LAPPEENRANTA UNIVERSITY OF TECHNOLOGY
Department of Industrial Management

MARKETING OF LAPPEENRANTA UNIVERSITY OF TECHNOLOGY ENERGY AUDITING SERVICES

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ABSTRACT

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The objective of this study was to find out how LUT Energy should start marketing its energy audit services, what would be the optimal pricing policy for its services and how LUT Energy could manage customer expectations towards quality of its auditing services. In order to answer these questions, a quantitative survey questionnaire was sent by e-mail to 56 companies from the regions of South Karelia and Kymenlaakso. The empirical data of the study was the answers and opinions of the companies, previous researches about energy efficiency and articles and presentations about the current situation in the energy efficiency market.

The results of the study were that there is a great potential for energy audit services and also the legislation requires companies to improve their energy efficiency. To start marketing its services, LUT Energy should first clarify its service concept and divide its service offering into two offers. It should also clarify the marketing message it wants to send its customers and then do the marketing with the help of three-way-model. The best pricing policy for the service would be that the price is proportioned to the future savings. In order to ensure the quality of its services, LUT Energy has to make sure that both dimensions of the quality are managed properly and to fade out customer expectations towards the quality the auditing work has to be monitored.

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Tämän työn tarkoituksena oli tutkia kuinka LUT Energian pitäisi alkaa markkinoimaan energia-auditointi palvelujaan, mikä olisi paras hinnoittelumenetelmä sen tarjoamille palveluille ja miten se voisi lunastaa asiakkaiden odotukset sen tarjoamista auditointipalvelujen laadusta. Työn empiirisen osan aineistoa varten tehtiin kvantitatiivinen kyselytutkimus, joka lähetettiin 56 yritykselle Etelä-Karjalan ja Kymenlaakson alueella, ja näiden yritysten mielipiteiden perusteella vastattiin tutkimuskysymyksiin. Aineistoa kerättiin myös edellisistä tutkimuksista, raporteista ja esityksistä energiamarkkinoiden nykytilasta Suomessa.

Tulokseksi saatiin, että energia-auditionti palveluille on huomattava kysyntä ja tätä tukee myös nykyinen energiatehokkuuteen kannustava lainsäädäntö. Aloittaakseen markkinoimaan palvelujaan LUT Energian tulisi ensin määritellä palvelukonseptinsa sekä markkinointiviestinsä ja jakaa tämän jälkeen palvelunsa kahteen osaan. Tämän jälkeen markkinointia jatketaan markkinoinnin kolmivaihemallin mukaisesti. Paras hinnoittelumenetelmä on suhteuttaa hinta tulevien säästöjen mukaan. Taatakseen palveluidensa korkean laadun LUT Energian tulee pitää huolta laadun molemmista ulottuvuuksista ja tarkkailla erityisesti auditointityön laatua.

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1 INTRODUCTION

The efficient, economic and undisturbed operation of energy systems is one of the key questions for industry. Heath and electric energy are necessary commodities for all industrial plants. One central factor for energy saving decisions is the profitability of the actions. New technologies and process solutions intensify operation and reduce energy usage at the same time.

Beside costs, there are also other things that are linked to energy production and consuming. The most important of these are the environmental effects. By saving heat and electricity a company saves the need of fuels and this depresses the amount of green house gases. The investment into energy efficiency is also an investment into more comfortable environment.

Making the energy usage more efficient should be a part of company's policymaking and should be continuously taken into account in process planning, purchase decisions and in environment permission mechanism. Factors that have recently added interest into energy efficiency are among others the price of energy; need to reduce green house gases and supreme management's concern to energy usage and energy costs. Also the appeal for a green company image among its interest groups drives companies to improve their energy efficiency.

The improving of energy efficiency should be seen as a part of all company activities: quality, environment and other control systems. Saving energy is free from competition and profitable business.

1.1 Research background

Nowadays, many energy consumers are dealing with the issue of how to reduce their energy consuming. The price of electrical energy has increased significantly

during recent years. Another reason for reducing the energy usage is the commitment of the European Union (EU) to the reduction of greenhouse emissions in accordance with the Kyoto Protocol (Europa 2008).

A way to reduce energy consumption and emissions is to improve the energy efficiency of electricity consumers. In industrialized countries the industrial share of energy consumption is significant. Major part of industrial energy consumption is caused by systems that convert electrical energy into mechanical energy using an electric motor and an actuator. In the EU, these are responsible for 69 % of the industrial electricity usage (Almeida et. al., 2003). Typical electrical energy conversion applications are pump drives, blower and fan drives, and compressor drives. Together these represent approximately 70 % of all industrial electrical drive systems (Almeida et al., 2003).

As the potential for energy savings is remarkable in new as well as in existing pumping applications, applicable methods and practices are needed to realize them. Upon to this fact the industrial enterprise ABB and Lappeenranta University of Technology (LUT) have started a new kind of co-operation: the Energy Audit Project. The Project is funded by ABB and the duration is two years, started in the fall of 2008.

An energy audit is an analysis of energy consumption of a given process or a system. The auditing process concentrates on finding inefficiently operating appliances with rotating electrical machinery, such as pump drives. The LUT´s procedure for energy auditing is developed so that the university's expert knowledge at the field of energy efficiency can be utilized at the industrial sector.

The Energy Audit Project is a good example of the co-operation between university and industry. From the university's point of view the purpose of the Energy Audit Project is to learn more about energy auditing, get to use the energy efficiency knowledge in practice, and to use the energy auditing procedure as a teaching aid for the students. Energy auditing gives also a possibility to utilize the

academic know-how in practice, and at the same it provides benefit to the client. From the client's point of view the energy audit is supposed to produce financial benefit, but also to help the client to advance its actions to more pro-environmental direction.

1.1.1 Current energy efficiency market situation

During the years 1998-2004 there have been over 221 million Euros energy efficiency investments in Finnish industry. These investments are comprised of about 900 different actions, mainly in the forest industry, but also in many other energy intensive industries, such as metal and chemistry industry. The magnitude of the implemented investments has been about 40 million Euros per year. Because all the realization possibilities have not been realized yet, it is estimated that there still is a one hundred million Euros market per year for energy efficiency investments. (Vanhanen et. al. 2006, 42)

According to Vanhanen et al. (2006, 42) the price of energy is the most important factor that affects to energy efficiency investments. The price will rise in the future, mainly due to the diminishing resources of fossil fuels (oil, gas) and limiting costs of the carbon dioxide and other greenhouse gases emissions. Other factors that have an effect on the energy efficiency market are:

- Reducing of industries' energy intensity
- Directions of the authorities
- Demands from the customers and other interest groups
- Demand for better profit form the owners
- Improving the production and material efficiency

Industries' energy efficiency market can be divided in different ways, such as: geographically, by the source of energy, by manufacturing or sub-process, by the energy intensive or into reinvestments and rationalization investments. A common target for energy efficiency investment in the Finnish market can be found from

the process solutions like improving the efficiency of a pump. (Vanhanen et. al. 2006, 43-44)

1.1.2 Legislation concerning energy efficiency markets

The energy efficiency of individual companies in Finland has been improved since the late-1990s by voluntary energy efficiency agreements. These are based on a framework agreement between Finnish industry and the State to which individual companies have been encouraged to subscribe. Energy efficiency agreements today account for most of Finland's energy production, transfer, distribution and industrial end use. The third round of energy efficiency agreements between Finnish industry and the State was signed in December 2007. The previous round was signed in 1997. The new round will be valid from 2 008 to 2016. (The Confederation of Finnish Industries EK, 2009)

Implementation of the energy efficiency agreements will play a central role in the national implementation of the EU Energy Services Directive. This directive applies to companies that are not part of the emissions trading scheme. The goal is to make their energy consumption more efficient by 9 percent by 2016. Since companies and communities subscribing to energy conservation agreements fulfill their commitments through these agreements, no other mechanisms are needed to monitor their operations. (The Confederation of Finnish Industries EK, 2009)

Companies subscribing to the agreements undertake to carry out energy audits or analyses in their own properties and production plants, to draw up an energy conservation plan and to implement cost-effective conservation measures. In addition, subscribing companies undertake to monitor energy efficiency continuously and to introduce energy-efficient technologies wherever possible. (The Confederation of Finnish Industries EK, 2009)

The large Finnish industrial energy consumers and a significant number of smaller ones have participated in energy conservation work already for a long time. This

focus on energy efficiency is now being systematically introduced among a larger group of companies and new sectors, including retail trade and accommodation and restaurant services. The goal is that as much of industry's energy consumption as possible would be included in energy efficiency agreements. (The Confederation of Finnish Industries EK, 2009)

1.1.3 Market for energy efficiency services in Finland

The market in Finland for energy efficiency technologies and services is growing in the future because of the European Union's energy legislations and demands. EU already instructs companies to improve their energy usage by tax-guidance, environment permission procedures and voluntary actions. Thus, if a company wants to be a key-actor of its industry segment it has to indicate that it acts in energy efficiency way. To indicate this requires measurement. Surveying energy efficiency is crucial for a company in order to enable continuous improving of its actions. (Vanhanen et. al. 2006, 40-42)

Beside companies, Finnish government has also invested into long-spawn energy efficiency. Because of this there is a vast home market for energy efficiency technologies and services. Nowadays energy efficiency improvements are an important part of companies' strategy and a standard way to act responsible. Companies have promised energy efficiency to a high rank and direct money to research and development because of the competitiveness between companies and the increasing energy price. Also the government's legislation and other norms and regulations drive companies to improve their energy efficiency. (Vanhanen et. al. 2006, 40-42)

Energy efficiency is a part of production efficiency, which is a vital fragment of company's competitiveness. When a company improves its energy efficiency, it also polishes its environmental friendly image to interests groups. Indicating to

customers and authorities that a company acts in an energy efficient way is a key position for a company in the future. (Vanhanen et. al. 2006, 40-42)

1.1.4 Companies at the Finnish market

There are a number of companies at the Finnish market, who offer different kind of energy auditing services. The complete list of these companies can be found from the Appendix 1. Some companies have the energy audit services as a part of their service offering while some companies are focused on to offer only energy audit services. There is also a vide differentiation what kind of services companies offer. Large companies offer all kind of services from energy surveys to energy analysis of the process industry while smaller companies have focused into one or two services offered.

The companies at the market differ from each other by size, number of employees and location but also whether a company's energy audit service is authorized by Motiva or not. Principal rule is that big companies tend to have Motiva's authorized system and the small ones do not.

Motiva Oy is responsible for the management of energy audits supported by the Ministry of Employment and the Economy, and its tasks include the promotion and monitoring of energy auditing activities, the training of auditing personnel, and the quality control of auditing measures. Energy surveys administered by Motiva clarify the total energy usage, what is the potential to save energy and sustainable ways to do the savings. It aims to clear the primary and secondary process flows and all the potential energy efficiency saving possibilities. (Motiva Oy_A, 2009)

1.2 Objectives and limitations of the thesis

The case institution LUT Energy and ABB are interested to know how they could get more customers to their energy audit services. This study focuses on examining the best way to start marketing energy auditing services and finding out what is the best price or pricing policy for this kind of service. In addition the study tries to find out how customer expectations towards professional services can be managed.

In order to answer to these questions, a quantitative survey questionnaire was sent by e-mail to target companies to collect data. With the help of companies' opinions and the theory chapters the three research questions, seen in the table 1, are answered.

Table 1. Research questions and objectives

Research questions	Objectives
1. What is the best way for LUT Energy to start marketing its auditing services?	To provide ways to market LUT Energy's auditing services, to clarify the service concept and the service message. Suggestions for marketing actions.
2. What is the optimal prize or pricing policy for the case company's service?	To find out how the pricing of LUT Energy's service could be done.
3. How to manage customer expectations towards quality of LUT Energy auditing services?	To discover customers' expectations towards service quality and examine how LUT Energy can be seen as a reckoned and professional option to provide high quality auditing services.

The first question considers the best possible way to start marketing the LUT Energy's auditing services. It aims to clarify the case company's service concept and what kind of message it should point out in its marketing. Also some suggestions for marketing actions are being made. The second question tries to

find out how the pricing of the case company's services could be done. The third question looks for ways to manage customer expectations towards the quality of LUT Energy services.

The literature and theory used in this thesis is related to service marketing, quality of services, pricing of services and to customer expectations towards services. Because a lot of information exists about these subjects, only the issues that concern the empirical part are noticed. The technical part of the energy audit service offered by the case company, such as the calculations and theory about accomplishing an energy audit, are left out from the study.

At first the idea was to send an e-mail to the companies located less than two hundred kilometers from Lappeenranta. But because the amount of companies rose so high, some restrictions had to be made. Target companies were afterwards selected from a bounded geographic area and also the amount of employees and the business area were criteria for the delimitation of the companies. Selected business areas where those, that have some kind of industrial production. The fields of business that were selected were paper and chemistry, food industry (bakeries) small industrial companies and municipal institutions, such as water purification plants. In the end 56 companies were selected for the survey questionnaire.

