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Customer Analysis and Knowledge Overview of ProAgria Pohjois-Karjala ry

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Abstract

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This study is an assignment done for ProAgria Pohjois-Karjala ry's Farm Services branch, the main objective being to find out how the organization can increase its sales. As a result of the structural change of the agricultural field in Finland, the amount of the organization's customers is diminishing, so it is essential to find the ways in which it can gain additional sales.

This study is done as an exploratory research, where the topic of the research is triangulated. The three viewpoints of this study are customer perspective obtained from a customer data analysis, operational viewpoint from the organization's field expert interviews and governance overview. These three viewpoints are then combined and compared, a result of which provides answers to the research question. The empirical part of the study was done between February and May 2013.

The results of the study show that there is a lot of growth potential within the organization's current customer base. The key is to develop the current services further and to synchronize them in order to provide added value to the customers. New services are needed to meet the changing needs of the customers. New markets for the services are searched for in Russia, which was determined to be a good direction to pursue.

This study confirms, that essential for ProAgria Pohjois-Karjala ry's future success is to continue constant development of knowledge and know-how. New services can be offered and new kinds of customers served only if there is relevant, high-end know-how available. With its current strategies, the organization is going to the right direction. Some recommendations were given considering structural changes and internal co-operation of the organization.

Key words
agricultural counseling services, triangulation, customer relations management, knowledge management, data mining, strategy

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1 Introduction

The structural change of the agricultural field in Finland is affecting all parties operating on it. Change from an industry with remarkable governmental subsidies to more business-like industry is rapid and its influences are extensive. For farmers, the structural change means that they either have to grow or start planning to discontinue their source of livelihood. The modern, large business-like farms require different kind of support than before, putting a lot of pressure on the agricultural counseling branch as well.

The subject of this study, ProAgria Pohjois-Karjala ry, is a 125-year-old agricultural counseling organization, which is finding its way to continue its success on the agricultural field in the midst of the rapidly changing industry. The purpose of this study is to find out in which ways the organization could increase its sales: the number of the traditional customers is diminishing and new branches of operation as well as new customer branches should be found. This study aims at answering to these challenges by performing a customer analysis and a knowledge overview on the organization.

1.1 Objectives of the study

The hypothesis for this study is that in addition to a customer analysis, a knowledge overview of the organization is needed in order to find out what the customers need and how to meet those needs. Thus, to gain additional sales, an expert organization needs to find out what its customers need and want. For this study, this objective is set in a form of a research question: what are the key areas of knowledge ProAgria Pohjois-Karjala ry's Farm Services will need for future success? This research question has been given several sub-questions, which are presented in chapter 2.2. With the research questions, the study explores the question of gaining additional sales from three different perspectives: customer analysis, viewpoints from the operational field and governance overview. The aim is to give ProAgria Pohjois-Karjala ry useful, practical suggestions of how to reach their main goal, how to increase sales. As the organization has several operational branches, this study concentrates on the largest of the branches, Farm Services. The theoretical backgrounds of the study are data mining, strategical

decision making and knowledge management. The main methods used are statistical data analysis, clustering and semi-structured interviews.

From the customer analysis, the objective is to find out what kinds of customers ProAgria Pohjois-Karjala ry has, how the different customer groups behave, which services are they buying and how can they be grouped. From this information, the customers can be profiled and thus approach the answer of how to sell more services to them. For the operational viewpoint, four field experts of the organization are interviewed to find out their opinions about the needs of the customers and in which ways the customers could be better served. They will also answer to the question of what they would need to improve their own performance. The objective of the governance overview is to find out what the organization's strategies are related to development of knowledge and how the future success will be achieved. These three viewpoints are then combined to find out whether ProAgria Pohjois-Karjala ry is going on the right direction or should the course be changed.

1.2 Structure of the study

This study consists of a theoretical overview of the methods used and of an empirical section where the theories are applied to practice in studying the organization in question, ProAgria Pohjois-Karjala ry. The study is divided into four study parts, each presenting one viewpoint on the study objectives. The first study part covers the customer analysis based on the organization's customer data, utilizing the methods of data mining. The second study part presents the viewpoint from the field, describing the results of the semi-structured interviews with the field experts. The third study part familiarizes with the organization's strategy documents and the viewpoints of two members of the management team. The fourth study part combines and compares these three viewpoints, presenting the answers to the research questions.

As this study follows the guidelines of an exploratory research, several additional study paths were revealed in the course of the study (exploratory research principles are presented in chapter 2.4). Most of these study paths were not followed due to the limited time available for this study, but two additional paths were taken. A current state over-

view of the agricultural field was added on the first study part (chapter 3.2). A larger study part was added relating to the organization's international operations, as information on those was not available from the sources of information used for the other parts of the study. The international operations of ProAgria Pohjois-Karjala ry are presented as an additional study part in chapter 6.

2 Thesis baseline

In this chapter I will first discuss the basis of this Thesis and then formulate the research problem into a main research question and sub-questions. Also, I will explain the principles of accomplishing the four parts of the Thesis.

2.1 Establishing the needs and objectives for the Thesis

This Thesis is an assignment given to me by my current employer, ProAgria Pohjois-Karjala ry, which I will be referring to as simply ProAgria PK in this report. ProAgria PK is a 125-year-old agricultural counseling organization. In Finland, there are 11 independent ProAgria centers, which operate under the governance of Association of ProAgria Centres. ProAgria PK has 55 employees and 8 offices around the North Karelia region. The operations of the organization range widely, from fish farming to local food promotion to EU-subvention counseling and many things in between. (ProAgria PK 2013f , 3 – 17.) From this selection of branches I will be studying Farm Services, which include e.g. dairy farm counseling, organic farming and farm bookkeeping and production and architectural engineering. The international aspect of the study will be the services the Farm Services branch offers to Russian farms.

The ultimate objective of the assignment is to find ways to increase the organization's sales. My hypothesis for this is that the way to improve sales is to determine the knowledge and know-how with which to best serve the customers. As the core of the Farm Services is especially in agricultural counseling, the key to improving services is to improve the organization's knowledge. This includes knowledge management, continuous learning, recognizing existing strengths and proactiveness in know-how. Viitala (2007, 62 – 63) supports my hypothesis mentioning, that according to strategical management researchers, a company can reach success by looking inwards and examining its inner strengths. The need for stretching the study from a customer data analysis towards a knowledge overview is further supported by Berry and Linoff (2011, 5), who reinforce that data mining only will not turn an organization customer centric.

To find out what the inner strengths of ProAgria PK are, I will perform a knowledge overview of the organization. This will not be a complete and thorough knowledge overview where each employee would be included in the study, but an overview where I will seek to find out what kind of know-how the company will need in order to better serve its customers. This will help the organization to structure and steer its develop ment of know-how in the right direction. (Otala 2008, 123; Viitala 2007, 183 – 184.)

As any entrepreneurs, farmers also have their hands full of their core business. With ProAgria as their partner, they can concentrate essentially on just that, their best knowledge area. ProAgria offers them practical advice on e.g. livestock feed and crop cultivation which they can utilize to improve their produce. The other aspect of farming, administration, can be completely left for ProAgria to take care of. (ProAgria Advisory Centres 2011.) In both of these service areas, ProAgria needs to be proactive. The organization's field experts must have the latest knowledge of practical farming issues, and the administration experts must know in advance about directive and regulation inception. In this way, ProAgria can truly provide the customers added value in their business.

ProAgria PK has information on their customers in the form of a Customer Relationship Management system, CRM. It has been decided by the Board of Directors, that this existing information should be analysed in order to gain better understanding of the customer base. Again, the main objective here is to increase sales. As mentioned above, my opinion is that a broader perspective is needed in order to understand the key to proceeding with success.

To broaden the perspective from mere customer analysis to a comprehensive study of success factors, my strategy is to triangulate the problem so that I will look at it from three different perspectives. This way I want to add to the quality and validity of the research results, as triangulating reduces bias (Cooper & Schindler 2011, 182-183). The research process will be exploring three viewpoints; an exploratory research theory which I will introduce in the next chapter, chapter 2.2. As ProAgria PK has many other fields of business in addition to the Farm Services, this research can be used as a basis for further studies on the other fields of business.

2.2 Research problems

My thesis will consist of four parts, all looking into the main research problem from different angles. The flow chart, figure 1 below, describes the construction of the thesis in the form of related research problems. The main research problem is answered by completing the four parts of the research, each contributing to the answer.

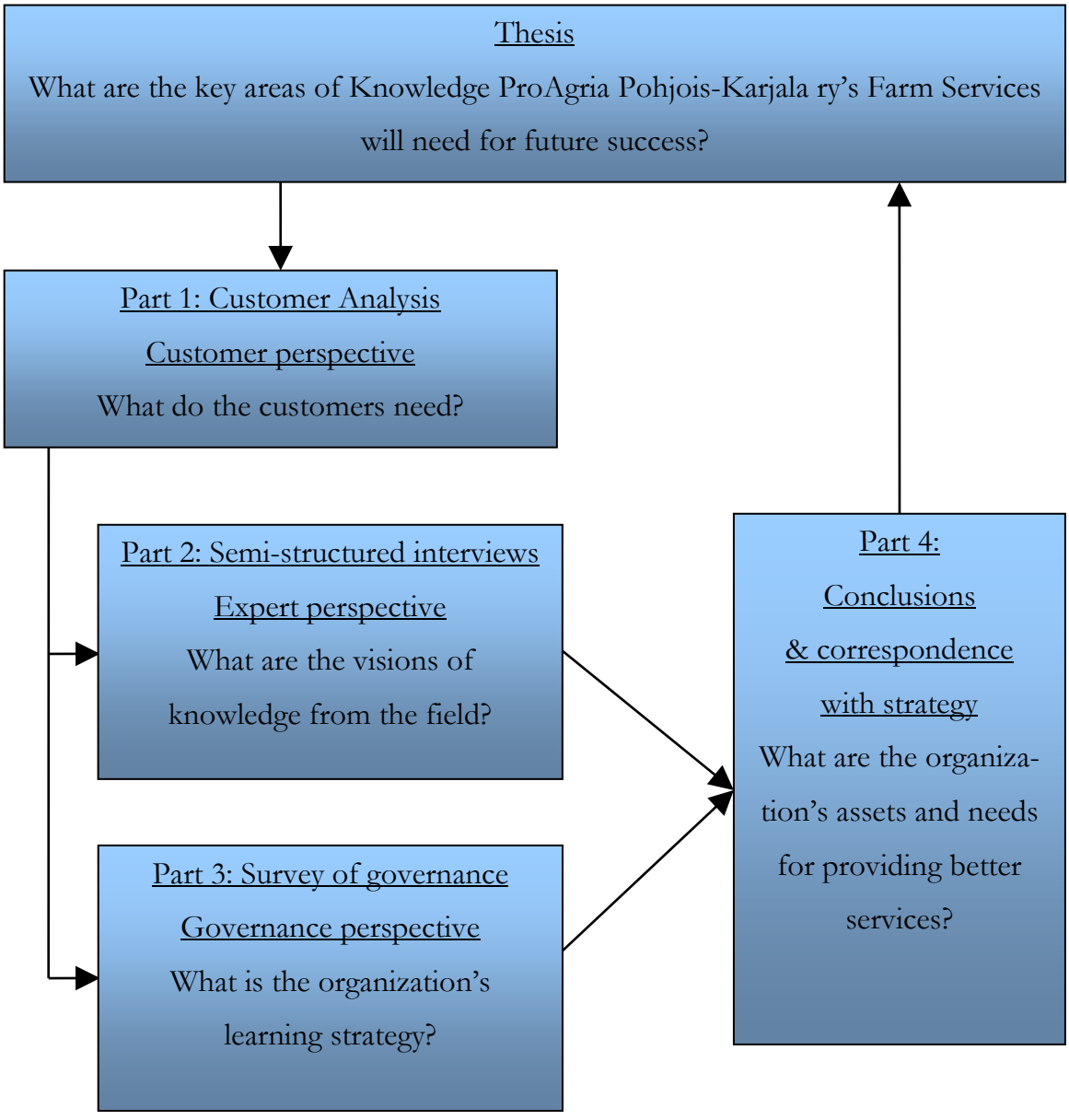

Figure 1. Flow chart of the four parts of the Thesis with the related research problems

The main research problem in form of a question is: *What are the key areas of Knowledge ProAgria Pohjois-Karjala ry's Farm Services will need for future success?* The sub-questions to this are the research questions named for the four parts which compile the Thesis.

Sub-question 1: *What do the customers need?* Sub-questions for the main problem are the following:

– What is the organization's customer profile?
– What is the value of each customer segment?
– What is the purchasing behaviour and motivation of customers?
– What additional services could the organization offer to each customer segment?
– What are the future plans of the customers?

Sub-question 2: *What are the visions of knowledge from the field?* Sub-questions for the main problem are the following:

– What are the areas in which the customers currently need most help?
– What are the future needs of the customers?
– How could the organization better serve its customers?
– Which areas would the experts need more training in?
– How could self-development be improved?

Sub-question 3: The main research problem for this part in a form of question is: *What is the organization's learning strategy*? Sub-questions for the main problem are the following:

– What is the organization's knowledge improvement like?
– What are the organization's visions for future knowledge?
– What are the future challenges on the agricultural counselling branch?
– What are the organization's current strengths?

Sub-question 4: *What are the organization's assets and needs for providing better services?* Sub-questions for the main problem are the following:

– How does the organization's strategy serve the knowledge improvement goals?
– What are the strategy's offerings for self-development?
– What more would be needed to meet the customer needs?

– How well is the organization prepared for future challenges?
– What could be done in practise to increase the organization's sales?

2.3 Accomplishing the four parts of the Thesis

The four parts of this Thesis all have their own main research question's sub-questions to answer. In the following I will briefly describe what these four parts consist of. Each part is further described in their respective chapters in this Thesis. With these four parts I believe the main research problem will be given a satisfactory answer. The theoretical framework for the different parts of the Thesis is described in chapters 2.4 – 2.7. There I will describe how these methods were chosen and what theories there are to support them.

Part 1 of the Thesis is a quantitative customer analysis answering to the 1st sub-question of the research problem: *What do the customers need?* To find an answer to this question, I will perform a customer analysis with information drawn from the organization's CRM system. Also, information of the customers will be gained from a study revealing customers' future plans. The customer information can be drawn from the CRM in the form of reports, which can be exported to MS Excel. MS Excel is then the main tool for the analysis. Studying an organization's customer data will help discovering the future needs of the customers and thus reveal the organization's development needs in its processes and resources (Otala 2008, 30).

Part 2 of the Thesis answers to the 2nd sub-question of the main research question: *What are the visions of knowledge from the field?* The method for answering this question is to conduct semi-structured interviews with four field experts of the Farm Services branch. The face-to-face interviews will be recorded and later transcribed for analyzing the data with qualitative methods. The data is used to gather a comprehensive understanding of the research problem from the field experts' practical viewpoint.

The 3rd part of the Thesis will be conducted by studying the organization's governance and strategy documentation and by interviewing ProAgria PK's managing director and deputy managing director. With these operations I will seek answers for the 3rd sub-question of the main research problem: *What is the organization's learning strategy*? The

results of the study are then used to highlight the knowledge related governance of the organization and to draw conclusions of those with which to enhance preparedness for future challenges.

In the final, 4th part of the Thesis the conclusions of the three preceding parts will be drawn together for final conclusions and for benchmarking them against the organization's strategy. This part will strive to answer the 4th sub-question of the main research problem: *What are the organization's assets and needs for providing better services?* After combining all results of the conducted studies and performing the benchmarking, the main research question will be answered.

2.4 Exploratory research theory

Exploratory research is used when the subject of the study is not well known and when it is not even completely clear what it is that should be studied. In other words, the research problem is not defined clearly. When there are no earlier models to support the research, the study can begin with whatever is known of the topic. (Routio 2007.) According to Earl Babbie (1995), exploratory research is used when the research topic is new and when data for the research is difficult to collect. As exploratory research studies a certain issue or phenomenon, it should not be used to draw definite conclusions or to generalize it on other phenomena (Stebbins 2001, 25).

Exploratory research aims at getting a deeper understanding of the phenomenon with the attempt to document it as completely as possible (Routio 2007). It can answer questions like "what is going on here" and "how is it done". It strives to find new insights by asking questions and observing the phenomenon from a new viewpoint. (Saunders, Lewis & Thornhill 2003, 96). Russel K. Schutt (2006, 14) states that the goal of exploratory research is to study the phenomenon without explicit expectations.

Typically a detailed research plan cannot be made in advance, as the research may change course in the making. In the research process new data can appear or new insights may occur, which requires the research to take on new directions. This flexibility doesn't mean there is no direction in the research, but that it starts out with a broad focus which then narrows down in the course of the research. (Routio, 2007; Saunders et al 2003, 97.)

The principle is that a problem is looked at from different viewpoints. In his lecture material, Pentti Routio (2007) illustrates this research method with an exploratory wheel (figure 2). The wheel describes how the research begins in one point, closing in on the problem through different viewpoints and ending up in deeper understanding which in turn can lead to new research topics or to the conclusion that further research is not worthwhile. (Routio, 2007; Saunders et al 2003, 97.)

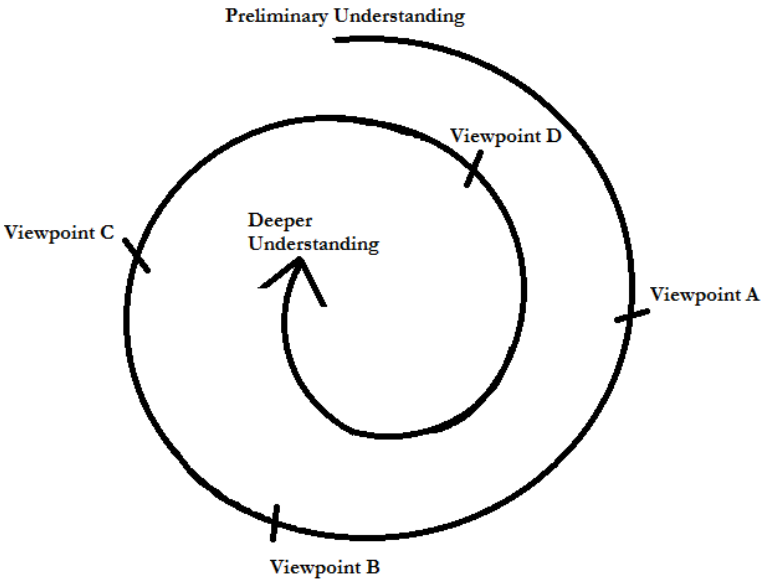

Figure 2. The exploratory wheel. (Original figure: Routio, 2007.)

Routio (2007) determines two aspects of exploratory research analysis: abstraction and generalization. In abstraction, empirical observations and measurements are translated into concepts. In generalization, the material is arranged with the focus on structures which are common to all or most of the cases. In this simplification, observations are analyzed with the intention to find relationships in order to find a general rule or model which is true in most of the cases. (Routio, 2007.)

In exploratory research, the main objective is to discover new ideas. Therefore, in the theory of exploration, e.g. study design and measurement techniques are not strictly defined. (Stebbins 2001, 9.)The methods suggested for exploratory research all are described as qualitative research (Hair, Money, Samouel & Page 2007, 154). For example, Saunders et al (2003, 248) recommend in-depth interviews and Marschan-Piekkari & Welch (2004, 110) emphasize the use of case studies and interview-based research in

general. According to Robert A. Stebbins (2001, 28), both quantitative and qualitative material is often collected when performing exploratory research.

One concern of exploratory research is that the researcher might not gain accurate impression of an activity. This can be avoided by using different methods when studying a phenomenon, i.e. triangulating the research problem. For example, the informants of the study can be presented with findings of other parts of the study to see if they will indicate familiarity and reasonableness within the findings. In this way, it is possible to discover if repetitive evidence in the research results exist. (Stebbins 2001, 26.)

I have chosen to conduct my Thesis as an exploratory research. As the study is based on my hypothesis of knowledge as a success factor, it is not very clear what in practice should be studied. My intent is to find out as much about the topic as possible to come to a conclusion on the matter and answer my research problem: What are the key areas of Knowledge ProAgria Pohjois-Karjala ry's Farm Services will need for future success? As the exploratory research theory suggests, it is not known how the research will turn out, and the answer can be either that knowledge is the key to success, or that it is quite something else. In either case, this research can be used when studying other branches of ProAgria PK's business. Research on this subject has not been conducted at ProAgria PK before, and information for the research problem will need to be searched widely.

As mentioned in the above theory description, it is not usually possible to create a definite research plan on exploratory research, as the research might uncover new insights to consider. As this is a research for my Thesis, I have drawn a research plan (detailed in chapter 2.1) as the time restrictions as well as the extent of a Thesis being limited don't allow me to follow all the paths which might be uncovered during the course of the research. Those will however be pointed out to be continued in a further research. Creating a research plan means that I do have certain expectations on how the research will turn out, but this is necessary to keep the Thesis in the limits of a student research.

My research plan (figure 1) follows the idea of the exploratory wheel (figure 2). I will begin with the hypothesis in mind: the way to improve sales is to determine the knowledge with which to best serve the customers. My viewpoint A is to conduct the

customer analysis, part 1 of the research plan and so on: viewpoint B corresponds to the research part 2, viewpoint C is research part 3 and viewpoint D research part 4. When the deeper understanding is reached, the research question can be answered.

The exploratory research providing the framework for the research, I have chosen the research design and methods following John W. Creswell's model for determining those. The research design will be detailed in the next chapter, chapter 2.3.

2.5 Research Design

The research approach for this Thesis has been designed following the model conceptualized by John W. Creswell in his book "Research design: Qualitative, quantitative, and mixed methods approaches" (2003). The model in brief consists of the following: 1) The philosophical assumptions of the research, 2) Strategies of inquiry and 3) Research methods and practices. With these three steps it is possible to then define the research approach and design for the study. (Creswell 2003, 4–5.) Besides this Creswell model, there are other ways of defining the research design. One such is e.g. the category model introduced by Cooper & Schindler (2011), where the research design strategy is compiled of the type, purpose, time frame, scope and environment of the research (Cooper & Schindler 2011, 138-140). For my research, however, I found the Creswell model better serving.

Stating the philosophical assumptions – the epistemologies and ontologies or the knowledge claims– of the research is the 1st step in Creswell's model, which is to tell what assumptions I as the researcher have of how and what I will learn during the research process. My choice of the knowledge claim for this study is pragmatism. Pragmatism allows the researcher to choose the methods for the research, as the research problem itself is most important in the study rather than the methods. The aim is to provide best understanding of the research problem, for which many ways of collecting and analyzing data might be needed. My assumption of this research is that I will find out an answer for my research problem – what are the key areas of Knowledge ProAgria Pohjois-Karjala ry's Farm Services will need for future success? – and the answer will be found looking at the problem from different angles. (Creswell 2003, 11-12.)

The 2nd step of the Creswell's model is to set the general procedures and direction for the research, i.e. the strategies of inquiry. My choice is to use multiple methods in exploring the research problem. The multiple method or mixed method approach utilizes both quantitative and qualitative research methods and data analysis in one study. The mixed method strategy is not as well-known as the quantitative and qualitative methods, even though Creswell dates the origins of the mixed methods back to 1959. My aim is to triangulate the data sources by finding out opinions on the research problem, first generally from a customer analysis (quantitative research), then inquiring information from the field expert perspective (semi-structured interviews) and finally investigating governance perspective (by studying documents and interviewing managing personnel). In this way, the accuracy of the findings can be estimated as more valid: it is thought that bias in one method could neutralize biases of other methods. Also, using qualitative methods in addition to quantitative methods gives the research a more holistic view over the research problem (Marschan-Piekkari & Welch 2004, 8). The procedure I have chosen is sequential, in which the findings of one method can be explained with the results of another method. Creswell describes the steps of explanatory sequential procedure as follows: quantitative data collection → quantitative data analysis → qualitative data collection → qualitative data analysis → interpretation of the entire analysis. (Creswell 2003, 15-16, 213-215.)

The detailed procedures of the research, i.e. the methods and practices of data collection and analysis, are the 3rd step of Creswell's model. As my chosen research strategy is of mixed methods, the procedures of the study will be combined of quantitative and qualitative methods. For the first phase of my study, the quantitative customer analysis, I will use information drawn from the CRM system and analyse it using several attributes. The information collected will be e.g. customer types and fields of business and services provided by project and by unit. The information will be analyzed using statistical methods. The second and third phases of the study, the semi-structured interviews with the field experts and investigating governance documents and interviewing managing personnel, will include emerging methods and open-ended questions in the form of interviews and analysis focusing on the research problem. The data of these three phases will be integrated as the result of the entire research. (Creswell 2003, 17-19.)

The Creswell's three-step model of determining philosophical assumptions, strategies of inquiry and research methods contribute to determining the overall approach of the research. Based on my choices using the three-step model my research approach is mixed methods: the knowledge claims are pragmatic, the strategies of inquiry involve both quantitative and qualitative methods sequentially and the data is collected e.g. by using both data analysis and open-ended interview questions. (Creswell 2003, 18-20.)

In addition to the three-step model, Creswell gives three criterions to consider when selecting the overall research approach: match between problem and approach, personal experiences and the audience. Considering these three criterions, my research is mostly fitting in the mixed methods approach. In my research, I will first make a large analysis on the customer base and then continue the research by interviewing a few examples of field experts and further investigating documents and interviewing managing personnel. In this kind of a situation the best understanding of the research problem will be obtained by combining quantitative and qualitative methods, therefore the problem matches the chosen approach. (Creswell 2003, 21-22.)

My personal experience in research comes primarily from my Master studies at Haaga-Helia University of Applied Sciences: I have participated in conducting an Appreciative Inquiry in a Qualitative research course (Jakubik, 2010). Quantitative methods I have not conducted myself, but I have worked with quantitative research results in my previous job as a Finance & Accounting Supervisor. All in all, I don't have very much experience or knowledge in either quantitative or qualitative research. However, I am very interested in my research topic as I know it will benefit my organization and I am also willing to compensate my lack of experience by further studying the research methods. (Creswell 2003, 22-23.) According to Robert A. Stebbins (2001, 30), even first timers can succeed in exploratory research, which reinforces my choice of using the exploratory research method in my Thesis study.

What comes to the audience, on the academic side mine is the thesis assessors of Haaga-Helia University of Applied Sciences. In my studies the qualitative methods have been strongly supported. Hence, the quantitative methods are thought of as somewhat old fashioned, but yet necessary. Choosing to use mixed methods may not be the typi-

cal format of a Thesis, but considering the topic, I find mixing the methods advantageous. For the results of the study, the audience is the management team and the Board of Directors of ProAgria PK. I believe that from their perspective, using mixed methods will add to the validity and reliability of my research. (Creswell 2003, 23.)

2.6 Data mining

2.6.1 Basics of data mining

Data mining is not just a data analysing technique of the computerized era, but has been used for centuries. As soon as computers were invented, they were harnessed for the use of data mining, to go through exponentially growing amounts of data. Berry and Linoff (2011, 2) define data mining as follows: "data mining is a business process for exploring large amounts of data to discover meaningful patterns and rules". As a business process, data mining is interactive with an organization's other processes and is ongoing. To use data for its success, data mining should be included in the organization's business strategy. (Berry & Linoff 2011, 2 – 3; Tuononen 2006, 1.)

The importance of data mining is in the information it produces for business. The goal is to gain better understanding of a company's customers to provide them with better and more individualized services. To succeed in building loyal and long-lasting customer relationships, a company must gain insight of its customers through data analysis. With analysing customer information, the company's objectives can be better achieved and the customers approached with targeted messages. (Berry & Linoff 2011, 3 – 4.; Tsiptsis & Chorianopoulos 2010, 1 – 2.)

Data mining only will not make a company customer-centric. Besides a technique, data mining should be build inside the company's attitude in understanding the importance of customer information in business and especially in decision making. To benefit from data mining, the company should pay attention to its customers and their actions currently and in the past, learn from that and to transfer that knowledge into action. With correct information and understanding resulting from data mining, the company will reach improvements in its marketing, sales and customer support. Especially ser-

vice providing companies can learn to predict the needs of their customers and thus use it as its competitive advantage. (Berry & Linoff 2011, 5 – 7.)

Data mining demands skills with numbers and statistics, but especially a right attitude. Data mining is time consuming work with large amounts of data and it requires the use of complex processing in order to reach desired results, so it helps if the data miner is familiar with large data and the systems to process it with. Technical skills, however, are not enough for successful data mining. Being able to interpret the data, communicating the results and to work with others in the organization are essential skills for data miner. Sometimes the results of data mining process can be expected, but the miner should be receptive to unexpected outcomes as well. (Berry & Linoff 2011, 9.)

As good as data mining techniques may be, the results are only as good as the company can make out of them. The data mining should result in patterns about customer behaviour and needs. These patterns have to be responded to and acted upon to create value from the extracted information. Berry and Linoff (2001, 15), present a process called virtuous cycle of data mining to describe how to turn data mining results into success. According to the cycle, data mining should start with identifying opportunities in which the data analysis can bring value into. The second phase is the actual data mining: turning accumulated customer data into information. The information should then be acted upon and finally the results of the process should be evaluated. The virtuous cycle of data mining transforms the customer data into actual business results. Unless the outcomes of the data mining are turned into action, the process has been fruitless. (Berry & Linoff 2011, 10 - 26.)

For analyzing knowledge extracted from the customer data, knowledge and experience of the company's field of business are essential. Therefore, in analyzing the results of data mining, the input of the business experts of the company is substantial. Only in this way, meaningful results of the data analysis can be obtained. In the same manner, before acting upon the analysis results, it should be ensured by the business experts that the planned actions are based on truly meaningful findings. (Tsiptsis & Chorianopoulos 2010, 13.)

There are two outcomes of data mining which can lead the process off the track. Information from the data might not be true or the information is not useful. More harmful of these is information that is not true, as that can lead to wrong business decisions. The data mining results should therefore be scrutinized to ensure its reliability. Untrue data mining results can be incorrect or irrelevant, or they might represent past operations or not represent anything at all. Also, important data might have been lost or concealed in the data mining process. Finding insignificant information of the data is more common than finding untrue data, which besides being useless can also overshadow more important patterns. Coming up with old news is not a total waste of time in data mining, as it can prove on technical level that the techniques used work and it also assures that the data is more or less accurate. (Berry & Linoff 2011, 68 - 73.)

2.6.2 Data mining techniques

Berry and Linoff (2011, 74) list three data mining styles, which are hypothesis testing, directed data mining and undirected data mining. When testing a hypothesis, data mining is used to answer certain questions or enhance understanding. In directed data mining, target variables are set which are then explained or predicted by data mining. Undirected data mining doesn't have target variables, but it strives to reveal overall patterns. (Berry & Linoff 2011, 74 - 81.)

The process of the data mining includes the following tasks: preparing data for mining, exploratory data analysis, binary response modelling, classification of discrete values and predictions, estimation of numeric values, finding clusters and associations and finally applying the model to new data. In most cases, data as it is, is not ready for processing but it needs to be prepared for the data mining to take place. Although time consuming, data processing is important as the data mining results are dependent upon the quality of the raw data. Exploratory data analysis creates e.g. graphs and profiles of the data. Binary response modelling separates customers in to categories based on a certain factor, e.g. if the customer has a car or doesn't have a car. Classification assigns customers to well-defined classes, e.g. by how a customer travels to work: by car, by train, by bus etc. In estimation of numeric values, the data is used to estimate information that is not readily available from the data but can be estimated based on previ-

ous information. The models created should be able to be applied to new data, with the exception of exploratory data analysis and clustering. By applying the model to new data is also a way of evaluating the model. The one task skipped here, clustering and associations, will be described in more detail in the next chapter. (Berry & Linoff 2011, 83 - 87.)

2.6.3 Clustering and association analysis

Clustering is used in the undirected data mining technique, and it can be used to divide the customers into segments. It is a very fundamental method of structuring data. In clustering, the data is searched for similarities in the customers and then grouped by those similarities into clusters. Clustering can reveal hidden structures in data. It can be for example different customer segments' purchasing behaviour which can be utilized for targeted marketing. (Berry & Linoff 2011, 82 – 87; Tuononen 2006, 1-2.)

Association models analyze the customers' buying behavior and seek for associations in it. Association analysis is commonly used in data mining projects, the purpose being to find hidden patterns in the data. The association analysis is also called the market basket analysis, as it is often used in finding out which items the customers purchase at the same time, i.e. in one "market basket". A practical application of association analysis can be seen in on-line shops, where advertisements of other products appear on the page while the customer is looking at one product. (Tsiptsis & Chorianopoulos 2010, 50; StatSoft, Inc.)

The association rule analysis measures the associations found in the data with a reliability percentage. Reliability describes in how many cases the association rule has actualized. If the reliability of an association rule is 75 %, it means that in 75 % of the cases the rule is true. In a more formal manner, this can be described as follows. Let's assume that we have data D, which describes customer purchasing behavior, i.e. what services each customer has bought. Further is assumed, that X and Y present certain services the customers have bought. Now, if there is an association rule X → Y with reliability R, then when customer has bought X, he has also bought Y in R % of cases in data D. (Agrawal & Srikant 1994, 487.)

2.7 Strategy and knowledge management

In this chapter I will go through the basic concepts of strategy and knowledge management. This is to build a theoretical framework for the Thesis. First I will briefly go through a company's strategy and strategical planning, continuing to personnel planning and knowledge management. Finally I will discuss know-how as a company's success factor.

2.7.1 Strategy

Strategy in business is the direction the company has chosen to take in its operational environment and the coherent standards of activity with which to achieve the company's goals. Determining the direction a.k.a. the company's mission, vision and goals, includes analysing the operational environment and defining, executing and assessing the strategy. The vision of the company is the corner stone upon which the strategy is build. By generating targets based on the vision, it helps to guide the personnel of the company in one direction. Building a strategy for the company isn't easy as the future is unknown and it always includes risks, but by including the entire organization in the strategy process, a common goal for the organization can be found. Strategical planning has to be adaptive to the changing business environment, while the basic guidelines of the strategy are quite stable. (Viitala 2007, 61 – 63.) The strategy must penetrate the entire organization in a way that all of its members know in practise what are the means and what is expected of them in order to fulfil the organization's ambition of succeeding in the future (Otala 2008, 108).

