farm joining 7 Gårdar they invested in a new cattle house in which the cattle are not tied up, but can walk about as they please. This was a big investment of approximately 7 million SEK.. This investment was in a condition that she should continue with the milking cows and the take over of the company. The production at the farm is ecological since 1994, and according to new directions the cows have to be loose going in the near future, I which required nvestment if the ecological productions should proceed. The farm has 110 dairy cows and 110-recruit heifer. The bull calves are sold when they are one month old. The cows produce approximately 8000-kg milk per cow and year but they have ambitions to increase the output.

The farm ontain 150-hectare of field that are cultivated, mostly grassland as feed for the cows but also some grain. They don't have a combine harvester at the farm so they buy the service from a machine station, but that is one of the few things they don't do by themselves. The farm ontains also 50-hectare pasture and 40 hectare forest.

In early summer 2008, the farm manager received a phone call. She was invited to join a group of local farmers that was in the starting blocks of launching a milk brand of their own. The idea of starting a local milk brand in Uppland was not new. It had been discussed among the milk farmers in the region since the nineties. The main reason for that was that the farmers were not too happy with the low price that Arla paid them for the milk and starting a brand of their own had for periods of time seemed like a possible solution to that problem.

At the time of the phone call, she was very tired with the pricing of milk, especially since her farm produces ecological milk, and the demand for such milk had risen over time – but the paycheck had not. She told us of a specific point when she was really angry; when Arla bought ecological milk from Denmark in 2007 when the price of milk went up in Sweden. Why couldn't Arla pay the farmers a decent price that reflects the cost of production, she wondered? She was very upset because of this and she seems overall very angry with Arla. When the opportunity to leave Arla for 7 Gårdar came, she felt that it was not much to think about, and that it really was something she wanted to do.

On the meeting, she decided right away that Sju Gårdar was something that she wanted to be a part in. Seven farmers had joined the initiative and they formed a cooperative. The plan was to deliver milk to Gefleortens for processing and sell it under the brand of Sju Gårdar. The farms' excessive milk was to be sold to Milko.

The contract that the farm had with Arla was terminated in August before a contract with Milko was set up. This was a bit risky, but since Arla has some policy to buy milk from any farm wanting to sell, she dared to take the risk even if going back to Arla would initially cost in setting up a new contract. The contract with Arla expired in December and at that time a contract with Milko had been signed. She commented on the riskiness of this with that “you have to take risks in this business. You just have to go for it in order to make something happen.”

Farmer elaborates her view on risk and says that “you have to take risks in the farming business because planning and analysing won't do you any good anyway – the outcome of any investment is too uncertain because of the prices fluctuating from day to day.” That was why she decided right away. She also says that because of the uncertain pricing there's no point in making a budget for the year to come or a calculation over an investment because there's no way of knowing what to expect of the year to come anyway. What she then says is that she does the entire book keeping herself, hence knows the finances of her business very well. Since she knows the economic status of the business in her head she can use that to make plans, but she never writes anything down.

4.6 Case 6

Before 1999, Farm was producing meat had roughly 300 beef cattle. According to the manager of the farm the situation for meat producers became tougher during the early 90's as meat price fell and the costs of feed and fertilizer rose. Due to that fact and in combination with certain circumstances at farm level, the meat production was decided to come to an end and an alternative business opened up. This means that a comprehensive decision making process occurred, namely the process of shifting from meat production to a machine station business. According to the manager, this was a highly risky decision but nevertheless a very necessary one.

Farm is also located just outside of Uppsala. The machine station business was established as an entrepreneurial farm in the year of 1999. Around that time, the previous meat production (300 beef cattle) was decreased during three years time and eventually completely phased out. In the year of 1999 the farm had only a bobcat and grass cutting machines and performed groundwork and house insulation. As time pass further opportunities were identified as a demand for Tylers and pavers was noticed. This led to an expansion of the farm. In the year of 2001, investments were made in heavier machines and services expanded to include those of house cooperatives. However, the largest customer group is still private individuals. Examples of deliverable services are: pool installment, snow clearance and grass molding. Grass cutting and leaf clearance is carried out between mid-May until end of October. During winters, snow shoveling is performed. It is obviously seasonal work, but as this farm offers both summer- and winter ground services it is a demand for its services all year round. There are eight full-time employees, excluding the Manager 6. During summers, when demand is high, there are 25 persons hired. The farm is moreover in charge of roughly 600 hectares of tillable land in areas like Nature Reserves .