1.3 Structure of the thesis

In order to make the study as accurate as possible a careful documentation is needed. This enables the reader to evaluate assumptions from his/her own perspective and decide whether they find them suitable or not. (Hirsijärvi et al. 1997, 217-218) In order to achieve this, the assumptions and argumentations are clearly presented. The thesis consists of eight main chapters the order and the structure seen in the table 2 with inputs and outputs from every chapter.

Table 2. Structure of the thesis

Input	Chapter	Output
Research background Motives	Chapter 1 Introduction	Research questions and objectives Delimitations
Theory about services Theoretical framework of marketing services Theory about pricing of professional services	Chapter 2 Marketing of professional services	Nature of services Service concept Pricing strategy Choosing the right price Price and the service quality
Theoretical framework of creating a marketing plan	Chapter 3 Creating a marketing plan for services	Understanding the theoretical framework
Theoretical framework of services' quality and customer expectations towards services	Chapter 4 Quality and customer expectations	Experienced service quality Managing quality Managing expectations towards services
Research method Source of data	Chapter 5 Methodology	Survey questionnaire Criteria for evaluating the study
Information about the company	Chapter 6 Case LUT Energy and ABB	Service offered by LUT Energy
Results of the survey questionnaire	Chapter 7 Results and analyses	Analyses of the results
Results of the thesis	Chapter 8 Conclusions and recommendations	Conclusions Marketing actions Evaluation of the study Further research needs

The first chapter introduces the background and motives of the thesis, meaning what were the reasons from the company's point of view to carry out this study. Background chapter also presents the current market, legislation and competitor situation of the energy audit services. Second, the three research questions are presented and explained, followed by the main objectives and delimitations of this study. After the introduction chapter come the three theory chapters.

Chapter two, marketing of professional services, is the first theory chapter and it tries to clarify what is a service and how services can be differentiated. The main points of this chapter are the professional services, how they are different from normal services and what the clarification for them is. This chapter also concentrates to the service concept, why it is important to define and to productization and how it helps to market services and it introduces a three-way-model and an ABC customer selection to the reader. This chapter also aims to find out what the pricing strategy for services is, how to choose the right price and how the price may affect to service quality. Chapter three clarifies how a marketing plan for services can be created and what kind of service communication methods can be used for marketing of services. Chapter four, the third theoretical chapter presents how the quality of the service is experienced and how the quality can be managed. Purpose is to find out how the case company could improve its services quality from the customers' point of view.

Fifth chapter presents the methodology of the study. It introduces the method used, survey questionnaire to the reader and explains how these kinds of surveys should be done correctly. This chapter also presents the theoretical foundation for the thesis, which aims to help to answer to the research questions and the criteria for evaluating the study. The source and selection of data is also introduced, as well as how the questionnaire was conducted in practice.

The chapter six presents LUT Energy and ABB. It starts with the company introduction and then comes the introduction of the service offered by the case company. In the chapter seven the results of the survey questionnaire with the

help of bar graphs and analyses of the results are presented. The chapter eight, last chapter, presents the conclusions of the research questions for the case company, the evaluation of the study and possible further research needs.

2 MARKETING OF PROFESSIONAL SERVICES

According to Gröönroos (2000, 78) a service is complicated phenomenon. This concept has many meanings from personal services to services as a product. Any appliance or almost any product can be a service if the seller tries to adapt the solution according to customer's distinctive needs. This makes the concept of service wide.

There are as many definitions for service in the marketing literature as there are the types of services. Following definition tries to clarify the idea of a service.

"A service is any act or performance that one party can offer to another that is essentially intangible and does not result in the ownership of anything. Its production may or may not be tied to a physical product." (Kotler & Keller 2006, 402)

2.1 Taxonomy of services

According to Barry & Terry (2008, 234) services can be divided into two sub-categories: consumer services and business-to-business (B2B) services, as can be seen in the figure 1. Consumer services are delivered to individuals or group of individuals whereas B2B services are delivered to organizations. Consumer services include services as banking, insurance and health care. B2B services can further be divided into two subcategories: professional services and industrial services. Professional services are for services companies and contain management consulting, investment banking and catering. Industrial services are delivered mainly to manufacturing firms and are divided into pre-purchased industrial services (e.g. engineering), industrial services delivered at purchase (such as training of staff) and after-sales industrial services, for example technical maintenance.

Because of the amount of different levels of services demanded by various customer segments, marketers can no longer develop a generic customer service package that will be appropriate or provide a satisfactory level of services to all the market segments served. This means that in order to obtain and or maintain a relative competitive advantage in the marketplace unique service packages have to be developed. (Boyt & Harvey 1997, 292)

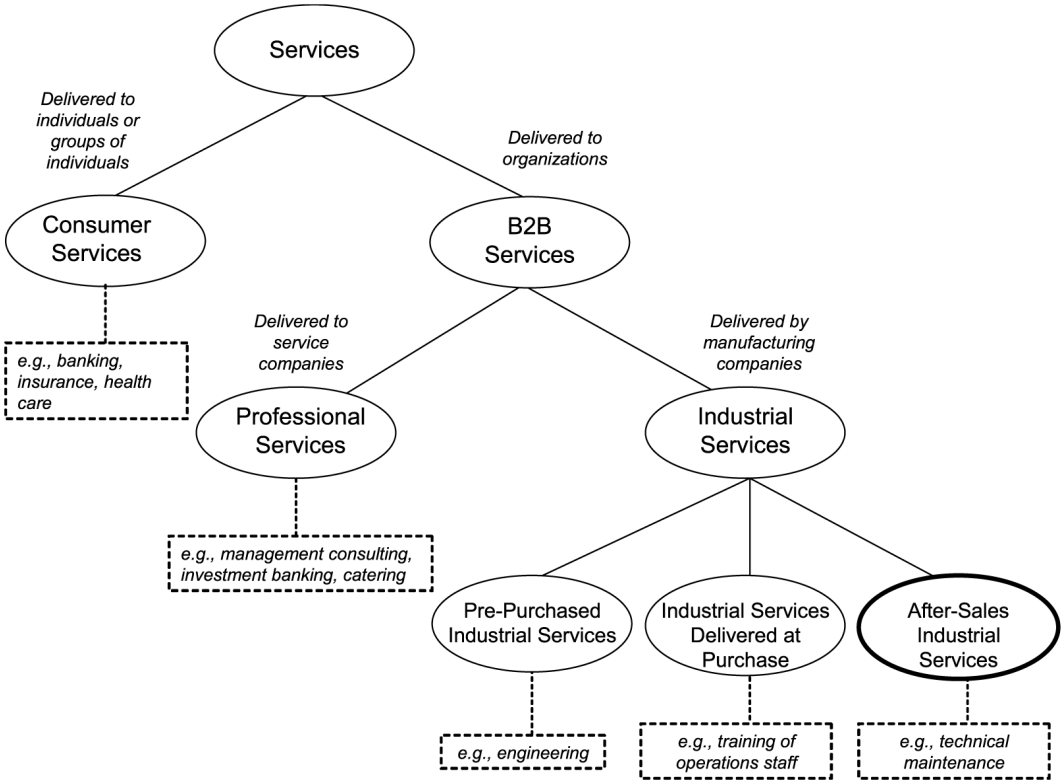

Figure 1. Taxonomy of services. (Barry & Terry 2008, 234)

2.2 Professional services

The professional services are facing a changing market environment, with increased competition and more technically savvy clients, and, as a consequence, competition has evolved to incorporate process and outcome quality, rather than simply technical quality. (Reid 2008, 374)

Professional services are often the most difficult services to define and the most immaterial ones; plans, ideas and advices. Professional services are work performances, which remain often something concrete outcome. Professional services can be seen as tasks that someone else can not do by himself but need someone else's help. Usually an expert is needed to solve client's current or futuristic problem. The expert has to help the client to choose for him a good solution in the long run and to protect with his/her expertness from potential problems in the future. The co-operation between the expert and the client begins with analyzing the present state and what needs to be done to reach the targets. (Sipilä 1992, 17-20)

Distinguishing the professional services from other services can be difficult. However, Gummesson (1981, 106) writes that there may not be one commonly accepted definition. But he finds three criteria, which help to find out if a certain service is professional service or not. These criteria are:

- Expert service provider is a person, who has a particular competence to advise and concentrate on solving problems
- Experts usually have a common identity, which represents their field of know-how. Experts are adjusted by the traditions, rules and ethics of their special field
- Experts provide the service only by the order of a client and expert's participation is confined to the limits of the assignment

A typical characteristic of professional services, which includes, for example, management and technical consulting, is that the services are innovated and delivered in ongoing close cooperation with the client. Knowledge intensiveness is another distinguishing characteristic of professional services, where knowledge has a role both as a resource and as a service sold to clients. (Smedlund 2008, 865)

In professional services, as in most services in general, the reason of the highlighted role of the client is related to the fact that the client provides

significant inputs into the production process, making the success of the service heavily reliant on client input. In most cases of professional services, innovation is carried out during the delivery of the service rather than in-house before the commercialization phase. (Sampson & Froehle 2006, 332-333)

The role of the relationship with a client is significant in the everyday operations of the professional service firm, regardless of whether the service delivered is one that has been recently discovered or is well established. Decision making process in professional services involves both parties and they try to reach a mutually agreeable solution to customer's problems. The nature of the relationship can range from a weak to a strong, internalized one that may require physical presence of the professional service firm's personnel in the operations of the client. The quality and strength of a relationship is pronounced, when the relationship is utilized actively, that is, not only as an item in a reference list to potential customers, but in ways where the reference customer is actively involved in the marketing process. A good reference relationship is such that that the supplier is enable to communicate the value of that relationship to the potential customer in a way which the potential customer can evaluate. References are especially important if the supplier is relatively unknown in the market. In this kind of situation potential customers may request an open inspection possibility of at least one or two well operating reference installations. The utilization of references has an important role in winning potential new customers and breaking ongoing competing supplier relationships. (Laing & Lian 2005, 119-120; Salminen & Möller 2006, 14-15)

Professional services are thought to require expertise, comprise credence qualities, be heterogeneous, or be critical, recommendations are considered important. It is certainly understandable that subjects would be more inclined to go to the trouble of obtaining a recommendation when the results delivered are thought to depend on the expertise of the service provider, or are not felt to be such as can be judged even after the service is performed. (Thakor & Kumar 2000, 73)

2.3 Marketing of services

Marketing of services involves two separate subtasks, which are traditional marketing and interactive marketing. These two tasks are linked together as shown in the figure 2. These subtasks tie up with the concepts company profile and the needs of market. (Gröönroos 1982, 41)

The needs on the market are the basis of marketing. Service concept, the core of company's service offer, is arisen from the needs that the company sees it can fulfill. Service offers are directed to solve the customer's problems. The profile of the company enables the whole marketing action. If there is no known and generally accepted profile, customers may not even be interested in purchasing any services. (Gröönroos 1982, 41-42)

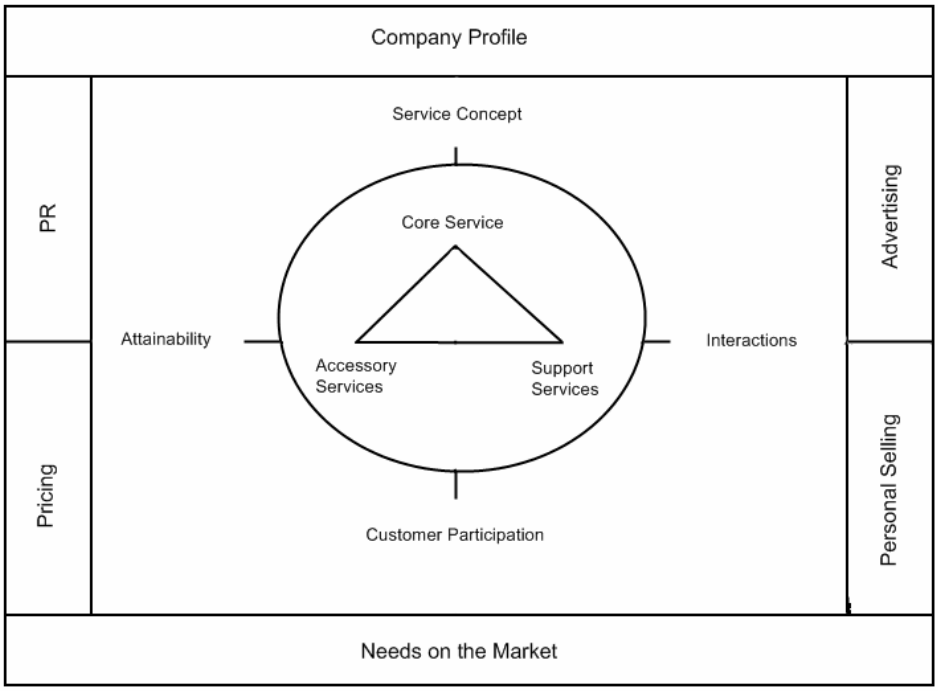

Figure 2. Marketing model for services. (Gröönroos 1982, 42)

In the figure 2 the middle field stands for interactive marketing processes, which is also the critical part of the model. The objective of the interactive marketing function is to manage the resources involved in the buyer-seller interactions and the actions here form the service offers to the customers. Outside the interactive model are the processes, which belong to traditional marketing tasks. (Gröönroos 1980, 7; Gröönroos 1982, 42)

If a service company wants its interactive marketing to be successful and managed in a market-oriented way, there must be a clear conception of the needs or wants of the target groups of consumers. The buyer-seller interactions and the resources involved can not be developed without a customer-oriented statement of the company's service concepts or service ideas. The company has to know what kinds of needs it could attempt to satisfy, the resources can be planned and used in a customer-oriented manner. (Gröönroos 1980, 9)

2.3.1 Service concept

Service concept expresses the idea what needs the company tries to fulfill, to which customer groups, with which resources and in which way. Service concept is an abstract notion, which has to be concretized to a clear offer, that customers can buy and in the consumption process to witness and estimate. A certain services offer has to be made, which defines how the service is as a product. Here it is important to remember how quality is experienced. Both the technical and practical quality has to be taken into account.