A company's success cannot be based only upon analysing the market. A more relevant factor of ensuring future success is to look inwards; to analyse the company's own resources. The ability of adapting to continuous change is dependable of the company's ability to learn and renew and the assets the company has to perform those. Crucial of the company's resources are the know-how and experience of its personnell, which were pointed out already in 1959 by Selznick and Penrose. To succeed, a company must find the expertise which the competitors cannot copy easily. (Viitala 2007, 62 – 63.)

There are three stages of a company's strategy. The top level, the company strategy, defines the business in which the company wants to participate in. The business strategy (2nd level) specifies how the company's success is ensured. To perform the business strategy, a third level, the operational strategies are needed. Relevant to the company's knowledge management is the personnel strategy, which is one of the operational strategies. The personnel strategy includes the necessary know-how, amount and structure of personnel as well as ensuring those, with which it reinforces achieving the company's business strategy. The personnel strategy is taken into practise with personnel management. (Viitala 2007, 63.)

2.7.2 Personnel management

To predict and to be ready for the future in order to ensure the company has the necessary human resources, personnel management is needed. Personnel management also ensures the company has abilities to progress and renew, and also that the personnel's know-how and motivation are on a satisfactory level. Personnel management is guided by the business strategy. In expert organizations the personnel resources can be the basis upon which strategical decisions are made. Personnel management and general business management combine an intertwined process, as all decisions of the company will affect the company's personnel in one way or another. Personnel management needs to be a part of the strategical management in order to better anticipate future needs of know-how, improve obtaining of new know-how and better utilizing current know-how. (Viitala 2007, 52 ; 61; Otala 2008, 82.)

Personnel management begins with personnel planning, which is not only mathematical calculations of personnel needs, but also anticipating the needs of know-how. Registers of personnel information (e.g. a person's working experience, education, performance reviews and career planning) are helpful, as all personnel information benefits personnel planning. The goals of personnel planning are to deal with the amount and structure of personnel needed in the company's business, ensuring the company has necessary know-how, forecasting personnel costs and defining means of compiling, fostering and managing the personnel resources. Fostering the company's personnel resources include enhancing the personnel's well-being and motivation and how the

daily management is performed. Each manager is responsible of personnel planning in his/her area of responsibility, as the manager has the best knowledge of the group. Personnel planning is essentially planning the actions with which to prepare for the personnel related changes the company's business needs. (Viitala 2007, 52 – 60.)

The needs of know-how is the know-how with which the company can reach its goals and improve its competitiveness; the know-how which the company needs to succeed. The needs of know-how reach all areas of the company's business. E.g. when a new service is created, the necessary know-how has to be determined as well as where to obtain it. The company's strategy is the baseline for determining the company's needs of know-how. What should also be considered, are e.g. the company's success factors, the needs and expectations of the customers as well as the changes in the company's operations and business environment. With personnel planning, the company's development needs of know-how can be determined. Current state of the company's know-how can be discovered with a knowledge overview, where the levels and areas of know-how are examined. The difference between the knowledge overview and the needs of know-how describes the developing needs (both the amount and the quality) of the company's know-how. The company's strategy can be better understood on a practical level with the determination of the company's development needs. (Otala 2008, 105 – 109.)

2.7.3 Knowledge management

The know-how required in the company's strategy needs to be fostered, developed, renewed and acquired. This activity is called knowledge management. Knowledge management covers the entire process with which the company's know-how is managed. The know-how of the company's individual employees needs to be fostered, increased as well as utilized effectively as it is the crucial factor of the company's knowledge and therefore the most important aspect of knowledge management. Despite of being human capital to the company, know-how has to be understood as part of the company's factors of production. Especially in expert organizations, personnel can be the biggest item of assets and the biggest item of costs. The company has possibilities to succeed as long as it has knowledgeable people working for it. In

knowledge management, it is important to include development of the company's processes, management, atmosphere and culture, as without these the knowledge in the company cannot prosper for the company's benefit. (Viitala 2007, 173 – 176; Otala 2008, 23; 81.)

Developing and renewing know-how is generally one of the knowledge management strategies, which means sustaining and renewing the employees' know-how. Know-how should be renewed proactively, as outdated know-how can be fatal to the company. As developing know-how can be a major cost item for the company, it should be planned in a way any investment in the company is planned. Developing employees' know-how has to be targeted, so that it will benefit the company's success factors and productivity through enhancing the company's operations and quality. The starting point of know-how development is to determine an individual employee's needs and current state of know-how. When an employee knows his/her strengths, weaknesses and developing needs of know-how, it is possible to improve knowledge. Knowing one's know-how position also enhances the employee's success and satisfaction at work. Know-how needs to be renewed throughout entire career in order for an employee to succeed. To prevent gained know-how from vanishing when an employee leaves the company, knowledge management should include practises to ensure continuous transferring of knowledge to other employees. (Viitala 2007, 180 – 187; 203; Otala 2008, 30 - 36.)

To improve a company's human capital, the structures and conditions of the company should support learning and regeneration. Such an organization is called a learning organization. To create an environment which enhances the development of know-how and learning, the management must have the abilities to create the favourable conditions for learning and to support employees in it. A learning organization has an open and positive atmosphere, trusting and appreciative culture, it inspires and encourages employees to be innovative and to find new information and solutions. In a learning organization, mistakes are seen as learning opportunities and transferring of know-how between employees is encouraged. Crucial for individual learning are the working environment, management, atmosphere and changes of obtaining right information in the organization. (Otala 2008, 16; 257; 278 – 279.)

2.7.4 Know-how and competitiveness

Know-how, its utilization and quickness of learning new are the factors of which a company's competitiveness is most dependable upon. This needs innovativeness of the company's employees, their commitment and motivation to find new knowledge. The fields in which the competition will be in the future are also utilizing the possibilities of information technology, networking and customer relationships with which to learn even faster. Failing to continuously develop know-how is fatal to a company. Being a learning organization is the true competitive factor of a company. What separates successful companies from the less successful ones, are employees and their intellectual capacity and the way in which that is utilized; in other words, success depends on how well the company can manage its knowledge. (Viitala 2007, 172; 279; Otala 2008, 23 – 24; 331.)

When a company succeeds in knowledge management, it will reach increased revenue and profits. With know-how, the company can provide good products and services as well as create new ones, customer satisfaction will grow, operational processes and quality will improve. Once a company is profiled as an expert organization, it will entice more experts to join the company. Cooperativeness among employees as well as good well-being at work are also signs of a company with good know-how. In an expert company, advancing employees' physical well-being no longer suffices, but the state of employee intellectuality needs to be noticed also. Physical and intellectual well-being are equally important matters when considering an employee's working abilities. Intellectual well-being includes an individual's abilities to understand, remember, learn, plan and adapt. An employee in good intellectual state is able to make decisions, solve problems, and cope with stress and changes, in addition to being open to new ideas and visions. Successful knowledge management improves employee well-being and employees' good well-being, especially good intellectual well-being, increases know-how in the company. In this way, a company can truly operate with intelligence: high performance can no longer come from working more and more but from working more intelligently. An intelligent company can learn faster than its business environment changes, and thus be able to control the change rather than just be drifted in it. (Otala 2008, 303; 258; Sydänmaanlakka 2007, 69–71; 217–222.)

3 Part 1: Customer Analysis based on CRM

3.1 Introduction

This chapter is the first part of the four-part Customer Analysis and Knowledge Overview study of ProAgria PK, which compile my Thesis. In this part, the customers of the organization are analyzed based on the organization's CRM information. The basic data of the customers pulled from the CRM system, Severa, include the customer's location, customer type (e.g. a farmer, a company), customer group (e.g. a member customer, a dairy farm counseling customer) and branch (e.g. beef production, crop cultivation). The basic customer data has been combined with the customers' invoicing data from 2012, also pulled out from Severa. The invoicing information is listed by customer and by service. Information on the current amount of farms in North Karelia has been received from Pohjois-Karjalan ELY-keskus (2011). A conceptual model of the data is presented in figure 13 (attachment 1). This data mining process can be a beginning for the organization to create an effective CRM strategy (Tsiptsis & Chorianopoulos 2010, 4).

All of the customer information has been collected on a MS Excel worksheet, expanding to total of 559 435 cells. According to Berry & Linoff (2011, 3), MS Excel is a practical tool for working with smallish amounts of data, as it has useful features of working with the data based on the rows and columns and also the chart functions are very illustrative in presenting the data. Concerning the researcher, having good skills in MS Excel is an advantage (Berry & Linoff 2011, 9). This encourages the data mining to be done in MS Excel. The researcher has strong skills in working with MS Excel due to her previous education of Bachelor in Business Administration and previous work as a Finance & Accounting Supervisor, both in which MS Excel was a central tool of working.

The customer data from various CRM reports was combined into a database where each customer has a customer signature, which according to Berry & Linoff (2011, 84), is one row of data for each customer including a large number of data in columns. As Berry & Linoff (2011, 84) confirm, combining data from various sources into a cus-

tomer database is complicated and time consuming. In my study, I have used mainly exploratory data analysis for profiling the customers and pulling a large number of data tables and charts of the customer information. Those are presented as attachments 2 - 11 of this report and as additional reference material at http://universe.fi/CA/. Of the other tasks of data mining, present in my study are binary response modeling (e.g. are customers active or inactive), classification (e.g. customer types and customer groups), clustering and association analysis. The tasks that are missing are data estimations and applying the created model into a new dataset. The latter there was no time for, but the model created can be used later on other fields of ProAgria PK's operations, as it is now applied to Farm Services data. (Berry & Linoff 2011, 84.)

The goal of the study has been to find a customer profile, the activity of different customer segments and purchasing behavior. The research problem for this part of the study is "What do the customers need". Answers to this question have been searched for with the following sub-questions:

- What is the organization's customer profile?
- What is the value of each customer segment?
- What is the purchasing behaviour and motivation of customers?
- What additional services could the organization offer to each customer segment?
- What are the future plans of the customers?

The future plans and prospects of the customers could not be revealed using the statistical data of the customers. Therefore, an additional path had to be followed. This path was a research called "Prospects of Milk Production Development 2020" (Heikkilä, 2012), commissioned by MTK (The Central Union of Agricultural Producers and Forest Owners) in 2012, which is reviewed in the next chapter. This research has brought valuable additional information to my study of what the customers want. The Prospects of Milk Production Development 2020 –research covers only dairy farms. Dairy farms are, however, ProAgria PK's most important customer group, so the results of that research are at least illustrative of the situation concerning my study.

The second chapter of this study part deals with the Prospects of Milk Production Development 2020 –research and my observations of it. The third chapter is a statistical analysis of ProAgria PK's customers. The fourth chapter deals with customer invoicing data, the fifth chapter addresses the cluster analysis performed on the customer database and the sixth chapter covers the results of the association analysis performed on the customer database. The seventh chapter is a summary of all these previous chapters. In my opinion, based on the research results presented in the following chapters, answers to the research problem of this part of the study are well discovered. Furthermore, the data analysis performed for this study can be used as such for the organization's decision making.

3.2 Observations of the Prospects of Milk Production Development 2020 – research

The Prospects of Milk Production Development 2020 –research has been conducted in 2012 by Eeva Heikkilä of Suomen Gallup Elintarviketieto Oy. The commissioner of the research is MTK. The research report has been made available to me by ProAgria PK.

The research was executed in February and March 2012 as a survey with a predetermined, pre-transmitted questionnaire. The survey could be answered either on the phone or in the internet, the latter being the choice of 69 % of the respondents. The universe of the survey was 3 400 milk producers, of which the response rate was 35 % (1 178 farms). From North Karelia 41 dairy farms participated in the survey. (Heikkilä 2012, 8 - 10.)

The Milk Production study addressed all aspects of dairy farming. The aspects studied were the amount of dairy farms and farm closures, growth of farm sizes and amount of dairy cows, farm investments, level of milk produce as well as farm profitability, improvement and competitiveness. The dairy farmers were inquired about their investment plans of the next 5 year period, whether they plan to continue or discontinue farming, goals of dairy cow and milk produce amounts, estimates of profitability, fac-

tors restraining farm improvement and competitiveness and further, organic production, coping with workload and training needs. (Heikkilä 2012, 7.)

3.2.1 Current state of Dairy Farming in Finland

The number of dairy farms has decreased by 3 850 farms during the past five years, which totals to 28 % of all dairy farms. Currently there are 9 650 dairy farms. Average number of dairy cows per dairy farm has grown from 22 cows to 29,5 cows in five years, but the total amount of cows has diminished by 4%. Average milk produce per cow has increased by 1,5 % in the past 5 years, and the total amount of milk produced has diminished by 80 million liters (4 %). (Heikkilä 2012, 12.)

Table 1. Production structure of milk production 2012/2 (original table Heikkilä 2012, 13 – 14)

Amount of dairy cows / farm	Number of dairy farms	Change from 2010 %	Share of dairy farms %	Average number of dairy cows / farm	Share of milk produce %
Less than 15	2 330	-23	24	11	9
15 – 19	1 785	-16	18	17	11
20 – 29	2 540	-13	26	24	22
30 – 49	1 920	-4	20	37	25
50 –	1 225	+20	12	76	33
Total	9 800	-12	100	29	100

The production structure of milk production in Finland is such, that small dairy farms with less than 15 dairy cows compose 24 % (2 330 farms) of all dairy farms but produce only 9 % of the milk, whereas large farms with 50 cows or more (1 225 farms) compose only 12 % of all dairy farms, but produce 33 % of the milk. The number of dairy farms with less than 50 dairy cows has decreased by 14 % in average, but farms with 50 dairy cows or more has grown 20 % in number. The average amount of dairy cows per dairy farm is 29, ranging from 11 cows (farms with less than 15 cows) to 76 cows (farms with 50 or more cows). (Table 1.)

3.2.2 Dairy farm profitability, improvement and competitiveness

At the time of the survey, 27 % of the dairy farmers thought the profitability of agriculture in general to be good or very good, 12 % poor or very poor and 40 % on satisfactory level. Respectively, 22 % of the dairy farmers estimated future profitability of agriculture in general to be good or very good, 17 % poor or very poor and 37 % on satisfactory level. These figures are better than on other branches of farming and all farming branches combined. Profitability on dairy farmers' own farm was rated 3,8 (on a scale from 1 to 6; 1 being very poor and 6 being very good) considering current date, and the expectation of future years was 3,6. In North Karelia, the figures were slightly better: rate 4 for current date and 3,8 for future years. (Heikkilä 2012, 17 - 20.)

Regarding investments, 20 % of the dairy farms have plans to invest in their farms during the next 5 years: 14 % plan to build new or expand existing buildings and 6 % plan to renovate. In North Karelia, total of 39 % of dairy farms have investment plans: 25 % plan to build new or expand and 14 % to renovate. State and EU granted investment subsidies are essential for implementing the investment plans. According to the survey, 36 % of the investment plans will be implemented only if the project is granted investment subsidy. If the investment subsidy will be granted smaller than applied for, 10 % of the plans will be implemented anyway and 6 % will implement reducing the plan. Only 15 % of the plans will be implemented even without the investment subsidy, but at the same time, on 14 % of the investment cases investment subsidy is not even applied for. (Heikkilä 2012, 29 - 36.)

Top five factors restraining dairy farm improvement and enhancing competitiveness are coping with workload (57 % of respondents), farm's cultivation area (50 %), uncertainty of agriculture politics (49 %), amount of own workforce (45 %) and profitability of production (39 %). On the dairy farms with least profitability the uncertainty of agriculture politics is the top restraining factor (59 %), coping with workload being only on third place (56 %). On dairy farms with good profitability, the factors follow the same trend as that of all dairy farms. (Heikkilä 2012, 49 - 51.)

3.2.3 Plans for the future

According to the Prospects of Milk Production Development 2020 –research, 87 % of the dairy farmers plan to continue milk production through year 2014, 73 % through year 2016 and only 57 % through the year 2020. In North Karelia, 77 % of the dairy farmers plan to continue through year 2016 and 58 % through the year 2020. Most unsure of continuing milk production are the smallest dairy farms, while the larger farms are more confident. Dairy farms giving up milk production represent approximately one fifth of all dairy farms, totalling to reduction of 50 000 dairy cows. (Heikkilä 2012, 41 - 45.)

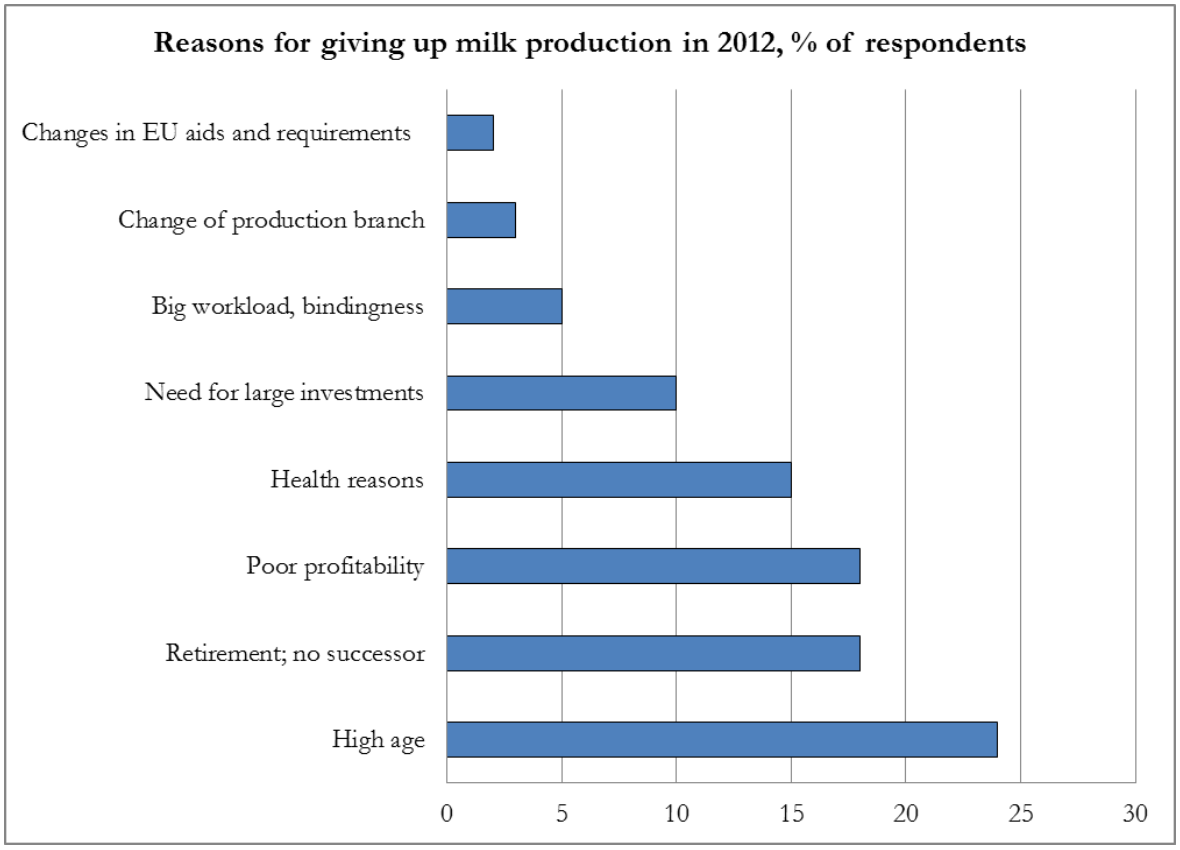

Figure 3. Reasons for giving up milk production in 2012 (original figure Heikkilä 2012, 46)

The main reason for giving up milk production is the high age of dairy farmers: 24 % of respondents had mentioned this in the study. Likewise, 18 % of dairy farmers are retiring but don't have a successor. At the same level of reasons is the dairy farm's poor profitability (18 %). 15 % of respondents mention health reasons as a reason for discontinuation and 5 % name the big workload and bindingness of dairy farming. 10 % of dairy farms giving up milk production would need large investments to continue

and 3 % are planning to change the branch of farming. 3 % of dairy farms giving up milk production mention the changing EU subsidies and requirements as one reason for the decision. (Figure 3.)

In return to dairy farms giving up milk production, other dairy farms are able to produce more. To even out changes in milk production, a milk quota system is in use in the European Union area. The amount of milk, the milk quota, which each member country is allowed to produce within a 12-month period, is established annually, which is then divided to each dairy farm in the country. In the 12-month production period 2009/2010 Finland's milk quota was 2,5 billion kilograms. If a dairy farm produces milk over its milk quota, it might be subject to a levy. Milk producers may buy, sell and rent their milk quotas to match their current production levels. The milk quota system in EU is expected to end in 2015. (Ministry of Agriculture and Forestry, 2009; Rural Payments Agency 2011, 2-1 – 2-2.)

According to the Prospects of Milk Production Development 2020 –research, 12 % of the dairy farms in Finland are planning to obtain more milk quotas, whereas 71 % are not (17 % are unsure). The same figures in North Karelia are 14 % (yes) and 67 % (no). 35 % of dairy farmers state that they could produce more milk if the milk quota didn't restrict their production. (Heikkilä 2012, 22 - 27.)

While the number of dairy farms is estimated to decrease in the future, from 9 580 farms in 2012 to 5 580 farms in 2020 (-42 %), the number of dairy cows per dairy farm is estimated to grow from 30 in 2012 to 51 in 2020 (+70 %). This way, the total number of dairy cows is estimated to stay on the same level from 2012 to 2020 (283 000 cows). The amount of milk produced in 2011 was on average 7 703 liters per cow in a year. The goal for next few years is to increase this to 8 100 liters (+5,5 %). Three of four dairy farms planning to continue milk production are planning to increase their average yield. (Heikkilä 2012, 56 - 57.)

Dairy farmers' interest in organic production has grown from 5 % in 2010 to 12 % (1 150 farms) in 2012. At the moment, 1 % of all dairy farms are in organic production. In North Karelia, the interest in organic production is bigger than in the whole country

in average: 2 % of dairy farms are organic producers and 20 % are interested in organic production. The main reason for being interested in organic production is the better price of organically produced milk (57 % of responses). Lower production costs and better profitability is the reason of interest in 28 % of responses. Ecology and sustainable development is the reason in 13 % of responses and only 3 % in well-being of the animals. (Heikkilä 2012, 66 - 67.)

3.2.4 Coping with work related stress

The dairy farmers' well-being and ability to cope with their workload is an aspect which is also addressed the Prospects of Milk Production Development 2020 –research. Dairy farms which are giving up milk production mention health issues (15 % of responses) and big workload and bindingness of dairy farming (5 %) as reasons for discontinuation. Further, 57 % of dairy farmers state that the main reason restraining dairy farm improvement and enhancing competitiveness is coping with workload (57 % of respondents). (Heikkilä 2012, 46 - 49.)

When asked about their working ability, 16 % of the dairy farmers state it to be very good, 41 % quite good and 28 % on satisfactory level. 10 % of respondents estimate their working ability as mediocre, while 4 % feel it is quite weak or very weak (2 %). Dairy farmers who plan to continue milk production and owners of large farms (50 or more dairy cows) are on the best levels with their working ability. (Heikkilä 2012, 52 - 53.)

The factors influencing coping with work related stress are measured in the study as a net amount calculated from strengthening factors (+) and weakening factors (-). The net amounts are the following (Heikkilä 2012, 54):

- Bureaucracy: -63
- Workload and haste: -46
- Future prospects: -14
- Interpersonal relationships: +46
- Health status: +18

– Farm's profitability: +23.

3.2.5 Training needs

The areas in which the dairy farmers continuing milk production need most training and counseling in are related to a wide range of farming aspects. The most needed area is in the farming subsidies granted by the state and EU (30 % of farms). The next five topics are finances (27 %), animal feeding and care (26 %), energy matters (22 %), data processing skills (22 %) and own well-being (20 %). The areas in which the need of training and counseling has decreased most are animal feeding and care (-58 %), silage production (-58 %; 15 % need more training and counseling) and other field cultivation (-48 %; 17 % need more training and counseling). Energy matters is the only area in which the dairy farmers need more training (+120 %). The number of dairy farmers who either have not participated in training or counseling or don't feel they need any in the future has increased from 13 % to 32 % (an increase of 146 %). (Heikkilä 2012, 69.)

3.2.6 Conclusions of the Prospects of Milk Production Development 2020 – research

The number of dairy farms is expected to decrease considerably (-42 %) by the year 2020. At the same time, the milk production structure is changing from small dairy farms (less than 15 dairy cows; -23 %) to large dairy farms (50 dairy cows or more; +20 %). Also on the mid-size dairy farms, the average number of dairy cows is increasing (total of all dairy farms +70 % by 2020). This is something that ProAgria PK should be able to profit from by designing services which fit the needs of growing farms.

Growing livestock sizes implies investment needs (39 % of all dairy farms in North Karelia have investment plans). ProAgria PK already has a strong offering in the field of production and architectural engineering, so the question is about how to make sure the organization is a part of the dairy farm investments in the future. Energy matters go hand in hand with investments. The farmers' interest in energy related training and counseling has grown 120 %. ProAgria PK already has knowledge in energy planning, not only in new building investments but also in other fields of farming, e.g. determin-

ing the total energy cost of the cowshed or silage production (ProAgria PK 2013a). Ways in which to better bring this expertise and services forward to the customers should be discovered. Also, designing general trainings about energy matters could be successful.

Related to the dairy farms' investment plans are the investment subsidies granted by the state and the EU. As much as 36 % of the investment plans will be implemented only if the project is granted subsidy. In general, bureaucracy is seen as a factor negatively influencing coping with workload. When asked about training and counseling needs, the dairy farmers need most training and counseling in EU and state granted subsidies and finances. On the top five of the list is also data processing skills. It can therefore be concluded, that the paperwork aspect of farming is crucial but difficult and tiresome. ProAgria PK has expertise also in administration: the organization provides services relating to e.g. investments, production improvement, EU subsidy applications, competitiveness assessments as well as comprehensive financial administration (ProAgria PK 2013b & 2013c). It should be determined in which extent the customers are already using these services and in which ways more services could be provided to each customer. Also, has it been considered if some other, perhaps more specialized services would be needed, e.g. training in data processing?

57 % of the current dairy farms plan to continue milk production in 2020. The biggest farms are most confident about continuing. The amount of closures is about 20 % of all dairy farms. The main reasons for closures are high age and retirement with no successors (total 42 % of responses). As such a large number of farms are discontinuing, this could be a field in which counseling should be offered: once a farm announces discontinuation plans, how is this responded? Such a farm should not be treated as lost sales, but to find out if the farm can be helped over the closure; how is this handled at the moment? Discontinuing customers and customers transferring the farm to a descendant could be offered comprehensive service packages, with which the customer could ensure the process is carried out successfully.

The dairy farms which plan to continue milk production are interested in increasing their milk production yield. ProAgria PK in co-operation with EU and ELY (Centre

for Economic Development, Transport and the Environment) has ongoing projects (Milk to the Market and Milk Skill), which are measures to reach the aim of increasing the milk production in North Karelia to 150 million liters in 2015 (ProAgria PK 2013d). (Projects are EU and ELY funded programs with which ProAgria PK and other operators can develop rural areas and small business activity in North Karelia. Many of the projects are arranged in co-operation with other organizations. (ProAgria PK 2013e.) The projects are mainly free of charge for the customers.) With these projects ProAgria PK can offer targeted knowledge to the continuing dairy farms. What is crucial here is how this expertise will be offered to the customers after the EU funding of the projects ends (in 2013 and 2014) and transferred into chargeable services? According to my customer analysis, 18 % of ProAgria PK:s customers has participated in different projects. With targeted service offering, the activity of those customers should be possible to be utilized also commercially (in general, the projects are free of charge for the customers).

14 % of dairy farms in North Karelia are planning to obtain more milk quota and 35 % of dairy farms could produce more if it wasn't for the milk quota restrictions. At the same time, a big number of farms are discontinuing milk production. These reciprocal needs should be brought together, which ProAgria PK is already doing. ProAgria PK has a contact person, who arranges the activities of buying, selling and renting milk quotas in North Karelia. In here I see a possibility of increasing efficiency and chances to gain more revenue, as currently some of the work this contact person does cannot be charged from customers. (Tuononen, R. 15.1.2013.) If e.g. a milk quota exchange market was established on ProAgria PK's internet site, the organization could charge a small fee on the ads in addition to offering to complete the administrative services for the transactions.

In North Karelia, there is a big interest (20 %) in organic production among the dairy farms. ProAgria PK has strong knowledge in the field of organic production: for example, all of the organization's field experts have been given basic training on organic production (ProAgria PK 2013b). This is certainly an area of the future, which should be promoted more. E.g. on the ProAgria PK's web pages, it is difficult to find comprehensive information on organic production. There are also trainings available relat-

ed to organic production, but those are not easy to find either. In my opinion, the ProAgria PK's internet site should be updated in this field: the organic production information should be displayed better.

Farmers' working ability and well-being are big areas of concern. The dairy farmers list coping with work related stress (57 %) as a main factor restraining improvements and enhancing competitiveness. Among reasons for closure, the dairy farmers list health reasons (15 %) and big workload (5 %). Workload and haste are also seen as among the main factors influencing coping with work related stress in a negative way. On the other hand, 57 % of the dairy farmers estimate their working ability to be good or very good. Here I see a possibility of peer support: while over half of the dairy farmers are happy with their working ability, another half are only on satisfactory level or lower. What are the farmers with better situation doing differently? This kind of peer group training could be arranged by ProAgria PK. Further, 20 % of farmers list own well-being as a need for training and counseling. This demand should be answered, as the need seems quite big. Would it be possible to organize a new project on this field? With a new project, ProAgria PK could profile itself as an organization which cares for its customers in a comprehensive manner, as a good partner for the farmers.

One thing in the training and counseling needs question stands out: 32 % of dairy farmers feel that they either don't need any training or counseling or have not participated in any. Further, this number has increased by 146 %. This is a huge amount of potential customers, and the reasons for this should definitely be investigated. Do the customers feel that the trainings and counseling provided is not efficient or helpful; are the topics of services offered not what the customers need; are the forms of services not suitable etc. Customers are asked for feedback after courses, but how is this feedback processed? Also, it might be worthwhile to conduct a survey among all farmers in North Karelia on what training and counseling they really need and want, and how satisfied they are with the current services they are using (a customer satisfaction study).

In the light of dairy farms' future prospects, the future of growth for ProAgria PK has a very good outlook. The range of services ProAgria PK has is quite good; it's just a matter of how to market them to the customers. This could be something which ProAgria PK could benchmark against other ProAgria centers. A market analysis could help targeting the services to the customers, and assist in developing customer-oriented services further. If a market analysis would be performed, it should be combined with the customer satisfaction analysis in order to gain as much information from the customers as possible in one study.

Sales promotion is currently in the hands of the field experts. It should be considered how they could be given better tools (know-how) for selling more services to the customers in addition to providing them with high quality services. Another aspect to ponder is if there should be e.g. a reward scheme of additional sales to the field experts. For example, the field experts could be rewarded when achieving sales targets as well as new sales prospects found. Also, it should be looked into, if the services provided to the customer are updated on the customer information. How about the customer's service needs (service prospects) the experts notice; what are the procedures of processing those? I believe these are useful means with which ProAgria PK could increase their sales.

3.3 Statistical analysis

For the statistical analysis, the customer data from Severa was combined in MS Excel. MS Excel has been the main tool for performing the statistical analysis. The study was done with the employer's equipment and systems, so actual statistics software was not available. For clustering and association analysis, Weka-program was used, as it is open source software. The statistical analysis was performed on ProAgria PK's Farm Services branch's customers, the total amount of those customers being 4 400. The method for the statistical analysis is exploratory data analysis. Summary of the statistics data is presented as additional reference material at http://universe.fi/CA/ and figures describing the data can be found in attachments 2 – 5 (figures 14 – 17 and tables 5 – 6). Presenting the research results as statistical figures and tables are typical for exploratory data mining (Berry & Linoff 2011, 84).

Majority of ProAgria PK:s Farm Services customers (83 %) are farmers (59 % of all customers). 11 % are companies and only 2 % are corporations and public administration. 3 % of the customers are non-recurring and 3 % private persons. 96 % of North Karelian farms are ProAgria PK:s customers (Pohjois-Karjalan ELY-keskus, 2011). ProAgria PK is therefore well known among farmers and ProAgria PK also reaches most of the farmers with some branch of its activities. In my opinion, ProAgria PK should strive to activate the farmers in its customer database, which according to the 2012 invoicing information were not active (in North Karelia, there are 949 inactive customers, i.e. customers who didn't have any invoicing activity with ProAgria PK in 2012). Within this amount of customers ProAgria PK has vast potential, which is even easy to reach as their customer information is stored in the organization's own CRM system. Maintaining long term customer relationships is more profitable in the long run than finding new customers (Otala 2008, 303.)

Of all ProAgria PK:s customers majority are crop cultivators, but of the member customers, majority (61 %) are dairy farms. A quarter of the member customers and 60 % of all ProAgria PK's Farm Services customers are crop cultivators, so more sales efforts could be targeted on these customers. For example, service packages especially designed for crop cultivators in the same manner as dairy farmers have special counseling (dairy farm counseling contract), could be a good way to reach out to the crop cultivators. Of dairy farmers, who are members of ProAgria PK, 86 % have a dairy farm counseling contract, based on which it can be said that their interest in ProAgria PK:s services is great. The crop cultivating customers could be more interested in membership if there was a service package available for them, where they could utilize the 5 % discount offered to member customers. One way of enhancing new service development could be to familiarize with the service portfolio for crop cultivators the other ProAgria centers have: maybe the wheel doesn't need to be reinvented. The needs and outlooks of the crop cultivating customers could be investigated with a customer survey, according to which new services could be developed.

40 % of ProAgria PK's members have participated in ProAgria PK's projects. Total of only 20 % of ProAgria PK's Farm Services customers have participated in the projects, so it can be determined that the member customers are more active users of ProAgria

PK's services than other customers. This should be utilized in marketing: since the member customers are active and interested in ProAgria PK's services, they will likely be interested in purchasing even more services. Perhaps more services where member customers could get a discount should be offered or new services created which would only be available to member customers.