The business was until October 2009 divided in two enterprises (one machine station and one for mainly crop production) but is now merged into one. The crop production had an annual turnover of 5 million SEK and the machine station had about 14 million SEK.

The manager is the only manager at farm 6 and he is also the person in charge of making all the strategic decisions. He is 57 years old and has a big interest in entrepreneurial business life. He has a daughter and a son, and both have shown interest for the company. He counts on staying in business some coming years before retiring.

In the year of 1984, He was asked if he wanted to take over the farm business from Uppsala University. It was back then around 300 hectares and has since then expanded. The rural farm started out with meat production and had about 300 beef cattle in two stables. Calves were bought in. There were three employees at that time compared to today's 25 at the most. However, in 2003, the meat production was finally put to an end as the stables were getting worn out and our manager understood that it would cost millions to restore or build new stables. Moreover, having animals was very time consuming and animals could get sick at any time and therefore among other things, it was difficult for him to plan his working time.

Detection of the problem with meat production was not a sudden idea, but had developed during a period of time in the 90s. When the meat price fell and cost of feed and fertilizer rose (with the EU-entrance) then his calculations showed that the business would suffer. Nevertheless, the final decision of conversion came when a virus killed of five or six cattle at once and stables had to be isolated for at least a month.

When the meat production finally came to an end in 2003, business had already changed direction as two grass-cutters and excavator machines had been invested in during 2000 and taken into use in Uppsala as a demand for it was noticed. He considered it at first to be a complement to the meat production as only growing crops would not generate enough money. There was also a lack of interest in meat production as the new business was promising and the farmer wanted to direct his efforts into that business field. As time went passed, the grass-cutting business grew and currently, Farm 6 moulds 240 hectares in the city which means that ten mowing machines are in use in total. Grass in all parks, around Uppsala castle and around the university buildings is being cut by the farm. Contracts are a result of procurement and the dominant customer is Uppsala kommun, the municipality of Uppsala.

There were some alternatives considered and also carried through back in the time of conversion. Harvesting of hay was one alternative but since it was highly dependent on weather which resulted in seasonal work during weekends and nights, the alternative was abandoned and the machines got sold off as they were too expensive to keep if not run on a frequent and regular basis.

This strategic decision has been successively implemented. According to the farmer , he started the business “just in time”, which is one key factor for the success. Another reason is the friendly atmosphere in between competing farms, at least the smaller ones; should one farm over loaded with work then it is split among other actors.

The farmer is responsible for the decision making at the farm. However he consults his employees when new machines should be bought order to get to hear their views and by that reduce future dissatisfaction. The drivers (employees) get to test drive and so on. He never delegates any strategic decision making responsibility but rather decisions regarding the operative day-to-day related work. Regarding risk taking, He claims that he earlier took decisions that meant greater risks, for example quick adoption to new techniques, but has during later years become less of a risk taker. Being a quick adopter has sometimes cost him money.

4.7 Overview of the cases

Categories	Case Farm					
	1	2	3	4	5	6
Production	Breeding horses, lay, silage	Cattle, horses, crops	Milk	Seedlings	Milk	Machine station Service
Total land	N/A	650 Hectares	526 Hectares	N/A	N/A	840 Hectares
Number of Employee	2 employees during peak season	N/A	2 full time employees	N/A	N/A	8 full time employees, 25 peak season employees
Chosen Decision	Selling of land	Opening a shop	Investment in lagoon manure pit	Change of production process of seedlings	Joining the Sju Gårdar	Shifting from meat business to machine station business

5 Personality of the managers

To identify the personality of the managers, a slightly shortened version of Myers-Briggs Type Indicator (MBTI) test were given at the end of the each interview. The procedure suggested by www.mypersonality.info was followed and the testpersons choose which personality dichotomies they more likely belong to. Here is the following result from the tests.