In the figure 2 the first phase is the inner triangle. Components of the basic service offer are:

1. Core service
2. Accessory services
3. Support services

Core service is the reason for a company to be on a market. Accessory services are needed so that the customer is able to use core services. Without one or more accessories the core service is not possible. Support services are added to basic service offer to make it more tempting from the customer's point of view and can make the service outstanding in comparison with the services of competitors. The service should also be made accessible to the target customers in an attractive and convenient manner, so that they will be satisfied with the way in which they can both buy and consume the service. All these components together form the basic service offer – what the customer gets. (Gröönroos 1980, 12, 14; Gröönroos 1982, 44)

After forming the basic service offer company has to create the extended service offer, how the customer feels the interactions between the buyer and service provider. The inner circle in the figure 2 lights up how basic service offer can be advanced into extended service offer. In this process there are three events, which have to be considered:

1. Attainability of the service
2. Interactions
3. Customer participation

A single customer has to be informed actively on how he can handle the future situations that come on his way. (Gröönroos 1982, 45-46) If the whole service offer is working in the way the customer wants it, the interactive marketing triangle is in control and the experienced overall quality good. (Gröönroos 1982, 46)

2.3.2 Productization of the service

The productization of the professional service can be seen as developing of work methods and processes and creating of structures in a case oriented way. Before productization the service provider has to clarify its own customer strategy.

Productization improves the efficiency in many ways. It improves the performance of the development work by giving it clear goals and gives possibilities to make the work distribution more efficient. The quality of the service improves too. The operation is systemized, the planning of the operations are specified and the customer expectations clarified. (Sipilä 1995, 16-17)

Customers recognize the productized services more apparently and it is easier for them to familiarize and to compare to other service offers. Also the pricing of the service is more effortless. What come to marketing, a productized service can be easily presented to the customers through different marketing channels than hazy service and gives more marketing possibilities for the service. (Sipilä 1995, 18-20)

2.3.3 Three-way model and continuous marketing

It is a common mistake to suppose that marketing of services ends when the purchasing has been generated. Things that happen after the purchase are more important and affect to customer's opinion on service. In the table 3 is the three-way model, which is based on the customer relationship lifespan. According to this model services marketing is continuous action which involves three separate phases and the marketing target and steps are different in every phase. Model also indicates that analyzing of the customers' need is unlike in every stage. Three-way model is a useful base for long-term competition strategy. (Gröönroos 1982, 47)

Table 3. Three-way model and long-term competition strategy.

Phase	Marketing goal	Marketing action	Need analysis
Early stage	To awake interest towards the company and its service offer	Traditional marketing triangle	Potential analysis of marketing segments
Buying process	To generate the first sale	Traditional marketing, supplemented with interactive marketing	Specifying the needs during the buying process
Consuming process	To create re-sale and long-term customer relationships	Interactive marketing operation	Observing the quality and the analysis of new needs during the consuming process

At the early stage the company tries to raise interest among its customers with the help of advertising in media, PR and personal selling efforts. External communication between the potential customers and the service provider is crucial. All the marketing efforts at this stage belong to the traditional marketing triangle. Normal marketing studies are used to clarify the potential segments. (Gröönroos 1982, 47)

When the potential customer has been interested in the service provider's offer, marketing efforts are directed to the personal needs of the customer. Here begins the next stage, buying process, where the general interest should be turned into sales. Service provider arranges meetings, which aims to clear the customer needs, the budget and finally the actual sale. A lot is depended on whether the seller recognizes the customer's needs or not. The most important marketing effort here is the personal selling, which belongs to traditional marketing and can be further support by interactive marketing actions. During the buying process the needs of the customer are specified. (Gröönroos 1980, 16; Gröönroos 1982, 48-49)

To complete the buying process successfully, service provider has to create long-term customer relationships, which happens at the last stage, consuming process. The interactive marketing function is responsible for success or failure. Marketing action is directed to interactive marketing in order to gain re-sales. Satisfied customer may use the service again. The need analysis at this stage is divided into observing the service quality and detecting new, still hidden, needs. (Gröönroos 1980, 16; Gröönroos 1982, 49)

2.3.4 The process of marketing services

There are two different sides in the marketing of professional services: keeping the current customers and gaining new ones as can be seen in the figure 3. Maintaining the customer relationships is usually based on trust formed from the earlier assignments. However, gaining new relationships is based on recommendations and the conspicuousness of the service provider. When a need is recognized by the client, he/she probably will take contact to the company, which he/she knows already. (Sipilä 1992, 39)

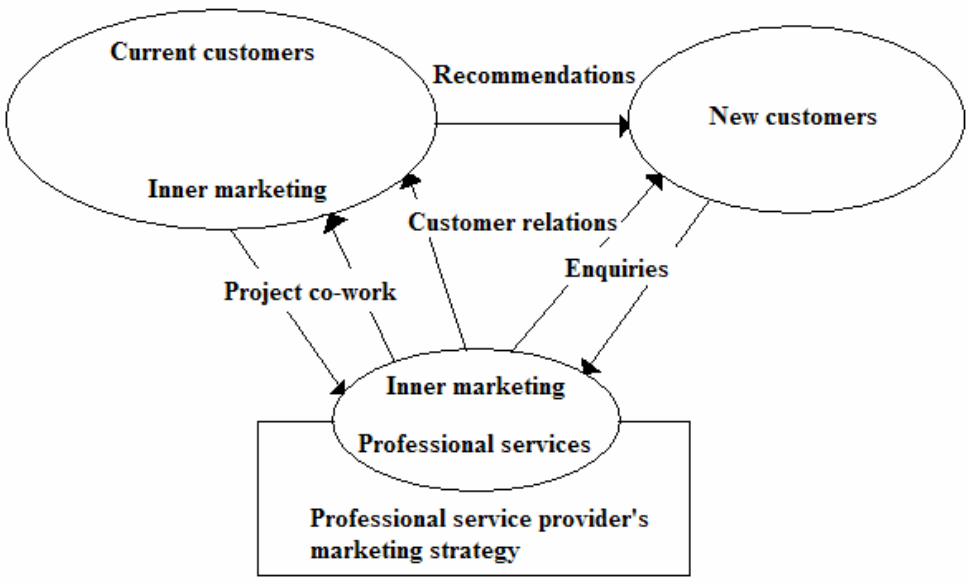

Figure 3. The process of marketing professional services. (Sipilä 1992, 40)

Professional services are usually carried out as assignments or projects. These projects can vary from ten minute's meeting to year long projects and can be performed by one or thousands of people. Marketing in these kinds of assignments is very comprehensive. Marketing is a part of all actions and happens through the well done work. During the on-going project the service provider has to ensure that the customer will rely on the same provider when he needs the same kind of services. The inner marketing during the co-operation is vital for the succeeding. Both the service provider and the client have to guide their own personnel to act as the marketing strategy directs. (Sipilä 1992, 40-41)

Sipilä (1992, 42, 238-239) states that the primary way to get new customers is through the contacts from earlier customers, references and selling by recommendations. A well-done job is a reference and former clients can be used in the marketing work. They can be interviewed in their own information newsletters and be asked to tell about the implemented projects. Conspicuousness is important for the service providers who want new customers. It can be added but it is often a sum of many factors. Most suitable ways to increase conspicuousness are:

- Earlier tasks
- Committing to tasks that break the news threshold
- Doing work for those who have a vide relationship network
- Newsletters, articles, books

2.3.5 ABC customer selection

The selecting of customers can be done according to the table 4 shown below after selecting the criteria for every group. Then the groups are divided according to these criteria. (Sipilä 1998, 25)

Table 4. ABC customer selection.

Customer groups	Criteria	Customers in the group
A group	Strategically important	
	Solvent	
	Constant demand	
B group	Solvent	
	At times projects	
C group	Time-to-time buyers	
X group	Profitless	

Dividing the customers into different groups helps the service provider in the customer service tasks in practice and saves time. The marketing of professional services has to be very ambitious and goal-oriented. (Sipilä 1998, 26)

After the selection of customers it is time to create marketing plans for each of the groups individually. The essential marketing measure is so well done work that the customer is willing to use the service again in the future and a reference is done for possible usage in the future marketing. The goal is that customers act as sellers and gain new customers. (Sipilä 1998, 27-29)

The marketing of professional services is relationship marketing. The reference network of customers and good relationships are vital. In a selling event it is difficult for a service provider to proclaim himself as an expert. That is why cross-selling is more efficient and plausible than direct selling. (Sipilä 1998, 29-30)

The productization of the service helps gaining new customer relationships and clear pricing system supports the company's truthful image. In a continuous customer relationship the good project management and the ideas presented to the customer initiatively are stressed. The common planning and development work with the customer is the most effective marketing at its best. (Sipilä 1998, 30)

2.4 Pricing of professional services

The pricing of services has two major challenges according to Docters (2004, 23):

- The intangible nature of services, which means companies face a more variable set of customer demands
- The high likelihood of the services being irreplaceable, with the cost of failure going beyond the price of service

Price has an influence on the customer's opinion of the value of the service. It also affects to customer's choice between different services and is usually the only concrete thing, which the customer can estimate before purchasing the service. The right price is important in services because of their intangibility. The invisibility of services makes that which is visible even more important to customer's purchasing decisions. Price is a visible indicator of a service's level and quality. (Berry & Parasuraman 1991, 101-102; Ojasalo 2008, 74)

The expectations and experiences of the customers form the basis for the service provider to plan its service level and the pricing. When the sales person knows the customers expectations, he can plan the marketing so that the company separates from the competitors and gives the customer extra value. (Gröönroos & Järvinen 2000, 42)

2.4.1 Pricing strategy

Pricing strategy can be described as a tripod, as shown in figure 4, with the three lower boxes representing costs, competition and value to the customer.

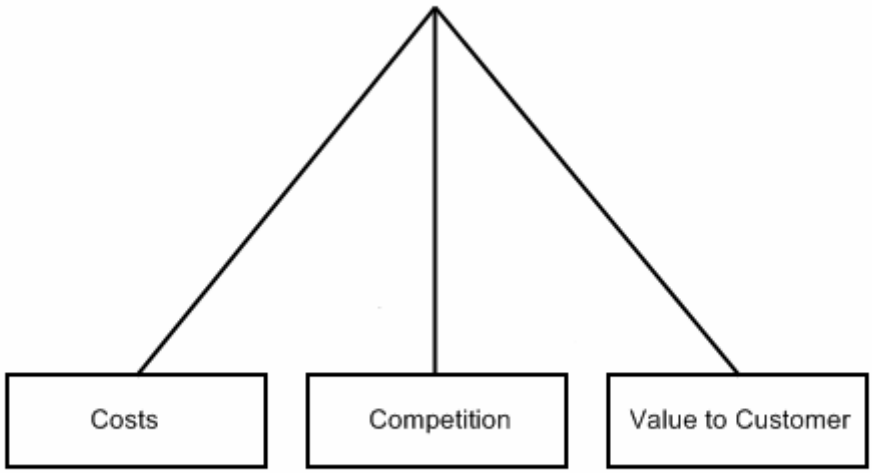

Figure 4. The pricing tripod. (Lovelock 1996, 362)

The costs to be recovered set a floor to use the price that may be charged for a specific service, the value of the product to the customer sets the ceiling, whereas the price charged by competitors with similar services offered, sets the actual price level. (Lovelock 1996, 362)

The pricing strategy includes many different factors. The most important ones are linked to the positioning of the offering at the markets. The pricing strategy can not be planned efficiently without studying the benefits of the service to the customers, also called the overall quality experienced by the customer. The price and quality of the competitors' offerings also influences the pricing strategy. (Ojasalo 2008, 97) The price-quality strategies are illustrated in the figure 5.