Of ProAgria PK's Farm Services customers 15 % have organic production. 22 % of the organic producers have both crops and livestock in organic production. The rest of the organic producers (78 %) have only their crops in organic production. 32 % of organic producers have participated in projects, which is 6 percentage points more than North Karelia's Farm Services customers in average. 58 % of the organic producers are crop cultivators, 19 % are milk producers (of these 64 % have the dairy farm counselling contract, which is on the same level as North Karelia's milk producers in average), 18 % are calver producers and 13 % beef producers. Based on the customer register it cannot be determined if all of a customer's branches are in organic production. Of dairy farms, 1,9 % have their livestock in organic production and of the crop cultivators, 1,4 % have their crops in organic production. According to the Prospects of Milk Production Development 2020 –research, 20 % of North Karelian dairy farmers are interested in organic production, so in this field ProAgria PK can expect a lot more customer potential (Heikkilä 2012, 66). Based on their activity in participating in projects, it could be determined that the organic producers are more active than other farmers, but could this be a result of the fact that there is and have been numerous organic producing related projects available?

There are only four customers, who are members of the investing customers' support team (those will be referred to as investing customers). All of the investing customers are members of ProAgria PK and milk producers. Three of them have a dairy farm counseling growth contract (the dairy farm counseling customers are divided into three segments: the growth customers are customers which are currently expanding their farms, action customers are developing their farms' operations and profitability and profit customers are those who are in a sustaining stage aiming at upkeeping their farm's profitability (Pennanen 2012, 34 – 35).) of which follows that the fourth customer should also be brought within the contract. Two if the investing customers are

using accounting services: perhaps the other two should be offered accounting services as well. All of the investing customers have participated in projects, which indicates that they have an overall interest in ProAgria PK. Based on this, it could be concluded, that the investing customers could be interested in using ProAgria PK:s services even more. A question arises, why ProAgria PK has only 4 investing customers within its investing customers' support team, when according to the Prospects of Milk Production Development 2020 –research (Heikkilä 2012, 32), 39 % of all dairy farms have investment plans during the next 5 years? ProAgria PK should find means with which it could strongly be a part of their customers' future growth.

50 % of ProAgria PK's Farm Services customers are crop cultivators. Only 11 % of the crop cultivators are members (1 258 are not), 12 % have participated in projects, 7 % are accounting services customers and 5 % have other branches of production. The crop cultivators are the biggest customer branch, but they are not very active. In my opinion, these customers should be paid more attention to. At this moment, the focus is on dairy farms, but within the crop cultivators, a lot of potential could be found if more services were available for them.

3.3.1 Milk producers

Of ProAgria PK:s Farm Services customers, 29 % are milk producers of which 63 % have a dairy farm counseling contract. This means, that of the North Karelian milk producer customers, 254 don't have the contract. The dairy farm counseling contracts are divided with the following proportions: action 52 %, profit 36 % and growth 12 %. Of the dairy farm customers, 10 % have organic production. Only 45 % of dairy farm customers are members of ProAgria PK. 33 % of the dairy farmers have participated in projects and 18 % are customers of the accounting services.

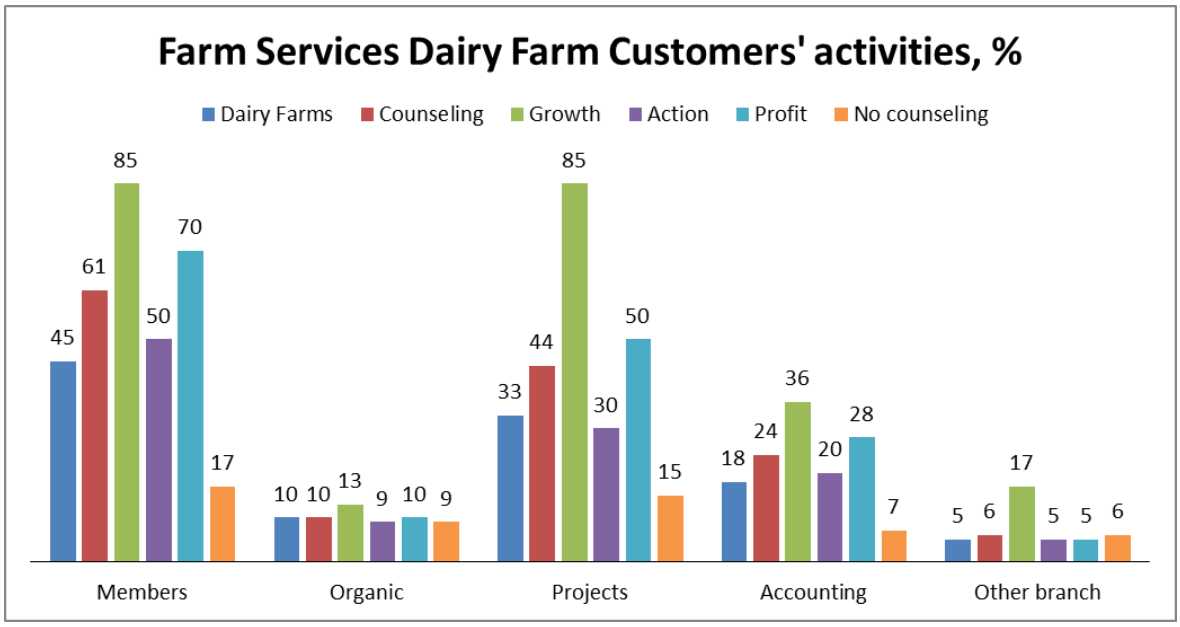

Figure 4. ProAgria PK:s Farm Services dairy farm customers' activity in different fields

Figure 4 describes ProAgria PK:s Farm Services dairy farm customers' activities in different fields. Of all North Karelian dairy farm customers (blue bar), 45 % are members of ProAgria PK, 10 % have organic production, 33 % have participated in projects, 18 % uses accounting services and 5 % has another branch of production besides milk production. Of the dairy farm customers, which have a dairy farm counseling contract (red bar), 61 % are members, 10 % have organic production, 44 % have participated in projects, 24 % use accounting services and 6 % have other branches of production. Of the dairy farms which don't have a dairy farm counseling contract (orange bar), 17 % are members, 9 % have organic production, 15 % have participated in projects, 7 % use accounting services and 6 % have other branches of production.

Of the dairy farm customers which have the dairy farm counseling contract growth (green bar), 85 % are members, 13 % have organic production, 85 % have participated in projects, 36 % use accounting services and 17 % have other branches of production besides milk production. Dairy farm customers who have the dairy farm counseling contract action (purple bar), 50 % are member customers, 9 % have organic production, 30 % have participated in projects, 20 % use accounting services and 5 % have other branches besides milk production. Dairy farm customers who have the dairy farm counseling contract profit (turquoise bar), 70 % are members, 10 % have organic

production, 50 % have participated in projects, 28 % use accounting services and 5 % have other branches of production.

Dairy farms, which have the growth-contract, are the most active customers in all the fields measured. When the farm is active in its own business, it seems to correlate positively with other activity as well. Growth-customers, who also are members, are active in participating ProAgria PK:s projects and they will more likely than others have other branches of production besides milk production. This customer group is also the most active in using accounting services. The activeness of the growth-customers should be utilized, and strive to sell accounting services to the remaining 64 % of the growth-customers. Since this customer group is the most active of all dairy farms, these investing and developing customers should be found more. Also, current customers should be activated into growth customers and into membership and dairy farm consulting. At this moment, the amount of growth customers is only 8 % of all customers.

The next most active group of the dairy farms are the profit-customers. Most of these customers are members of ProAgria PK, half of them have participated in project and one third uses accounting services. In having other branches and organic production, they are on the same level with other customers, with the exception of the growth customers. It is notable, that the profit customers – ones to slow down in their farming – are more active than the activity customers. A customer satisfaction study would help in finding out, why the profit customers are more active than the activity customers, as per the definition, the activity customers would be more active than the profit customers. The activity customers are also less active than all dairy farm counseling contract customers on average.

The dairy farm customers, which don't have dairy farm counseling contract, are the least active group in many of the measured fields. Only in organic production and having other branches they are on the same level with other customers (excl. the growth customers). The non-contracted customers mainly are not members of ProAgria PK, they are not very interested in participating in projects and only a handful uses accounting services. From this it could be concluded, that having a dairy farm counseling contract correlates very positively with the activity of a dairy farmer. I wouldn't go as

far as to claim that the contract would activate the customers. But the non-contracted dairy farms should actively be offered the contract, since from the customers who will get interested in the contract, will most likely get interested in other services as well. Are the dairy farms visited if they are not within the dairy farm counseling contract? Perhaps so-called sales visits could be done, where the benefits of the contract could be presented to the farmers in person. This would be more effective than just let the customers read about the contract from a newspaper or a brochure.

3.3.2 Notions of the CRM database (Severa)

What is notable of the Severa CRM database is that on all sectors is it not up-to-date. The same customer could be on the database twice, the customer has incorrect definitions (customer group, customer type) and all of the customer's operational branches don't show on the reports. Within the branches of operation, there is a large group called "other branch" (542 customers). This group should be looked into and add an operational branch on their customer information. There are also former customers on the database, which should be removed or marked as ex-customers. Also, there are 550 customers on the database which don't have a customer group or any operational branches listed. Those should be looked into as well and add the missing information, since as such those customers will be left out of listings run from the database. Further, the current information on Severa doesn't serve the needs of all ProAgria PK:s branches (e.g. garden counseling and special plants), as these customer groups or operational branches have not been marked on all customers which would belong into those groups. For my study, I removed obvious double customers from the database. As I don't have the knowledge of which customers are no longer valid, that fault has not been corrected on the research data.

Part of updating the CRM database is the need to update the procedures of adding new customers on the database. There could e.g. be a special form which would need to be filled in prior to requesting to open a new customer number. Demanding all of the customer information to be in the form asks for strength from the employee who is responsible in opening the new customer numbers, when he/she has to deny opening a customer number with inadequate information. Therefore, the importance and the

effects of the new procedure should be carefully justified to the field experts. According to field expert Mari Vauhkonen (22.2.2013), the field experts have been advised to check the customer information on each customer visit, but this requirement hasn't been very well instructed: in addition to checking the correctness of the customer's name and address, the field experts are not aware of the need to check also the customer type, customer group and operational branches. These instructions should obviously be updated to ensure that each time the customer's data is visited it will also improve the correctness of the CRM database.

3.4 Analysis of invoicing

The invoicing analysis has been performed on the same CRM data as the statistical analysis of the customers, added with the invoicing information of 2012. Some results of the invoicing analysis in the form of figures are presented in attachments 6 and 7 (figures 18 and 19).

3.4.1 Active customers

There are 4 400 customers on ProAgria PK:s customer register, of which 1 894 (43 %) are active, meaning that they have had invoicing in year 2012. Therefore, there are 2 506 customers on the customer register, who have not been active last year. This is a very large amount of customers, which should be approached and strive to activate them. Helpful information for this would be the information of what those customers have purchased on previous years and also to see what kinds of purchasing patterns can be found from customers who have similar features (customer type, customer group, branch of operation). The latter is information which can be found from the database I have combined from the CRM information.

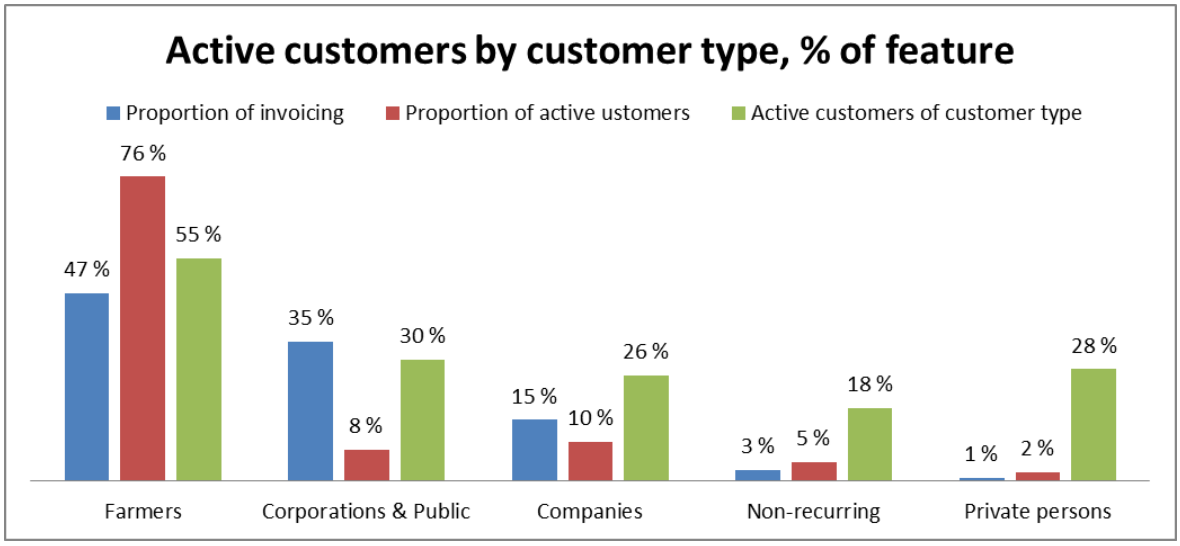

Figure 5. Active customers by customer type: the percentage of each customer type in total invoicing, total amount of active customers and amount of active customers within the customer type

Figure 5 describes the percentage of each customer type in total invoicing, total amount of active customers and amount of active customers within the customer type. The farmers are the most active customers: 55 % of farmers have had invoicing in 2012 (green bar). Farmers are also the biggest group of active customers: 76 % of active customers are farmers (red bar) and 47 % of invoicing comes from farmers (blue bar). The service portfolio of ProAgria PK is very farmer oriented, corresponding well to its customer profile. It would be beneficial to follow up on corporation and public administration customers' as well as companies' invoicing to find out what these customer types need. It would also be beneficial to find out what kinds of companies and corporation and public administration customers ProAgria PK has, and aim at finding similar organizations as ProAgria PK's new customers. For example, within the company customer type there are countryside companies, which are closer to ProAgria PK's business profile than e.g. companies in the city centre. This kind of information can be mined from the customer database combined for this study and utilized for future marketing campaigns.

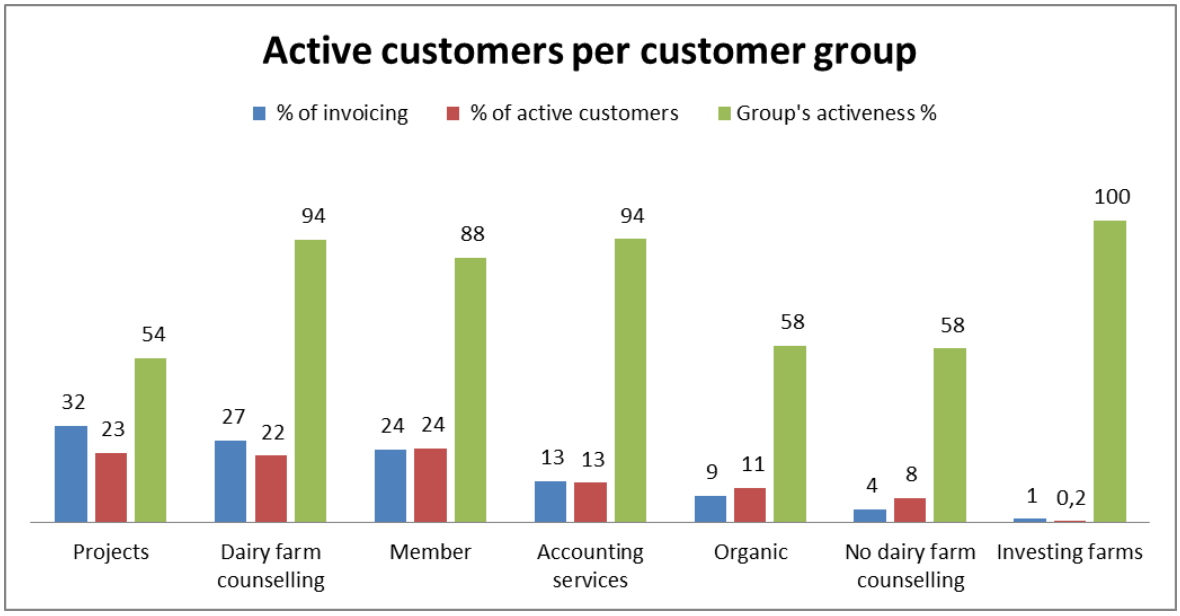

Figure 6. Customer groups' proportions of invoicing and active customers as well as the activeness of each group

Figure 6 presents customer groups' proportions of invoicing and active customers as well as the activeness of each group. The most active customers measured by invoicing (blue bars) are the project cusomers (32 % of invoicing), dairy farm counselling customers (27 % of invoicing) and member customers (24 % of invoicing). The proportion of those customer groups of all active customers is 22 % - 24 % each (red bars). The most active customers within the group (green bars) are the investing customers (100 % are active, but there are only 4 customers in the group), accounting service customers and dairy farm counseling customers (both 94 % of the customer group) and member customers (88 % of the customer group. Based on these results it can be stated what has already been said before, that ProAgria PK should strive to gain more investing customers and dairy farm counseling customers due to their activity. The member customers as well as the accounting service customers are also very active, so these customerships should be increased as well. What is surprising, is that the customers with no dairy farm counselling contract are also quite active (58 % of the customer group). This emphasizes the strive for selling these customers the dairy farm counselling contract, since they already are buying other services from ProAgria PK.

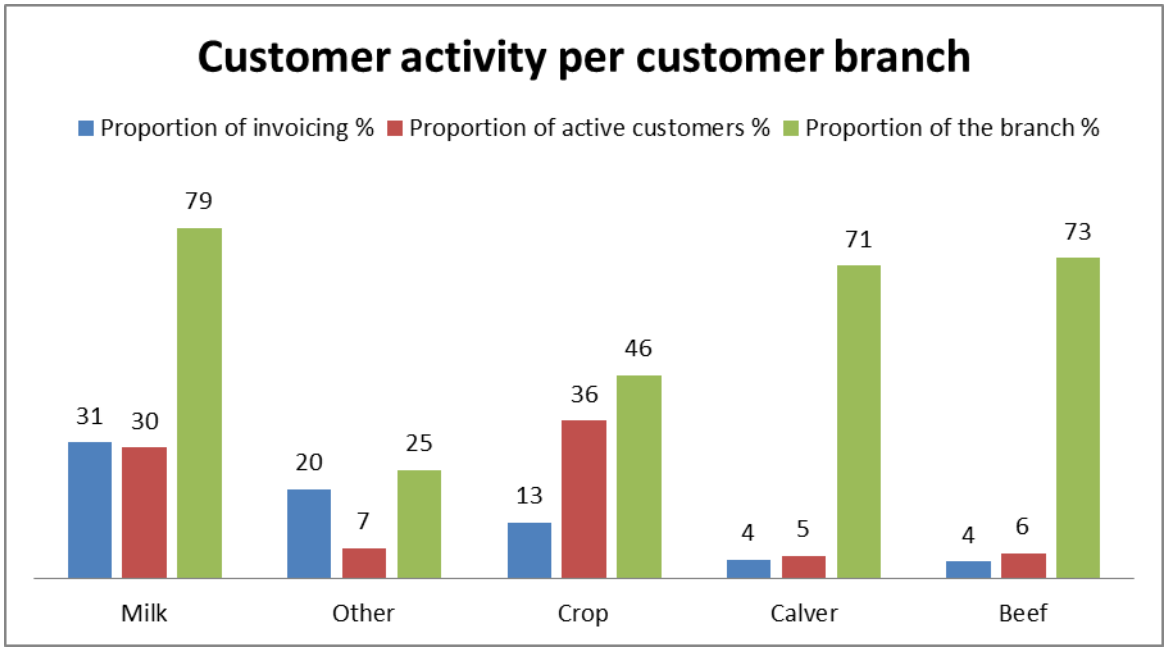

Figure 7. Customer activity per customer branch by the branches' proportion of invoicing, proportion of all active customers and proportion of active customers within the branch

Figure 7 describes customer activity per customer branch by the branches' proportion of invoicing, proportion of all active customers and proportion of active customers within the branch. Of the customer branches, milk producers create most of the invoicing (31 %, blue bars). Crop cultivators are the biggest customer branch (36 % of the active customers, red bars). The most active customers are the milk producers (79 % of the branch, green bars) as well as calver and beef producers (71 % and 73 % of the branch). Less than half of the crop cultivators (46 %) are active, even though their proportion of the invoicing customers is biggest. In comparison to the amount of crop cultivators ProAgria PK has as customers, much invoicing is not gained from them. This reinforces the thought of creating more services to the crop cultivators, e.g. new service concepts with which to allure them to buy more services. In my opinion, if a customer already is active, selling new services might be easier than to try and persuade new or non-active customers to buy some service. Somewhat surprising is, that calver and beef producers are quite active within their respective branches. Does ProAgria PK have services which could be targeted to these customers? The proportion of calvers and beef producers of all customers is 7,5 %; 291 in total, of which 209 are active. This is also a good, active group of customers, which could be sold more services to and even created new, targeted services.

3.4.2 Invoicing

Dairy farm counselling contracts form 25 % of farmers' invoicing, 13 % comes from production and architectural engineering and cultivation counselling each and 11 % of EU subsidy counselling and accounting services each. These are also the top five invoiced services of ProAgria PK Farm Services. The biggest active customer branch, crop cultivators, buy EU subsidy counselling, cultivation counselling and accounting services. EU subsidy counselling and cultivation counselling are not very good services what comes to invoicing, because the amount of invoicing per customer is small (EU subsidy counseling 156 eur per customer and cultivation counselling 278 eur per customer). Crop cultivators use also accounting services, which produces much better invoicing per customer (490 eur). To this large, active group of customers (678 customers) new services and service packages should be created.

The invoicing of dairy farm counselling is 19 % of Farm Services invoicing, totalling to 250 000 eur. Dairy farm counselling is bought by 406 customers, which is 21 % of all active customers. ProAgria PK has 709 dairy farms as customers (16 % of all customers), of which active is 563 customers (30 % of active customers). Total of 384 dairy farms are buying dairy farm counselling, from which it can be calculated that 179 active dairy farmers are not buying dairy farm counselling and 325 of all dairy farmers do not have a dairy farm counselling contract. Invoicing of dairy farm counselling per dairy farmer is 615 eur. Derived from this, if all active dairy farmers were sold dairy farm counselling, added sales would be 110 000 eur. My opinion is, that activating all dairy farms into buying dairy farm counselling would be pay off. Would it be possible to e.g. write an extensice article to ProAgria PK:s own customer newspaper (ProAgria Itä-Suomi) of the benefits of dairy farm counselling with some customer experiences? Such could be e.g. an interview of a dairy farm counselling customer or an article about a dairy farm counselling farm which has a "100-tonner" (a cow which has produced more than 100 000 liters of milk; this is an achievement which is prized and celebrated). This kind of an article combined with direct advertising could be a more powerful way of getting new dairy farm counselling customers than just a marketing campaign alone. The suggested sales visits to non-contracted dairy farms would also be boosted with the newspaper article.

The invoicing items of corporations and public administration and companies come from fish farming (50 %) and project funding (15 %). The proportion of ProAgria PK Farm Services invoicing of these customers' total invoicing is 25 % (266 000 eur). Of corporations and public administrations' and companies' Farm Services invoicing 26 % comes from production and architectural engineering, 20 % from organic production services and 19 % from expert services. A more specific analysis of what kinds of customers are within these customer types and what kinds of services these different organizations have bought should be made. Based on this, additional services could be offered to current customers and reach out to new customers. I don't think targeting corporations and public administration or companies as one group with marketing efforts would be very reasonable, as these customer types are formed of very heterogeneous companies and organizations.

Non-recurring customers buy production and architectural engineering (60 %), transferring a farm to a descendant (8 %) and project funding (6 %). These customers should be analyzed further to find out, if this customer type includes customers which would actually belong to some other customer type. This I deduce from the buying behaviour of this customer type: non-recurring customers have bought accounting services (9 customers), plant protection (18 customers), EU subsidy counselling (12 customers) and cultivation counselling (4 customers). When these customers are moved under a correct customer type, they will be included when marketing is targeted to the different customer types. The same can be said of private persons, as they have also bought e.g. EU subsidy counselling and plant protection.

The most important customer groups are dairy farm counselling customers (27 % of total invoicing), member customers (24 %) and accounting services customers (13 %). Of the branches, most important are milk producers (31 % of total invoicing), customers of other branch (20 %) and crop cultivators (13 %). Customer types which bring in most invoicing are farmers (47 % of total invoicing), corporations and public administration (35 %) and companies (15 %). From sales perspective, the most important customer is thus a milk producer who has a dairy farm counselling contract.

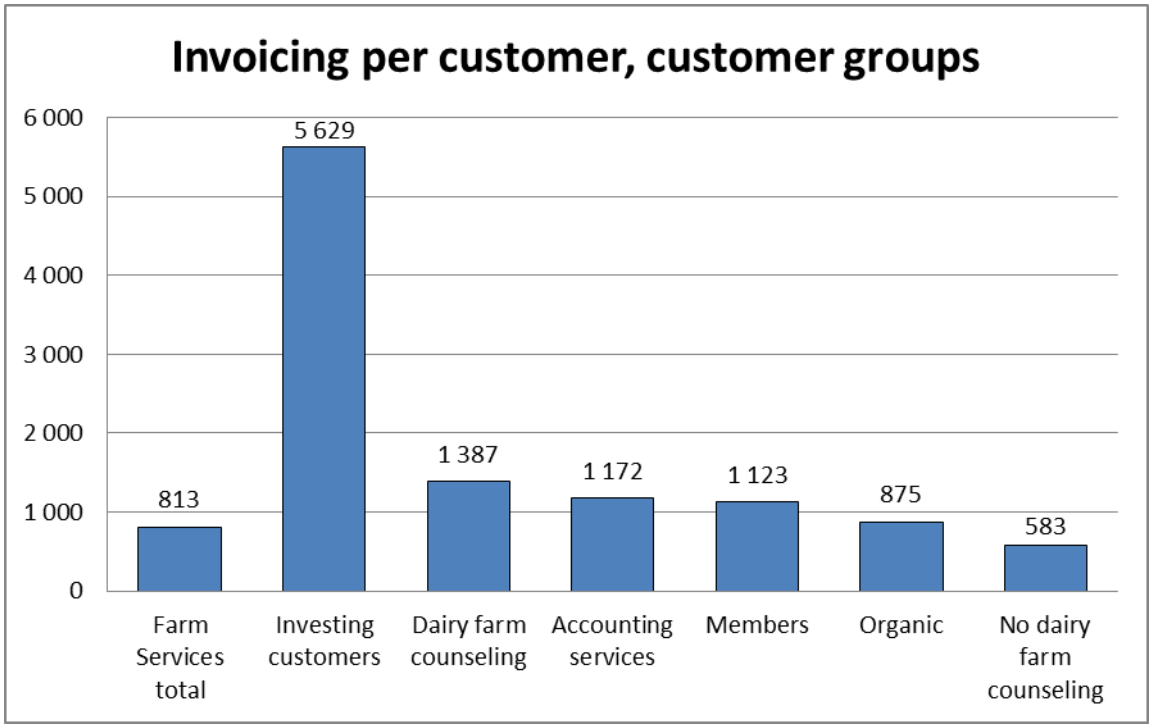

Figure 8. Average invoicing amount per customer, Farm Services total and divided by main customer groups

Figure 8 presents the average invoicing amounts per customer of the total invoiced amount of Farm Services and divided by main customer groups. The invoicing amount of active Farm Services customers is 813 eur in average annually. When all of ProAgria PK:s customers and all customer groups are included, the average invoiced amount per year is 1 130 eur. This figure is raised especially by fish farming, where the average yearly amount of invoicing is 7 213 eur per customer. Investing customers are on their very own category of the Farm Services customers in average invoiced amount, that being 5 629 eur per customer. Of other Farm Services main customer groups, the dairy farm counselling customers are on the top (invoicing 1 387 eur per customer). The customers with no dairy farm counselling contract are on the bottom with 583 annual invoicing per customer.

Investing customers purchase services from ProAgria PK with 22 500 eur total in one year, which is only 1 % of the total invoicing. The average invoicing per customer of the inversting customers is the highest of Farm Services customer groups, 5 629 eur per year (figure 8). Based on this, ProAgria PK should be very actively pursue to find more investing farms, since with only 10 more investing customers could bring

additional sales of 56 000 eur. These investing customers could surely be found among the existing customers, as 96 % of North Karelian farms are customers of ProAgria PK. In finding these investing farms, the field experts are in key position, as they have the knowledge of what is in practise happening on the customer farms. Investing farms are buying production and architectural engineering (65 % of their invoicing), dairy farm counselling (13 %) and accounting services (9 %).

The dairy farm counselling customers are buying in addition to dairy farm counselling (40 % of their invoicing) production and architectural engineering (15 %), accounting services (11 %), cultivation counselling (8 %) and EU subsidy counselling (6 %). Milk producers who don't have the dairy farm counselling contract, are buying cultivation counselling (22 % of their invoicing), production and architectural engineering (18 %), EU subsidy counselling (17 %) and accounting services (12 %); the same services as the dairy farm counselling milk producers buy. In these services, the average invoicing amount per customer is approximately on the same level with both dairy farm counselling and non-contracted customers. If the non-contracated customers were sold the dairy farm counselling service, whose buying behavior otherwise is similar, additional sales could be gained 94 000 eur (there are 152 active non-contracted customers and the average invoicing amount of the dairy farm counselling is approx. 618 eur).

The average purchase per customer with the member customers is clearly over the average purchase of all of Farm Services customers (figure 8) and on the same level with the average of total invoicing (average purchase of member customers is 1 123 eur and the total average purchase is 1 130 eur). The member customers buy dairy farm counselling (32 % of their invoicing), accounting services (13 %), cultivation counselling (11 %), production and architectural engineering (10 %) and EU subsidy counselling (10 %). The purchasing behaviour follows the same lines that of farmers' (94 % of the member customers are farmers). What is descriptive, is that 61 % of the member farms are milk producers, but crop cultivators form only one quartero of the member farm group. This I believe is related to ProAgria PK:s service portfolio: the milk producers are offered a special service package (dairy farm counselling contract),

which activates these farmers to become members as well, while such a package is not available for the crop cultivators.

Organic producers buy in addition to organic services (12 % of their invoicing) dairy farm counselling (15 %), EU subsidy counselling (13 %), accounting services (11 %), cultivation counselling (10 %) and production and architectural engineering (5 %). The services are therefore the same as what other farmers are buying. What is an exception to the similarity is the organic farmers' activity in projects: 15 % of organic producers' invoicing comes from project funding. Derived from this, it can be said that organic producers are more active customers than others, since farmers' project funding forms only 3 % of their invoicing. Knowing that the organic production is a field which is becoming more and more important (Heikkilä 2012, 66), it can be expected that the organic producers will bring additional invoicing to ProAgria PK in the future. However, the average invoicing of the organic producers is only 875 per customer, so there should be potential for added sales. For this, the organic producers' above average activity in projects should be utilized, especially when the projects come to an end. A good way could be e.g. creating comprehensive service packages for organic producers.

3.5 Cluster analysis of the customers

The cluster analysis was done with Weka-software (Hall et al 2009) and EM-algorithm (Expectation Maximization). Weka is an open source software for data mining. It contains a collection of machine learning algorithms, which can be used e.g. to classify, cluster and associate data. Weka has been created by the University of Waikato, New Zeeland. (University of Waikato 2013.) The EM algorithm models the clusters using multivariate Gaussian distributions. EM builds the initial clustering more or less randomly. After that, EM proceeds by alternating between two steps: expectation and maximization. In this way, the convergence is reached and the final clustering is accomplished. (Dempster, Laird & Rubin 1977, 1 – 3.)

The cluster analysis on the customer data has been done with two different data sets. The first data set includes all of ProAgria PK:s customers. The attributes used in this

clustering are the basic customer information found in the CRM (customer group, customer type, customer branch) and information whether the customer has been active or non-active (if the customer has had invoicing in 2012 or not). In the second data set, only the active customers of Farm Services are included. Those have been clustered by both the basic customer information attributes and by invoicing information attributes. In both clustering analyses, the customers are divided into four distinctive classes. As attributes, only the most important information is included: when there are fewer attributes, it is easier to spot the similarities. These formed clusters can be utilized e.g. in marketing (each cluster can be directed well targeted marketing) and also in defining and naming key customers. These clusters can be found in the database I have combined for this study.

For comprehensive customer segmentation and analysis this clustering analysis is partly inadequate. For segmenting, more information of the customers would be needed. Demographic and socio-economic bases for segmentation in private customers' segmenting are e.g. age, family size and life cycle, gender, household composition, occupation, education, income and wealth, lifestyles, attitudes and values (Palmer 2009, 187 – 198; Anttila & Iltanen 2001, 100-106). In addition to the segmenting bases used in this analysis, for demographic and socio-economic bases information like the customer's revenue, amount of livestock, cultivated hectares and number of personnel would be needed for comprehensive segmentation. This information is not available in ProAgria PK:s CRM system. Such information was also not easily available elsewhere, so it had to be left outside this study.

3.5.1 Clustering of all customers

According to the cluster analysis, all customers can be divided into four clusters: A = livestock farms (milk producers, beef and calver producers), B = crop cultivators, C = others (non-recurring customers, private customers, corporations and public administration) and D = companies. The customer groups which were included were investing farms, member customers, organic producers, special plant customers, customers with dairy farm counselling contract and those with no contract and accounting services customers. The branches included were calver production, milk production, beef

production, crop cultivation and other branch. The clusters are coded in rank order (A, B, C, D) according to their purchasing activity, which means that the cluster A has most active customers.

Cluster A, livestock farms, includes milk producers and calver and beef producers. This cluster has 22 % of all customers and 41 % of active customers. In the crop cultivator cluster (cluster B), there are 95 % of all crop cultivators. The cluster has 32 % of all customers and 33 % of active customers. Cluster C, other, consists of non-recurring customers, private persons and corporations and public administration. It has 31 % of all customers and 17 % of active customers. Companies form their own cluster (cluster D), which includes 98 % of all company customers. The cluster has 15 % of all customers and 9 % of active customers. Figures related to this cluster analysis can be found in attachments 8 and 9 (figures 20 and 21). This clustering is somewhat obvious, and as such doesn't bring much added value for ProAgria PK. When the data was analyzed for only the Farm Services branch including the invoicing data, more informative results were reached. Those are presented in the following chapter.