Table 7 : Results of the managers' personality test

Manager of the cases	Dichotomies			
	Extrovert/ Introvert	Sensor/ Intuitive	Thinker/ Feeler	Judger/ Perceiver
Case 1:	E	N	F	J
Case2 :	E	S	T	P
Case 3	E	N	T	P
Case 4	I	S	T	P
Case 5	E	N	T	Not sure
Case 6	I	S	T	J

Table 8: Decision making behavior of managers from interview

Cases	Analytical /Intuition
1	Mostly Intuition
2	Mostly intuition
3	Analysis and calculation effects the decision
4	By and large Analytic
5	Mostly intuition
6	Both, but intuition dominates

As there are only six cases in this study, it is not easy to determine the effect of the personality during the decision making process of the managers. However it can be seen that there is a general pattern between the personality of the managers and their decision making behavior. In the following table examples of farmers' decision making behavior have been given relevant to their particular dichotomy.

Table 9 -- Examples of personality Influence on the decision making behavior of the farmers relevant to their dichotomy.

Dichotomies	No of the Case	Exemples
Extrovert	1	There are number of traces of extrovert personality of the farmer can be observed in the case 1. Such as the main value of the farmer is people. Connections and networking play key role in the business. Generally, in making decisions, he likes to listen to many different opinions.
	2	To open up the business, the farmer and his wife visited southern Sweden to talk with other store owners. He discusses his business ideas with his wife and other people. These are the features of extrovert personality.
	3	After detection of the manure problem the two children of the manager involved in the management of the farm ontact to different suppliers of manure storage facilities and made study tours to other farms to see how they had solved similar problems. This reflects the extrovert tendency in the decision making.
	5	Many decisions are made by sharing ideas with the group of farmers in 7 Gårdar. Mutual discussion plays a big role in their decision making.
Introvert	4	The decision in this case was largely made by the internal pilot study inside the farm.
	6	The farmer does not have many fixed plans written down on paper or on computer but rather have plans in his head. Farmer does not discuss new ideas or up-coming strategic decisions with family, friends or advisors, instead he keeps it all to himself. He claims that consulting with others puts at risk losing his own original ideas. He prefers keeping things to himself and set up scenarios in his head on whether it will work out or not, and what the result will be like.
Sensing	2	Here actually manager decision making styles contradict the personality test result. Test result shows that he belongs to sensing group but in the real life decisions are taken in the farm are mainly intuitive.
	4	Decision making in this farm is basically based on scientific study and professional managerial structure.
	6	Farmer's detection of the problem with the meat production was based on long term carefull analysis of the situation rather than intuitive one.

Intuitive	1	Here the farmer is clearly intuitive person. Because when he needs to choose between the results of the technical calculations and his feelings, he always chooses his feelings.
	3	Though decisions in this farm are not fully intuitive but intuition plays a key role in their decisions such as yearly wish lists about developing the farm are initiated by intuition.
	5	Alm was not happy with Arla as they had too low prices, and starting an own brand was for periods seemed like a solution for the problem. When this opportunity with 7 Gårdar came up the farmer felt that it was not anything to think about this was what she wanted.
Thinking	2	Here it has been found that all the managers in this paper fall in the thinking category apart from the case number one. So it is interesting to see what is the difference in real life. According to the theory thinking people decisions are mostly influence by the facts and figures. They are objective decision maker. On the other hand feelers decisions are heavily impacted by the others opinions and perception. This difference can be seen from the distinct decision making style in case 1 with compare to other managers. In case 1 manager's decisions are mostly dictated by the customers' opinion. As in his word "they (customer) are the teacher." Though all the managers' decisions are influence by customers' comments but here in the case one, the degree of customer opinion is significantly high.
	3	
	4	
	5	
	6	
Feeling	1	
Judging	1,6	One of the key features of judger's type of personality is to make decision making pretty easily. And we can see that decisions made in the all the farms except one and six are involves more than one person. But in the farms one and six decisions are taken only by the manager himself. And manager of the farm number five does not sure about the answers of questions of this dichotomy.
Perceiving	2,3,4	