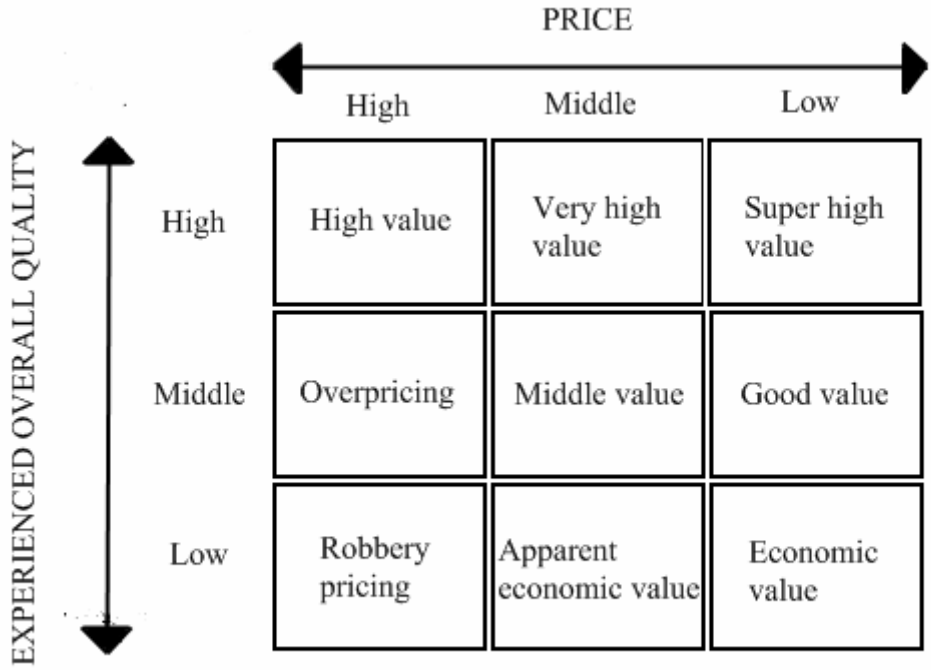

Figure 5. Price-Quality Strategies. (Ojasalo 2008, 98)

For the each pricing strategy situated at the diagonal axle (High value, Middle value and Economic value) there can be one or more companies at the market. Against these strategies the competing company can attack with the strategies situated on the right in the table (Super high value, Very high value, Good value). The strategies situated on the left side (Overpricing, Apparent economic value, Robbery pricing) are called overpricing strategies and using these may cause customer complains. (Ojasalo 2008, 97)

2.4.2 Choosing the right price

The basis for the pricing strategy of professional services is in the goals of the service provider. The service provider himself has to have a clear vision of the pricing criteria, because it increases the confidence in the selling situation. The productization of the service gives an opportunity for services' product prices and

clarifies the promises made to the customer about the service. The former references help to clarify the customer benefits to the client and customers with a high reference value or an ability to provide access to other actors or markets should be given special attention. References have a significant function in all major growth strategies of the firm. They facilitate the marketing of new complex products to present customers, and help in winning new customers in present markets. The need for references is especially high in companies which try to enter new markets where they do not have an established reputation. All kind of statistics and research outcomes about improving results and benefits help to convince the customer, too. (Jalkala & Salminen 2008, 3; Sipilä 1998, 88)

Controlling of the pricing strategy is constant expert knowledge for the service provider which ensures that for each and every customer can be given the right price, depending on the current situation. Showing the pricing strategy to the customer increases reliability as such. (Sipilä 1998, 83)

One efficient way to sell the service is the gap-model. The customer may not know accurately what the benefits of the service offered are. In order to clarify the situation a seminar is arranged to educate the customer about the possibilities. The goal of this seminar is to conduct a present state analyze, where the gap between the present state and the possibilities is gathered up by the service offered. (Sipilä 1998, 89)

2.4.3 Price as an indicator of service quality

Customers are likely to use price as an indicator of both service costs and service quality. The price is an attraction variable and repellent. Customers' use the price as an indicator of quality depends on several factors, one of which is the other information available to them. When service cues, such as brand name, company's reputation, to quality are easily accessible, customers may prefer to use those cues instead of price. In other situations, when quality is hard to detect or when quality or price varies a great deal, customers may believe that price is

the best indicator of quality. Another factor that increases the dependence on price a quality indicator is the risk of purchasing the service. (Zeitham. & Bitner 1996, 490-491)

3 CREATING A MARKETING PLAN FOR SERVICES

Developing a marketing plan for services involves two tasks: selecting the target market in which the enterprise is to operate and to develop a marketing mix for each target market selected. Marketing plan begins with the analyses of the current market and environment situation and continues with company's inner analyses. These analyses can be divided into exterior and interior analyses, which attempt to answer following factors (Cowell 1984, 59; Sipilä 1992, 87-88):

- Markets
- Alteration factors affecting the branch of business
- Success factors of the branch of business
- Competitor analyze
- Summary: threats and possibilities

After the analyses the building of a marketing strategy continues with choosing the competitive factors and the strategy for customer relationship marketing. According to Sipilä (1992, 48) professional service provider's marketing strategy consists of choosing the suitable mix of following competitive factors:

1. Customer population
2. Conspicuousness and the company image
3. The technical and functional quality of the service
4. The versatility of the service offer
5. Price competitiveness

Each of these competitive factors can be given a different value according to the significance that the factor has in the business area the company operates. After that the company assesses itself and the major competitors relating to these factors. (Sipilä 1992, 49)

According to Sipilä (1992, 75-76) a professional service provider can choose from three different strategies to handle its customer relationship marketing:

- Contact marketing
- Project marketing
- Customer satisfaction marketing

Contact marketer aims to maximize the profit of a single act of a customer. Contact marketer does not care about the continuity of the relationship between the customer and the provider. This strategy can be good if the provider has a vide amount of customer contacts, if the customer needs the service casually and if there are no major competitors at the market.

The project marketer is interested in only certain sized of projects. When the project is over the customer is forgotten until the time the customer has a new project to offer. The project marketer chooses the best customers from the market. (Sipilä 1992, 77)

If the service provider chooses the customer satisfaction marketing strategy it aims to create long-lasting and profitable customer relationships. According to this strategy the service provider cares not only his profitability but also the customer's. (Sipilä 1992, 77)

Sipilä (1992, 91-92) states that after the service provider has chosen the suitable competitive factors and customer relationship marketing strategy it starts to define its marketing strategy. The main points of the strategy are:

1. Summary of the basis of the marketing strategy
    - Markets, potential customers, competition situation

2. The base line of the marketing strategy
    - Choosing the target groups, quantitative and qualitative goals

3. Implementation of the strategy

3.1 Service communication

Communications are a form of evidence about the service offered. These communications come from company itself and from other interested parties and are delivered in a variety of media and convey much about the service – for better or worse. From billing statements to advertising, from customer word-of-mouth communications to company signage, from membership cards to personal selling – all these various communications send clues about the service, either the right or wrong ones. Service companies that effectively want to manage communications make both the service and the message they sent more tangible. (Berry & Parasuraman 1991, 98)

The aim of service communication is to persuade the customer why he should choose just the service provider's offer, not the competitor's one. The goals of the service communication are the increasing of conspicuousness of the company, affecting to customers' attitudes and to get sales. The first phase to start service communication is to define the target customers, the message that the service provider wants the potential customers to know and after that some numeric targets that the communication should fulfill. The message should be well formed, and differentiate enough from the competitors' ones. The message also has to be understood correctly by the target groups. (Lahtinen & Isoviita 1994, 3-5)

Cowell (1984, 162) states that professional service communication can include the following channel possibilities:

- Advertising
- Personal selling
- Conspicuousness in publicity
- Sales promotion

Using of many channels in the same time gains better results. Even though the communication is planned well, there may be some disturbing factors, one of them being the competitors. Service providers have to remember that the communication is always two-way, the sender of the message gets feedback in return, even that the sender gets no answer is feedback, it means that the message did not reach the target. (Lahtinen & Isoviita 1994, 6)

3.1.1 Advertising

The main role of advertising of services is to inform, persuade, or remind consumers about the service being offered. Consumers cannot be expected to use a service they do not know about; therefore the primary objective of the promotion is to create consumer awareness. (Hoffmann & Bateson 1997, 184)

According to Mortimer (2001, 133-134) the advertising in services marketing has six roles, which are as follows:

- To make the service more tangible by showing physical evidence and using concrete language
- To encourage word-of-mouth communication.
- To present the customer provider and the customer in the advertisements
- To document the level of service being provided
- To show the service encounter
- To build a strong brand image

The nature of advertising is that the advertiser itself tells the things it wants to the customers. This has a conflict against the nature of a professional service provider, one can not define it as a professional but the expertness has to be earned. That is why all the advertising that is not produced by the service provider itself is effective. (Sipilä 1992, 364)

The best way to exploit advertising is to increase conspicuousness. This can be an advertisement in the local news paper, which only shows the logo and a simple idea which aims to create attention. Advertising may not be an efficient way to increase plausibility and trustworthy, which are the most important goals in advertising professional services. This is because the advertisement should have references and examples, which can be confidential. The amount of information can increase to a great dimension, which can lead to that it is easier to make a company brochure rather than an advertisement. (Sipilä 1992, 364-369)

3.1.2 Personal selling

The success in personal selling depends on the interaction between the service provider and the customer. The person responsible for the personal selling has to have vide general knowledge, good knowledge of his own branch, communication skills, the right attitude and activity to appeal to people. (Oikkonen 1992, 68)

In the beginning of the personal selling situation the seller has to find out, what are the customer's needs. Questions have to be literal and the customer has to have the opportunity to answer inclusive rather than just yes or no. This way the potential customer also tells not only about his needs but also about the hopes and attitudes. After the discussion the seller can perform a solution for customer's problem and the acts that needs to be done. (Korkeamäki 2000, 34)

3.1.3 Conspicuousness in publicity

The conspicuousness in publicity comes about through long time practice in the business, well-known works and presenting in public. The service company can affect by its own actions to its conspicuousness: by flyers, articles, books, expert opinions and through the contacts it has. Even the company's customers affect: do they recommend the company forward or not. (Sipilä 1992, 321-322)

3.1.4 Sales promotion

Participating to the exhibitions is a part of sales promotion. Exhibitions can be arranged to company's customers, retail sellers or to consumer markets. The participating asks the service provider careful planning and preparation. Before participating the provider has to consider whether the exhibition is suitable for company or not. The former amount of visitors, prices and other exhibitors has to be found out. A specified goal, whether it is getting new customers or to present the service offered, has to be set also. (Bergström & Leppänen 2001, 309)

A lot of time is needed for the planning of the exhibit section. The section should be appealing, original and the company's message to the customers clear. Drawing people to the section and getting attention may request some kind of startling thing. Both the presenter and the presenting material have to updated and ready to answer customers questions. All the people who visited the section are listed to be used in the marketing in the future. (Bergström & Leppänen 2001, 310-311)

3.2 Managing word-of-mouth communication

Word-of-mouth is important to the services marketers'. Word-of-mouth refers to a phenomenon where customers informally communicate with each other about a supplier and its products and performance. Consumers tend to rely on word-of-mouth to reduce the level of risk and the uncertainty that are often associated when purchasing a service rather than advertising. Because of this the service marketers should make an effort to identify the process how customers gather information about services and place their offerings in the path of consumers seeking information. It is important that the firms systematically gather information from new clients about the sources of information they used when selecting the firm. (Jalkala & Salminen 2008, 2; Kotler & Keller 2006, 404-405, Mangold et al. 1999, 73-74)

In addition to these efforts, the service company should position itself in the obvious path of potential customers who are seeking information. This effort may involve sponsoring, participating in seminars, workshops and community events related to the service provider's offering and advertising in local newspapers. (Mangold et al. 1999, 81-82)

4 QUALITY AND CUSTOMER EXPECTATIONS

The quality of a service is complicated in nature. This is because the consumer of a service can and will evaluate a vast amount of different resources and activities in connection with the production resources and the production process when forming his opinion of the service. There is also a thin line between customer satisfaction and the quality experienced by the customer. Customer satisfaction is a wider concept and the experienced quality is an element of satisfaction. Besides quality, there are other factors influencing the satisfactions, such as price and situation and personal factors. Customer satisfaction is seen as one of the most important factors indicating company's future. (Gröönroos 1980, 6; Ojasalo 2008, 252-254)

Usually, when customers are satisfied with the quality of service received from a particular firm, there is a strong probability that they will also use the same company for other services. There can be seen a relationship between service quality, client satisfaction and client loyalty. The figure 6 illustrates the following basic sequence: service quality leads to client satisfaction, which in turn leads to client loyalty. (Ismail et al., 2006, 739-742)

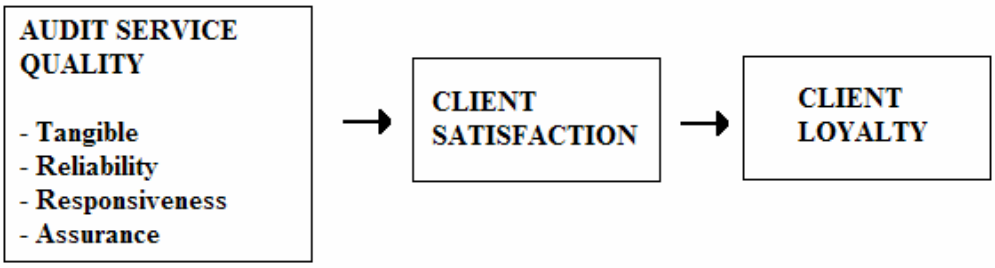

Figure 6. Audit Service Quality. (Ismail et al., 2006, 742)