3.5.2 Clustering of Farm Services customers

The active Farm Services customers are divided into four clusters as follows: A = dairy farm counseling customers, B = non-farmers (corporations and public administration, companies, private persons and non-recurring customers), C = crop cultivators and D = milk producers with no dairy farm counseling and beef and calver producers. The same customer groups and branches are included as in the all customers clustering (chapter 3.5.2). All of the services which belong to the Farm Services are included in the clustering. The clusters are coded in rank order (A, B, C, D) according to their total invoicing, which means that the revenue of cluster A is biggest.

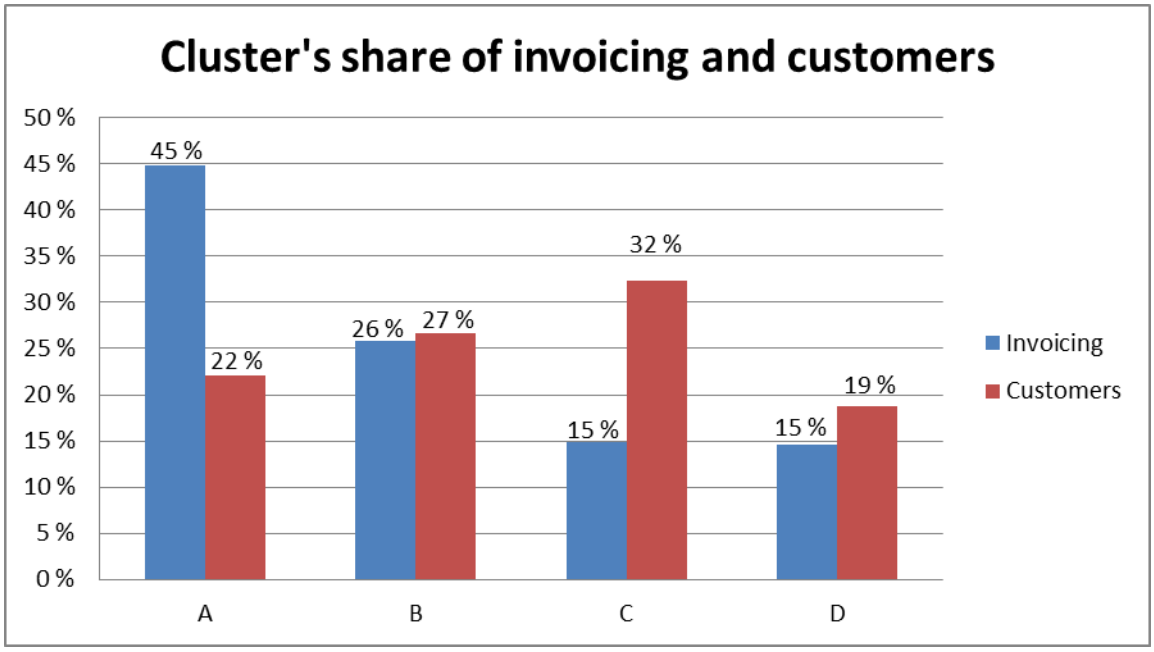

Figure 9. The Farm Services clusters' share of invoicing and customers

Figure 9 presents the Farm Services clusters' share of invoicing and customers. Cluster A, dairy farm counselling customers, includes one third of all farms and 98 % of dairy farm counselling customers. The cluster has 22 % of all active customers (red bars) and its share of Farm Services invoicing is 45 % (blue bars). In the cluster of non-farmers (cluster B), all corporations and public administration, almost all companies and private persons and 90 % of non-recurring customers are included. The cluster has 27 % all active customers and its share of Farm Services invoicing is 26 %. The crop cultivator cluster, cluster C, has 42 % of all active farms and 90 % of crop cultivators. 32 % of all active customers belong in this cluster, and 15 % of Farm Services invoicing. Cluster D (milk producers with no dairy farm counseling and beef and calver producers) has 25 % of farms: 25 % of milk producers, 88 % of beef producers and 94 % of calver producers. The customers of this cluster form 19 % of all activer customers and 15 % of Farm Services invoicing. More figures related to this clustering can be found in attachments 10 and 11 (figures 22 – 25).

The clustering of the active Farm Services customers supports the insights of sales development already mentioned earlier. Cluster A, dairy farm counselling customers, producers almost half of the Farm Services invoicing. 25 % of milk producers belong in cluster D, where the average invoicing amount of a customer is over 60 % smaller than in cluster A. This reinforces the idea, that of milk producers which don't have the

dairy farm counselling contract, would have a lot of potential which to utilize in gaining added sales. Cluster D includes also beef and calver producers. These customers' purchasing amounts could be added as discussed before, if more services were available for them. In cluster C, crop cultivators, the average invoicing amount per customer is the lowest of all clusters (311 eur when in cluster A it is 1 366 eur). However, one third of all active customers belong in this cluster, so there is a lot of active customer potential. The idea of creating new services for crop cultivators is again enhanced. This clustering could be utilized e.g. approaching non-active customers: the model could be applied to the data of ProAgria PK's non-active customers. By clustering the non-active customers in accordance to this clustering, they could be approached with targeted marketing. It should be noted, though, that clusters D and B are quite heterogeneous, and it wouldn't be wise to use those cluster for marketing purposes as such.

3.6 Association analysis

Association analysis (also known as market basket analysis) was done with Weka-software (Hall et al 2009), using a-priori algorithm. A-priori is a frequently used algorithm used in association analysis. It seeks the data for association rules: which factors have positive correlation between them. In practice this means, that the data is searched for rules, with which to study e.g. customers' purchasing behavior. Such a rule is for example *if customer has bought service A, he will most likely also buy service B*. (Zhang & Zhang 2002, 33; StatSoft, Inc..)

The data for the association analysis is ProAgria PK's Farm Services invoicing data from year 2012. There are 14 services included: expert services, EU subsidy counseling, investments, plant protection, organic counseling, milk meters, dairy farm counseling, production and architectural engineering, transferring a farm to a descendant, farm counseling, accounting services, cultivation counseling, environmental subsidy counseling and financial counseling. This includes 1 572 of Farm Services customers.

Statistically, this data is quite sparse, as there are only 3 368 invoiced services in it (there are 22 008 possible discoveries, of which the share of the invoiced services is

only 15 %). Due to this, not many association rules were found. On high reliability level (80 – 90 % reliability), there are two rules, and on reliability level 50 % (random), there are eight rules.

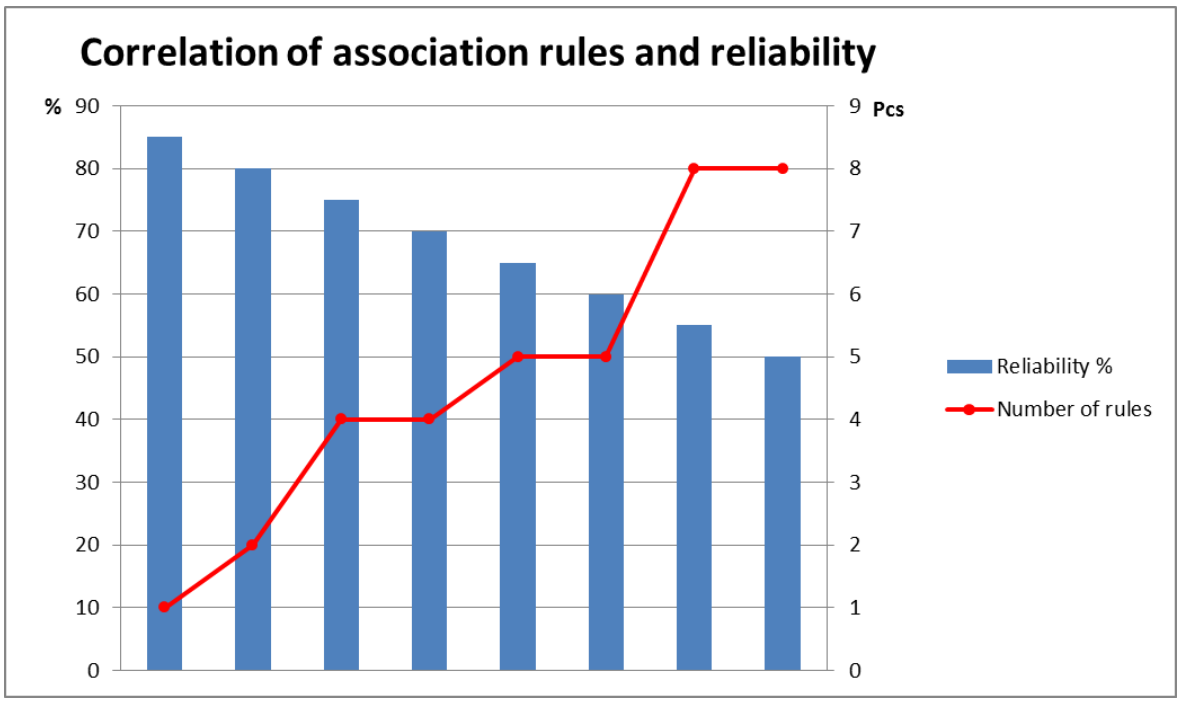

Figure 10. The negative correlation of association rules found in the data and the reliability of those rules

Figure 10 describes the negative correlation of association rules found in the data and the reliability of those rules. When reliability (blue bars) is 85 %, there is one association rule (red line) and when reliability is 50 %, there are eight association rules. Therefore, it can be said that the association rules found in the data are not very reliable excluding the two rules with reliability of 80 % or above. Reliability describes in how many cases the association rule has actualized. For example, when a customer has bought accounting services, in 59 % of cases he has also bought EU subsidy counseling (rule 6, table 2 below). The reliability has been explained in a more formal manner in chapter 2.6.3.

Table 2. Association rules found in the customer data and their reliability

	Association rules:	Reliability:
1.	Cultivation counseling + environmental subsidy counseling ==> EU subsidy counseling	87 %
2.	Cultivation counseling ==> EU subsidy counseling	82 %
3.	EU subsidy counseling + environmental subsidy counseling ==> Cultivation counseling	77 %
4.	Environmental subsidy counseling ==> EU subsidy counseling	77 %
5.	Environmental subsidy counseling ==> cultivation counseling	68 %
6.	Accounting services ==> EU subsidy counseling	59 %
7.	Environmental subsidy counseling ==> EU subsidy counseling + cultivation counseling	59 %
8.	EU subsidy counseling ==> cultivation counseling	58 %

As can be seen in table 2, if a customer has bought cultivation counseling and environmental subsidy counseling, it is likely that he will buy also EU subsidy counseling (reliability 87 %, rule 1). If a customer has bought EU subsidy counseling, it is likely that he will also buy cultivation counseling (reliability 58 %, rule 8). Of the association rules found in the customer data, rules 1 and 2 can be considered reliable, as their reliability level is over 80 %.

Table 3. Services appearing in the association rules, their share of invoicing, share of customers buying the services and the number of times each service appears in the rules found

Services in the association rules:	Invoicing	Customers	Rules
EU subsidy counseling	9,5 %	49,8 %	7
Cultivation counseling	12,2 %	35,6 %	6
Accounting services	11,7 %	19,4 %	1
Environmental subsidy counseling	3,7 %	17,5 %	5

Table 3 presents the services appearing in the association rules, their share of invoicing, share of customers buying the services and the number of times each service appears in the rules found. The services appearing in the association rules found are such that many customers buy them but which share of invoicing is not very high (except for accounting services). EU subsidy counseling is bought by almost half of Farm Services customers and it appears in 7 of the association rules found, but its share of invoicing is only 9,5 %. Cultivation counseling is bought by 35 % of the customers and it appears in 6 of the rules found. 18 % of customers buy environmental subsidy counseling and it appears in 5 of the rules found. Accounting services differs from the other services appearing in the association rules: it is present in only one rule, it is bought by 19,4 % of customers and its share of invoicing is 11,7 %. The appearance of accounting services in the association rules might be explained by its pairing with EU subsidy counseling in the rule, which incidence in the data is big.

For finding an answer to the research questions of this study, the findings of this association analysis are virtually insignificant. There are only two association rules which can be considered reliable, and those two are quite obvious combinations not bringing any news to the organization. Finding out things that are already known is a quite typical failure in association analysis, nevertheless serving one purpose; proving on technical level that the data is somewhat accurate (Berry & Linoff 2011, 73). To gain more insight into the customers' purchasing behavior, the association analysis could be taken to a further level. For example, the clusters formed in the Farm Services cluster analy-

sis (clusters A, B, C and D) could be analyzed to find association rules within each cluster. However, that is a study path for which there is no time within this study.

3.7 Summary of Part 1

A typical customer of ProAgria PK is a North Karelian farmer, whose branch of operation is crop cultivation. Another typical customer is a dairy farmer with a dairy farm counseling contract. Considering sales, the dairy farm counseling customers are the most important customers of ProAgria PK. Of all North Karelian farms, 96 % are customers of ProAgria PK and of all customers, 12 % are members of ProAgria PK. The invoicing of dairy farms forms almost one third of the organization's invoicing. Of active customers, over half are farmers. Dairy farm counseling, production and architectural engineering and cultivation counseling form approximately half of the invoicing of all farms. These services are the three most sold services of Farm Services. Crop cultivation is the biggest active customer branch, and the purchasing behavior of these customers differs from other farms: the crop cultivators buy EU subsidy counseling, cultivation counseling and accounting services.

Only 43 % of ProAgria PK's customers are active. Therefore, over half of the customers in the organizations' CRM system are potential customers. In addition to finding new customers, it would be beneficial to reactivate old customers within ProAgria PK's own customer database. It should also be considered, in which ways ProAgria PK's membership could be made more tempting, because according to the statistics, the member customers are a much more active customer group than others. It could be said, that membership could draw customers into participating in ProAgria PK's activities, e.g. projects, and in this way could increase their interest in buying more of ProAgria PK's services.

The biggest customer branch of ProAgria PK, crop cultivators, also needs activating. Despite being the biggest customer branch, only 13 % of invoicing comes from these customers, when the same figure for dairy farmers is 31 %. My thought is, that the dairy farmers are interested in ProAgria PK's services and membership because of the special service package they are offered, the dairy farm counseling contract. In my

opinion, the crop cultivators could be interested in service packages targeted for their needs. Altogether, services targeted for the crop cultivators should be developed further, as there is a lot of purchasing potential yet to be exploited in this customer branch. These opinions are supported by the cluster analysis performed on Farm Services customers. From sales perspective, the crop cultivator cluster (cluster C) is the weakest, as these customers' average invoicing per customer is almost 80 % smaller than the best customer cluster's (cluster A, dairy farm counseling customers), even though one third of active customers belong in cluster C. This indicates that there are a lot of active customers within the crop cultivation customers, but ProAgria PK hasn't been able to provide them with good, chargeable services.

Approximately one fifth of the milk producers are not dairy farm counseling customers. ProAgria PK should strive to gain these customers within the dairy farm counseling contract, as almost all of the dairy farm counseling group's customers are active. My conclusion is that when a customer has the dairy farm counseling contract, they are also generally interested in ProAgria PK's services, since 60 % of these customers' invoicing comes from other services than dairy farm counseling. The dairy farm counseling contract could be offered to the milk producers e.g. by visiting them with the sole purpose of presenting the service to them (a sales visit). Computing from the statistics, it could be possible to gain additional invoicing from dairy farm counseling for over 100 000 eur annually, but this calculation is a bias. Among the dairy farmers, there are a lot of small and discontinuing customers, and therefore the actual potential for added sales within the non-contracted dairy farmers is considerably smaller than what this calculation shows (Karjalainen 2013). Despite that, also the cluster analysis performed on the customer data shows, that there is sales potential within the non-contracted dairy farmers: the average invoicing per customer is over 60 % smaller than that of the contracted dairy farmers' and 25 % of dairy farms belong in this cluster of weak sales.

The Prospects of Milk Production Development 2020 –research (Heikkilä 2012, 32) shows that 39 % of North Karelian dairy farms are planning to invest in the next few years. Nevertheless, ProAgria PK's service package for investing farms has interested only four customers. These investing customers buy a lot of services, their average annual invoicing being over 5 500 eur per customer while that of all customers is 1 100

eur. Dairy farms have been segmented based on their operational activity, of which the growth –customers are ones currently developing their farms (Pennanen 2012, 34). These customers are also very active in participating in ProAgria PK's activities. These investing and strongly developing farms should be actively searched for and activated into using ProAgria PK's investing farms service. Defining these key customers has already begun in the organization. In a staff meeting in June 2013, all employees were asked to name their most important customers to be included in the key customers' group. According to Viitala (2007, 62), including the employees in the strategic plannig in order to gain as broad vision of the future as possible. When considering the investing and developing farms, it is important to find the services of which these customers will benefit most. Production and architectural engineering is one such service in which ProAgria PK has strong know-how, but other services should also be developed so that the future growth processes of ProAgria PK's customers can be taken part of. For example, customers' interest in energy related training and counseling has grown 120 % according to the the Prospects of Milk Production Development 2020 –research (Heikkilä 2012, 69), so this service need should be answered swiftly.

According to my study, ProAgria PK's organic producer customers are more active participants of ProAgria PK's activities than other customers. According to the the Prospects of Milk Production Development 2020 –research (Heikkilä 2012, 66), one fifth of North Karelian dairy farms are interested in organic production, so it can be said that organic production is clearly an emerging trend among North Karelian customers. However, the average invoicing per customer of organic producers is over 20 % smaller than among all customers in average, so in my opinion there should be potential among these customers for increased sales. There are many projects available for the organic producers, where the customers can be counseled for free due to the EU and ELY funding. ProAgria PK should strongly emphasize in selling counseling services to organic producers once the projects end. Service packages for the organic producers could be a good way to productize organic producers' customership and in that way provide them with comprehensive services.

When searching for new customer groups, it should be remembered that ProAgria PK's services are mostly directed at farms. As the amount of farms is decreasing, new

customers can be searched among companies and corporations. When approaching these potential customers, it is advisable to gain knowledge of those customer groups within ProAgria PK's own customer register and thus find out what kinds of customers they are and what services they have used in order to better anticipate their needs. ProAgria PK's accounting services is a service package, which can be offered to companies as such. Once the customership begins with the accounting services, the customer can be offered other ProAgria PK's services as well. On the other hand, accounting services is a very competitive branch (according to Fonecta Oy (2013), there are 147 accounting companies in North Karelia), so ProAgria PK should be able to differentiate from the competitors in order to succeed. Despite new services and new customers, new services for farmers could of course be developed also. According to the Prospects of Milk Production Development 2020 –research (Heikkilä 2012, 69), farmers need training in e.g. using computers. This and other administrative training directed to farmers could be easily developed with ProAgria PK's expertise.

When looking for answers of customers' purchasing behavior, an association analysis was performed with which it was pursued to find out among which services there is a positive correlation. According the analysis, there were two reliable association rules: if a customer has bought cultivation counseling and environmental subsidy counseling, it is likely that he will also buy EU subsidy counseling and if the customer has bought cultivation counseling, it is likely that he will also buy EU subsidy counseling. These association rules are not only partly overlapping but also easily concluded without the analysis. When cultivation counseling and EU subsidy counseling are the two services crop cultivators use the most, them being the biggest customer branch, it can be easily noted that the association rules are justifiable. Even so, there is not much practical use of this result even though the reliability level of the two rules is above 80 %. The association analysis could be taken further by analyzing the purchasing behavior within the formed Farm Services clusters.

In a couple of occasions during this customer analysis a need for a customer satisfaction survey has come up. For example, finding out what new services crop cultivators would need, a survey among the customers could be beneficial. Also, in finding out why one third of all dairy farmers feel that they don't need any counseling or training

services, a customer satisfaction analysis could provide good insight. Additional sales potential among ProAgria PK's customers exist, it should just be examined what additional services these customers could be offered. Based on my study, making of a customer satisfaction survey has been offered to the business administration students of Karelia University of Applied Sciences as a bachelor's thesis, but there hasn't been any interest for that. Another possibility could be agronomist students, who should at least be interested in ProAgria PK's field of business.

4 Part 2: Field expert interviews

4.1 Introduction

This second part of the customer analysis and knowledge overview for ProAgria PK focuses on the field expert insights in customer needs and thus the needs for field experts' know-how. This part has been accomplished by interviewing four of the organization's field experts by a semi-structured interviewing method. As the researcher is new to the organization, it was included in the research plan that deeper information on the organization's customers and knowledge needs will be obtained through interviews. Contrary to social research and in-depth interviews, in this study gaining information via the interviews was in the center rather than aiming at forming a deep social contact with the interviewee in order to obtain deeper understanding of a phenomenon (Siekkinen 2007, 44). Therefore, the semi-structured method was chosen. An outline of open-ended questions was formed for the interviews and were asked in a conversational manner, a.k.a. not with same exact words every time and not necessarily in the same order, following the structure of a semi-structured interview (Eriksson & Kovalainen 2008, 82). The interviews were recorded and transcribed in verbatim, not paying attention to pauses or "ums" etc. as, again, the researcher didn't find those aspects of social research interview practices meaningful considering this study (Barbour 2008, 192 – 193). The transcriptions of the interviews were coded according to topics following the question outline, but enlarged as new themes emerged from the interviews.

The basis for this part of the study is that the field experts have the best insight in knowing what the customers need, for they work daily with the customers and have the information of the customers' current status. The field experts chosen for the interviews were picked by members of the management team, aiming at including a broad vision of the customer field by choosing experts of various areas of expertise and with long experience in the organization. In this way, it was pursued to gain as broad perspective of the customers as possible, and also of the current situation of know-how within ProAgria PK. The interviewing questions have been formed so that information regarding the customers' needs gained from the first part of the study has

been utilized. In this way, the triangulation necessary in explorative research has been reinforced (Stebbins 2001, 26).

The research question for this 2nd part of my study is: *What are the visions of knowledge from the field?"*. Answers for that research question are strived to find with the following sub-questions:

- What are the areas in which the customers currently need most help?
- What are the future needs of the customers?
- How could the organization better serve its customers?
- Which areas would the experts need more training in?
- How could self-development be improved?

This chapter focuses on summarizing the key elements of the interviews and analyzing them as well as presenting the researcher's visions of the matters brought up in the interviews. In chapter 4.2.5 the researcher presents her vision of improving the organization's sales process.

4.2 Customer needs and the present state of counseling

The vision of the field experts is that nowadays the customers need more than just expert services: they need partnership. Just filling in paperwork and sending an invoice of that doesn't fulfill the customers' needs. According to the field experts, the big picture of the customer's situation should be examined and become familiar with it. However, currently there is no time for partnership, and it shows in the customer service. The field experts see that one of ProAgria PK's services, future talks, could be a good tool for partnership, as the aim of the talk is to go through the customer's situation in more depth than what is possible during an original counseling visit. The field experts feel that the current situation is unsatisfactory, as there is no time to bring up all the counseling needs the field expert observes the customer has or to offer the customer new services (e.g. the future talks). This is due to the time spent with one customer being too short and the lack of resources providing the customers with additional services.

ProAgria PK is initializing a new service format, a customer representative model, which the field experts feel could be used also in developing customer partnership. The field experts' vision is that the partnership could be promoted e.g. so that the customer representative would call just to ask how the customer is doing, without trying to sell any new services during the call. In this way, ProAgria PK could show it cares for its customers. My own opinion is, that the work of a customer representative should be very practical and close to the customer so that the representative would also work with the farm, join the other field experts on the counseling visits and thus become familiar with the farm and its status.

The experience of the field experts is that selling more services to customers is difficult and it is not fitting to everyone's personality to sell (ProAgria PK doesn't have a separate sales organization, but the field experts are responsible for creating additional sales during their counseling visits to the customers). One suggestion from the field experts was that those who feel comfortable with selling services could specialize in it, as one factor of succeeding in sales is the seller's personality. Selling more services is also thought to be an ungrateful task, of which the reward is added workload and haste to both oneself and his/her co-workers. In my opinion, the need of selling more services should be carefully reasoned to the field experts and ways to motivate them for selling more should be searched for.

My vision is that these field expert experiences reflect challenges at ProAgria PK's resource allocation. There is the need for adding sales, but the sales channel is in a way clogged, when the field experts don't have the time, know-how or motivation to sell more services to the current customers. To fix this situation, my opinion is that strong guidance from the management is needed as well as re-assessing the sales and service strategies. Sales will not improve favorably, if the field experts wait for the customers to contact them when they need additional services. Increasing sales will also need investments, and in ProAgria PK's case investments are needed especially on the field experts' use of time. Also, I'd suggest that it would be good to make a profitability check on the services and ensure the resourcing before new sales efforts are put in practice.

In my opinion, the idea of field experts specialized in sales is reckoned. My vision is that the sales specialist wouldn't be a separate person from the customer counseling field experts, but one of them, who could present the services to customers. When other field experts get acquainted with a customer's situation and find needs for new services, this sales specialist could be the one to present and offer the service to the customer. I would also say that some kind of a reward scheme for reaching sales goals and additional sales could be quite motivating to the field experts. In the model including sales specialists, the reward could be paid both to the sales specialist and the field expert who tipped of the new service need. The field experts could also be set service goals, and meeting those would be rewarded.

4.2.1 Current services

The vision of the field experts is that in counseling, the service should go back to basics. The counseling should be targeted at productional matters in the cowsheds and on the fields and the paperwork should be done in the office before the counseling visit. Especially dairy farm counseling is a service which the field experts feel should be sold to the dairy farms which don't yet have the contract. In financial counseling, the customers need more help in analyzing profit reports and other financial information. The question of resourcing is brought up again, as the field experts' insight is that there are not enough experts to enlarge the financial counseling service. In cultivation counseling, there are also not enough high-end experts to provide the most specialized services the customers would need, such as growth audits. With the growth audits, the field experts see that the problems are the same as with other specialized services, that there is not enough time to present them to the customers nor are there enough field experts to perform the services.

In the light of these visions, I regard that ProAgria PK should invest in developing its current services and strive to add sales with those in addition to finding new customers and creating new services. For example, the field experts' visions of the importance and necessity of the growth audits is very strong and it should be followed up. Other targets for development I would see in the future talks and occupational health care support. ProAgria PK has 364 customers who use the future talks and 32 customers

who use the occupational health care support. These amounts are minuscule considering that ProAgria PK has 2 594 farmers as customers. In my opinion, there is a lot of sales potential in these services.

The field experts see a lot of development potential in the accounting services. That service should be improved so that the customer's accounting information could be linked into the productional counseling services. The field experts see that it would be beneficial for the customer if their accounting information would be available for the field expert performing other services for them, such as cultivation planning. As lot of added value could be brought to the customer with the accounting services, the field experts feel that accounting services customers should be gained a lot more. Linked to this, the field experts are worried about the inadequacy of their mutual co-operation. Performing the services in co-operation and synchronizing them with one another is seen as a very critical factor of success and in the same manner, lack of co-operation is seen as a barrier for success. I would think that the customer representative model could improve the co-operation between the field experts considerably. In addition to that, I think that the mutual co-operation between the field experts should be improved otherwise as well, e.g. by making more time available for the field experts for actually doing co-operation, as the customer representative model will only be targeted at the key customers in the beginning. I would also say that it could be beneficial for ProAgria PK to specialize in accounting services targeted at farms and linking that information to other services. That could be the differentiation between ProAgria PK's accounting services and other accounting service providers. This would also emphasize ProAgria PK's profile as a provider of comprehensive, all-inclusive services for farmers.

4.2.2 Service packages

The field experts have several ideas of developing service packages for the customers. With service packages, the customers could be offered more comprehensive service. A good example of a service package is paperwork, which is very time-consuming and straining for the farmers. Demand for administrative work outsourcing is very big especially among part-time farmers, who have another day job in addition to farming.

The idea from the field experts is that service packages of the administrative services could be created which would be targeted especially to the part-time farmers, and another specialized package for full-time farmers, to meet the different needs of each group.

A suggestion from the field experts is that the crop cultivators should have a service contract of their own in the same manner as the dairy farmers have the dairy farm counseling contract. These contracts could also work as a good way of gaining customer commitment to using ProAgria PK's services. Packaging of cultivation related services is also recommended by the field experts. My visions gained from the first part of this study are thus well supported by the field experts' visions of developing cultivation related services.

The organic producers are described as a continuous customership by the field experts, meaning that the counseling is not limited to a certain service performed, but the need for counseling is continuous. The field experts' experience is that performing services for the organic producers is more time consuming, e.g. cultivation plans and EU subsidy applications are more straining for the field experts and take much more time than performing the same services for ordinary farmers. My vision is, that a special organic producer contract could be beneficial to introduce for this special group of customers because of their need of continuous counseling. In that way, it would also be possible to gain compensation for the additional work these customers require. Also, I think that an organic producer contract could be a good way to increase sales of chargeable services in addition to project funded counseling work.

Synchronizing the services and developing these synchronized services into good, attractive packages for the customers is an idea from the field experts. In my customer analysis I came to the same conclusion, that service packages could be a good way of gaining customer commitment and offering more comprehensive services to them. In addition to the service packages already mentioned, I thought of a package for discontinuing farmers. This package could include e.g. the sales or rental of the milk quotas, so that this service could also be compensated.

4.2.3 New services

The field experts have several ideas of new services. All in all, creating new services is seen as a very important task. According to the field experts' information, the competition of basic administrative services, such as the cultivation plans and EU subsidy applications is increasing, and also electronic tools for those tasks are evolving. An example of customer branches for which to create new services, the field experts mention calver and beef producers. On the other hand, the farms are reducing the use of livestock counseling, so in my opinion it would be important to find out the reasons for this: aren't the livestock related services which ProAgria PK is offering what the customers need and want?

The project work is seen as a good way of producing added value for the customers, but as a downside, the field experts see the customers getting used to receiving free services. The field experts feel that good, chargeable services with which to continue the project work with the customers should be created. This supports well my own thoughts based on the customer analysis that the activity of the project customers should be utilized by offering them new as well as existing services once the projects are coming to an end.

One specific branch of farming in which the field experts feel new services would be needed, is lawyer services specialized in farming. This would require high-end know-how, a lawyer. In my opinion, as this is a service which most likely wouldn't be a full-time job, instead of hiring its own lawyer, ProAgria PK could co-operate with some local lawyer's office in creating this service. The lawyer's office could hire a lawyer who has special know-how in farming and ProAgria PK could direct customers in need of legal counseling at them. Perhaps ProAgria PK's members could even get a discount of using the legal counseling services. Even if ProAgria PK wasn't able to benefit from this service financially, by arranging such services for its customers would again improve ProAgria PK's organizational image.

4.2.4 Know-how

The field experts feel that the counseling work is getting more and more challenging all the time. The field experts are required to specialize in certain fields but at the same time, they must have basic knowledge of all fields of farming. In their opinion, the challenge is to stay up to date with all the information regarding farming so they would always have the latest information to give to their customers and they would always be the cutting-edge experts in their fields. However, the field experts feel that during the last few years, there hasn't been enough time for training and necessary courses or programs have not always been available. As an important way of learning the field experts see co-operation with co-workers: learning from others and sharing one's own information would be very valuable. Even so, this vision doesn't realize, since the field experts feel they don't have enough time or possibilities for co-operation and communication. Also, learning from practical experience is an area of gaining know-how which the field experts hope they would have more time for. Such know-how is gained e.g. from challenging customer counseling cases or participating in a farm's investment projects. The field experts hope these kinds of learning opportunities – both learning from each other and learning from the field – would be enabled more, as that is invaluable experience which will not be gained from any courses and doesn't have expensive participation costs for the organization.

4.2.5 The researcher's visions

In this chapter I will present my own thoughts and visions which I have come up with during the field expert interviews. My hope is that these thoughts will serve the organization in developing its operations and even help solving some challenges the organization might have on the way of its future success.

The most important competitive advantage an expert organization has is expertise. I think the field experts' thoughts of improving learning from each other and from the field are very important. The challenge of benefitting from these means of learning is the price of a field expert's work hour: time spent in training and learning cannot be charged from the customers. Still and all, I see that all learning and training are essential for keeping up with the branch's development and for providing better services. It

is vitally important to invest in learning. If ProAgria PK's field expert is seen only as a walk-on rather than an all-encompassing partner for the farmer, the basis of the expert organization begins to crumble. In a small region like North Karelia, the word travels fast among the customers, so ProAgria PK cannot afford to let its grip slip.

ProAgria PK should commit strongly in the co-operation among the field experts. As the field experts brought up, comprehensive production of services to customers, working in co-operation and consulting each other is in my opinion the only appropriate way for ProAgria PK to operate in the future. Working in this way, a lot more value could be added to the customers, as the services would be done in co-operation, utilizing the services other field experts have produced in one's own service production. Particularly important would be that all of a customer's information and service reports could be found in one place available for all field experts working with that customer. By increasing co-operation and communication between the field experts, it would be ensured that each field expert's field of expertise would be known to others and that they would always know whom to turn to when in need of advice or where to direct a customer to when one's own expertise doesn't suffice.

The field experts being strained of their workload is watering down the organization's efforts of gaining additional sales. There is a lot of know-how, good services and special expertise, but those are not told to the customers about due to lack of time and lack of resources for providing those services. Adding productivity by adding the field experts' workload can lead to decreased quality of service and at worst, to the field experts' fatigue. Increasing haste will also prevent the forming of partnerships which the customers are longing for. In addition, motivation for learning will diminish if the employees can only hardly cope with their daily work (Viitala 2007, 176). Excessive haste can cause frustration as the work cannot be done properly and can even cause a field expert to resign. To enhance the field experts' working ability and to prevent fatigue, I suggest that the management would be trained to notice those problems in an early stage and to intervene in such cases. The field experts give acknowledgement to the organization of e.g. restricting the amounts of overtime work, and this nature of personnel policies should be continued and improved.

In the center of ProAgria PK's sales process are the services, the field experts and the expertise of the field experts. I created the figure below (figure 11) to describe ProAgria PK's sales process. The field experts have the broad service selection of ProAgria PK in their use as well as their own special expertise, which are the basis for the counseling work and also for gaining additional sales. In addition to the services and expertise, the field experts need know-how in sales as well as time and motivation to do the sales. These three factors form the arrowhead of sales, with which the additional sales is gained.