6 Analysis and discussion

6.1 Degree of analysis in each case

From the interviews with the different farmers we found that most of them have natural business instinct which they got through long experience, family tradition and growing up around the rural farms. They tend to avoid big calculations and formal analysis. Usually simple calculator and discussion with friends and family are enough to make decision. Most of the farms do not have any formal decision making structure or any code of conduct to follow. The owner themselves are the de facto decision maker. However in the case of farm 4 things are quite different. This farm has well established management structure. Hierarchy of the management and job responsibility are well defined. As the manager of the production unit said during the interview that “he does not have many things to decide. Management above him decides what and how much will be produced. So he cannot decide exactly what he wants. He can decide how to produce and how to use the money and personnel.” This farm has typical professional management decision making procedure.

In the case 1 most of the farmer’s decisions were made intuitively which fits with his extrovert personality. Although these decisions were not big, this makes it easier for him to skip the deep analysis. The problem recognition stage went “naturally” without extra effort. In problem detection the interviewed farmer tries to be proactive but also many of the problems are solved “on the go”. His judger personality makes him solve the problem without taking extra stress. The business environment allows him to be dynamic, well informed and successive. It is also supported by the level of own motivation, ability and knowledge. The problem detection part is a conscious process whereas problem definition appears to be more subconscious. Thus, we realised that Klein’s model of problem detection (Klein2003) can also be used in problem definition process. As the farmer realised that his daughter doesn’t want to take over the farm it generates cues that he should sell the farm in the future.

In the case 2, the farmer does the decision based on intuition. The reason he said for this was that, analytical decision making is time consuming and needs more expertise. More so, the analytical method of decision making needed resources which a small farm like his couldn’t afford. The management of this farm makes use of the historic and communicative approach of gathering information. When farmer was starting the shop he went to other farmers who were already doing this kind of business, interviewing them and asking relevant questions on how they started and what difficulties they had and how they did overcome them. Based on the process model, we can say that the farmer makes the analysis and choice in line with the theory. The farmer did some information search by going to the southern part of Sweden gain information from a similar farm. Using his intuitive or tacit knowledge he can judge the choice of a decision as either good or bad. In the course of the information search there is some of the information that is not relevant to him or to the present project. When such information is noticed or received, it is filtered and the relevant ones taken into consideration while the others put aside. Farm 2 did not have a problem in choice making since the idea of the shop had long been thought of with the help of customers. The idea to expand the shop was due to the demand for his local products and of course a one stop shop where the customers shall buy all their needs without having to move around searching for other things to buy. This phase in the decision making process was not a problem to the farm since it

hadn't much options. The decision was easily taken to increase the size of the shop that had existed for some time. It can be said that management of the farm or any establishment should make use of both the intuition and analysis in making decisions. This will give the best outcome. This farmer makes use of more intuitive approach and little analysis.

In the case 3 most decisions are based both on intuition as well as analytical decision making processes. Intuition is the way we translate our experience into judgments and decisions. It is the ability to make decision by using patterns to recognize what is going on in a situation and to recognize the typical action script with which to react. Experienced intuitive decision makers, such as manager 3, see the patterns of any decisions he has to make, usually as obvious (Klein, 2004). The intuitive decision making at farm 3 can be therefore considered similar to the pattern recognition process as presented in Klein's RPD model. For example yearly wish lists about developing the farm are initiated by intuition, but each idea is further developed in an analytical way to estimate its feasibility and budget before a decision is made. This is a clear example of decision making based both on intuition and analysis.

In the case 4, as mentioned earlier, the decision making process in this farm is different from other farms in this paper. Recommendation from the higher management and the scientific experiment involves in the decision making process. Their decision is an analytical one though intuition and professional experience helps the analysis.

In the case 5 the option of joining 7 Gårdar was not looked upon in an analytical way by the farmer. This might be because much of the analysis might have already been done by the other farmers that had already joined, but mostly because that was her personality. She claims that she never does any calculations or write things down or make a budget. She seems to prefer the intuitive way of deciding things. If it feels good – just go for it seems to be her attitude towards decisions. She might have a very good intuition so that this kind of decision making has worked for her in the past. This could partly be because that she does all the book keeping herself that she has developed good mental maps, and therefore a good foundation of intuition, that can guide her in this kind of decisions.