Service quality involves four different factors, first being tangibles. It is the physical appearance of the firm, inclusive of the available facilities. Reliability is the ability of the employees of the audit firm staff to perform the promised service timely and accurately. Responsiveness is the willingness of the employees of the audit firm staff to assist clients and provide prompt service and last the assurance is the ability to convey trust and confidence. (Ismail et al., 2006, 745)

Also customer references can be regarded as surrogate measures for the quality of the service. The service supplier should utilize references to signal service quality to potential customers. These customers can utilize references further as operationalized evidence in verifying a particular supplier's earlier or present performance. References are a signal to service quality. (Salminen & Möller 2006, 20)

4.1 The experienced service quality

Quality is good, when the experienced quality fulfills the customer's expectations, which is also known as anticipated quality. If the expectations are unrealistic, the experienced overall quality is low, even though the quality is good measured by some objective way. As the figure 7 shows, the experienced quality depends on many factors, such as marketing communication, mouth-to-mouth communication, company's imago and the needs of the customer. Marketing communication can be monitored directly, others only indirectly. These factors can be affected from the outside, too, but primarily they depend on the company's previous success. (Gröönroos 2000, 104-105)

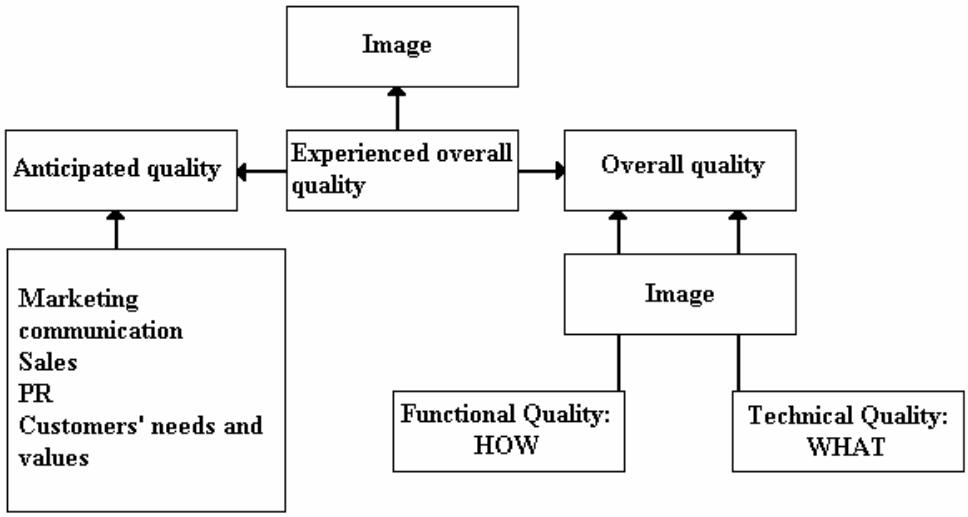

Figure 7. The Experienced Overall Quality. (Gröönroos 2000, 105)

The experienced overall quality model indicates that customers' needs have an influence on their anticipated quality experiences. If the service provider promises too much, the customer may disappoint, if the experienced quality does not match with the received one. Rather than empty promises, companies should surprise their customers, which may in the long run promote customer loyalty. Better to promise little and offer more than promised. (Gröönroos 2000, 106)

The experienced service quality has two dimensions: technical and practical, what and how. Technical dimension means that customers acknowledge the result of the interaction between the provider, and this has a huge effect when criticizing the experienced service. Technical dimension is basically the solution for customer's need. Because there are many interaction situations between the customer and client, successful and unsuccessful, the technical dimension does not contain all the experiences of the quality. The way the service or the result is delivered to the customer and how the client experiences the service process, is also important. This is the second dimension of the quality. (Gröönroos 2000, 100-101)

The company imago means the illusion of the customers about the company: its actions, services and customers. The imago allows the client to "see" the

company's resources and operations. The illusion of a service provider is formed from word-of-mouth communication, customer's own expectations and experiences and through the marketing efforts. (Kinnunen 2003, 8)

4.2 Managing the quality of services

The quality of the service provided is tested at each service encounter. Clients form service expectations from past experiences, word-of-mouth and advertising. The perceived service is set against the experienced service, if the perceived meets the expectations, the customer may use the provider afterwards. Successful companies add benefits to their service that not only satisfy customers but surprise and delight them. Delighting customers is a matter of exceeding expectations. (Kotler 2003, 455)

When planning the interactive marketing function of the service firm, all quality components must be recognized. Otherwise the resources may be developed only in order to guarantee good technical quality. This may lead to production-oriented operations and dissatisfied customers. It is relatively easy to develop good technical quality, but transferring the undifferentiated technical quality may be difficult to duplicate. In such situations an outstanding functional quality can be a successful way to differentiate the service offering. (Gröönroos 1980, 7)

In order to control the customer satisfaction service provider companies conduct customer satisfaction surveys semi-annually. However, the results of these surveys are usually limited to the opinions of the persons who are supposed to be the key decision-makers. This may lead to a narrow approach and does not tell the overall customer satisfaction opinion. To correct this situation these surveys should be sent to all of the persons who are involved with the service provider. (Tikkanen et al. 2000, 376)

5 METHODOLOGY

This chapter introduces the methodology that was used in this study. After the methodology the theoretical foundation of the thesis and the source of data are introduced and the last chapter explains the basic information about the survey questionnaire.

The study in question represents a quantitative study, which is defined by Alasuutari (1995, 34) as an analysis where the researcher arguments the connections between numbers. The primary and only method used in this thesis was quantitative survey questionnaire.

The overall research process at large can be found in table 5. The research began by finding out information about energy surveys and the current marketing situation in Finland. After familiarising with the subject of the thesis the actual collection of theory started. The theory is the basis for the empiric section and the results from the survey questionnaire accomplish it. Because not all the information from different sources is usable, only different books and articles were used in the thesis as a reference. Some internet pages were used too, but mainly in the company presentations.

The first theory chapter explains some basic theory about services and their characteristics the main attention being in the professional services. It also aims to find out how services can and should be marketed, which helps to answer the first research question about how LUT Energy services could be marketed. The first question is founded on the theoretical framework of Gröönroos and Sipilä. Sub-chapters about pricing try to find out how the pricing of the case company's service should be done. The main foundation of the theory for the second research question is Ojasalo's and Sipilä's books. After the pricing section comes the theory part about creating a marketing plan for services. The main foundation of theory here is Sipilä's books and it also tries to find out answer to the first

research question. “The quality of the service and customer expectations towards services” - chapter aims to conclude the third research question, foundation of theory being in Gröönroos’ book of services and customer relationships from the year 2000.

When the theory part was tolerantly ready it was time to start preparing the survey questionnaire, which had to be done properly, so that the answers would best possible way help to answer the research questions. When the survey questionnaire was conducted, it was opened for the companies to answer. When the answering time was over, began the analysing of the results. After that the results of the survey questionnaire were presented in the empirical chapter six. After this the three research questions were answered, which was the phase nine in the research process and the implications for the case company were done. The last phase ten was to evaluate the study and make suggestions for the future research.

Table 5. The stages of the research process

1. Familiarizing with the topic and the objectives
2. Literature review
3. Formation of the theoretical foundation
4. Preparing of the survey questionnaire
5. Opening the survey questionnaire for the target group
6. Closing the survey questionnaire
7. Analysing of the results of the survey questionnaire
8. Presenting the results of the survey questionnaire
9. Answering to the research questions and giving implications for the company based on the results of the survey questionnaire
10. Evaluating the study and making suggestions for the future research

5.1 Source of data

When the theoretical foundation for thesis was done, began the collection of data. Primary data used in the thesis were the answers of the companies and the

secondary data was previous researches about energy efficiency, articles and presentations.

The source of primary data was the target companies' opinions about energy audit services. The criteria for choosing the target companies for the questionnaire were that the company should locate in the South Karelia or Kymenlaakso County and have more than five employees. Also the point was to choose companies among the industrial branches, from private and public sectors.

Companies were searched from the South Karelia business register, which is the common basic register of the Regional Council of South Karelia and the municipalities of South Karelia. It contains information about the businesses and public units operating in the region. The register is maintained by the Regional Council of South Karelia, and it contains the information for more than 7,000 units. (The South Karelia business register 2009) The companies from Kymenlaakso County were searched through different company search engines (such as: 020202, www.yritysrekisteri.com) via internet.

In the end totally 56 companies were selected; thirteen from Kymenlaakso and 43 from South Karelia region, whom the e-mail was sent. Altogether 47 of them answered before the deadline and the overall response rate was 84. The complete list with branches and regions of the 56 companies can be found from the Appendix 4.

The collection of data for the thesis was made by sending an e-mail to the companies, which was written in Finnish and it consisted of a covering letter which includes a little information about the energy audits offered by LUT Energy, and a link to questionnaire. The covering letter can be found from the Appendix 2 and the questionnaire from the Appendix 3. In order to get better answering results LUT Energy offered a free energy audit for one of the respondents, which was allotted among the respondents.

5.2 Research method

One method to collect data is a questionnaire. It is also known as survey-questionnaire because the data is collected standardized. Standardized way means that the same questions have to be asked from all the respondents in a same way. Survey-questionnaires advantages are that you can collect a vide research material, there are many people involved in the research and a lot of things can be asked. It is efficient and saves the researcher's time and effort. The well-prepared questionnaire can be analyzed easily by computer. (Hirsijärvi et al. 1997, 182-183)

A survey-questionnaire is a system for collecting information from or about people to compare, describe or explain their knowledge, attitudes and behavior. Questions in the survey enquiry are usually arranged into mailed or self-administered questionnaires or into instruments used by interviewers. Surveys are used to gather information for use in research and evaluation studies and in planning programs and setting policy in health, education, business, and government. The selection and wording of questions are influenced by the survey's context: who asks the questions, how they are asked and who answers them. (Fink 2003, 1-3)

Survey questions should be written so that they encompass the data needed, but they must be formulated so that respondents can answer them easily, too. The respondents must also have sufficient knowledge to answer the questions asked. Questions take one of two primary forms. When respondents are required to use their own words in answering, they are open or open-ended. When the answers are pre-selected for the respondent to choose from, they are closed or closed-ended. The responses to open questions may be difficult to compare and interpret. Closed-ended questions produce standardized data that can be analyzed statistically, but these questions are more difficult to write than open questions because enquirer needs to know the possible answers, or response choices, in advance. Using of readily made answering options also minimizes the

respondents' efforts and the dealing of answers is faster. (Holopainen & Pulkkinen 2002, 39; Fink 2003, 14, 35-37)

In addition to deciding of the question types, the researcher has also to think about the order and formation of the questions; do we want facts or opinions as answers. A good question means the same for all the respondents, and does not have any room for misunderstandings or have hazy words. It is no use to ask questions the respondents can not answer, this may frustrate the respondent and he/she may leave the filling of the questionnaire. The researcher also has to consider whether the questionnaire is secret or not, confidence is utmost important. (Plumb & Spyridakis 1992, 630–634; Murphy 2002, 102–105)

A covering letter is also an important part of the questionnaire. In the letter the object of the study and the actions towards anonymity of confidence are introduced. There are also advices for answering and how the respondent can find out the results. The covering letter also ensures the respondent of his/her importance to participate to the research and the respondent is thanked in the end. (Plumb & Spyridakis 1992, 629–630)

The aim of the questionnaire was to find out companies' opinions about their energy efficiency activities in the past, nowadays and in the future, their company's energy saving possibilities and if they were willing to purchase an energy audit service from LUT Energy. The questionnaire was made in Finnish and it consisted of eleven closed-end questions. The questionnaire was constructed by Webropol, which is a service specialized to Internet questionnaires. (Webropol, 2009) Also all the tables of results were made by the program automatically.

Heikkilä (1999, 68) states that one should use internet based surveys only then when all the respondents has a chance and a possibility to use internet. Using a web-survey questionnaire has many benefits. Www-questionnaire enables more complicated and interactive questions and anonymous answers and it can reach a

great amount of respondents for minimum costs. The responses can easily be moved and edited in a statistics program. (Alaterä 2004, 6-7)

The answering time for the survey-questionnaire was four week from mid April to mid May and after that the questionnaire was closed. Because the amount of respondents was relatively low (56), all of them was selected as a sample and so this research is a census. According to Heikkilä (1999, 32) a census can be made, if the number of units is small, under one hundred.

5.3 Criteria for evaluating the study

Evaluation of the study can be divided into two parts: validity and reliability. The reliability of the study means how many same like answers can be collected from the respondents by the questionnaire. This can be measured by asking the same question twice (Heikkilä 1999, 179), for example. Then the answers are compared whether they are same like or not. However, this way the answering may take longer time and the number of answers may drop. That is why the researcher has to consider which is more important to the study, the evaluating of the reliability or the number of the answers for the study. (Plumb & Spyridakis 1992, 635) Hirsijärvi et al. (1997, 184) also criticizes the survey questionnaire that it some weak points. The respondents may not look the research seriously and the researcher does not know if the respondents have answered honestly. The researcher may also not know how well the respondents know the field being researched and how well-formed the given answers are. It is hard to control miss-understandings.