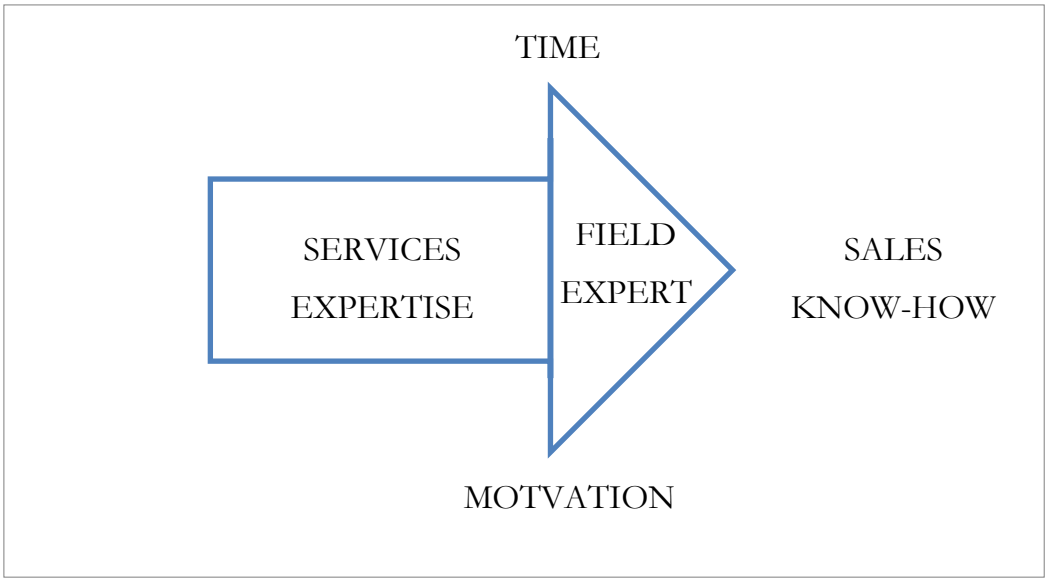

Figure 11. The target situation of ProAgria PK's sales process

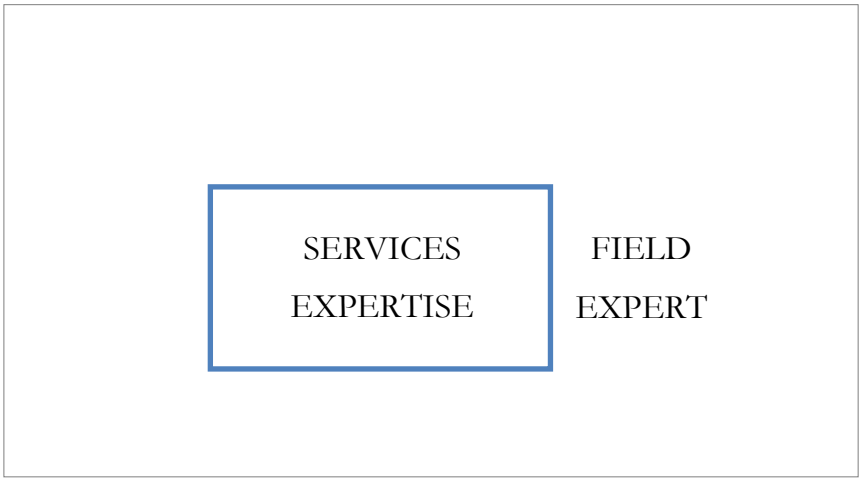

Figure 12. The current situation of ProAgria PK's sales process

The field experts feel that sales work is difficult, saying e.g. that they don't have the necessary know-how of how to do sales and that sales work doesn't fit everyone's per-

sonality. Another difficulty in the sales work is that the field experts don't have the time to present the customers new services even if they'd notice the customer would have service needs. The third missing factor which would be needed to succeed in sales work is the field experts' motivation. The field experts are not motivated in selling more services to the customers, as they feel that the only reward of additional sales is more work and haste to themselves or their co-workers. When these three factors, time, sales know-how and motivation, are missing, the arrowhead with which to succeed in sales is missing (figure 12). The field expert is left alone with the services and his/her expertise, and from this position it is very difficult to promote sales. The problems in gaining additional sales are therefore deep in the organization. If the arrowhead of the sales is missing and due to that the field expert feels that he/she cannot promote additional sales, the problems need to be solved starting from the processes and structures of the organization.

4.3 Summary of Part 2

The customers' needs for counseling are more comprehensive than before. The customers are longing for partnership instead just the field experts preforming separate services for them. The customers need e.g. encompassing insights in how to utilize information gained from reports and analyses in the farm's operation. Therefore, the field expert must be well familiarized with the big picture of the customer's farm. A service with which to aim at partnership with the customer is the future talks. The organization is initializing a customer representative model, where one field expert (the customer representative) gets acquainted with the customer's situation and finds the experts matching the customer's needs from within the organization or from the organization's partners (e.g. other ProAgria centers).

To be able to provide customers with services which cover the entirety of the customer's operations, ProAgria PK must improve the internal co-operation of the organization. For example, information gained in accounting services could be utilized in the planning of a farm's practical operations, and thus provide the customer with more added value by synchronizing several services than if the services were performed separately. In the future, the counseling work should be seen more as consultation, where

the experts with different fields of expertise work together in order to provide the customer with better services. Synchronizing the services and mutual co-operation of the field experts are key factors in order for ProAgria PK to succeed in the future.

In achieving partnership with the customers and developing the organization, a challenge is seen in the lack of time. Within the time reserved for one counseling visit, there is no time for listening to the customer and in that way getting a better vision of the big picture of the customer's situation. This would be important in the sales perspective, as in these discussions the customer's needs for additional services come up. A factor restraining the development of partnership is also the lack of resources: there are not enough field experts to perform all the services the customers would need. In the way of developing co-operation among the field experts is again the lack of time. The field experts don't have enough time or possibilities to discuss the customers' situations with each other and thus gain better understanding of it.

Providing added value to the customers is crucial in the counseling work. The impact of the counseling provided for customers is shallow if it only helps them to fulfill legal requirements. Adding value to the customer requires more and more specialized high-end expertise but at the same time, knowledge of the entire farming branch. Providing administrative services is highly competitive, so only by providing the customers with added value ProAgria PK can differentiate from its competitors. In addition to basic counseling services, ProAgria PK must be able to help the customers with their farms' big operations, like investments. This requires cutting-edge knowledge and so-called practical inner circle experience which to pass on to the customers. Due to the structural change of farming the size of the farms is growing, and the needs of these large farms are very different from the small, traditionally operating farms. In this aspect also, the field experts are required to develop their know-how and mastery of new kind of knowledge, when the customers need help e.g. in management of their farming companies.

In the field experts' work, developing know-how can be done in many different ways. Learning occurs while working with customers, it is possible to participate in training courses or in long-term training, but the latest information is not necessary received

from courses. The field expert must keep him/herself on top of the latest information in the branch in general and especially in their special field of expertise. An important form of learning is also co-operation and communication between co-workers. The valuable practical inner circle experience and knowledge can only be gained by participating in actual projects in farms, like investments. Such knowledge is e.g. knowing how different investment solutions work: what to do and what to avoid.

A central objective of this study is to find ways in which to gain additional sales for the organization. Sales work in itself is seen as a very problematic field. In addition to providing the customers counseling services, the field experts are in charge of selling the services to customers, as there is no separate sales organization. Three main factors preventing success in gaining additional sales are lack of time to utilize sales opportunities, lack of sales know-how and lack of motivation. While visiting a customer, there is no time to bring up new services. The sales work is not fitting for everyone and it is also difficult to rationalize to the customer the benefits of neither certain services nor why those are better than the same service bought from a competitor. Motivation is decreased by the added haste the sales of more services would bring, which is due to the organization's resourcing problems. Difficulties in sales is therefore not only in lack of know-how, but also in the structures of the organization. As a result of this study, tackling this problem has been started off by a questionnaire to the field experts in which they were asked of their interest in the sales work. Apparently, two field experts were found who announced their interest in the work of a sales specialist, so that is a good beginning for the change in the sales operations.

In all the central fields brought up in the field expert interviews, lack of time is seen as a problem. Another emerging challenge is resourcing. The field experts don't have time to get acquainted with the customer's situation, which creates problems in developing partnership with the customer as well as in gaining additional sales. Lack of resources is also affecting sales, when there is not enough time to fulfill all of customers' needs and not enough service providers in all special fields of expertise. Developing know-how by e.g. co-operation among field experts is scant, as there is no time to exchange knowledge or know-how. Keeping up with latest knowledge is also inadequate due to haste and big workload. The organization should develop its operations so that devel-

oping know-how or upkeeping with the latest knowledge are not compromised, since the foundation of an expert organization are competent experts. Also, to gain additional sales, conquering the resourcing challenges is critical.

5 Part 3: Survey of governance

5.1 Introduction

In the third part of the customer analysis and knowledge overview, the viewpoint of ProAgria PK's governance in learning strategies and the current status as well as future know-how are in the center. For this part, two members of the organization's management have been interviewed by semi-structured interview method. The same principles apply to the management interviews which were presented in the introduction of the field expert interviews (chapter 4.1). To get acquainted with the organization's strategies, strategy related documents of both ProAgria PK and Association of ProAgria Centres have been studied. The study of documents has been limited to the fields relevant to this study. For example, the organization's financial state has emerged during the study so far, so matters related to that have been included in this part.

The research question for this 3rd part of my study is: "*What is the organization's learning strategy*?". Answers for that research question are strived to find with the following sub-questions:

- What is the organization's knowledge improvement like?
- What are the organization's visions for future knowledge?
- What are the future challenges on the agricultural counseling branch?
- What are the organization's current strengths?

The first chapter presents the viewpoints of the organization's governance in relation to learning and strategies, based on the interviews of management team members as well as the strategy documentation studied. From the strategy documents, areas which have come up in this study have been chosen for presenting, meaning that all of the organization's strategy is not presented. The questions for the management have been formed keeping in mind the information gained so far from the study in order to gain broader understanding of those. The information gained from the strategy documents is referred to, other information is gained from the management interviews. In the sec-

ond chapter, the researcher expresses her own thoughts of the matters related to the governance viewpoints.

5.2 The governance viewpoint

Matters brought up in ProAgria PK's management interviews and found in the documented strategy have been summarized in this chapter. All thoughts, visions and opinions are those of ProAgria PK and Association of ProAgria Centres.

5.2.1 Strategy

This chapter includes information on ProAgria PK's strategy related to the research questions of this 3rd part of the study, but also on matters brought up earlier in this study. The entire strategy of the organization is therefore not presented here.

One of the success factors of ProAgria PK is the continuous development of field experts' know-how. The field experts are offered opportunities to develop their know-how in curricular and multifaceted manner and in long term. (Ilvesluoto 2013c, 8.) In professional development, focus is in customer service know-how, which is in consultation, sparring and interaction skills (Parviainen, E. 8.4.2013). The share of chargeable work must be diminished, so that development is enabled (Parviainen 2013, 5). Know-how must be maintained so that the expertise is up to date. In recruitments, it should be kept in mind that there should always be new apprentices developing in to the group of experts. (Ilvesluoto 2013b, 7.)

New markets and business branches for know-how must be searched for. New markets are looked for e.g. in Russia. (Parviainen 2012, 285.) Dairy farms are still the most important customers, but large expectations of growth are seen on the fields of crop cultivation, forestry and countryside companies as well as in export (Ilvesluoto 2013a, 2). The number of farmer customers should be maintained at current level and the number of company customers should be increased. This is possible only if the services are developed so that the organization has know-how in a broader spectrum than farming, especially in the company customer branches. (ProAgria Keskukset 2011, 1.) In addition to farming, ProAgria PK strives to develop the multi-disciplinary and active

entrepreneurship of the countryside related to e.g. energy industry and nature (Parviainen 2013, 1).

In its operations, ProAgria PK wants to be near its customers. The goal is to develop from only counseling the customers to sparring and consulting them and striving for partnership with them. (Parviainen 2013, 3.) In customer service, a new model is being initialized, in which the service is evolving from one named field expert per farm producing all counseling for them to a service where a customer representative takes the ownership of a farm bringing in the necessary experts to fulfill the needs of the customer. This consultative service process requires continuous model of working throughout the organization, not just performing some single service for a customer. In the beginning, the consultative service process is not profitable, but in the long run it will profit the entire organization. The process is conducted so that each farm has a contact person, the customer representative, who is familiar with the big picture of the farm. This customer representative is in charge of the sales and execution of the sales for the customer, but doesn't perform all the services his/herself. In this model, sharing information among the field experts is crucial. There is a lot of information available about the customer, and that must be able to be utilized for the benefit of the customer (Parviainen, E. 8.4.2013). (Ilvesluoto 2013b, 2 – 6; ProAgria Keskukset 2011, 1 - 2.)

Both the customer service and profitability should be improved simultaneously, even though these are often thought as contradictory strategies. In the daily work, the aim is at focusing on chargeable customer work in order to enhance profitability. The amount of bureaucracy within the organization must be diminished. (ProAgria Keskukset 2011, 1.) Electronic procedures in customer service bring savings especially in decreased traveling costs (Parviainen, E. 8.4.2013). The administrative structure and the organization of counseling work must be renewed and sought productivity in that way (Parviainen 2012, 284). In ProAgria PK, the organization is being renewed by reducing the amount of managers, decentralizing responsibilities by service group and organizing the management team work in a new way. The costs will be adapted with temporary layoffs if needed, so that there is no idling in work. To even out the seasonal fluctuation of sales new services and projects are being created. An important matter in im-

proving profitability is strengthening sales orientation; trading should be "in everyone's blood" (Parviainen 2013, 7). (Parviainen, E. 8.4.2013.)

Good working ability of employees is pursued with an early support model. Within this, the signs of an employee's weakening working ability is sought to be noticed at an early stage. (Ilvesluoto, 2013c. 32.) For ProAgria PK, also the well-being of its customers is important, thus the organization strives for supporting the farmer or entrepreneur and their families in different ways (Setälä, 2013).

5.2.2 Developing know-how

An employee's work can be very versatile and know-how is needed in various fields. An employee can be on different levels of expertise in these fields. The only way to develop oneself is not by moving directly upwards in one field, but also moving horizontally from one field to another. The transition time from one field to another can be long, e.g. moving from dairy farm counseling to organic production counseling can take three years. The long transition time is needed because it is not enough to learn the theory of a certain field, but the field expert will also need practical experience in order to gain depth and assertiveness in the counseling. Horizontal moving between different fields of know-how is a good mean of motivation for employees, as they have a chance to learn new things and do different work than what they have done so far. Being on a high level of expertise in one field and on a novice level in another field brings challenge in the work and learning. Having expertise and experience in one field helps moving into another field, as the expertise already gained from previous work can be used as basis for gaining new knowledge and experience. Challenges of decent size are motivating.

The current level of know-how in the organization is sufficient in meeting the current demand. Instead, when considering the future there are needs of change and development in the know-how. On practical level, every employee must be evaluated to find out his/her possibilities and motivation for development. Majority of the field experts are motivated to learn new things and to develop in their own fields of expertise. On the other hand, it might also be inevitable to learn new things, if the field expert's cur-

rent field of expertise is expected to be of lesser importance in the future. This is typical in almost all fields of business in the current working life (Viitala 2007, 182).

The field experts should use one day of each week for developing their know-how and collecting information, and even that amount of time is not very much. In successful consulting companies the ratio is 2:3, meaning that two days of the week is used in learning and collecting information and three days are used in chargeable customer work. ProAgria PK's goal is to reach the 1:4 ratio. By finding out answers to the customers' problems and gaining knowledge the field experts can accumulate their expertise and thus provide better service for customers. The knowledge gained from one customer's situation can be utilized further with other customers. Currently the 1:4 ratio doesn't actualize with every field expert.

In principle, the need for know-how development is considered when planning the field expert's work, but in practice it is not very systematic. On annual level, it is difficult to plan the necessary time for developing know-how. The planning is done based on the average time required for each service, but it can't really be said in advance how much time performing a certain service will take and also the ways of working differ from field expert to field expert, as well as the customers and their needs are different. Despite that, the critical phase is the field expert's planning of his/her work.

The field experts don't always take the need for know-how development into account when planning their work. All days of the week are booked for chargeable customer work, even though one day should be reserved for collecting information and finding out answers to the customers' questions. That is a part of organizing the work. A special term for finding out answers for the customers work should be created, so that it would be easier to visualize it and thus realize its importance. Once that work is accepted as a mental image, it would be easier to remember to reserve time for it in the calendar. Finding out answers for the customers' questions is part of developing know-how in practice, not just customer service.

The field experts' attitudes towards long-term trainings arranged by the Association of ProAgria Centres are two-folded. Some field experts feel these trainings are very suita-

ble for them and find that participating in the trainings support their work. Others don't feel they can benefit from long-term training. One reason for this can be that every person is a different learner: the same methods of learning don't fit everyone. Nowadays the long term trainings have been modified so that they are more versatile and different ways of learning are taken into account.

In the past years participating in trainings wasn't controlled, and people joined trainings according to their own interests. This lead to a chaotic situation, which was very difficult to manage. The situation of the trainings wanted to be taken in control, and as at the same time the organization faced a financial downturn, participating in trainings was strongly restricted. This meant that participation in trainings was only allowed through a strict application system. Currently the situation with the trainings is good. Annually in development discussions, each employee's needs of developing and altering know-how are evaluated. The needs for developing know-how are determined and necessary actions, goals and schedules are planned. The actualization of these plans is followed up, and they are realizing quite well. The trainings in which the employee has a permission and an obligation to participate are written in the development plan. Training services are bought mainly from the Association of ProAgria Centres but also from outside, e.g. from the University of Eastern Finland and Karelia Polytechnic. In general, 10 days are reserved for trainings annually, depending on the employee's development path. If basic updating of knowledge is counted in, the reserved 10 days of training realizes even with those employees who don't have a special development project going on.

In learning from co-workers, a method of pair work is in use. In this method, two field experts are working on the same customer case together. This method is used especially in familiarization of certain work, especially when an employee is moving horizontally into a new field of expertise. When learning new things with a co-worker, in addition to information also ways and practices of working are transferred, that is, valuable practical experience of the work. When working on large customer cases pair work will also speed up the work. Pair work is very efficient when both field experts are motivated to do it. All field experts don't see pair work as a sensible way of working and exposing one's own ways of working is considered uncomfortable.

5.2.3 Elbit Skills – a tool for developing know-how

Elbit Skills is a software solution, which provides tools for HR work throughout the organization, including training and development discussion management and knowledge overviews (Elbit Oy a). The software has been in use in ProAgria PK before, but this time it is being initialized systematically. It is not enough to have software for HR needs, but operational support and changes of developing the system are also needed. This was missing before, which was one reason why the system was not in use very largely. The Elbit skills system is a good tool for strategical personnel planning (Viitala 2007, 60). The development discussions are managed in the Elbit Skills system, which includes planning of the know-how development on employee level. Also, the realization of the matters agreed upon in the development discussions are followed up in the system.

From the Elbit Skills system, a feature of evaluating current know-how and planning the target level of know-how will be taken in use as well. The evaluating of the current level of know-how and planning the target level of know-how are based on a career matrix created for all ProAgria centers jointly, which has detailed descriptions of each level of expertise (Ilvesluoto 2013d). This resembles what Otala (2008, 82) calls a "learning wiki", which includes descriptions of know-how and the main processes and tools of human capital management and with which all this can be kept up to date and communicated to all personnel.

The viewpoint of the know-how determinations is the employee's professional development. Based on the career matrix, it is fairly easy to determine each employee's current level of expertise. Elbit Skills is a good tool for this, as it is well fitting for continuous development of know-how (Elbit Oy b). In the system, the field experts' levels of expetise can be described on differenet fields: on some field the field expert can be on top level of expertise and on some other field he/she can be a novice. Currently this information is not recorded at all. Elbit Skills will help the process of developing know-how, as it is a smooth tool for managing know-how. In future, it is planned to use the system also as an expert register for both internal and external use.

Elbit Skills will provide ProAgria PK with true benefits once it is fully initialized. The system seems easy to use, e.g. determining the current level of expertise is easy. At this moment the situation is that every employee should be evaluated to determine their current level of know-how. This is done in co-operation with the employee and his/her manager. At the same time, the employee's future needs of development are determined. It is important for the employee to know his/her current level of know-how and the needs of development both for succeeding in the work but also for enabling self-development (Viitala 2007, 182). The detailed information of each level of expertice described in the career matrix is a good tool for this also. There is pressure in going through these discussions and recording the results in Elbit Skills, as the system is being initialized in all ProAgria centers nationally.

5.2.4 The current situation and the future of counseling and know-how

The planning of current status of know-how and future needs are done with a planning matrix based on the know-how assessments made in the Elbit Skills system. Initial estimations of the current status of each employees' know how are made and each employee has been placed on the planning matrix. Each person is also planned the possible and likely directions of development based on the visions of what kind of know-how ProAgria PK will need in the future. This approach is called rational personnel strategy, where the personnel planning starts with the strategy and is then brought to an employee level (Viitala 2007, 53 – 54). The planning matrix follows very well Viitala's (2007, 72) description of a tool for practical personnel planning, which she considers good for ensuring adequate resources of workforce and learning. From the planning matrix, it can be seen that in some areas of knowledge there are gaps; not enough experts that is, and in some areas there are too many field experts considering the expected future demand of customers. It is possible to see from the planning matrix if there are enough high-end experts and are there enough experts on the developing path of becoming higher level experts. In addition to horizontal needs of development, each employee needs to strive for a better level in their special fields of expertise. With the planning matrix it is easier to view the organization's primary needs for changes in know-how. In this way, ProAgria PK aims at responding to the challenges created by the changes in the customer base.

There are also development needs in comprehensive customer responsibility. The field experts should be able to perceive their own roles in the big picture of a customer's situation and how it fits in with the roles of other field experts. Seeing one's own role in the customer's development process requires stepping into the entrepreneur's shoes. All fields of expertise should work together seamlessly, so that the entirety will work smoothly. For some field experts this kind of a mindset is natural, but some need practice. As a customer representative, the field expert would be the player in the team who can see the situation from the customer's viewpoint and organize the other members of the team in adequate order depending on each one's importance in the situation. The customer representative model is not all new, but it hasn't been managed systematically until now. Managing the model systematically means that the development of the comprehensive service process is followed up. Some field experts are naturals in working as a customer representative, but more experts for these roles are needed.

In the customer representative model it is important to determine the boundaries within which the field expert will work. The customer himself should be the one to lead the operational process and be responsible for the entirety. The customer representative is taking some of the entrepreneur's responsibility in his/her hands. Therefore, it is important to specify where the boundaries lie: where does the expert fall silent letting the customer to make the decisions. The moral responsibility of the expert must be kept in mind, as the operational responsibilities go hand in hand with the decision making. In big farms operated as companies the responsibility lies clearly with the entrepreneur, but especially the part-time farmers may rely too much on the field experts.

Sharing the customer's information has practices from one side to another. Sharing information doesn't realize very well due to the field expert's different ways of working. Some field experts see that sharing information unnecessary or might not even be permitted. For others, it is natural to discuss a customer's situation with his/her coworkers, without the person even thinking of acting like a customer representative. In practice, this means that the field experts are forwarding information on the customer's further service needs which they have seen in their own counseling work to one another. Sharing customer information is a matter of attitude, which cannot be realized by a manager's command.

Different tools are available for the field experts to share customer information with. The entire ProAgria organization will be deploying a new ERP system (Prime) in the near future, in which information sharing functionalities are in central part. But even good tools don't ensure that customer information is shared. The main thing is whether or not the field expert sees and understands the importance and added value of shared information. One problem is the vast amount information about customers, which makes it challenging to sort out the essential information. Some kinds of summary reports should be made of the services provided for the customer, where the essential information and the field expert's own observations and conclusions are easily available.

At the moment, ProAgria PK has enough experts for providing all the current services: all customer demand can be met. If an expert cannot be found within the own organization, help can be received from other ProAgria centers. In some areas of expertise, a strategic decision has been made that the services are bought from a neighboring ProAgria center. This is because there is not enough demand of certain services in North Karelia, like sheep farm counseling, that it would be worthwhile for one field expert to keep up with the knowledge of that field.

A big challenge of counseling work is the polarizing of the customer base. The development from homogeneous customer base to heterogeneous is actualizing on many levels. On the top are the large and efficient production units which are operated as a company. These customers have very specialized needs and offering consultation services for them is very challenging. These growing and developing farms also seek for counseling from many other sources than ProAgria PK alone. A good chance of getting on board with these new-style customers are the accounting services, as the bookkeeping of a company-like farm is very different from that of a traditional farm. These customers also have needs for high-end expertise in e.g. production matters. On the other extremity are small farms which have gone through transferring of the farm to a descendant and the cultivation is continued part-time mainly to receive EU and national subsidies. Consulting these customers is very different from the large customers: these customers need consulting in the very basics of farming, like applying for

subsidies and cultivation. The working field of the field experts will change strongly in the future due to the reduction of the amount of farms. For example, 40 farms are discontinuing farming in North Karelia in a year.

5.2.5 Customers and services

Considering customers and services, solutions can be sought using the following strategy: current services for current customers, current services for new customers, new services for current customers and new services for new customers. The risk of the operation grows when moving towards new services and new customers. The safest way of proceeding is to offer current services to new customers, but finding new customers is challenging. This strategy is in line with Hamel and Prahalad's four-fielded tool for strategic planning. The four fields are (1) improving the organization's position in the current market by better utilizing the organization's key expertise; (2) creating new products by combining current key expertise in new ways; (3) creating new key expertise to ensure and enlarge the organization's current position in the market and (4) create new key expertise to enter new markets. (Viitala 2007, 178.)

New customers must be sought especially among companies, for which e.g. accounting services are offered. To differentiate in accounting services it is pursued to offer the customer more than routine bookkeeping and statutory accounts services: the service provider will e.g. ensure that the customer knows how to utilize the bookkeeping information in his business. New customer groups are sought also from Russia and Eastern Europe. In these areas ProAgria PK could well utilize its current special expertise in e.g. milk production. Among the traditional customer base it is difficult to see chances for growth, as the customer base is diminishing and the size of customer farms is increasing. It is challenging to keep the revenue even on current level with the traditional customers.

Good opportunities are seen in especially in environmental business, where ProAgria already has expertise in (e.g. cultivation counseling). The effects of farm production on the environment and water system is an area where new services are being developed, as those effects are a matter of interest in also other farms than organic producers only.

It would need to be investigated, what kinds of services relating to the environmental matters the customers would be ready to pay. Also, new EU regulations regarding the environment might open up possibilities for offering new services to the customers. Currently there is a project going on in which the environmental effects of the use of nutrients is measured. Through that ProAgria PK is gaining practical experience in what kinds of services the customers will need regarding environmental issues. Changes in also other legislation offer opportunities to find new services. For example, in interpretation of new regulations and conditions ProAgria has a good chance to offer services. Once the regulations change, ProAgria PK has the preparedness to create new services rather quickly.

A promising new service is the consultation of purchases, the development of which is now at an early stage. With this service, it is possible for the customer to achieve significant savings especially in construction projects with competitive bidding of the materials and services. In quality control, ProAgria PK has been arranging training for 10 years. Management consultation and financial planning are now the new trends. Management consultation has already been initialized within some projects.

The quality of ProAgria PK's service is measured with customer satisfaction surveys and from the feedback received from customers. A common, national customer satisfaction survey for all ProAgria centers is done in every few years. The past 10 years ProAgria PK's level of customer satisfaction has been the best among all ProAgria centers. Ensuring the quality of service is also one meter to measure customer satisfaction: with internal examinations of ProAgria an expert can verify his/her competence in providing certain services. ProAgria PK receives some dozens of feedback annually. Sometimes the customers are given service specific queries, and also initialization of new services is followed up. As it is nowadays fairly easy to gather customer feedback through electronic survey systems, many operators are sending out surveys. Therefore it has become a bit challenging to get the customers to respond to surveys. Also, belonging to the ISO 9001 quality system brings its own demands for quality.

5.2.6 Profitability

The financial challenges of ProAgria PK are partly the result of the government subsidies for agricultural counseling being diminished, which in turn is a consequence of the lessening importance of the agricultural sector in the society. There is, however, still a political willingness to maintain some of the subsidies. The agricultural counseling has previously been based on the subvention of the government enabling the counseling prices to be low; in other words, the government has paid a part of the farmer's counseling bill. It has not been possible to raise the service prices in the same proportion as the governmental subventions have diminished, so the pressure to optimize the operations is strong. Some price increases are possible, e.g. the raises in operational costs are aspired to add to the prices. ProAgria centers have national principles of service pricing, but the prices are not the same in every center. ProAgria PK's prices are not the lowest in the country, but also not the highest.

What comes to the field experts' use of time, the goal is to use as much time as possible in doing chargeable services for customers. The efficiency of operations must be enhanced to improve profitability: raising prices is not the only solution. Electronic tools give good opportunities for this. The traditional way of working is that the field expert goes to the customer's farm to provide the service, but the travel expenses are a big cost item to the organization. This causes a very contradictory situation: service done at the customer's farm is good service for the farmer but it is too expensive to produce. The electronic tools allow communicating with the customers on-line, e.g. by arranging meetings over the internet. On the other hand, all customers don't have sufficient internet connections, so using the electronic tools is not always an option. Also, internal meetings and infos will be done over the internet as much as possible.

ProAgria must also prioritize its operations. At the moment, the selection of services is very broad and this might have to be narrowed down and decided where to focus. ProAgria PK doesn't necessarily have to provide all services itself. Other ProAgria centers can be used so that services which are only seldom needed can be purchased where the expertise exists. In this way, time is saved when an expert doesn't have to keep up with information he/she might only need once or twice a year.

5.2.7 The governance and future of the organization

The clearest challenge of the future is the diminishing of the customer base. ProAgria PK's success is dependent upon the service selection which it is able to provide for its customers. If the services and the expertise available are on a high level, there will be demand for the services also in the future. ProAgria PK has also big challenges in its cost structure. In a few years' time, the entire ProAgria organization must be reorganized, so that the internal operations' organization will lighten. Bringing the administrative operations together is inevitable for cost reasons, as inefficiency exists in many levels. The field work is efficient and it cannot be centralized, but e.g. financial administration and management need to be better organized. Today's technology enables an employee's workplace to be anywhere, as long as the internet connections work. In centralized and specialized operations benefits will be gained e.g. in settling matters. Currently, same problems are being investigated and solved in many ProAgria centers and by centralizing operations this kind of work would be rationalized. This of course will not work in all areas of administration, but in many cases cost savings would be gained. In the center of uniting operations is the change to lower costs, but it also enables centralizing and enhancing marketing.

The ProAgria network is currently not being utilized fully nor systematically: know-how should be shared and transmitted within the network. For example, when new kinds of customer operations are being developed in some centers, those should be able to be utilized in other centers as well. Uniting and unifying operations is also supported by the change which the transferring into an information society has caused on the entire agricultural field. The farmers are not comparing the services they receive only with their neighboring farms, but the information can be shared nationwide. Unifying services has already been started in e.g. livestock counseling, financial counseling and accounting services and it is now been initialized in cultivation counseling.

Bonus systems are a possible option in the organization, but they are not in use in ProAgria PK. The principles of the bonus systems have been agreed upon among all of the ProAgria centers (Ilvesluoto 2013c, 14). Using bonus systems is challenging due to the versatility of ProAgria PK's operations. There are a lot of fields in which the field

experts' work which cannot be measured. A bonus system has sometimes been used as a collective reward for the entire organization in ProAgria PK. In the entire ProAgria's strategy policy the bonus system has been paid attention to, and noted that the bonus system needs to be improved (Ilvesluoto 2013c, 14). The system should be such that it would treat all employees equally to even some extent, but that is difficult to create. A bonus system should be genuinely motivating to employees.

ProAgria PK's strengths are locality, strong importance on a national level (the entire ProAgria organization), independence of commercial operators as well as good and practical relationships with local authorities. ProAgria PK is also well-known in North Karelia. The size of the organization is seen as strength: a big operator can ensure that the customer will receive the service, as providing a certain service is not dependent on only one person. Maintaining locality is challenging, as the declining number of farms diminishes the amount of customer contacts, due to which it is no longer profitable to have an office in all small towns of North Karelia.

The deputy system works on some areas, but it is possible that some areas it is not working. During peak seasons, it is possible that there aren't enough employees to perform the services (e.g. in spring time, when the farms' statutory accounts take place). In the organization's strategy, using retired experts to help during peak seasons has been suggested (Ilvesluoto 2013b, 7). So far ProAgria PK has been able to handle the peak seasons without extra personnel. In some cases, the delivery time of a service has had to be extended due to lack of deputies. A fact is, that upkeeping a deputy system is expensive, and most likely any organization cannot ensure that all services can be guaranteed no matter what the situation is.

5.3 Summary and analysis of the governance

A central issue which comes up in the organization's strategies and governance visions is that the entire ProAgria organization is very challenging in the middle of the structural change of society. This causes incoherence between the official strategies and the practical execution of them. It should be stated, that I don't have any advice to give to the organization in how to handle this situation. Instead, in this chapter I will summa-

rize and analyze issues which have come up in the strategies and interviews of the management.

5.3.1 Developing know-how

Looking from a higher perspective, ProAgria PK's practical actions of developing know-how support the respective strategy well. The organization's learning strategy follows quite well the principles of personnel planning (Viitala 2007, 52 – 54). Continuous learning and self-development are in the key position. The importance of learning is emphasized by bringing it up as a central matter in the strategy. It also shows in practice in the work planning, as a certain amount of employees' time is reserved for learning and the realization and results of learning are followed up in development discussions. The organization has various courses and long-term training programs, with which the employees can develop themselves. Tools like the career matrix and the Elbit Skills software are supporting the planning and developing know-how.

From the governance perspective, the challenging phase of learning realization is the field experts' own work planning. The field experts don't always remember to reserve time for collecting information and updating know-how in their calendars. This brings up the major administrative conflict in the learning strategy: on one hand, the strategy stretches the importance of learning and aims at diminishing the amount of chargeable work in favor of time spent in learning. On the other hand, due to the need to improve profitability, it is advised to increase the amount of chargeable work. This conflict should be clarified, and determine on practical level how much time the field experts should reserve for learning in this financial situation. It is not enough to develop know-how; the environment for learning and practices of management also need improvement to enable learning (Viitala 2007, 176).