In the case 6, farmer is both intuitive and analytical in his decision behavior, as is often the case according to Lunneryd and Öhlmér (2009). Some decisions are more evaluated than others and he mixes intuitive thinking with analytical. For example, when bidding on a public procurement, farmer is scanning his competitors to get an idea of what they are prepared to bid, but his own bid can be decided by a hunch, gut feeling based on experience. In that sense, he uses both an analytical approach and an intuitive approach when making decisions. Here the farmer usually relies on his intuition to make decisions and he typically makes his decision on his own, although sometimes he discuss with his employees to get what they are comfortable with before he takes the final decision. Most managers who have worked in the same field for a longer period of time make most of their decisions by using their intuition, which can be seen clearly in this case.

6.2 Influence of personality on the degree of analysis in the decision making

As mentioned earlier Myers-Briggs intuitive information gathering function is different from the intuitive decision making. Intuitive decision making is an intuitive thinking process. Here we are going to discuss the research questions to check whether the intuitive approach can be combined with first two dimensions of the Myers-Briggs typology and whether the analytical approach is consistent with last two dimensions of the theory.

RQ1: Can both Extrovert and Introvert be combined with the RPD?

If we look at Myers-Briggs model than we can see that she considers the extrovert and introvert people to be two different types of people. One is internally oriented and another is externally oriented. However the interesting thing to notice here is that none category of people follow the analytical process to decide to act as an extrovert or introvert. For example, extrovert people draw energy from the socializing and outward activities. When an extrovert person hears about a party from friends then he/she tends to attend it. He/she does not follow the analytical process to decide whether to attend it or not. The same is the case for an introvert person who usually decide not to attend the party. The way both type of people took decision is similar to RPD approach. So we can say that both extrovert and introvert can be combined with the RPD.

From the empirical study, managers of the farm 1, farm 2, farm 3 and farm 5 belong to extrovert category and; farm 4 and farm 6 belong to introvert category (see table 7). The manager who falls into the extrovert category, meet with people from outside, discuss their ideas, have connections with many people. This kind of outward tendencies of them do not come from the rational decision making approach. This is rather more similar to RPD model. Thus, the empirical data support a positive answer on RQ1.

RQ2: Can both Sensing and Intuitive be combined with the RPD model?

Although managers of the farm 2 and farm 6 use the intuitive decision making approach, they both fall into the sensing group. But the manager of the farm 4 clearly shows that sensing can be combined with the analytical decision making approach.

The managers in the farm 1, farm 3 and farm 5 shows intuitive personality trait, and farm 1 and 5 use also only intuitive decision making. However, farm 3 uses analytical decision making despite the intuitive personality trait. Thus, the cases show that both the sensing and intuitive trait can be combined with both analytic and intuitive decision making. Thus RQ2 is answered positively, but the thinking personality traits are consistent also with intuitive decision making.

RQ3: Is feeling consistent with using the RPD model and Thinking with using Analysis?

According to the Myers-Briggs model a thinker takes decisions by logically analyzing the pros and cons of a matter and think objectively, which are very similar to the analytical decision making style and all the farms in the cases except farm 1 fall in the thinking group. Although the degree varies regarding how deeply a manager analyzes the situation, all of them use a certain level of analysis even if farm 2,5 and 6 use mostly intuition. So thinking is consistent with analysis at least to some degree.

In addition subjectivity of the situation influences the feeling persons decision making process. It involves more of a feeling than the logical objective calculation. In the case 1, the manager's decision making style follows the RPD model and his decision is heavily influenced by how he and other people feel about a matter which is a trait of feeling person. So it indicates that feeling is consistent with RPD. Thus the answer of the RQ3 is positive.

RQ4: Is perceiving consistent with using the RPD model and Judging with using Analysis?

In theory, a Judger person makes decisions in a well planned, structured and organized manner. However they also take decisions quickly. On the other hand perceiving people takes decisions in relaxed, disorganized and spontaneous manner. But they are not quick decision makers.