Validity means that how well the questionnaire measures the things that it was planned to measure. Cheating and deficient answers affect to the validity. The forming of the questions also has an effect and it can be prevented by conducting a pilot questionnaire before the actual questionnaire. (Plumb & Spyridakis 1992, 635) Besides reliability and validity it is often useful to evaluate the overall success of the questionnaire. No questionnaire is perfect, and the evaluating of the

good and the bad points helps to plan further studies. (Plumb & Spyridakis 1992, 636) According to Heikkilä (1999, 178) the validity of survey questionnaires is affected by how successful the questions are meaning can the answers to the research problem be found.

6 CASE LUT ENERGY AND ABB

This chapter introduces the case company, LUT Energy and ABB. These two organizations link together in a way that the auditing projects that LUT Energy offers are financed by ABB, while LUT Energy does the actual energy auditing work. Students apply for an auditing workplace at LUT Energy and they do the auditions for the customers as their bachelor's thesis. Afterwards the results will be reported to ABB. After each audit project ABB is willing to make an offer for an energy saving equipment in order to improve energy efficiency, if the client so decides. In the latter chapter the current service concept of LUT Energy is clarified.

6.1 LUT Energy and The Carelian Drives and Motor Centre

LUT Energy of Lappeenranta University of Technology is the largest research and education organization in the energy sector in Finland. With over 160 experts, the organization masters the whole energy chain from energy sources to end use: fuels, energy generation technologies, electric power systems and markets, energy use and production processes. The faculty aims to find environmentally friendly, energy-efficient solutions to all these calls for wide-ranging research. The faculty's research activities have laid a foundation for multiple successful products and new entrepreneurship. A strong signal of our expertise is also dozens of issued patents. Annually, about 120 Masters of Science (Technology) and ten doctors graduate from LUT in energy-related fields; they find their employment in versatile fields and industries from universities to enterprises. There is an abundance of employment opportunities and challenges for new energy experts in the field. (LUT Energy_A, 2009)

The Carelian Drives and Motor Centre (CDMC) was established in 1998 and is a joint venture of the laboratory of Electrical Engineering at Lappeenranta

University of Technology and ABB. The centre focuses on long-standing, high-level research and development involving electrical motors and drives. CDMC initiates and implements new ideas and research topics and applies its research results to product development and production at ABB. During its ten-year history, the centre has refined a number of Ampère's, Faraday's, Lenze's, Maxwell's and Lorentz's theories into success stories on the global market of energy efficient electrical machines. (LUT Energy_B, 2009)

The Carelian Drives and Motor Centre, liaison with ABB, offers tools to improve energy efficiency for various kinds of industrial and municipal energy users. The center performs in co-operation with researchers and students customized energy audits for different energy consumption targets. The meaning of these audits is to offer a budget way to examine energy consumption for dissimilar industry processes, such as pumping or the electricity usage of properties.

6.2 ABB

ABB is a global leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. Turnover in 2008 was about 35 MUSD. Company has about 120,000 employees and it operates in more than 100 countries and has offices in 87 of those countries to give its global and local customers the support they need to develop and conduct their business successfully. (ABB_A, 2009)

Technology plays a key role for ABB. Company has activities all over the world working to develop unique technologies that make their global customers more competitive, while minimizing environmental impact. (ABB_B, 2009)

ABB's businesses consist of: (ABB_C, 2009)

- Power products

- Power systems
- Automation products
- Process automation
- Robotics

With its technology leadership, global presence, application knowledge and local expertise, company offers products, systems, solutions and services that allow customers to improve their operations – whether they need to increase the reliability of a power grid or raise productivity in a factory. Focusing on its core strengths in power and automation technologies, company strives for organic profitable growth. The global manufacturing base ensures consistent top-quality products and systems – made in ABB – for customers around the world. (ABB_D, 2009)

ABB's mission is:

- Improve performance
- Drive innovation
- Attract talent
- Act responsibly

As one of the world’s leading engineering companies, it helps customers to use electrical power efficiently, to increase industrial productivity and to lower environmental impact in a sustainable way. (ABB_E, 2009)

In the table 6 can be seen the key figures for Q2 2009 of ABB group (ABB_G, 2009).

Table 6. 2009 Q2 key figures (ABB_G, 2009)

	Q2 09	Q2 08	Change	
US millions dollars unless otherwise indicated			US dollars	Local
Orders	7,309	11,271	-35%	-27%
Order backlog (end June)	25,913	29,127		-1%
Revenues	7,915	9,025	-11%	-2%
EBIT	1,047	1,449	-12%	
as % of revenues	13,2%	16,1%	-28%	
Net income	675	975		
Basic net income per share (dollars)	0,30	0,43	-31%	
Cash flow from operating activities	1,067	978		

6.3 Service offered by LUT Energy

Energy audit service by LUT Energy is a type of professional service offered to industrial and municipal sectors. The case company offers energy survey services, which aim is to perform an energy consumption examination and to help to reduce and to make client's energy usage more efficient. Current situation is that the examination is made by University students as their bachelor's degree. These students, who usually are in their third or fourth semester, should have all the required knowledge to conduct an energy consumption calculation professionally. Energy surveys which are done as bachelor's thesis take three to six month's time, depending on the scale and the size of the energy survey target. Other type of service offered is done by students as their master's thesis. This service is more extensive one and may require more time than the energy survey done as bachelor's thesis. There is also a coordinator, who works full-time at LUT Energy, to control and guide the students in their bachelor's and master's work.

The procedure of the auditing service is that both the guiding person and the student meet the customer and then in close co-operation discuss about the client's present state is and what are the main problems and requests from the customer's

opinion. Then the decision of the examination targets is made. Usually the targets are of that kind that it has benefits the customer in the long run. The client's knowledge about energy efficiency varies a great deal, some may know a lot from possible saving targets and some do not know anything. That is why the know-how of both the guiding person and the student is crucial.

The auditing process continues with the actual measurement and after this the student does the calculations and conclusions needed. In the auditing process the current energy consumption is clarified and actions to save energy are presented. Repayment period and profitability calculation will be calculated for the investment, which optimizes the energy efficiency. Also the possible CO_2 emissions reduction is counted. A report from the results of the process is presented after auditing to the customer, and then he can decide, whether to utilize the information in practice or not. The results are also reported to ABB, which can use the auditing results in its sales. This means that ABB may send offers about energy efficiency equipments, such as frequency converters, to the audited company.

The actual energy auditing process can be divided into 6 work phases (Aranto 2008, 5):

1. Start-up meeting
2. Collecting basic data
3. Field work
4. Analysis of the data
5. Reporting
6. Presenting the results
7. Implementation of the saving measures

Good and wide source information about the target's operation, the machines energy usage, the overall energy and water usage and the earlier possible surveys all help to conduct an energy survey. The sufficient amount of data and sometimes

additional field work is the basis of energy survey. Interviews and measurements highlight the targets that could be made more effective.

The co-operation between LUT Energy and the client is important. The student and the customer discuss regularly during the auditing process and several meetings are arranged. By participating and committing itself to the auditing the customer receives a successful report with good results. Interviews and measurements give valuable information also to the company, not only for the surveyor.

The meaning of the energy audit is not to be only an individual project, but to become a useful tool and source of information, which can be later exploited and supplemented when needed. Auditing process encourages company's authorities to continuous work in order to save energy and cost and co-operation between energy saving experts and to improve customers' monitoring of energy consuming.

7 RESULTS AND ANALYSES

This chapter presents the results of the survey questionnaire as bar graphs and analyses of these results. The analyses involve the reforming of the LUT Energy service concept, three-way marketing and the ABC customer selection model for the case company. The analyses also try to find out how the pricing of the case company's services could be done and how marketing plan can be created. Finally the analyses chapter clarifies how the quality and customer expectations towards LUT Energy's services can be managed.

In the first chapter 7.1 every survey questionnaire's question is gone through in the same order as seen in the Appendix 3.

7.1 Results of the survey questionnaire

Question 1: At what company stage the decisions concerning energy savings are made in your company?

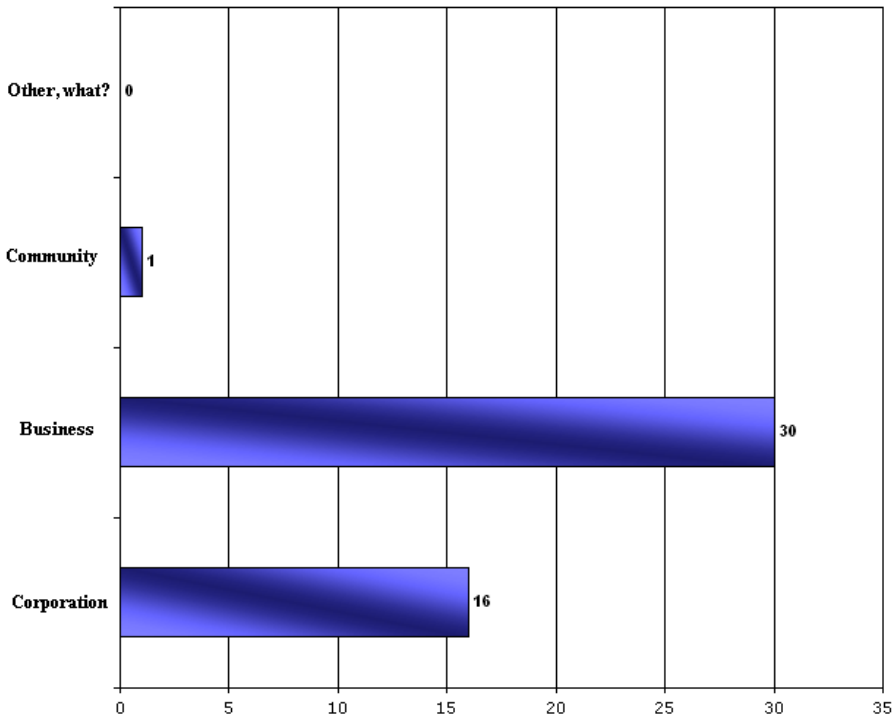

Figure 8. Companies' decision making stage concerning energy savings

The total amount of answers for question one was 47. Thirty of the answerers (63,8%) said that decisions concerning their energy savings are made at the place of business stage, sixteen (34%) of them replied that the decisions are made at the corporation stage and one (2,1%) of the respondents stated that decisions are made by the community.

Question 2: How big energy saving potential there is in your company according to your estimations?

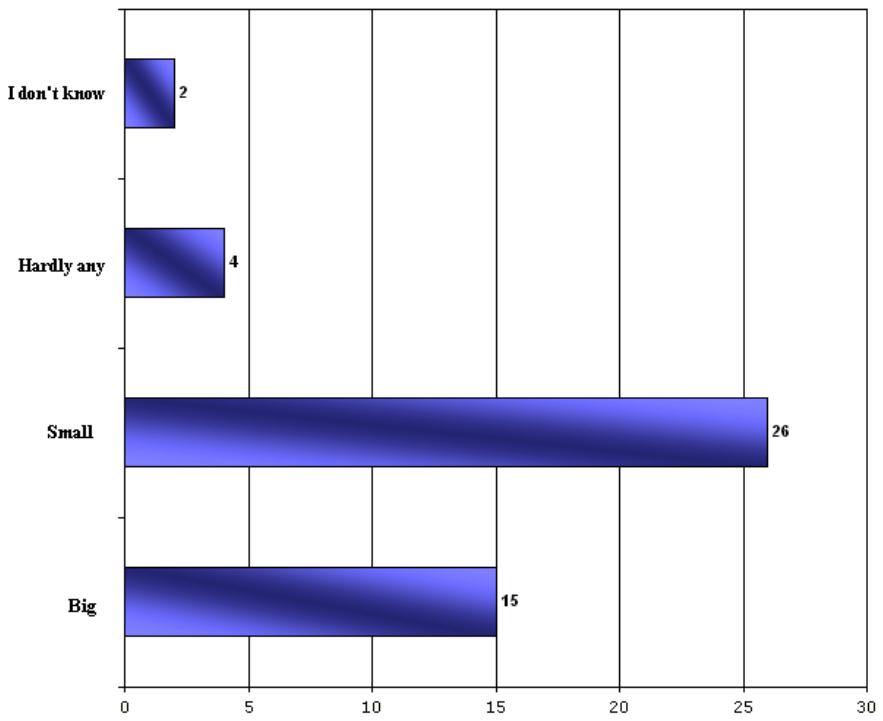

Figure 9. Energy saving potential of the companies

According to the survey questionnaire's question: "How big energy saving potential there is in your company according to your estimations?" twenty six (55,3%) of the target companies replied that there is a small potential for saving energy. Fifteen (31,9%) of them replied that there might be a big potential for energy auditing services. Four (8,5%) of the respondents said that may not be hardly any kind of potential for energy savings in their company or it is very small. Two companies (4,3%) stated that they do not know the potential for saving energy in their company. The total amount of answers for this question was 47.