In the future, there is more and more pressure for developing know-how as the service selection is being broadened to new customer groups and new fields of business. When creating new services, Otala (2008, 105) advices to determine what know-how is needed and where that know-how will be gained, in addition to figuring out how much the service will cost and how many employees and how much time will be needed. To en-

sure that the learning objectives are met, perhaps a more frequent follow-up of time spent in learning would help the field experts to carry out the agreed days of learning and development. At the moment the follow-up is done twice a year in development discussions, but it is difficult to catch up if after half a year majority of the learning days are missing.

Development of the organization's know-how is done systematically both on comprehensive and personal level. In the planning, the current status of know-how is taken into consideration and the future needs of know-how are determined upon that as well as the expected customer demand. From the future needs of know-how, for each field expert a personal development plan is created. Despite the profitability challenges this objective hasn't been given up, only the realization of the program in practice might have decelerated. Viitala (2007, 187) describes development of know-how as an important factor influencing productivity, which should be treated as an investment in the company, rather than a cost item. In my opinion, continuing the realization of development plans is a very important matter, as I see that development of know-how and upkeeping of expertise are the key elements of success in an expert organization.

5.3.2 Governance and education

Due to the tight financial situation, there are shortcomings in ProAgria PK's deputy system. At the same time, the deputy system is thought of a competitive factor, so that if one field expert becomes ill, another field expert will fill in and the service can be provided for the customer. The deputy system is expensive and upkeeping an encompassing system is not thought to be possible. Considering learning and know-how, I find this somewhat problematic, as if know-how lies only with one employee the loss of know-how is extensive if that person resigns. In my opinion the shortcomings in the deputy system are a conscious risk. On the different fields of expertise, it should be determined what kind of a risk the organization is willing to take and compare that to the costs of the deputy system in that field. In the strategy, an apprentice model is mentioned, which would be very beneficial considering the risk of know-how losses. Know-how will not transfer from one employee to another without conscious guidance (Otala 2008, 36). With the apprentice model, know-how would be transferred to

new field experts and the resignation of one person wouldn't be such a great loss. This again is conflicted due to the demands of increased profitability: the organization has had to invoke lay-offs and there is no possibility for an apprentice system.

I would see the sharing of customer information between field experts providing services for the same customer as a central factor in comprehensive customer service. There are tools for this in use, and new ones are being developed. A more important matter, however, is the field experts' willingness to share the information. In the management interviews, it became apparent that changing the attitudes of information sharing seems difficult and the management hasn't been able to succeed fully in it. Even so, improving the organization's working atmosphere and culture are an essential part of creating a good environment for learning (Viitala 2007, 176). The creation of that environment is the responsibility of the organization's management.

My vision is that sharing customer information is such an important and essential part of customer service that it must be gotten across to the field experts. Everyone is responsible for sharing relevant information within the organization to improve learning (Viitala 2007, 204). In order for the organization to succeed, everyone in the organization must understand the means of success and what he/she needs to do in order to fulfill those means (Otala 2008, 108). As the new consultative service process is being initialized, the need for attitude changes should be taken into account in addition to technical training needs and needs for organizational changes. I would also see that developing know-how in the field of reporting should be paid attention to. It is not necessarily self-evident for everyone how to compile summaries of the services provided, of which the other field experts could easily find out the essential information of the customer's situation.

In the center of the consultative service process is the customer representative; the field expert who is comprehensively familiar with the customer's situation and coordinates his service needs among different field experts. According to the management interviews, the organization already has some such field experts, but more of them are needed. In my opinion, know-how in management and organizing work are also important in addition to personality matters, when appointing customer representatives.

E.g. in the morale and ethics of consultation surely all field experts will need training, but that is utterly important for the customer representatives. Through their own work, they can also guide others in these matters.

5.4 Summary of Part 3

The structural change of the agricultural field in Finland is demanding ProAgria PK to be protean. The amount of traditional farm customers is diminishing, due to which ProAgria PK must find customers from also other fields of business. The continuing farms are transforming into more company-like, which requires new kind of know-how from ProAgria PK. In addition to new fields of business, growth is also searched from new market areas, like Russia.

As a response for the changes in customers' demand of services, ProAgria organization is developing a new, consultative service process, in which the objective is to become a partner for the customer. In this model, the service will transform from the concept of only one field expert serving a customer to the concept of using field experts from various fields of expertise to serve the customer, a customer representative being in charge of the customer's overall situation. The consultative service process (or customer representative model) means a comprehensive management of the customer's situation, where different services are provided synchronously and seamlessly. A prerequisite for this is that the customer's information is shared between the field experts providing the services for the customer, so that each field expert can utilize the information when performing his/her service to the customer.

A big challenge in initializing the consultative service process is in the improvement of the field experts' mutual co-operation. In order to function successfully, the new service process will need the field experts to share customer information with each other and to utilize that information for adding value to the customer. Currently, sharing customer information is not happening adequately, so training is needed to help the field experts to see the importance of sharing customer information because of the added value it can bring to the customers. This includes the challenges of efficient communication, as the field experts would need to be able to provide filtered infor-

mation of the customer and the services provided for him for the use of other field experts.

The key success factor of ProAgria PK is that the services and know-how are on high level. The current situation is good in terms of all services having experts to perform them, but changes are required in the future both in refocusing the current know-how and in developing new kind of know-how. In an expert organization, the upkeeping and development of high quality services and know-how requires continuous learning and training. The aim is at diminishing the amount of chargeable work so that the field experts will have enough time for developing themselves. The goal is to use one day per week in upkeeping know-how and learning.

In ProAgria PK, know-how is managed both on comprehensive and personal level. The employees have possibilities to participate even in long-term training and also independent learning is emphasized. An organization-wide plan has been compiled of what kind of know-how will be needed in the future and from that a personal development plan for each employee has been derived. In the development plan, each employee's needs, goals, necessary actions and schedule for development are determined. The realization of the plan is followed up semi-annually in development discussions, and the plan is revised annually. The HR-system Elbit Skills is utilized in the knowledge management, in creating and following up the development plans.

The greatest strategical challenge ProAgria PK has is that the objective is to improve customer service at the same time as the profitability needs to be improved. Improving profitability requires concentrating on chargeable customer work, which is in contradiction with the needs of learning and self-development, which in turn would require diminishing the amount of time spent in chargeable customer work. One reason for the weakened financial situation is the structural changes in agriculture, which has influenced the funding of all ProAgria centers. Earlier the agricultural counseling could be partly funded by government subsidies, but due to the lessening importance of agriculture in the society, the subsidies have diminished remarkably. To succeed, the customers must be provided with even better services and even more added value, so that the service prices can be justified. Improving services require investments, which the

current financial situation doesn't encourage. The equation is very difficult to solve and demands the organization's management to deeply delve into the core of the problems.

In ProAgria PK, employees' knowledge and skills are affined, utilized in operations and created new know-how with, which means that its human capital is ample.
To further enhance the process of creating human capital, processes, procedures, management principles, ways of development and good atmosphere are needed. ProAgria PK is continuously pursuing to develop in all of these areas. Human capital also includes the company's major partners, networks and customer relations, which are major strengths of ProAgria PK. These create new opportunities, knowledge of customer needs and recognition of development needs; in other words, more human capital. As an expert organization, human capital is the greatest asset ProAgria PK can have. With strong human capital, the future of ProAgria PK seems optimistic. (Otala 2008, 30.)

6 Additional study part: ProAgria PK's functions in Russia

6.1 Introduction

ProAgria PK's main field of operations is the region of North Karelia, but it has had a lot of operations in Russia as well, and still has via the joint service export company, ProAgria Finland Oy. At the early stages the counseling export to Russia was mainly government funded, but currently the co-operation is business-like. In the future, the counseling services provided for Russian customers will be even more important than in the past, as the amount of ProAgria PK's farm customers is continuously diminishing and therefore the organization needs new customers.

In this study part I will present ProAgria PK's operations in Russia during the era of government funded neighboring area co-operation and the current situation with ProAgria Finland Oy. I have concentrated the international operations of ProAgria PK in its own study part, as information on the international customers was not available from the organization's CRM and the field experts interviewed had not participated in the Russian operations. Therefore, combining the international aspect of this study with the other parts of the study was not possible. For this study part, I have interviewed the CEO of ProAgria PK, Eero Parviainen, who is also ProAgria Finland Oy's chairman of the board. Further, I have read ProAgria Finland Oy's business plan (the company name was then ProAgria Russia Oy) for further information.

6.2 History

ProAgria PK's operations in Russia started in the beginning of 1990's, being directed at the Karelian area. As soon as the dissolution of the Union of Soviet Socialist Republics opened the borders between Finland and Russia (then the USSR), the first contacts were made. There was a general agreement of co-operation between Finland and Karelian Republic, according to which the themes to be forwarded in the co-operation were planned. Several projects were carried out in the Karelian Republic with funding from the Ministry of Agriculture and Forestry up until 2010, in which ProAgria PK took part very actively. The projects concerned mainly development of agriculture and food supply as well as environmental matters. Neighboring area co-operation projects were

done in co-operation especially with the ProAgria centers of Kainuu and South-Karelia. Other partners were e.g. the University of Vaasa with which food supply logistics was advanced and Website Oy, with which an agricultural internet portal in Russian was built. The portal is still in use, and it functions as a marketing and communication channel from Russia to Finland and vice versa.

Once the financial and political situation in Russia improved, the need for government funded neighboring area co-operation decreased. Therefore, commercial co-operation, a.k.a. sales of services and know-how from Finland to Russia, became more important. In ProAgria PK, this has been seen as an opportunity for the future in terms of developing know-how and gaining additional sales. Unlike during the era of government funded neighboring area co-operation, the geographical location of ProAgria PK is no longer a benefit, as the Karelian area is not a major agricultural area in Russia. The large customers are mainly in other areas than those neighboring Finland and North Karelia.

Through the projects carried out in Russia, ProAgria PK has gained good relations in Russia as well as know-how and understanding of how to run and develop operations there. For instance, the environmental conditions in the northwestern area of Russia are very much alike those in Finland, so Finnish know-how can be well applied. Know-how in the field of milk production is also a very good export item, as milk production is one of the key areas of expertise in the ProAgria organization, in which the competitiveness is very good even on global level.

6.3 ProAgria Finland Oy

Even before the neighboring area co-operations ended, five ProAgria centers in the eastern Finland area founded a joint company, JS Focus Oy, in year 2000, the purpose of which was to execute over-provincial development projects in Russia. Operating as a company in the government funded environment was very difficult, so the company's activities at that point were quite diminutive. Once the situation in Russia began to change e.g. so that investments in the agricultural field aroused and the interest towards Finnish agricultural know-how increased, the company was brought to live again

(Sergina-Kishlar & Parviainen 2010, 2). In 2009 the name of the company was changed to ProAgria Russia Oy. The company name was changed again in 2012 to ProAgria Finland Oy, as according to the customer feedback, Finland in the company's name sounds much better than Russia. The number of stakeholders in the company increased to eight, including the Association of ProAgria Centres. The company's field of business is consultation in the areas of agriculture, environment and civil engineering, training services, arranging professional tours and also sales of agricultural technology and articles (Sergina-Kishlar & Parviainen 2010, 2).

ProAgria Finland Oy arranges the service sales of its stakeholder organizations to Russia, aiming at getting the organizations foothold in the Russian market. The business idea of the organization is to provide the Russian customers with up-to-date professional knowledge in the form of training and consultation services and with modern technological solutions in the field of agriculture. For Finnish customers, the company offers changes to get to know the Russian agricultural and food supply sectors. Themed tours are arranged from Finland to Russia and vice versa. The main product of the company is both theoretical and practical know-how. The customers are large Russian farm entities as well as private farmers and also training and research organizations both in Finland and Russia. The main values of the company are reliability and punctuality, high quality, professionalism and tailoring the services according to the customer's needs. The company's image is pursued to develop in accordance to these values. (Sergina-Kishlar & Parviainen 2010, 3 – 5.)

The strengths, weaknesses, opportunities and threats of ProAgria Finland Oy are presented in the SWOT-analysis below (table 4). The information is gained from the company's business plan. The company's strengths are experience and knowledge in Russian business environment, wide network of contacts and knowledge in the agricultural field. Weaknesses are lack of language skills, relying on key persons and small equity. Large customer potential in Russia is seen as an opportunity, as well as ability to utilize a large network of partners in Finland in different fields of expertise. As threats the company considers the regulations restraining operations and fluctuation in the economic situations.

Table 4. SWOT-analysis of ProAgria Finland Oy (Sergina-Kishlar & Parviainen 2010, 8)

Strenghts	Weaknesses
- experience in co-operation with Russian - knowledge of Russian business environment - Wide network (Finnish experts and Russian contacts) - Knowledge in agricultural field	- lack of Russian language skills except of the key persons - small equity - operations rely mainly on key persons
Opportunities	**Threats**
- Large potential considering all of Russia - ability to integrate forestry and fishing industry into the services - possibility to utilize the knowledge of Maa- ja Kotitalous-naiset (Agriculture and House-hold Women – organization) - Utilizing electronic communica-tion channels - Co-operation with Finnish industry	- regulations restraining operations - fluctuation in economic situations - risks in traffic

The company's CEO has Russian background and a degree in the agricultural field. She has been involved in the projects carried out in Russia earlier. The other employee of the company is the CEO's assistant, who also has Russian background. The business was started with an office in Saint Petersburg, but that proved not to be profitable so the office was moved to Tikkurila, Vantaa in 2011 into the premises of the Association of ProAgria Centres.

In the Russian business culture, personal contacts are very important. Therefore, especially the old contacts are in an important role in developing new contacts. Arranging trainings is also a very good way to gain awareness for the company and its operations. In addition, ProAgria Finland Oy participates in trade fairs, exhibitions and conferences. Also, the internet portal Farm.ru which was created earlier during the neighboring area co-operations brings contacts.

6.4 Services

The aim of ProAgria Finland Oy is to offer its customers services with as broad scale as possible, the focus being in agricultural consultation. Large entities, e.g. companies which have bought bankrupted sovkhozes and kolkhozes, are interested in comprehensive solutions which ProAgria Finland Oy can provide. The company is also participating in EU-funded cross-border co-operations. So far there haven't been any construction or civil engineering projects, but those are seen as good opportunities in the future. The services are offered also to other countries in addition to Russia. Currently there are negotiations going on in Ukraine concerning milk production. There is also interest in fish farming and bioenergy. The providers of the services are the experts of the ProAgria organization; the role of ProAgria Finland Oy is to find the customers, negotiate the contracts and to transmit the services.

A new field in the operations is training: ProAgria Finland Oy has signed a service contract with Russian agricultural updating training academy. The contract covers study trips from Russia to Finland and also the other way round. Trainings are also arranged over the internet, which is very cost-effective. Sometimes the training locations can be very far, e.g. in Tomsk 4 500 km from Finland, to where it would take four days to travel back and forth.

The trainings are arranged so that the lecturers are Finnish experts of the ProAgria organization, and the presentations are simultaneously interpreted into Russian. If necessary, experts also from other organizations than ProAgria are used. The goal of ProAgria Finland Oy is to create a broad network of experts, so that services and trainings can be offered also from other fields in addition to agriculture. As an example of training on a field outside agriculture is training arranged on municipal decision making in Finland, where the lecturers were Finnish municipal mayors. Mainly the trainings focus on the basics of agriculture, like livestock feed and forage production.

ProAgria Finland Oy also has some export to Russia. The export items have been agricultural machinery, production articles and livestock. However, the main focus of the company's operations is on sales of know-how. Currently though, the company must

have readiness to sell e.g. machinery on the side of consultation, as consultation as such doesn't yet function in Russia. Anyhow, that is the direction in which the branch is developing. When the contracts include e.g. machinery deliveries, the responsibilities and risks are higher than in consultation, and the stakeholders of ProAgria Finland Oy are not willing to take big risks with the Russian operations.

6.5 Challenges

The Russian Customs is a challenging partner. Actions concerning customs clearance have to be done meticulously so that the deliveries are not delayed due to customs formalities. A major challenge in the practical counseling work is resistance to change, when the processes and procedures of the farms are pursued to change and modernize. Operating in the Russian business culture requires special expertise as such. Among the customers and authorities there may be benefit chasers, who complicate the flow of operations. Finding the right ways of operating in Russia requires practical experience and time, and it always includes risks. Personal relationships in Russia are of much more importance than in Finland, so finding the right connections is essential. Despite good relationships and the right connections, the service negotiations are always long lasting.

Among the Finnish experts the main problem is lack of Russian language skills. Only very few agricultural experts can speak Russian. Eero Parviainen, the chairman of the board of ProAgria Finland Oy, who has himself participated in many Russian projects during the neighboring co-operations era, says that even rudimentary skills in Russian would be helpful, so that the person would be able to operate and travel in Russia. Because of the language challenges, in addition to finding Finnish experts, it is very important to find interpreters who are familiar with agricultural vocabulary.

The structure of the agriculture in Russia is very different from that in Finland. Especially in the fields of milk and meat production the production units are very large, farms with as much as 3 000 animals. In Finland the number of livestock is in hundreds of animals, in Russia the scale is thousands of animals. The operating environment is very challenging, when from the old-fashioned, politically lead agricultural sys-

tem is evolving into private-owned large-scale production units. Also, the different market situation and different styles of management must be taken into consideration when planning operations in Russia.

6.6 Influences on ProAgria PK

ProAgria PK will gain financial benefits from the operations of ProAgria Finland Oy, when its experts participate in the Russian projects. So far approximately 10 experts from ProAgrias around Finland have participated in the projects. ProAgria PK's situation is such that the experts who participated in the Russian projects during the neighboring area co-operations are no longer with the organization and new experts haven't yet participated in the projects. But a new generation of experts is developing to take part in the Russian operations in the future. In a national survey done among the ProAgria organization's field experts it was revealed that there is interest towards the Russian operations. The aim is to further educate the experts to be experts with know-how in the projects in Russia. Training is needed e.g. in how to operate in the Russian agricultural environment. At the moment, the ProAgria organization is nationally initializing a high-end expert training focusing on the Russian operations.

Currently the experts are working on just certain Russian projects for short periods of time at a time. The longest projects have lasted a few months. In the future, Eero Parviainen sees two trends: either the ProAgrian experts can continue the project work, or then there will be experts who concentrate on the Russian operations those being their main activity. Operating in Russia requires knowledge of the local environment and familiarization in the local patterns of agriculture. Knowledge of the local matters grows with every project done, and thus the readiness to operate in Russia improves. Therefore, participating in just a single project might not be very sensible.

6.7 Financial performance

When the operations of ProAgria Finland Oy were initialized, the goal was to reach revenue of approximately 300 000 eur. The revenue of the first financial period was approximately 700 000 eur. During the last financial period the revenue jumped unexpectedly, when the company negotiated a contract of over 2 million eur with a Russian

company. That kind of revenue will not be reached during the current financial period, as contracts of similar size have not been made. The magnitude of the revenue is still hundreds of thousands of euros. The aim is to gain profits of 20 – 30 % from the services (Sergina-Kishlar & Parviainen 2010, 6). Eero Parviainen was not willing to present the company's financial statement, so it is not possible to analyze the figures here.

The career of ProAgria Finland Oy has only just begun, so that significant financial results have not yet been gained. The company's operations are profitable and it is not in debt. It is crucial to know how to make the offers and agreements so that they are on secure basis to minimize risks. The price level on the market is such that it is possible to sell the services profitably. Competitors on the Russian agricultural counseling market come from the Netherlands, Denmark and USA. Being Finnish has benefits for ProAgria Finland Oy, as Finns have a good reputation in Russia and they are considered reliable and professional. The experiences of the Russian operations so far have convinced the organizations behind ProAgria Finland Oy, so that the company will continue its operations on the Russian market also in the future.

6.8 Agriculture in Russia

Agriculture in Russia is twofold. On one end, households are planting vegetables and keeping livestock in their gardens, on the other end there are large farming entities producing enough harvest to make Russia's crop export to be approx. 5 % of world's grain market. The households' autarchy covers some 6 % of Russia's agricultural land, but produces about one half of the value of Russia's agricultural production. The harvests on the grain fields are modest and there are difficulties with the quality of the grain. Livestock farming hasn't been able to rise from the drop the entire agricultural field suffered after the dissolution of the Union of Soviet Socialist Republics and privatization of agriculture following it in the beginning of 1990's. Russia has to import meat and dairy products, and the production amounts are not keeping up with the growing demand. Productivity on the dairy farms is weak and there are difficulties in reaching the quality demands of the milk processing plants. The technology used in farming is not up-to-date, the amount and quality of farming machinery is badly insufficient, farm management and general infrastructure are inadequate and the distribution

network is undeveloped. The problems with infrastructure can be considered as one of the main obstacles for the agricultural development in Russia (Agra Europe 2013). The aim is to grow the number of large farming entities which cultivate thousands of hectares of crop and to develop their harvest amounts, this being the way for Russia to strive to become a globally remarkable operator in the agricultural field. (Virolainen 2005, 1; 17 - 29.) Since 2005, Russia has been able to develop its crop cultivation so that in 2012 it was the 4th largest exporter of wheat in the world (Agra Europe 2013).

Foreign companies are also investing in the Russian agricultural field. E.g. a foreign milk processing plant operating in Russia may own a farm entity in order to ensure availability of raw materials. The foreign investments have contributed to the development and modernization of the agricultural field. (Virolainen 2005, 17 - 29; 59.) According to Andrey Oleinik (Agra Europe 2013), managing director of Basic Element (an industrial conglomerate), foreign investments are essential for developing Russian agriculture.

In north-west Russia, 70 % of the value of agricultural production comes from livestock breeding. This causes challenges with the animal waste, as only 30 % of it is utilized as fertilizer. At the same time, one of the aims in farming is to raise the soil fertility. (Surovtsev, Ponomarev & Nikulina 2013, 4 – 30.) Manure should not be treated as waste, when it could actually be transformed into organic fertilizer and used as a sales item for crop cultivating farms (Nefco 2013). In manure utilization and diminishing environmental consequences the Russian farms could follow the example of the Scandinavian countries and at the same time, decrease the cost of their milk production (Surovtsev & Nikulina 2012, 144 – 145).

Both Finland and north-west Russia belong environmentally to taiga. This means that the climate (e.g. length of growing season and rainfall), cycle of seasons and soil are similar. (Havas, 1999.) Taiga is not considered as advantageous for farming, hardships being e.g. short growing season, low accumulated positive temperatures, high probability of frost and low soil fertility (Surovtsev, Ponomarev & Nikulina 2013, 3).

Considering the challenges and needs of Russian agriculture, ProAgria Finland Oy has good potential for selling the services of ProAgria centers to Russia. The ProAgria centers have vast, high-end know-how and knowledge in the areas of crop cultivation, livestock farming as well as milk production, in other words, the very basics of farming. These compensate the inability to sell the Russian farmers EU-related services, which are central in counseling Finnish farmers. As the environmental conditions in north-west Russia and Finland are similar, the know-how in agriculture can be well applied in that area. Environmental matters are on a high priority level at the ProAgria centers, so demand in that field can be easily met. As the farm sizes are growing in Finland also, the hardships with increasing amounts of manure are being tackled here as well. Therefore, the solutions found here can be applied into the Russian farms as well. Similarly, Finnish farms need more and more help in running their farm as business, so the same needs of the Russian farms can be helped with the know-how learned from Finland. In my opinion, increasing sales in Russia is very likely, as the strengths of the ProAgria centers, including ProAgria PK, can be utilized in counseling the Russian farms.

6.9 Summary of the additional study part

ProAgria PK has strong experience in co-operation with Russians relating to agricultural counseling. The joint company, ProAgria Finland Oy, currently runs the operations in Russia taking care of the contacts and contract negotiations. This is a well-functioning arrangement, as in this way ProAgria PK itself doesn't need to have knowledge in the Russian business environment outside its own field of expertise. ProAgria Finland Oy has know-how in how to operate in the Russian market and the stakeholders – seven ProAgria centers and the Association of ProAgria Centres - behind the company have know-how in the agricultural field. When the Russian operations are run through ProAgria Finland Oy, it is enough for ProAgria PK to participate in the projects when needed. Currently ProAgria PK doesn't have experts who would be ready to participate in the Russian projects, but there is good potential among the field experts to be valuable players in the Russian field in the future.

ProAgria PK will need the additional working opportunities the Russian market offers, as the customer base in North Karelia is diminishing due to the number of discontinuing farms increasing. The operations of ProAgria Finland Oy have only just started, but it already has a good foothold in the agricultural field of Russia. From the experiences of the contacts gained and projects completed in the Russian market so far, the future can be said to be very optimistic. The interest of the large-scale Russian farms towards comprehensive, overall solutions on their operations creates good expectations of gaining the desired working opportunities and thus the additional sales for ProAgria PK and the other ProAgria centers behind ProAgria Finland Oy.

The strategical view of ProAgria PK is that there is a lot of growth potential in the exports and that the market area will be expanded to Russia. Familiarizing with the organization's international operations strengthens the vision of the counseling in Russia bringing growth to the organization and that it is a good direction of development in the future. The biggest challenge with the Russian operations ProAgria PK has, is that currently there are no experts who could participate in the projects. This weakness has been responded to on the level of the entire ProAgria organization by initializing a new high-end expert training focusing on Russian operations. One of ProAgria PK's strategical goals is to develop the organization's know-how considering the needs of the future, in which the increasing demand of services in Russia has been taken into account.

This study part adds to the answers of the main research problem of the study, what are the key areas of knowledge ProAgria PK's Farm Services will need for future success: knowledge of the international operating environment in Russia is an important factor of success, when the market area is expanded abroad. Also the objective of the study, to find ways in which ProAgria PK can gain additional sales is given additional insight. Based on this study part it can be said, that developing service know-how in Russia is an opportunity, of which additional sales potential can be expected. What can considered a strength is that the current know-how and knowledge of the basics of farming which ProAgria PK already possesses, can be well utilized in the Russian agricultural field. With these results, it can be said that this additional explorative path in the study was worth taking.

7 Part 4: Conclusions and correspondence with strategy

7.1 Introduction

In this 4th part of the study, I will draw together the matters which have come up in the previous three parts of the study and aim at answering the research question of the 4th part: What are the organization's assets and needs for providing better services? After this 4th part, the answer to the main research question should be found: what are the key areas of Knowledge ProAgria Pohjois-Karjala ry's Farm Services will need for future success? For the main objective of the study, how to increase the organization's sales, an answer should be found as well.

For each part of the study a research problem has been set, but in each part of the study, answers to other parts' research problems have been found as well. In this part, I will go through each of the research problems aiming at answering them based on the entire study. Thus, I will not go through the study part by part, but by research problems. To avoid repetition, I will not go through the research problems of the 4th part, as answers to those will be found in these specifications of the research problems of the first three parts. The research problem of the 4th part is what are the organization's assets and needs for providing better services. The sub-questions to this main research question are the following:

- How does the organization's strategy serve the knowledge improvement goals?
- What are the strategy's offerings for self-development?
- What more would be needed to meet the customer needs?
- How well is the organization prepared for future challenges?
- What could be done in practise to increase the organization's sales?

In the second chapter of this study part, an answer to the first research question, what do the customers need, will be familiarized in. The third chapter answers to the second research problem, what are the visions of knowledge from the field. In the fourth chapter the third research question, what is the organization's learning strategy, is dis-

cussed. The fifth chapter deals with the main objective of the study, how to increase the organization's sales.

7.2 The needs of customers

Majority of the organization's customers are farmers and the main branches are milk producers and crop cultivators. Almost all of North Karelia's farmers (96 %) are customers of ProAgria PK. The organization has also companies, corporations and public administration and private persons as customers, and the share of these together is 41 % of all customers. Of the customers in ProAgria PK's customer register, 43 % have been active in 2012, meaning they have had invoicing in 2012. The farmers are the most active customer type: 55 % of farmers have been active in 2012. Due to the constant diminishing of the amount of farms, the customer profile of ProAgria PK is changing. According to the organization's strategy alignment, the farms are still the most important customer group, but the importance of companies is growing, which shows especially in the acquisition of new customers.

The farmers bring the biggest share (47 %) of the organization's invoicing. The corporate and public administration customers' share of invoicing is 35 % and that of companies is 15 %. Of the farmers, milk producers are the most important customer branch in invoicing: the share of milk producers' invoicing is 31 % of total invoicing. The largest customer branch, crop cultivators, brings only 13 % of invoicing. After dairy farmers, the next most important customer type is member customers, which invoicing is 24 % of the total invoicing.

The most active of the customer types are dairy farmers, investing customers, member customers and organic producers. The most active of the dairy farmers are those who have a dairy farm counseling contract. The milk producers are strategically ProAgria PK's most important customer branch, for which a lot of projects and training is targeted. The versatile selection of services targeted at milk producers increases the sales for these customers, while from the crop cultivators for whom a lot less services are available, equivalently a lot less invoicing is gained. The biggest amount of invoicing comes from dairy farm counseling (25 % of total invoicing). With the dairy farm coun-

seling, the customers receive regular counseling both in livestock rearing and e.g. handling of the farm's paperwork. Production and architectural engineering, cultivation counseling, EU subsidy counseling and accounting services are the services which bring in most invoicing after dairy farm counseling.

The basis of customer service is to provide customers added value with the services. When the customer feels he is getting added value for his operations, he is ready to pay for the service. Also, a good experience from one service will add interest in using other services. Customer contracts add the customers' commitment to the organization. The customers' participation in ProAgria PK's activities, like membership and joining in projects, correlate positively with invoicing activity. It can be said, that interest in ProAgria PK's activities relates to the customer's interest in purchasing services from ProAgria PK.

An important direction of developing services is synchronizing services and selling them as packages. The objective is to offer the customers comprehensive, united services, with which the customers will receive more benefits than if the same services were provided separately. Customer commitment is pursued to gain with service packages, where several services will be combined. With long-term counseling contracts it would also be possible to add customer commitment. As a customer branch for which more service offering would be needed, is crop cultivation. This is a large customer branch, for which it could be very profitable to create new services to. This vision has been brought up both in the customer analysis and in the field expert interviews. The strategy also supports this, as the crop cultivation branch is seen as a big potential for growth. New services which the customers need and which ProAgria PK has expertise to offer are e.g. energy matters, services related to administration and different services for the needs of growing farms.

The organization's strategy emphasizes developing all new services in addition to farm related services. The target is to create services especially for the needs of companies. To steer the service production in the direction of comprehensiveness a consultative service process is being initialized. In the consultative service process the goal is to

provide the customer with synchronized services, the basis being the customer's overall situation.

The future of farming is polarized: on one end, there are small farms which plan to discontinue their operations and on the other end, there are rapidly growing farms. In the middle are farmers who need to decide in which direction they will aim with their farming. The number of discontinuing farms is bigger than the number of growing farms. The total amount of farms is continuously diminishing, but the size of the farms is growing by the amount of livestock and the cultivation area. The growing farms have a lot of investment plans, which will be actualized partly with the help of EU subsidies. The growing farms, organic producers and young farmers have most confidence in future success and also good preconditions to succeed.

7.3 Visions of knowledge from the field

The farmers need counseling in the basics of farming, like crop cultivation and livestock rearing. The farmers are somewhat strained with paperwork (e.g. bookkeeping and subsidy applications), which they like to outsource. Counseling is also needed in fields of special expertise, like extensive financial planning and corporatizing farms. Special expertise services are also needed when the farm is discontinuing or when the farm is being transferred to a descendant. A new trend in farming is collaborative cowsheds, and arranging those is a field in which the farmers need help. In the strategic planning of ProAgria PK the customers' growing needs of special expertise are accounted for and the objective is to increase the time the field experts are supposed to spend in learning.

Instead of separate services, the customers need partnership. ProAgria PK is responding to this need by creating a new service model, where a customer representative of a farm collects a team of experts from different fields to provide the customer the services he needs in a comprehensive manner (consultative service process). In the current portfolio of services, future talks is a service which can be used to enhance partnership. With the future talks, the customer's situation can be thoroughly familiarized with and a plan of future needs of services can be created. Other fields in which more

services are needed in the future are energy planning and services related to investments. On the production side of farming, there will be more demand of high-end expertise especially in crop cultivation.

The field experts' experience is that they would need more time to spend with the customers. They feel they should have time to familiarize with the customer's situation more deeply and thus find out with which services the customer could be provided most added value. The partnership should be productized so that the comprehensive customer service would also be profitable. This is being strived for with the new consultative service process. To work for the best benefit of the customer, the consultative service process demands the field experts to work tightly in co-operation. The objective is to synchronize the services so that the field experts can utilize each other's information when providing services to the customer. In this way, the information the organization has on the customer can be used for their best benefit.

One of the challenges in the counseling work is that the customers' needs require special expertise from the field expert, but at the same time, the field expert should have an overall understanding of the agricultural branch in order to be able to synchronize his/her special service with other field experts. Because of the structural change of the agricultural field, meaning the diminishing amount of farms and the enlarging size of the remaining farms, some services will have less demand in the future. Due to this, a field expert might have to learn a new special expertise from another field of the branch. With the new, consultative service model the field experts also have to learn e.g. group working skills and those who will start in the new position of a customer representative will have to learn management and organizational skills. All in all, along with the initialization of the new service model, the entire organization needs to learn comprehensive customer relationship management.

The field experts would need to have more time for learning. Developing oneself is done in many ways. In addition to studying and training the field experts need time for information search and learning from other field experts. An important form of self-development is learning from practice, which the field experts feel they don't have enough opportunities for. From the strategical viewpoint, learning is considered as an

important matter and it is reserved time for in the planning phase of work. According to the management, a notable problem of learning actualization is that the field experts don't remember to book time for it when organizing their work. This is contradictory, as due to the need to enhance profitability the field experts are under pressure to increase the amount of time spent on chargeable customer work, even though it is stated in the strategy that the time spent on learning should be increased. This is a matter which should be discussed within the organization and determine the amount of time which could and should be spent on learning in this financial situation. Following up on the realization of learning should be done more frequently than semi-annually, as it is difficult to catch up if most of half a year's learning days have not been accomplished. Supervision of work could help the field experts to organize their time better, and it could also help in the realization of field experts' mutual sharing of information. Also, the entire ProAgria network should be learned to utilize better.