Although some of the decision making style of a Judger, like structured, organized manner, is consistent with analytical approach and relaxed, spontaneous manner is consistent with RPD model, theory says that Perceiving people cannot take decision easily and Judger people take decision easily which contradict with managers of the empirical studies of this paper. In the empirical studies, manager 1 and manager 6 are judger people but their decision making is more similar to RPD model than analytical. In addition, farm 3 and farm 4 follows analytical decision making style though there managers are perceiving people. So the answer of the RQ4 is not positive.

7 Conclusions

In this paper when we look at some Swedish rural farms then we can see that these rural farms are going through transitional phases. Until now the decision of the rural farms are mainly made by the individuals who are also owner of the farms. Their decisions are deeply influenced by family and long experience. They do not bother about too much analysis and calculation. Intuitive thinking dominates in the business.

But this trend is changing. Farm 4 is the good example of this trend. The production manager just cannot decide what he feels. His decision should follow the procedure set by the upper level. He needs to explain his decision to the management. Family tradition does not have a say in the decision making.

Another example is the farm 3. They are preparing for the younger generation to take over the business. Though the new generation will get the business know how from their parents, they obviously will use more technology, calculation and analysis in their decisions.

In case 1 the farmer's children do not want to follow their family tradition and become farmer. They are going to schools and have a job somewhere else. So the farmer is reducing the size of the business. May be a company like farm 4 is going to fill the vacuum.

So decision making of the new managers will be more analytical than in present time. However no matter how much education managers have or how professional they are. In the end, ability to develop instinct and use tacit system along with analytical process will make the difference between a good decision maker and an ordinary decision maker.

As the deep understanding of the managers decision making behavior and its relation with personality is very important for any businesses, more research should be done in this area. Future research should include some of the personality characteristics to increase the degree of explanation of managerial behavior.

Another implication would be identification of what personality characteristics that have no influence on the decision making behavior. There could also be implications for the advisory and consultancy services to managers.

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Appendix A Interview Questionnaire

Decision making matrix:

1. What is the big decision you have made recently?
2. Why did you make that decision and how did you implement that?
3. What are the advantages and disadvantages of that decision (consequences)?
4. How did you plan that?
5. How did you gather information?
6. What are the other alternative options and opportunity cost?
7. What would have happened if you had chosen other options?

Problem detection:

- a. Usually how do you detect problem or find new opportunity in your business?

Analysis and choice:

- a) What is your procedure in analyzing a problem?
- b) Do you use statistical and other computer models in the analysis?
- c) What would you do if you find that your calculation tells one thing and your gut feeling tells another thing?
- d) Do you work out all the pros and cons before making a decision?

Miscellaneous:

1. Do you rely on 'gut feelings' when make decisions?
2. How do you react in a situation where you need to take an immediate decision? What process will you follow for decision making in such a critical situation?
3. Can you tell about a situation where your analysis of a problem was deemed to be incorrect? What would you have done differently?
4. Do you always double-check your decision?
5. How do you handle projects with short deadlines that require precise calculations and analysis? What is your approach?
6. When a logical approach to a problem is ineffective, how do you come up with a solution?
7. How do you accommodate last minute changes that have to be incorporated into your work?
8. What steps do you take when there is a decision to be made, but without having all the data available?

Organization:

1. What is the size of your company?
2. Can describe about the structure and nature of the company?
3. How the decision is taken in your company—is there any special guideline for it? Is there a formal process involves a group of people or each individual independently takes decision in his/her area?

Values:

1. How do your personal values and corporate values influence your decision making?
2. How would you manage a situation where you believed that something was not in compliance with professional ethics?

Environment:

1. How the environmental factors influence your decision making e.g. political, legal, weather, technological changes, market, competitors, economic condition etc.

Personal:

1. What is your position (job responsibility) in the organization?
2. What is your academic background?
3. How your academic background and professional experience influence in your decision making?
4. Do you have role models which influence your decision making?
5. Can you describe a typical day in your job?
6. How would you like to take decision – intuitively or analytically?
7. Has job experience changed your decision making style?
8. What do you think -how significant is the impact of personality on managers decision making?