Question 3: Is the mapping out of energy saving actions topical in your company now?

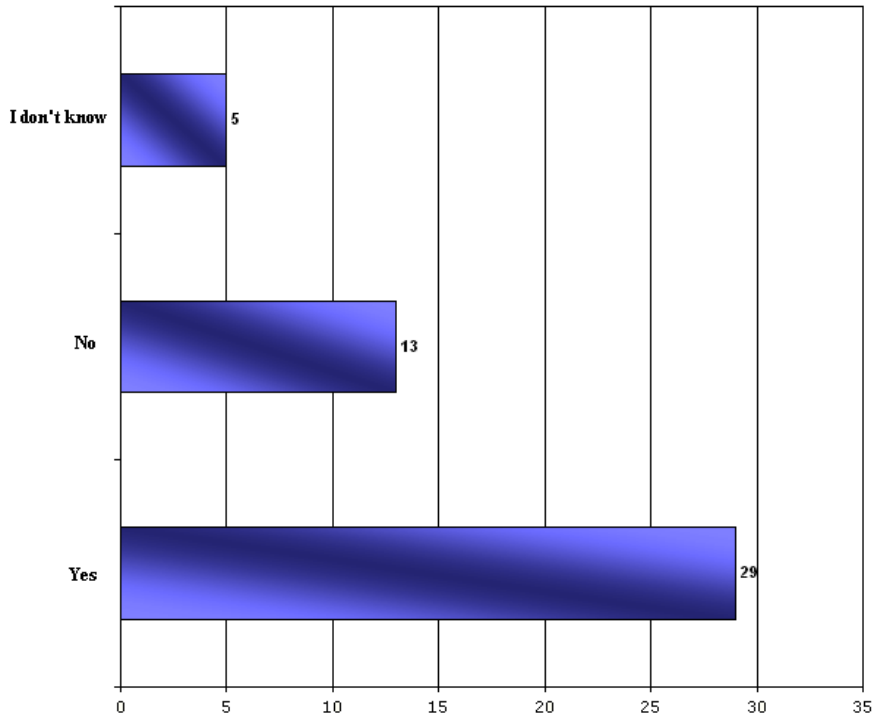

Figure 10. Topicality of mapping out of energy saving actions

The results of the third question were that twenty nine (61,7%) of the respondents replier that the mapping out of energy saving actions is topical now. Thirteen of them (27,7%) replied that mapping out is not current now and 5 of them (10,6%) replied that they do not know about the situation. The total amount of answers was 47.

Question 4: Is energy audit work familiar to you?

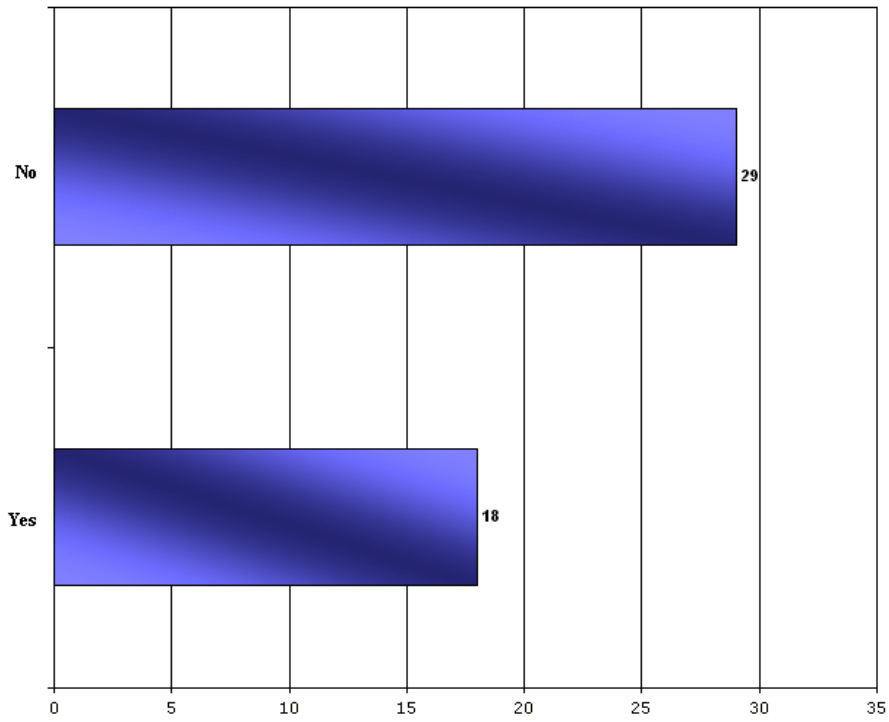

Figure 11. Respondents' familiarity towards energy audit work

The results for the fourth question were that for over half of the respondents (29, 61,7%) the energy audit work was not familiar. Eighteen of them (38,3%) said that energy audit work is familiar to them. The total amount of answers was 47.

Question 5: If the energy audit service work is familiar to you, through whom marketing channels have you heard about it?

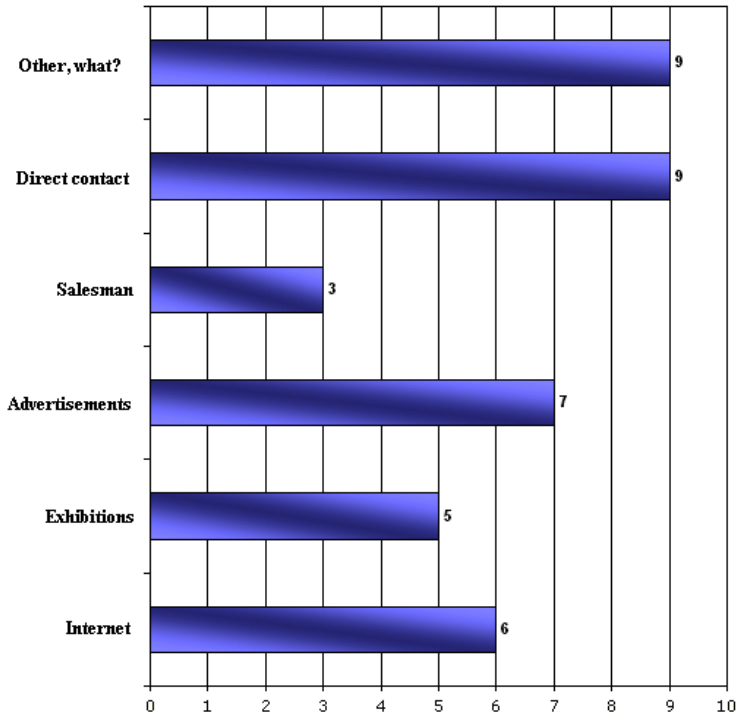

Figure 12. Most common marketing channels

The total amount of answers for the question five was only 39. The most common marketing channels that the respondents had heard about the energy audit work were the options “direct contact from the service provider” (9, 40,9%) and “other, what” with nine hits (also 40,9%). The option salesman was answered three times (13,6%), advertisements seven times (31,8%), exhibitions five times (22,7%) and six of them (27,3%) stated that they had heard form the internet about energy audits.

Question 6: In which targets in your company there are possibilities for energy auditing?

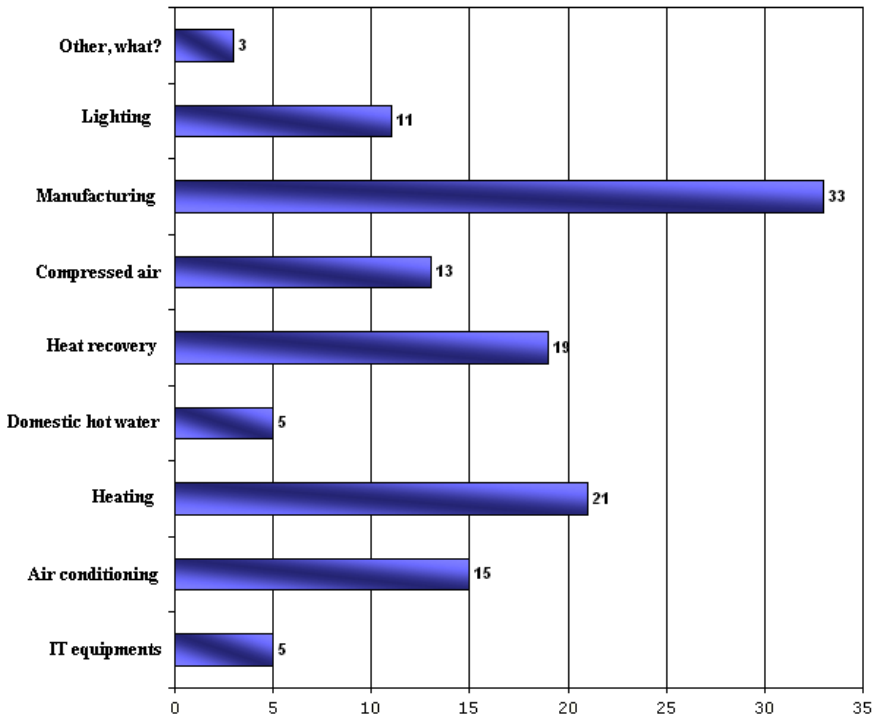

Figure 13. Most popular targets for energy auditing

When the respondents were asked which would be possible targets in their company for energy audits, most likely target with thirty-three answers (73,3%) would be manufacturing process, as can be seen in the figure 13. Second and third most likely target would be heating and heat recovery, with twenty one (46,7%) and nineteen (42,2%) hits. After these come air conditioning processes (15, 33,3%) and compressed air (13, 28,9%). Option lighting got eleven hits (24,4%) and the options domestic hot water and IT equipments both got five hits (11,1%). Option “other, what” got three answers (6,7%). Because the respondents had the opportunity to choose many options, the total amount of answers for the question six was 121.

Question 7: Has your company made or will it make in the future energy audits?

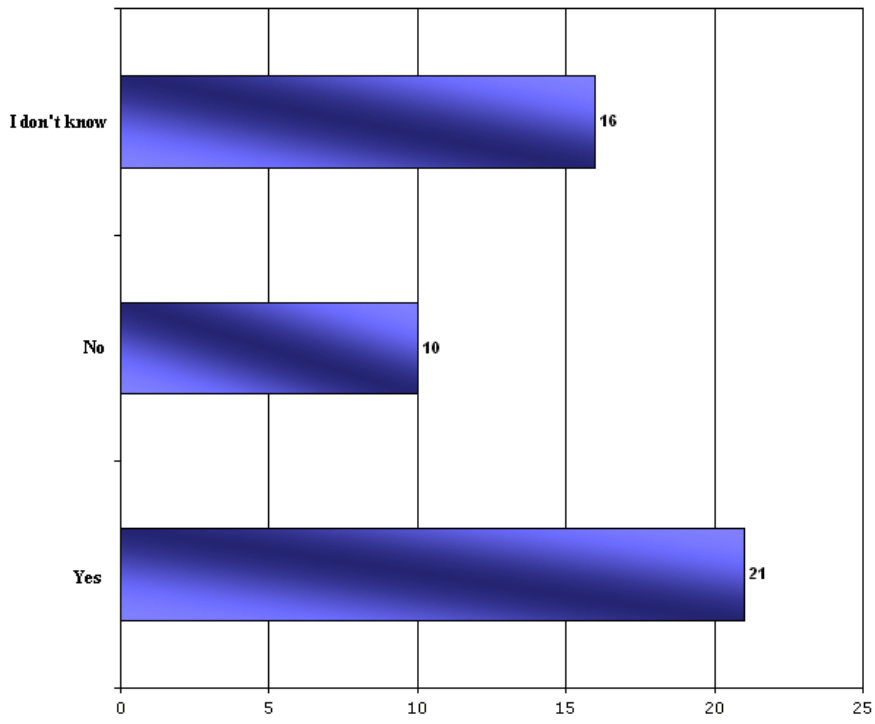

Figure 14. Possibility for future energy audits

When the respondents were asked whether their company is going to make energy audits in the future twenty one (44,7%) of them replied yes. Sixteen (34%) of the companies replied that they do not know if they are going to do energy audits. Ten (21,3%) of the respondents said straight no. The total amount of answers was 47.

Question 8: How much money your company has or is willing to invest into improving energy efficiency?