7.4 The organization's learning strategy

The base of an expert organization is the expertise of its experts, which requires constant self-development and updating of knowledge. At ProAgria PK, the field experts can develop their know-how with various courses, via self-learning and in long term training programs all the way up to high-end experts. The needs for know-how development are planned systematically by determining each employee's current level of know-how and the needs for development from the organization's as well as the employee's own viewpoint. The field experts can develop their know-how also horizontally to new fields of expertise in addition to constantly striving for a better level of know-how in their current fields of expertise. Being an expert requires the employees to be on top of the latest information on their special fields of expertise and also being up-to-date with matters related to the entire agricultural field. Strategically, the aim is to have the field experts spend one day on learning each week, and the remaining four days on chargeable customer work. For training, the field experts have been planned ten days each year.

The structural change of the agricultural field sets new kinds of challenges for the field experts of ProAgria PK. The farms are developing into bigger entities and the farmers

are uniting their investment efforts e.g. with collaborative cowshed projects. To keep up with this development, ProAgria PK needs to have know-how in matters related to e.g. company management, which hasn't been needed before. Due to the diminishing amount of farms, the organization will have too many resources in certain fields of expertise in the future and lack of resources in some other fields, so the field experts must have the abilities and motivation to develop into experts in other fields of expertise. Especially for the customer representative positions, more experts are needed.

What comes to the current level of know-how and resourcing, there is a remarkable difference of opinions between the field experts and the management of ProAgria PK. According to the practical experience of the field experts, the organization doesn't have enough high-end experts in certain areas, like financial and cultivation counseling. Resourcing is also seen as a problem among the field experts: there are not enough field experts to provide the services in accordance to demand for the customers. The governance viewpoint is that the know-how level is in line with the current customer demand and that there are enough field experts to provide customers with necessary services. When the practical and governance opinions are this far apart, it would be very important to find out where the differences have come from and how this situation can be fixed.

The challenges of the agricultural counseling branch are related to the on-going changes in the entire field of agriculture. Earlier, when agriculture had a more important role in the society, the government granted plenty of subsidies for the counseling organizations to provide agricultural counseling for farmers. Nowadays the subsidies are remarkably smaller, yet are still existent. At the same time, the amount of farms is diminishing, which means that the customer base of ProAgria PK is also decreasing. There is pressure for rising prices, which is difficult in a field where there is a lot of competition. Strategical answers to these challenges are to expand the customer base to new business branches and to develop new services targeted especially for company customers in addition to creating new services targeted for farmers.

A challenge deriving from the structural changes in the agricultural field is the polarization of the customer base. On one hand, there are small farms planning to discontinue

farming and on the other hand, there are strongly developing large farms. Both of these ends should be provided with adequate services. Especially the developing farms require special expertise and strong practical experience, which requires the field experts to continuously and actively learn new things and to develop their know-how. The counseling of the large and developing farms is time consuming, so the means with which to make this counseling profitable should be found.

In its branch and among its customers, ProAgria PK is very well known and a remarkable operator. The entire ProAgria organization, being so large, is also a strong operator in the agricultural branch even on the national level. Locally, ProAgria PK is close to its customers but it also has the support of the large ProAgria organization available. ProAgria PK has a good, local network with different operators and authorities of the agricultural field. In its operations, ProAgria PK is striving for high quality: the organization has e.g. the ISO 9001 –quality system in use. Considering customer service, ProAgria PK has been on the top level among all ProAgria centers for the past ten years.

The expertise of ProAgria PK is very broad and the service selection is wide. The organization can invest in learning and the availability of services can be guaranteed as the services are not dependent on one field expert only. Concerning this strategical viewpoint, though, the situation in practice is not exactly on this level, as the deputy system of the organization is not working in all fields.

7.5 How to gain more sales

7.5.1 Sales efforts

The sales efforts of ProAgria PK are two-folded: activation of current customers is pursued and new customers and customer branches are searched for. It is important that gaining additional sales from current customers and developing current services further aren't disdained while new services are created and new markets explored.

Attempts to find new customers are targeted especially at companies. These customers are being offered accounting services in particular in addition to creating new services

designed for their needs. To target the sales efforts correctly, it would be beneficial to explore the company customers which already are in ProAgria PK:s customer register and through that to find out what kinds of companies there are and what services company customers could be offered. Sales efforts are being directed also to Russia and Eastern Europe via ProAgria Finland Oy, a joint service export company of several ProAgria centers. Developing agricultural service export is one of the organization's strategical guidelines.

Nearly all of North Karelia's farmers are in ProAgria PK's customer register. Less than a half of these have used services in 2012. Since the inactive farms already are in the customer base, they should be activated into using services. Based on the customer analysis and field expert interviews, especially among the crop cultivating farms a lot of potential growth could be found. Among the customers, the investing and enlarging farms should be picked out and being a part of their growth process and investments should be strived for. This process has been started, as the field experts have been asked to name their most important customers to be picked into the group of key customers. The customers participating in ProAgria PK's projects should be activated into using chargeable services once the projects come to an end.

Among milk producers there are a lot of farms which don't use the most important service of the Farm Services, dairy farm counseling. Special sales efforts should be allocated to activating as many milk producers as possible into using the dairy farm counseling. Such a campaign could be e.g. arranging special sales visits to the dairy farms not yet using the service. Once contracted to use the dairy farm counseling service, it could be easier to activate the customers into using other services as well. Activating milk producers is supported by the organization's strategy, according to which the dairy farms are the most important customers of ProAgria PK.

7.5.2 Services

The key factors of expert services are well functioning services and adding value to the customer. To be satisfied and to be ready to pay for ProAgria PK's services also in the future, the customer must feel the services are adding value to his operations and thus

he is gaining value for his money. In the future, the sales of the bulk services like EU subsidy counseling will decrease, due to the diminishing amount of farms and growing competition among service providers. Instead, demand for large, comprehensive service packages will increase even more. Therefore, ProAgria PK must strive for being a part of the customers' growth and especially to participate in their large investment projects in order to stay on top of the waves of change and to gain growth for itself as well.

An important target for creating new services and developing current services further are the crop cultivation customers in ProAgria PK's customer database. The crop cultivators are ProAgria PK's largest customer branch, but less than half of them have been active and bought services in 2012. The crop cultivators are also the biggest branch of invoiced customers, but the invoiced amount per customer is low compared to e.g. dairy farm counseling customers. The crop cultivators have their own, special needs of services, and to gain additional sales new services should be created for these customers. Sales of current services should also be enhanced. Additional sales could be gained also from livestock farms, if there were services targeted especially for their needs. A customer survey could help in finding out what the needs of these customers are and with the gained knowledge new services could be created in strive for fulfilling those needs.

7.5.3 Challenges

ProAgria PK's new, consultative service process requires new kinds of ways to work from all of the organization's employees. In this process, the customer representatives are in a central role, who are responsible for gathering a necessary group of field experts around the customer and to make that group of experts to work in co-operation. Currently there are no procedures for the mutual co-operation of the field experts. There is a lot of work to be done in order to make the co-operation work smoothly and with that to be able to produce the services in synchrony. There aren't enough field experts for the roles of customer representatives, therefore additional training is needed.

The problems of ProAgria PK's resourcing appear as haste and lack of field experts to produce all the services needed. Attempts for customer partnership are undermined by the haste as well, as the field experts don't have enough time to get familiarized with the customer's overall situation. Haste is also hindering the sales efforts, as the field experts don't have enough time to tell the customers about services they could benefit from. Another reason for not being able to sell all services is that there is a lack of operators: additional sales would further increase the field experts' haste or there are not enough special experts to perform certain services. The sales work is the responsibility of the field experts, and one challenge in this is the lack of sales skills and know-how. The resourcing problems are also visible when considering broadening current and creating new services. Broadening certain special services (e.g. comprehensive financial counseling) would require more field experts than the organization currently has. Creating new services would require new kinds of know-how, all of which ProAgria PK currently doesn't have.

Challenges in improving profitability and enhancing effectiveness are partly contradictory to the objectives of improving customer service and gaining additional sales. For instance, the consultative service process is not profitable in the beginning, but the benefits will be gained only in long term. This is recognized in the organization's governance, and with strategic planning means with which to solve the situation are being discovered.

7.5.4 Development needs

At the moment, the co-operation among the field experts is not on a satisfactory level. Services are not being done in co-operation and the information which other field experts have on the customer is not utilized while providing services for the customer. A part of the field experts don't see that sharing customer information is reasonable. A solution for this hasn't been found using the current means of management. As providing comprehensive services for the customers will be crucial in the future, co-operation among the field experts must be made to work e.g. by creating good and functional practices for working together and sharing information. For this, the field

experts will need profound introduction and methods training e.g. in writing work reports.

Developing the sales process is in a very central role when striving for gaining additional sales. Sales work is done together with the counseling work: new services are offered to the customers based on the counseling needs the field expert discovers when working with the customer. There are three major factors which complicate this process: lack of time, lack of sales know-how and lack of motivation. These three factors form the arrowhead of sales, which is needed in order to succeed in the sales work. In the core of successful sales is the know-how of the field experts and good services. The field experts don't have time to tell customers about available services, they may not know how to promote additional services and sales work doesn't suit everyone. Furthermore, there is no motivation for attempting to sell more, as that would only bring more haste to the field expert him/herself. As one solution for this, an idea of field experts who would specialize in sales was brought up. Two field experts came forward when they were asked of their interest in the sales work in a questionnaire. Thus, it can be said that a foundation for developing the sales process with the sales experts is existent. In addition to this, structural changes will be needed in the organization in order to solve the challenges of time and motivation shortages.

One way of increasing motivation could be to create a bonus system. Implementing such a system is seen as challenging, as a system which would be fair for everyone is difficult to create. It would be necessary to estimate, if direct sales bonuses could be differentiated from the general bonus system when creating the new sales expert process. In this process, the field expert who works with the customer can tip off the sales expert of a service need he/she has noticed, and once the customer signs a new contract, both the field expert and the sales expert would receive a sales bonus. On the strategy level in the entire ProAgria organization the bonus system has been brought up and it is being developed to better motivate employees.

7.6 Summary of part 4

The matters related to the development needs of the organization's know-how and sales process which have come up in the first three parts of the study are well responded to in the organization's governance and strategy. The subjects which were brought up in the customer analysis and field expert interviews can be found in the strategical plans of the organization. Therefore, it can be said that based on this study, ProAgria PK is going on the right direction and is concentrating on the right matters. With some issues, the organization's management is not along the same lines as the field experts. These issues must be discussed within the organization to find out what has caused the viewpoints to differ so strongly. It is important that both the management and the field experts are on the same line with the organization's current situation and working from that same base, they can take ProAgria PK forwards successfully.

Now as the study has been completed, it can be said that answers to the research questions have been found and with those the answer can be given for the key research question, what are the key areas of knowledge ProAgria PK's Farm Services will need for future success. The majority of ProAgria PK's customers, farmers, need the special expertise which ProAgria PK has plenty of. The farmers' needs are related to production, which in their case is crop cultivation and livestock rearing, but also to the paperwork necessary to run a farm. All of these services ProAgria PK is already offering to its customers. Special expertise on the different areas of farm production must be continuously improved, so that the future needs of the customers can be fulfilled.

As the farm sizes are growing and the farms are turning to more company-like, new fields of knowledge required from ProAgria PK's counseling services are business management skills and comprehensive financial know-how. In search of new customers, new services are also being created, and for these services, new kind of knowledge is required especially to serve company customers. In its pursue to improve customer service and to gain additional sales, ProAgria PK needs know-how also in management and organizing skills and sales work, in addition to strong branch expertise. The organization must learn co-operation among the field experts as well as comprehensive customership management. When ProAgria PK's knowledge and know-how in these

fields is in place, the main objective of the organization, gaining additional sales, can be reached. Based on this, it can be said that the hypothesis set for this study was correct: the base for increasing sales is to know what knowledge and know-how the customers need, and further, to develop those.

8 Summary

The purpose of this study was to find means with which ProAgria PK's Farm Services can increase sales. The study was originally meant to be just a customer data analysis utilizing data mining techniques, but it was then broadened to include also a knowledge overview of the organization in order to find in-depth answers to the key question, how to increase sales. This was due to the researcher's hypothesis: the way to improve sales is to determine the knowledge and know-how with which to best serve the customers. This was supported e.g. by Berry & Linoff (2011, 5), who state that more than data mining is needed for an organization to become customer focused. On the other hand, the customer data analysis adds to the knowledge overview. This can be derived e.g. from Otala's (2008, 48 – 49) knowledge pyramid, where data is the basis for knowledge and know-how.

In this study, the research problem was searched an answer for by using triangulation. It relates to the research methodology chosen, explorative research. During the course of the study, this method was proven to be the right choice, as while moving further on the exploratory wheel (figure 2) the answers to the research questions became more and more clear. Even though the knowledge overview performed in this study is not as comprehensive as it could be, knowledge management theory was still a good approach for the study. The study was given additional shape by including strategy documentation overview supported by the strategical management theories. The customer analysis part was performed following the data mining technique theories presented by Berry & Linoff (2011) and Tsiptsis & Chorianopoulos (2010). With the structured approach, the data was interpreted in a multifaceted manner.

All of the research questions set for the study were found satisfactory answers. It was proven, that the hypothesis of the study was correct, and that determining and understanding the organization's knowledge and know-how needs are the key to better serve the customers and thus to gain additional sales. The three operative parts of this study all provided answers for the research questions beyond the one main research questions set for each part. The main research question is asking for the key knowledge areas of ProAgria PK's Farm Services. The organization's main customer type, farmers,

need counseling in their production, which requires ProAgria PK's field experts to have comprehensive knowledge of the agricultural field in addition to their choice of special expertise in the different aspects of farming. These are the areas of know-how ProAgria already has but also needs to improve and expand. New knowledge and know-how are needed in the farms' transformation into bigger and more business-like entities. Those new kinds of farms require services in business management skills and comprehensive financial know-how. To improve its organization into gaining additional sales, ProAgria PK needs more knowledge and know-how in management and organizing skills and sales work. To move towards the new kind of sales method, the consultative service process, ProAgria PK must learn co-operation among the field experts as well as comprehensive customership management. To be able to utilize the opportunities of international service field, ProAgria PK needs to exploit its current know-how and knowledge of operations e.g. in Russia and to gain further experience in that field.

What is customary to exploratory research is that they often do not provide adequate answers to the research problems. It is more typical that an exploratory research gives hints at the answers or suggests with which research methods more conclusive results could be gained. This is due to the nature of the exploratory research: it typically studies one phenomenon only asking questions like "what is going on in here", for which there are no simple answers for. (Babbie 1995, 85; Schutt 2006, 14.) In this study, satisfactory answers to the research questions were found. This exceptional outcome could be a result of this research not being a pure exploratory research. The main reason might be that this study has a structured and restricted research plan, which is not typical for exploratory research (Saunders et al 2003, 97). This was inevitable due to the limited resources and time for the study and the fact that the study is also a Master's Thesis for the researcher. Therefore, it was not possible to conduct a full-scale exploratory research on the topic. Also, the topic of the study was quite restricted and narrow. The atmosphere of the study was to find out what's going on here, but limiting the interest in the phenomenon to the pre-defined plan. The research plan was followed with two exceptions: two study paths which were unfolded during the research were taken but many were discarded. Having and following the research plan and not taking all of the possible study paths lead to finding answers to the research questions.

8.1 Validity and reliability

To add to the validity and reliability of the study, the research problem was triangulated so that it was approached from three different viewpoints. The customer viewpoint was done as a quantitative customer data analysis utilizing ProAgria PK's customer information on its CRM system. The practical viewpoint was obtained by interviewing four field experts by semi-structured method. The same method was used when investigating the governance viewpoint. Two members of the management team were interviewed in addition to familiarizing with the organization's strategy related documentation. With the triangulation, the research problem was gained a broader answer than if it had been studied from one viewpoint only. The association analysis performed on the first part of the study didn't provide any additional information for the organization, but it can be used as a measurement for the validity of the quantitative research results. According to Barry & Linoff (2011, 73), results of the association analysis can be used to determine the validity of the quantitative research results. They state, that when the association analysis provides meaningful and logical results it proves that the data is at least quite correct, even if the results are not very informative. Considering these matters, it can be said that the methodology of the study is valid.

A proof of the reliability of the study is that in many cases, the same themes came up in different parts of the study. For instance, according to the quantitative customer data analysis, the researcher came to the conclusion that the organization's sales process could need improvement. That same theme came up in the field expert interviews as well as in the strategy data review. The findings of each study part were utilized in the next study parts, so that the researcher decided to ask about the field experts' opinions and experiences of the sales process once the theme came up in the customer data analysis. However, the questions were not set so that the interviewees would have been prompted to give certain kinds of answers, but the questions were open and asking e.g. how the field experts feel about the current way of acting both as a counseling service provider and the sales person. The sales theme was then further investigated in the strategy document overview.

The practices of the study have been such that it is possible to repeat the different phases of the study. All information related to the customer analysis is available and the different stages of the analysis have been documented. Therefore, it is possible to follow the path in which the raw data from the CRM system was transformed into the customer information database which was then used to analyze the customers. All of the interviews were recorded and transcribed, and this data is available for further needs. The documentation of the source literature has been done carefully. Also, the strategy documents are stored and available if needed. In this way, it is possible to follow the study path again and find the same results as the researcher has done. On the other hand, if new interviews were performed now that the results of the study have been presented to the personnel of the organization, the results would be biased. When the results of this study have been topics of discussion and some actions have been taken in accordance to the results of the study, the interviewees would most likely not be able to dismiss those results and give answers based on just their own opinions. Also, if the interviewer had been someone who has been with the organization for a long time, the results could have been different. The researcher's career in ProAgria PK began with this study project, so she was more or less an outsider to whom the interviewees could talk to in a different manner than if the interviewer had been someone they have known a long time.

The field experts interviewed as well as the members of management are all long-time employees of ProAgria PK having strong know-how and knowledge in their fields of expertise. The questions asked of them were clear and unambiguous and it was easy for the interviewees to answer them as they were related to their fields of expertise and day-to-day work. The interviews were done in Finnish, which also adds to the reliability as Finnish is the mother tongue of both the interviewees and the interviewer. The interviews were analyzed in Finnish and the research report for the organization was written in Finnish and only that final report was translated into English so details of the study have not been lost in translation. Translating the study from Finnish to English doesn't pose a threat to the reliability, as the researcher has a strong command of English.

What could have been studied in addition to employee interviews, are the opinions of the customers. That would have required a survey among the customers, for which there was no time within this study. If a customer survey would have been made and the results of that research had been in line with the results now obtained, it would have added immensely to the reliability of the research.

The results of this study could be applied to other ProAgria centers in Finland, as they are influenced by the same agricultural phenomena as ProAgria PK. The best fitting the results would be on the neighboring ProAgria centers of ProAgria PK. Areas which are very different geographically (e.g. Lapland) or structurally (e.g. Uusimaa) would come up with some different results if this study was repeated there. However, within ProAgria PK the results wouldn't be applicable, as the branches have very different structures than Farm Services. For instance, even though being very important, knowledge and know-how wouldn't be the only factors of future success in the Fish Farming branch of ProAgria PK, but latest technology might be an addition to those.

8.2 Reflections

ProAgria PK's branch of operation was not at all familiar to the researcher, so learning started from very basics. Also, both customer analysis and knowledge overview were new methods to the researcher, which required a lot of studying and in the data mining phase, a lot of trial and error. All in all, this study was a challenge to the researcher, which acted as an eye-opener to the agricultural field in Finland as well as a learning opportunity in the field of business research. The researcher had only a little experience in interviewing during the studies at Haaga-Helia University of Applied sciences, but having experience in management work helped in conducting the interviews. Management experience also provided good insights into the analysis of the interviews and the strategy documentation. The researcher being an outsider to the company can also be considered a benefit, as that way the study has an objective nature to it and the insights are fresh as they are not restricted by thoughts of "this didn't work before" or "it can't be done in that way". Being an outsider has also given the researcher the freedom of presenting even the not-so-pleasant research results to the organization.

When ProAgria PK offered the customer analysis for the researcher to perform, it was the researcher's idea to extend the focus into covering a knowledge overview as well. The customer analysis was more challenging, time consuming and extensive than the researcher realized, but as the goals had been set, the researcher was obliged to follow through with the entire study. As the results of the study provide, performing the customer analysis only would have given one-sided answers with less reliability. During the course of the study, the researcher learned a lot about the agricultural branch, data mining and analysis as well as knowledge management, and also the importance of good project management. A good lesson learned was that knowing the data alone isn't enough for a proper analysis, but knowledge of the field of business is essential for adequate conclusions. This lesson was learned when the researcher presented results of potential sales based only on the statistical data without considering the reality of the current agricultural situation in North Karelia. At the end, being able to conduct this multistage, complex and challenging study with adequate answers brings satisfaction to the researcher. The researcher also has feelings of succeeding, as with the research results ProAgria PK received new insights and strategical tools for building its future success and thus the researcher can be a part of that success. The best result of this study for the researcher personally is that after the project, the researcher was offered a job with the organization.

8.3 Recommendations

To best benefit from this study, ProAgria PK should take into consideration the recommendations which the study suggests. The recommendations highlighted in this chapter will help the company in its endeavor to gain additional sales.

It is stated in the organization's strategy, that new customers and new service sectors as well as market areas are needed for future growth. The study suggests, however, that the organization should also look inwards. The inactive customers in ProAgria PK's customer register should be activated, as almost all of North Karelian farmers already are customers of ProAgria PK, but less than half of them are active. The biggest customer branch, crop cultivators, would need more targeted and specialized services for their production. In addition to creating new services for these customers, this demand

could be answered also by developing current services further. The current services ProAgria PK has should be synchronized and offered as service packages. Especially the organic producers would benefit from a service package, which could also be more profitable for ProAgria PK. Dairy farm counseling is one of the main services of ProAgria PK Farm Services branch. However, there are a lot of milk producers, who don't use this service, and therefore it would be advisable to try to activate those farmers into using the dairy farm counseling service. Despite the number of farms is diminishing, there are also a lot of investing farms which are developing their operations. ProAgria PK should find more of these investing customers and find ways in which to be a part of their growth process. With these actions additional sales could be gained within the existing customer base and with services on ProAgria PK's strongest field of expertise, farming. It is also recommended that the organization continues to enhance learning and developing know-how both in current fields of expertise as well as new areas of knowledge. One area in which special expertise is needed in the future is the service operations in Russia.

In order to meet the demands of both the customers and the organization's own needs for enhanced profitability, ProAgria should strive to develop its internal processes. The sales process of the organization needs to be improved. A suggestion based on this study was to improve the sales process by appointing some field experts as sales specialists, who would be responsible for ProAgria PK's sales. Based on this suggestion, first steps towards this kind of a sales process have been taken, and it is strongly recommended to carry on with it. The organization is also developing its customer service, as a consultative service process is being initialized. This process requires the field experts to work in close co-operation with each other. This is currently not working very well, so it is essential to urge the field experts into mutual co-operation e.g. by creating good and functional practices for working together and sharing information. Mutual co-operation was one of the topics on ProAgria PK's latest staff meeting in October 2013, and the recommendation is to continue emphasizing the importance of co-operation as well as creating conditions to enable it. Co-operation is also needed between the field experts and the management. Based on the study, there are some matters in which the opinions of the management and the field experts differ strongly. These matters should be discussed within the organization so that reasons for the dif-

ferent opinions can be found. It is highly important that the management and the employees all have the same understanding of the organization's standing in order to the organization to develop favorably.

8.4 Suggestions for further research

On the course of the study, several additional study paths were revealed, which there was no time for to pursue. These subjects are worth considering when ProAgria PK's operations are developed further.

A major finding of the study is that there is remarkable potential within the crop cultivating customers for gaining additional sales. This is a very large group of customers for which it seems there are not enough services available. The researcher's suggestion was that it should be investigated what these customers want, what kinds of needs they have in order to find out how to better serve them. As a result of this, a second thesis is being composed on the subject. Anne Hakulinen, a student in the Degree Programme in Rural Industries of the Karelia University of Applied Sciences in Joensuu, is executing a survey among the crop cultivation customers of ProAgria PK in order to find out what kinds of services they could be offered. The working title of her study is *"The counseling service needs of crop cultivating farms in North Karelia"* (translated by the researcher of this study). This is a matter of pride for the researcher of this study, as it proves that the results of her study are truly useful and important for ProAgria PK.

A remarkable utilization opportunity for the material collected for the customer analysis is to investigate the company customers of the organization further. One of ProAgria PK's future strategies is that more companies are needed in order to gain additional sales. The customer analysis material can be used to find out what kinds of companies the company customers are and what they have purchased from ProAgria PK. Based on these findings, a detailed sales strategy could be put together in order to approach potential customers. In the same manner, utilizing the customer database it could be investigated what kinds of customers belong into the group of inactive customers and how they could be approached in order to activate them.

Smaller but however an interesting study path which could be followed later is to perform an association analysis to a smaller group of customers, as in this study the analysis was performed on the entire active customer base of the Farm Services. For example, if the association analysis could be performed on the different clusters determined in the cluster analysis, a better picture of the customer purchasing behavior could be gained. Another study path was revealed when a field expert of ProAgria PK's Garden Counseling asked if the material could be utilized to gain a more detailed picture of their customers. This can definitely be done, to any of the other service branches of ProAgria PK. Study of the other branches should be done in the near future, as the invoicing material is from year 2012 and in a few years it will be outdated. A downside of utilizing the collected customer database is that it would be difficult for some other person than the researcher to utilize it, as it is in MS Excel format and not in some actual data mining program where queries on the material could be easily done.

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Attachments

As reference material to this study there are numerous statistical reports available at http://universe.fi/CA/. The reports are in Finnish and in PDF format. PDF-file Cluster analysis includes statistical tables and figures related to the two cluster analyses presented in chapter 3.5. PDF-file Customer statistics includes statistical tables and figures related to the statistical analysis (chapter 3.5) and invoicing analysis (chapter 3.4). The figures in these reports are presented as attachments 2 – 11 of this study.

Attachment 1. Conceptual model

CONCEPTUAL MODEL

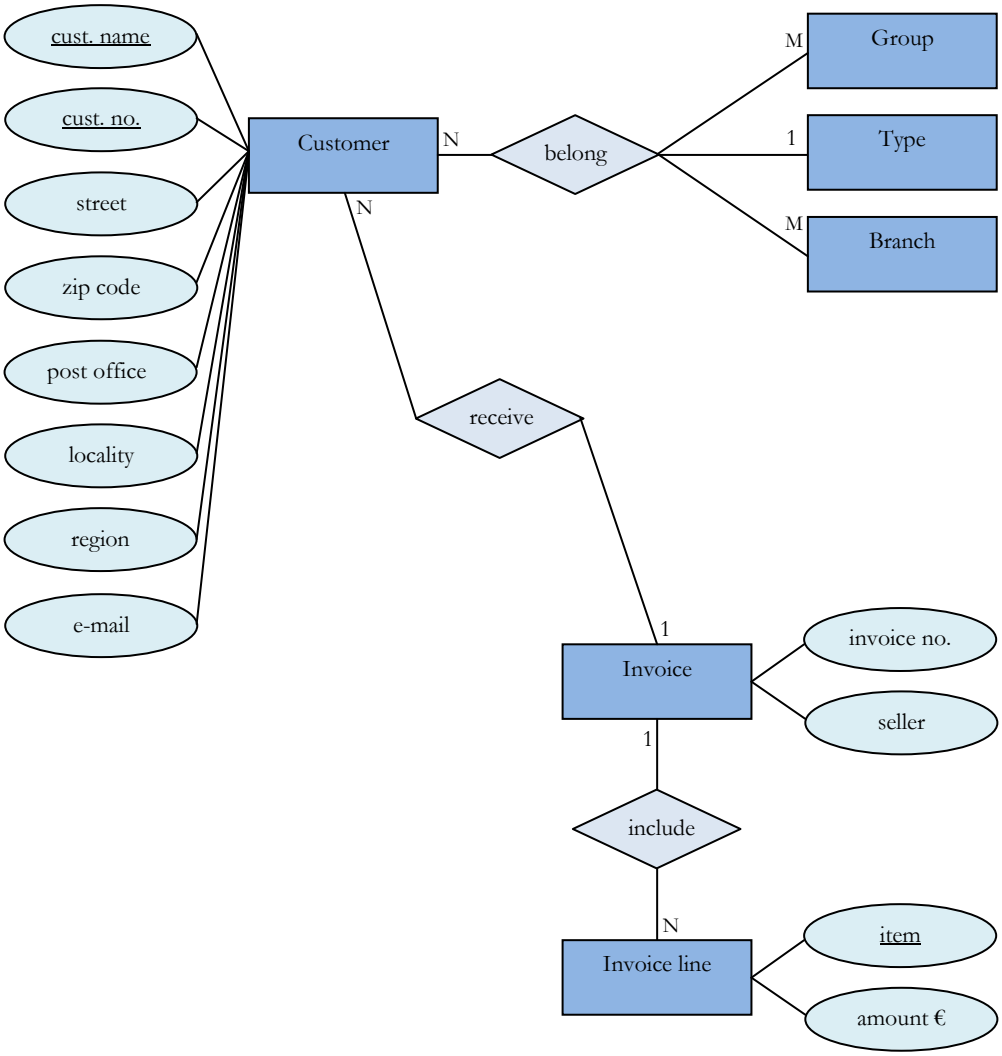

Figure 13. Conceptual model of the customer database

- One customer belongs
  - to many customer groups
  - to one customer type
  - to many branches

  } these can belong to many customers
- Many customers can receive many invoices
- One invoice can be received by one customer
- One invoice includes many invoice lines
- One invoice line is included in one invoice

The basic concepts of entity relationship modeling have been adopted from Kettunen (2002).

Attachment 2. Customers per customer group

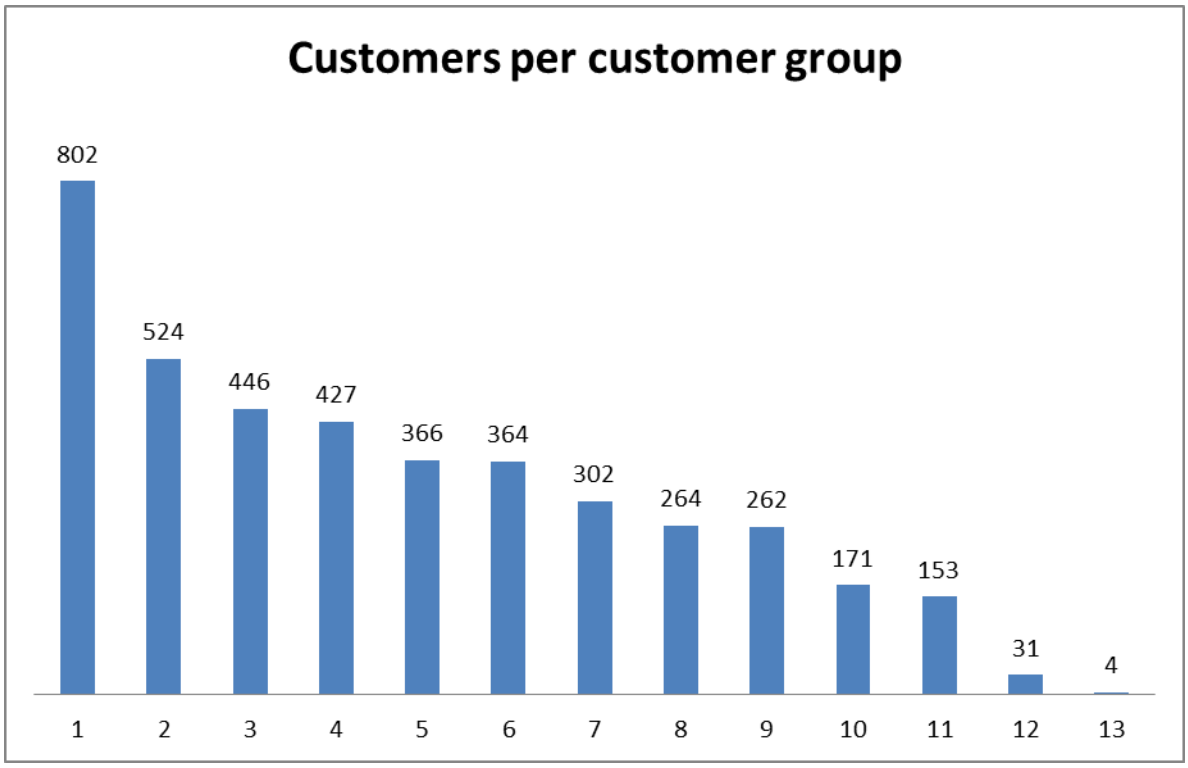

Figure 14. Amount of customers per customer group, all customers of ProAgria PK. Customer groups are detailed in table 5 below

Table 5. Customer groups of figure 14

All customer groups	#	Customers	%
Projects	1	802	18,2 %
Member customers	2	524	11,9 %
Dairy farm counseling contract	3	445	10,1 %
Events	4	427	9,7 %
Organic production	5	366	8,3 %
Contracts	6	364	8,3 %
Fish farming	7	302	6,9 %
No dairy farm counseling contract	8	264	6,0 %
Accounting services	9	262	6,0 %
Subsidy counseling	10	171	3,9 %
Special plants	11	153	3,5 %
Profitability accounting	12	31	0,7 %
Investing customers	13	4	0,1 %

Figure 14 and table 5 present the distribution of all ProAgria PK's customers into customer groups. One customer can belong to many customer groups.