Appendix B Personality Test Form

1. Where is your energy naturally directed?

Extroverts' energy is directed primarily outward, towards people and things outside of themselves.

Introverts' energy is primarily directed inward, towards their own thoughts, perceptions, and reactions.

Therefore, Extroverts tend to be more naturally active, expressive, social, and interested in many things, whereas Introverts tend to be more reserved, private, cautious, and interested in fewer interactions, but with greater depth and focus.

Extroverts often:

- Have high energy
- Talk more than listen
- Think out loud
- Act, then think
- Like to be around people a lot
- Prefer a public role
- Can sometimes be easily distracted
- Prefer to do lots of things at once
- Are outgoing & enthusiastic

Introverts often:

- Have quiet energy
- Listen more than talk
- Think quietly inside my head
- Think, then act
- Feel comfortable being alone
- Prefer to work "behind-the-scenes"
- Have good powers of concentration
- Prefer to focus on one thing at a time
- Are self-contained and reserved

Extrovert (E) or **Introvert (I)**

(www, mypersonality, 2010)

2. What kind of information do you naturally notice and remember?

Sensors notice the facts, details, and realities of the world around them whereas Intuitives are more interested in connections and relationships between facts as well as the meaning, or possibilities of the information. Sensors tend to be practical and literal people, who trust past experience and often have good common sense. Intuitives tend to be imaginative, theoretical people who trust their hunches and pride themselves on their creativity.

Sensors often:

- Focus on details & specifics
- Admire practical solutions
- Notice details & remember facts
- Are pragmatic - see what is
- Live in the here-and-now
- Trust actual experience
- Like to use established skills
- Like step-by-step instructions
- Work at a steady pace

Intuitives often:

- Focus on the big picture & possibilities
- Admire creative ideas
- Notice anything new or different
- Are inventive - see what could be
- Think about future implications
- Trust their gut instincts
- Prefer to learn new skills
- Like to figure things out for themselves
- Work in bursts of energy

Sensor (S) or **Intuitive (N)**

(www, mypersonality, 2010)

3. How do you decide or come to conclusions?

Thinkers make decisions based primarily on objective and impersonal criteria--what makes the most sense and what is logical. Feelers make decisions based primarily on their personal values and how they feel about the choices. So, Thinkers tend to be cool, analytical, and are convinced by logical reasoning. Feelers tend to be sensitive, empathetic, and are compelled by extenuating circumstances and a constant search for harmony.

Thinkers often:

- Make decisions objectively
- Appear cool and reserved
- Are most convinced by rational arguments
- Are honest and direct
- Value honesty and fairness
- Take few things personally
- Tend to see flaws
- Are motivated by achievement
- Argue or debate issues for fun

Feelers often:

- Decide based on their values & feelings
- Appear warm and friendly
- Are most convinced by how they feel
- Are diplomatic and tactful
- Value harmony and compassion
- Take many things personally
- Are quick to compliment others
- Are motivated by appreciation
- Avoid arguments and conflicts

Thinker (T) or Feeler (F)

(www, mypersonality, 2010)

4. What kind of environment makes you the most comfortable?

Judgers prefer a structured, ordered, and fairly predictable environment, where they can make decisions and have things settled. Perceivers prefer to experience as much of the world as possible, so they like to keep their options open and are most comfortable adapting. So, Judgers tend to be organized and productive while Perceivers tend to be flexible, curious, and nonconforming.

Judgers often:

- Make most decisions pretty easily
- Are serious & conventional
- Pay attention to time & are prompt
- Prefer to finish projects
- Work first, play later
- Want things decided
- See the need for most rules
- Like to make & stick with plans
- Find comfort in schedules

Perceivers often:

- May have difficulty making decisions
- Are playful & unconventional
- Are less aware of time & run late
- Prefer to start projects
- Play first, work later
- Want to keep their options open
- Question the need for many rules
- Like to keep plans flexible
- Want the freedom to be spontaneous

Judger (J) or **Perceiver (P)**

(www, mypersonality, 2010)