Attachment 3. Customer distribution per customer type

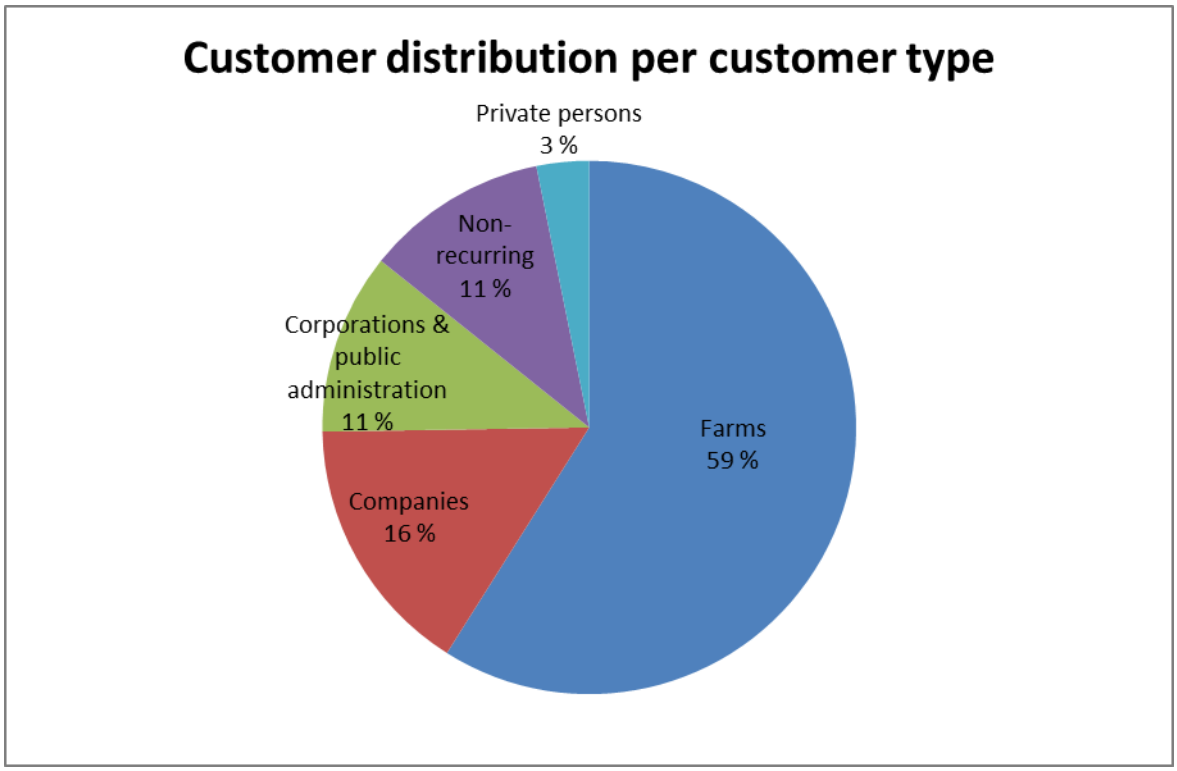

Figure 15. Distribution of all ProAgria PK's customers per customer type

Figure 15 presents the distribution of ProAgria PK's customers per customer type. Each customer can only belong in one customer type.

Attachment 4. Customer distribution per customer branch

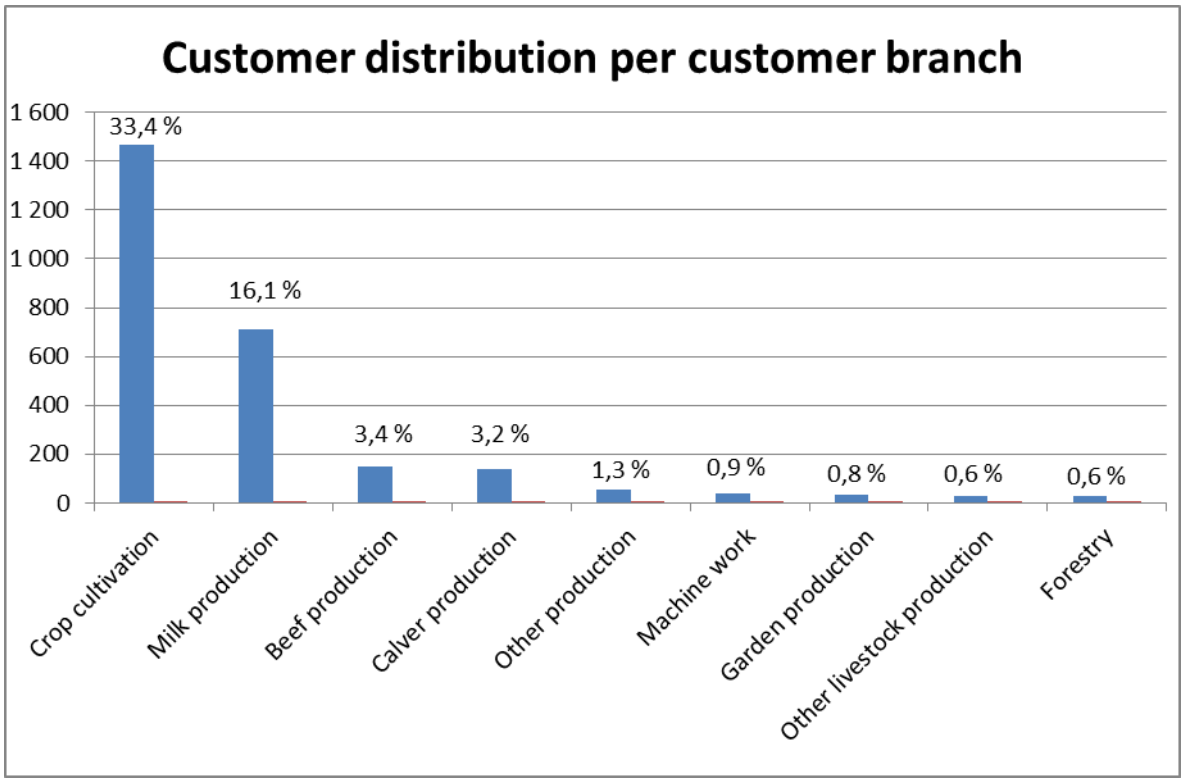

Figure 16. Share of customers in each customer branch, customers of ProAgria PK Farm Services

Table 6. Amount of customers in each customer group and the share of each customer group of ProAgria PK's Farm Services customers

Branches	Customers	%
Crop cultivation	1 469	33,4 %
Milk production	709	16,1 %
Beef production	150	3,4 %
Calver production	141	3,2 %
Other production	55	1,3 %
Machine work	39	0,9 %
Garden production	34	0,8 %
Other livestock production	27	0,6 %
Forestry	26	0,6 %

Figure 16 and table 6 present distribution per customer branch of ProAgria PK's Farm Services customers. One customer can have many branches of operation.

Attachment 5. Customer distribution per regions

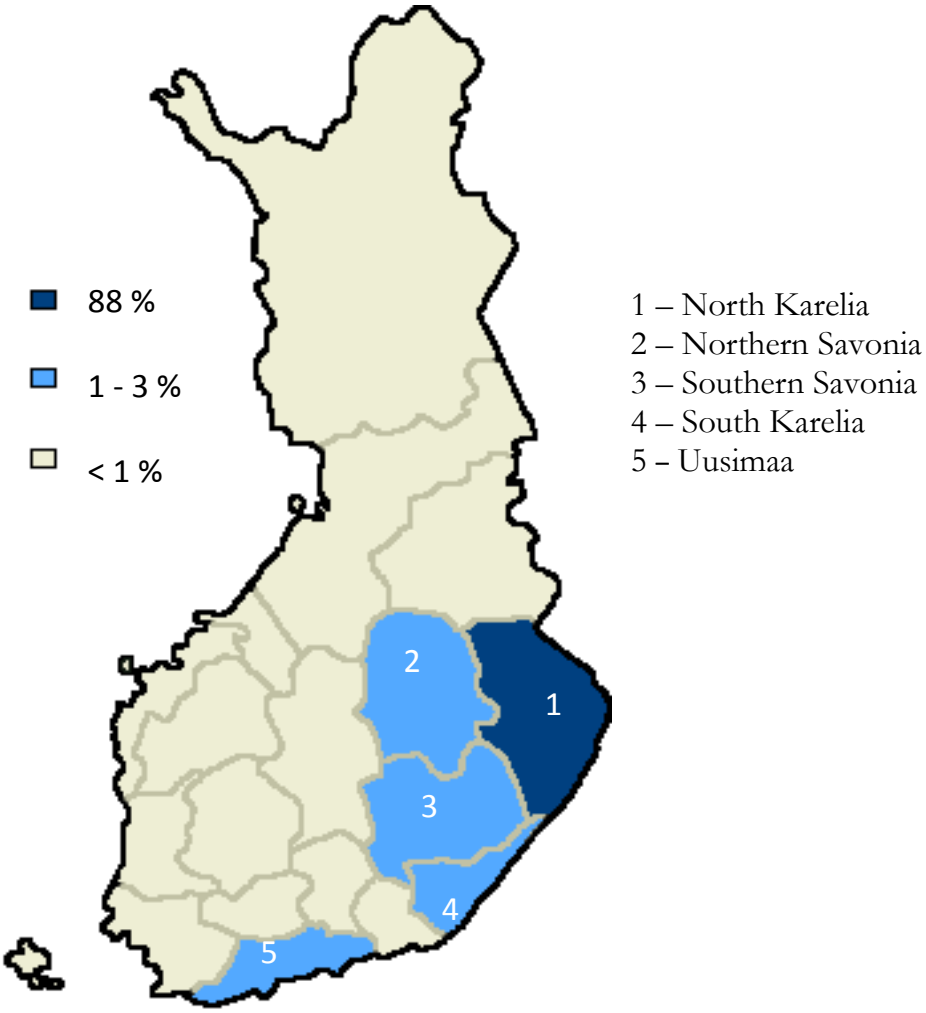

Figure 17. Customer distribution per regions, all customers of ProAgria PK (original map: Tilastokeskus 2013)

Most of ProAgria PK's customers (88 %) are located in the North Karelia region. A small proportion of customers are in Northern and Southern Savonia, South Karelia and Uusimaa (1 – 3 % of customers in each region). In each of the other regions in Finland, there are less than 1 % of ProAgria PK's customers. (Figure 17.)

Attachment 6. Invoicing vs. customers, all customers

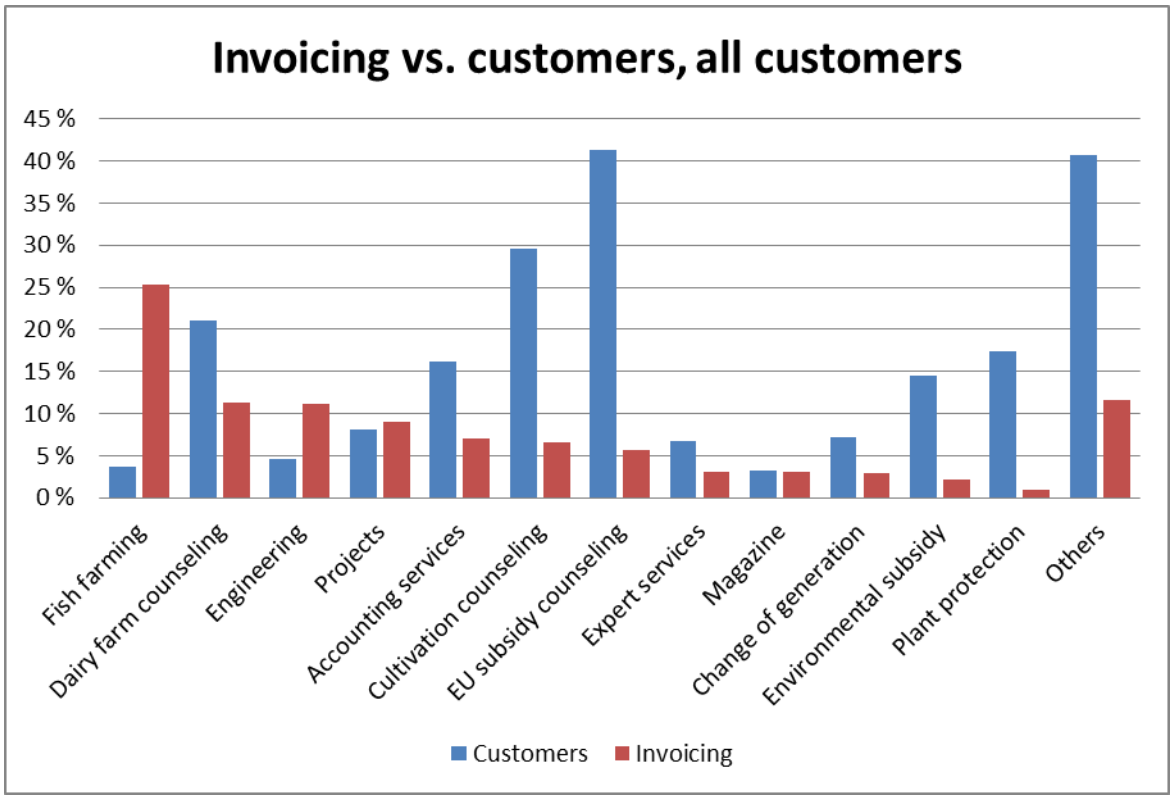

Figure 18. Invoicing vs. customers, all customers of ProAgria PK

Figure 18 shows how many percent of the total invoicing each service covers (red bars) and how many percent of the active customers have bought that service (blue bars). It is noticeable, that services, which most of the customers are buying, can be very low on the invoicing (e.g. cultivation counseling, EU subsidy counseling).

Attachment 7. Invoicing vs. customers, Farm Services

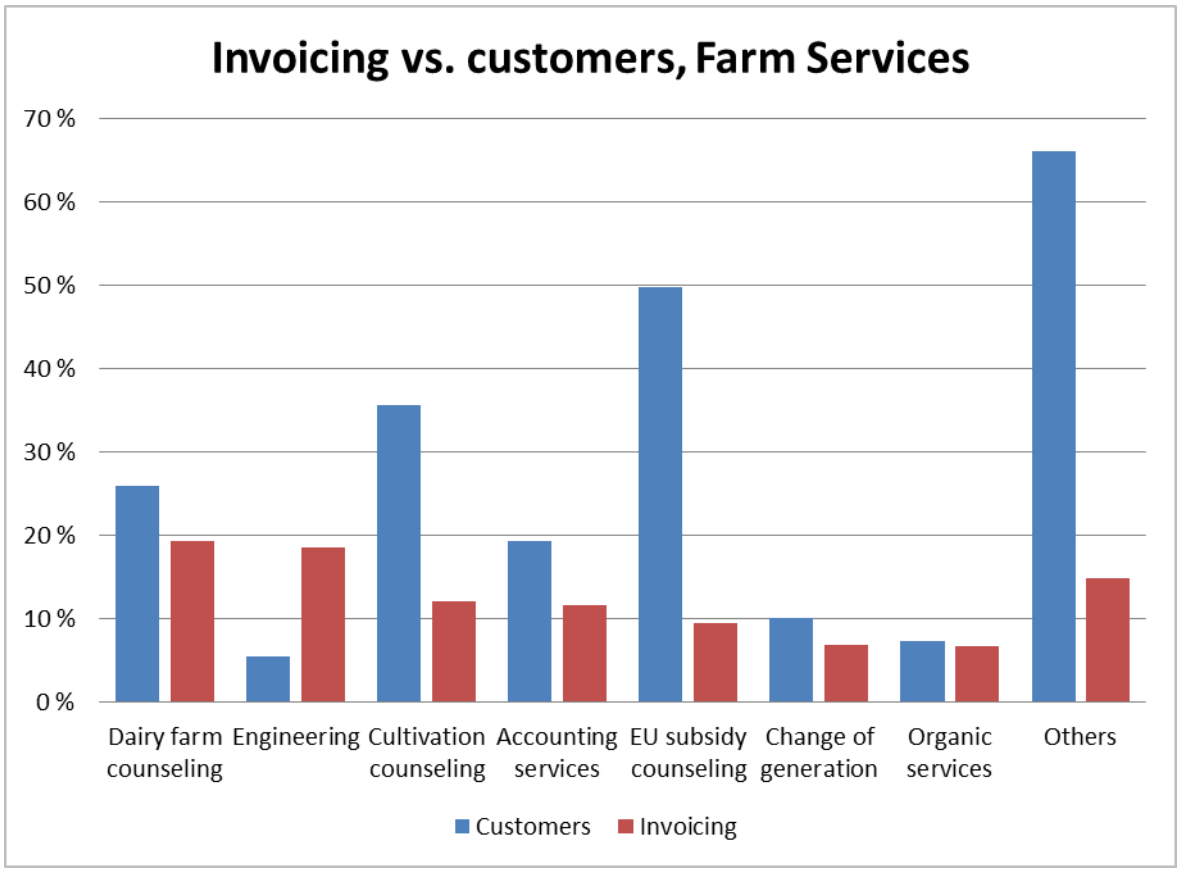

Figure 19. Invoicing vs. customers, Farm Services customers of ProAgria PK

Figure 19 shows how many percent of Farm Services invoicing each service covers (red bars) and how many percent of the active customers have bought that service (blue bars).

Attachment 8. Share of customers per cluster, all customers

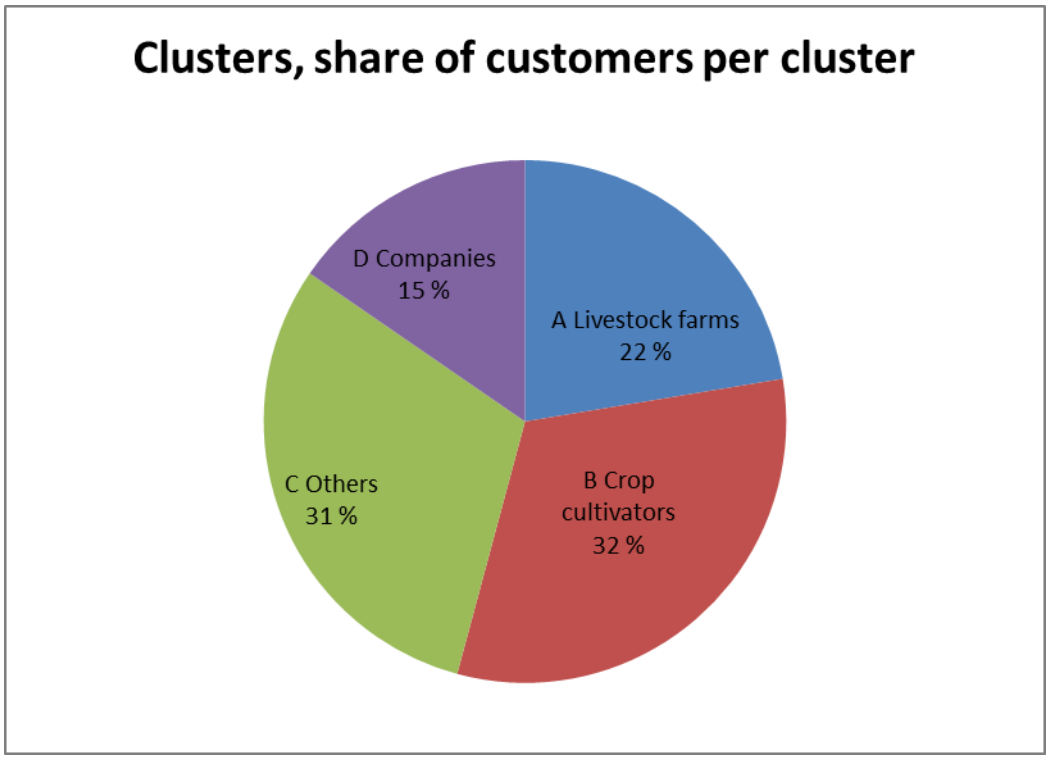

Figure 20. Share of customers per cluster, cluster analysis of all ProAgria PK's customers

Attachment 9. Customer types per cluster, all customers

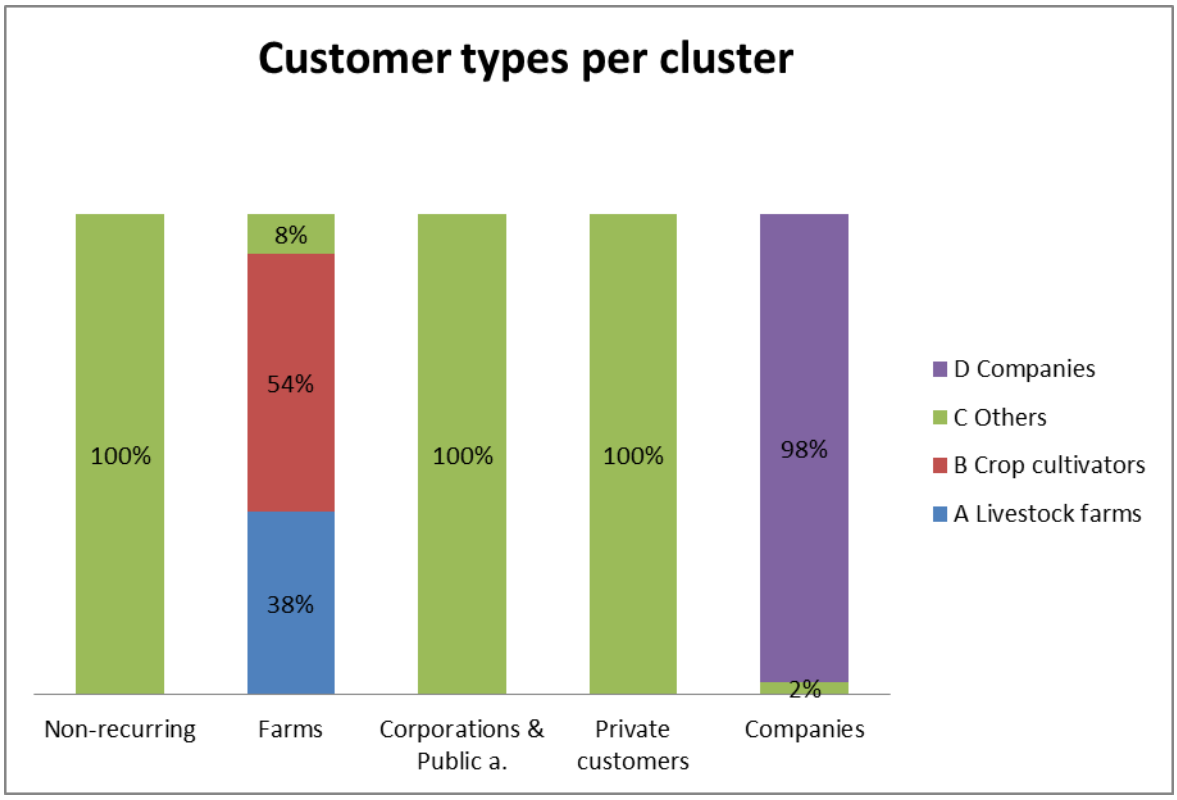

Figure 21. Customer types per cluster, cluster analysis of all ProAgria PK customers

Figure 21 describes the share of each customer type in different clusters of the cluster analysis of all ProAgria PK customers. Cluster A, livestock farms (blue area), includes 38 % of farmers and all customers in cluster A are farmers. Cluster B, crop cultivators (red area) are all farmers and 54 % of farmers belong in this cluster. Cluster C, others (green areas) consist of 8 % of farmers, all customers of customer types non-recurring, corporations and public administration and private customers as well as 2 % of company customers. Cluster D, companies (purple area)consists of companies only and 98 % of the companies belong in cluster D.

Attachment 10. Share of customers per cluster, Farm Services

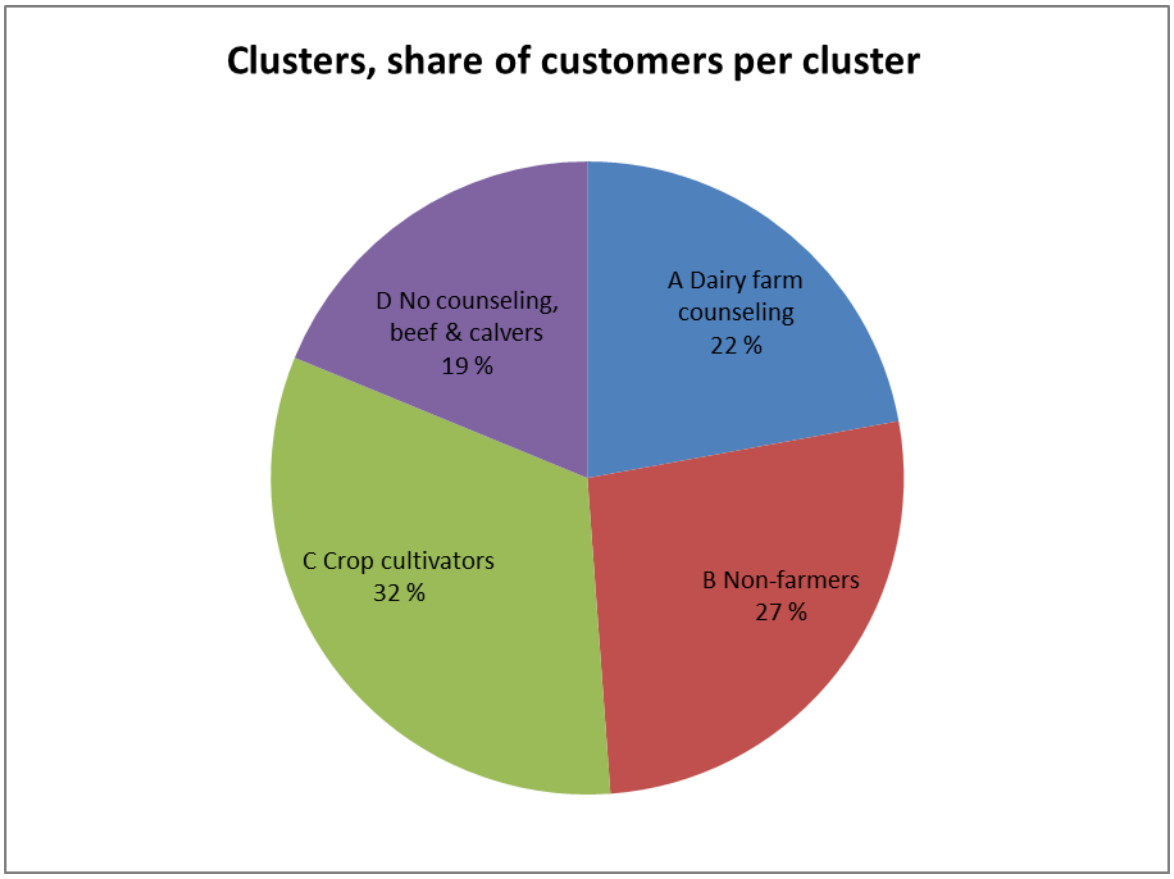

Figure 22. Share of customers per cluster, cluster analysis of ProAgria PK's active Farm Services customers

Attachment 11. Composition of clusters, customer types

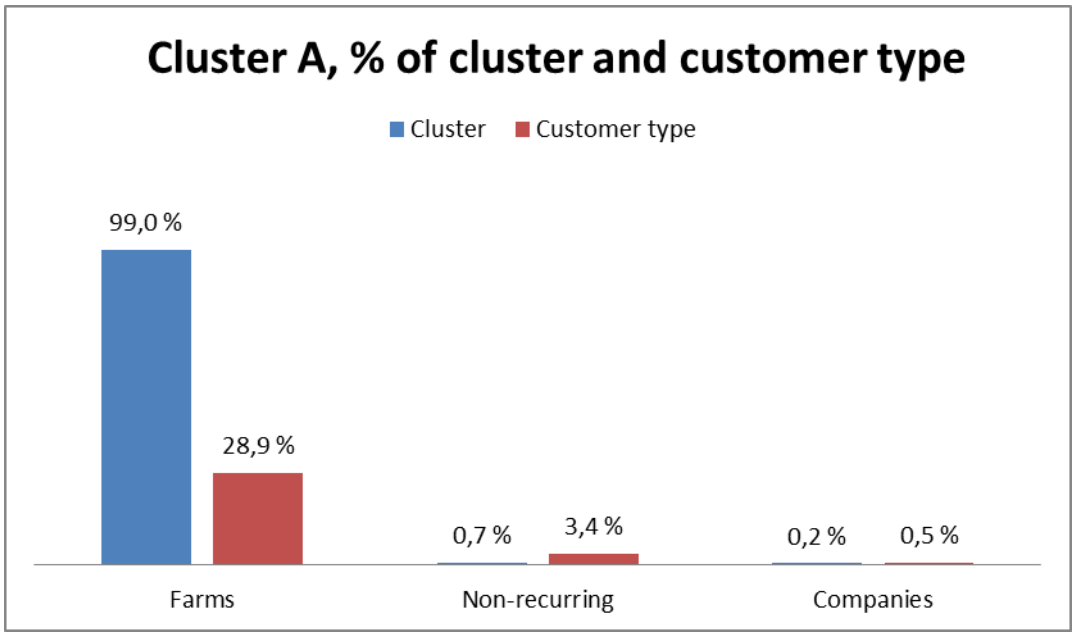

Figure 23. Cluster A of the active Farm Services customers

Figure 23 presents the cluster A (dairy farm counseling customers) of the active Farm Services customers per customer type. 99 % of the customers in cluster A are farmers and 28,9 % of farmers belong in cluster A.

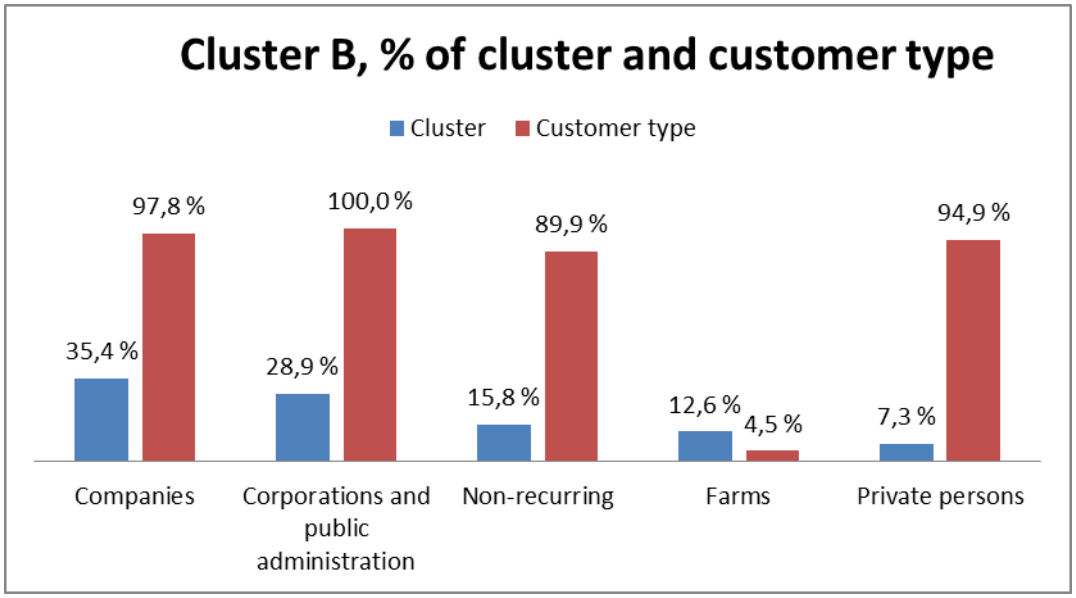

Figure 24. Cluster B of the active Farm Services customers

Figure 24 presents the cluster B (non-farmers) of the active Farm Services customers per customer type. 35,4 % of the customers in cluster B are companies and 97,8 % of

companies belong in cluster B. 28,9 % of the customers in cluster B are corporations and public administration and 100 % of corporations and public administration belong in cluster B. 12,6 % of the customers in cluster B are farmers and 4,5 % of farmers belong in cluster B. 7,4 % of customers in cluster B are private persons and 94,9 % of private persons belong in cluster B.

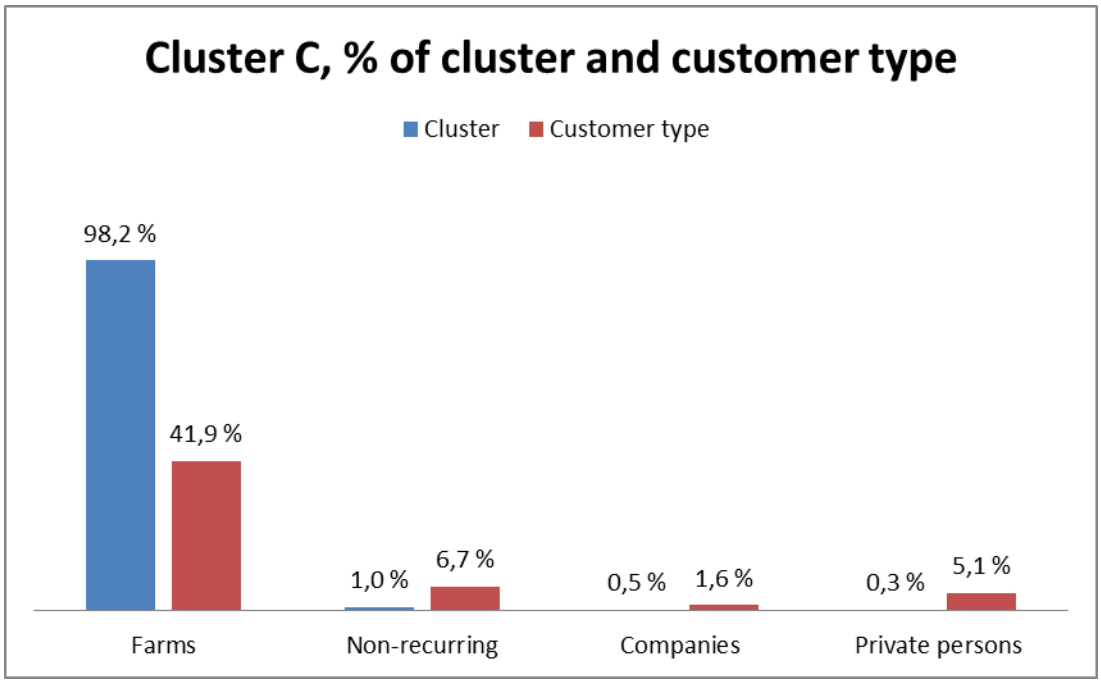

Figure 25. Cluster C of the active Farm Services customers

Figure 25 presents the cluster C (crop cultivators) of the active Farm Services customers per customer type. 98,2 % of the customers in cluster C are farmers and 41,9 % of farmers belong in cluster C.