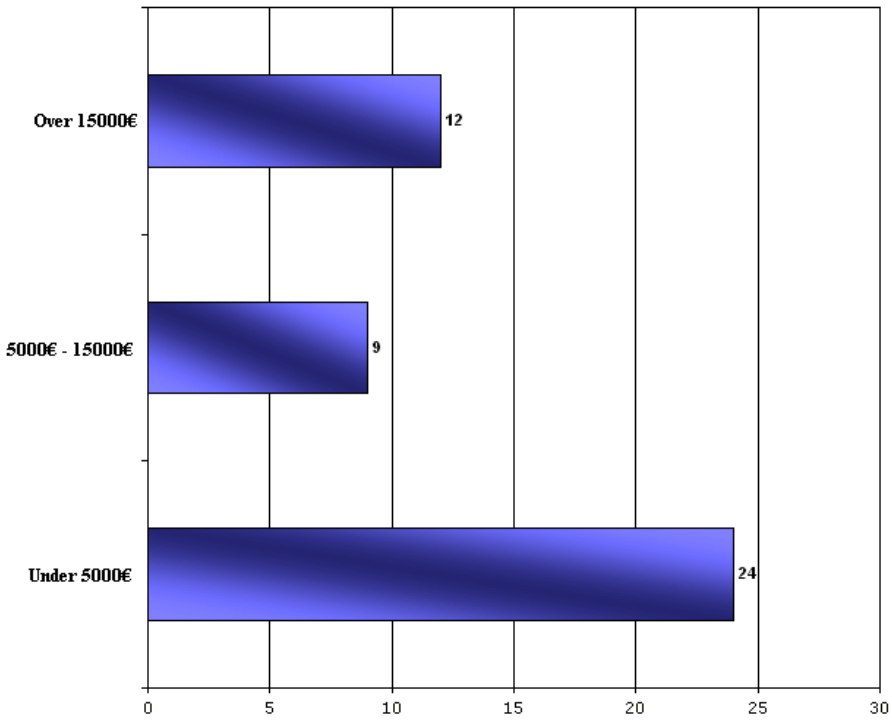

Figure 15. Amount of investments into improving energy efficiency

When the companies were asked in the survey questionnaire how much money their companies would be willing to invest into improving energy efficiency the answers were scattered. Twenty four (53,3%) of them choose the option less than fife thousand Euros, twelve (26,7%) said that over fifteen thousand Euros and nine (20%) selected the option between 5000 and 15000 Euros. The total amount of answers was 45.

Question 9: Are you interested to have more information about energy audit services?

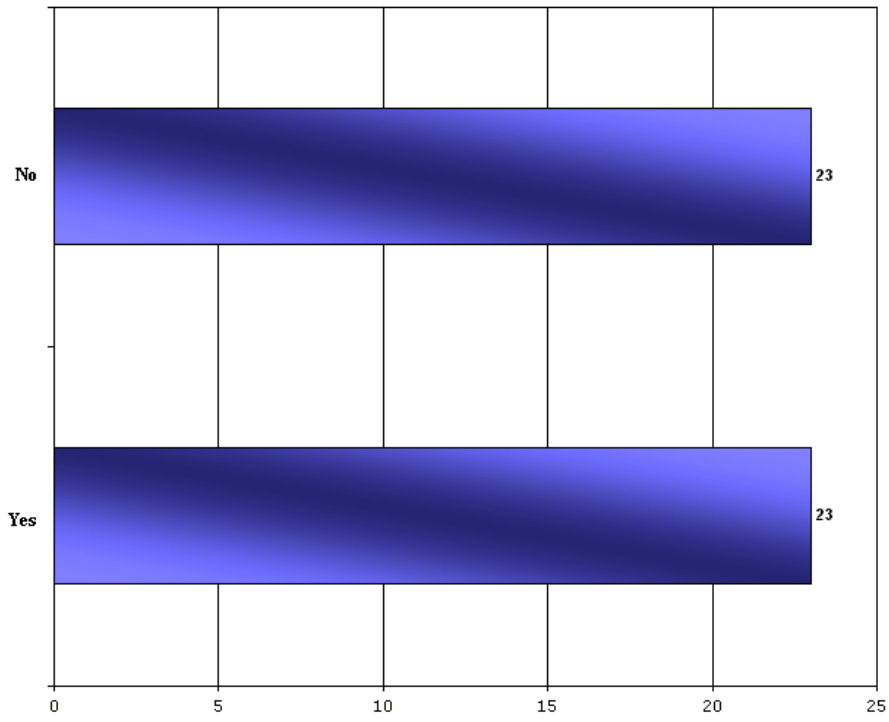

Figure 16. Additional information about e energy audit services

The total amount of answers for question nine was 46. Half of them (23, 50%) replied no and half (23, 50%) of them said yes.

Question 10: What are according to your opinion the three most important advantages that energy audits can achieve?

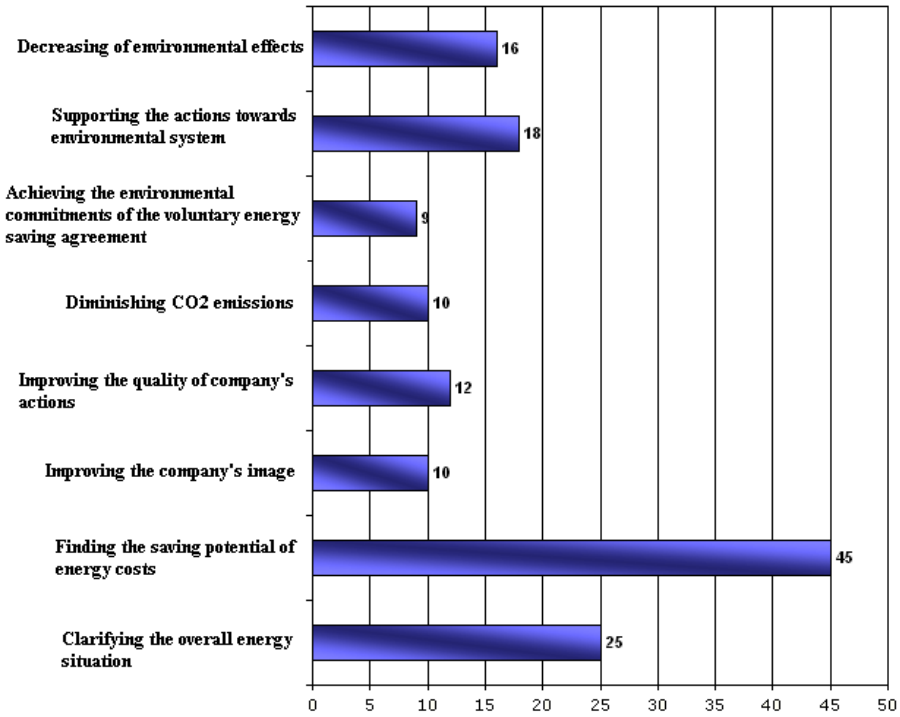

Figure 17. Most important advantages of energy audits

In the question ten the respondents had a chance to choose many options, if they wished, and that is why the total amount of answers was 145. The most common option was “finding the saving potential of energy costs” (45, 31%). The second and the third most common was the option “clarifying of the overall energy situation” (25, 17,2%) and “supporting the actions towards environmental system” (18, 12,4%). The option “decreasing of environmental effects” got sixteen (11%) answers and “improving the quality of company’s actions” twelve (8,3%). The options “improving the company’s image” and “diminishing CO2 emissions” got ten answers (6,9%) both. The last option: “achieving the environmental commitments of the voluntary energy saving agreement“ got nine (6,2%) answers.

Question 11: Would you be interested to purchase an energy audit service from LUT Energy?

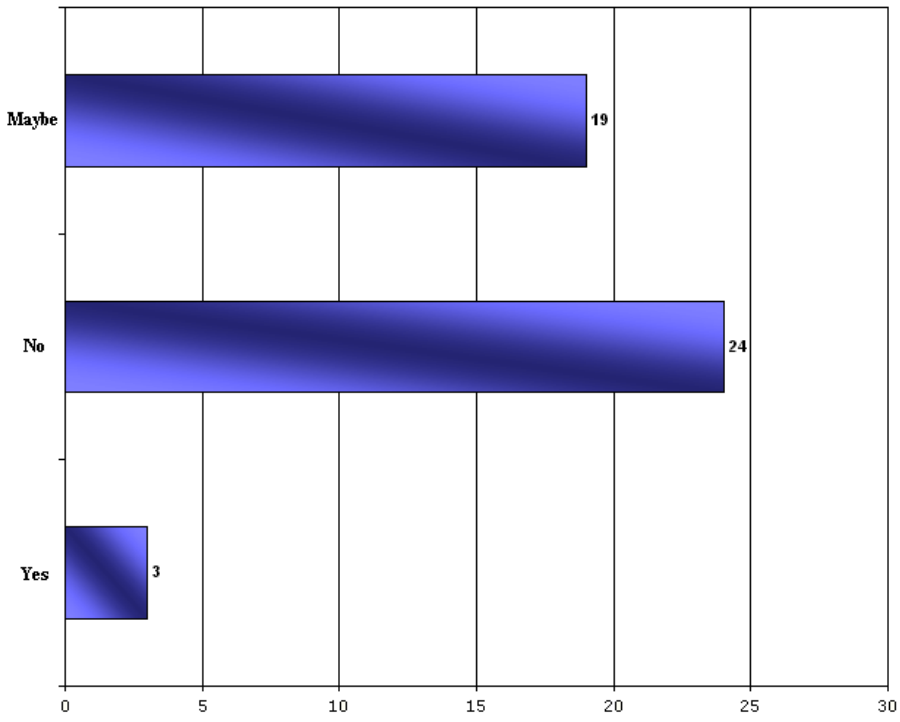

Figure 18. Purchasing potential of LUT Energy audit service

In the survey questionnaire companies were asked openly, seen in the figure 18 abow, that: "Would you be interested to purchase an energy audit service from LUT Energy?" Three respondents (3, 6,5%) from the total amount of answers (46) respondents replied yes, nineteen (41,3%) maybe and twenty four (52,2%) said no.

7.2 Analyses of the results

Current situation of the LUT Energy services' marketing is that a marketing flyer that introduces the principle and advantages of the energy audits in a nutshell to the target companies has been produced. In addition a web-page of the energy audits is made. Currently the companies are approached by mainly contacting

them directly, but marketing has also utilized different networks. There is also cooperation with ABB's sales department in the marketing. When energy saving investments are planned, the sales department can recommend an audit, which gives an unbiased view on their profitability.

According to the results of the survey questionnaire sent to the target companies, there is a strong need to map out energy saving actions, as can be seen in the figure 10 (Question 3). Over the half of the respondents said that improving their company's energy efficiency is topical right now. The case company has the answer to the needs on the market. LUT Energy has already a good base for a service concept that could fulfill these needs.

7.2.1 LUT Energy service concept

The current service concept of LUT Energy is defined as follows and is divided into two different offers:

- For individual processes or single units an energy survey done as a bachelor's thesis
- For wider processes an energy survey done as a master's thesis

The contents of the auditing process can vary depending on the subject being examined. It can focus on the energy efficiency of the pumps or the grounds and industrial processes energy flow inspection. The case company's special area is pumping processes and their energy survey inspection. LUT Energy's energy audit is a systematic procedure which purpose is to:

- Evaluate the existing energy consumption of the target
- Identify of the saving measures
- Report the findings

In this case the core service is the energy auditing service. Accessory service is the guidance of the students and the expert working at LUT Energy offered to the client company. However, the competitors of the case company also have same kind of core and accessory services. Because of this LUT Energy should add some extra support service to its service concept, in order to stand out in the energy auditing market and to make it more tempting option to the customers. This could involve some kind of education about energy efficiency to the customer company's employees, seminars and re-auditing education. This service would be completely voluntary but for extra price.

To make the case company's service concept into extended service offer, the attainability of the offer has to be easy and the interactions with the customer have to be arranged properly. There have to be enough customer meetings to clarify the problem areas and to inform the customer actively. The more the customer gets involved in the auditing process, the better the results are for both participants.

Productization of the case company's service is also important. The two service offers should be put well-defined to the paper, so that the customers have a clear understanding what they get when purchasing a service from LUT Energy. The services could be divided as follows:

- Energy audit for pumps and fans
- Energy audit for building technique

This distribution would be logical because these two are the main targets for energy audits (Figure 13, Question 6). This distribution would also be clearer, rather than the current distribution into bachelor's and master's thesis, which may awake wrong expectations about the service quality. This classification also would make the two service offers to sound more professional ones. These productized services would be easier to present to the market and the pricing would be explicit. The control of the quality becomes easier, too, when there are definite plans what should be achieved during the auditing process.

7.2.2 Three-way marketing model for LUT Energy

The case company could use the three-way model on its side to build a long-term competition strategy. The model for LUT Energy can be seen in the table 7 below.

Table 7. Three-way marketing model for LUT Energy.

Phase	Marketing goal	Marketing action	Need analysis
Early stage	Awaking interest in the market	Advertising, PR and personal selling efforts	Marketing segments analysis
Buying process	Generating sales	Traditional and interactive marketing	Customers' needs analyses
Consuming process	Creating after sales and long-term customer relationships	Interactive marketing	Controlling the quality and detecting new needs

At the early stage the case company tries to raise interest in the selected market in order to get customers. It uses the traditional marketing efforts, such as advertising, PR and personal selling on its side. The base for marketing segment analysis is already done and according to the survey questionnaire there are already potential customers to which the marketing should be directed. There are also customers, who do not know anything about the energy audits, as can be seen from the results for the question 4 (Figure 11). Over half of the respondents were not familiar with the energy audit services. This means that the case company should especially inform these companies of its services to awake interest among them. Half of the respondents for the question 9 (Figure 16) said that they would also be interested to know more about the energy audit services. This additional information also could help to increase the interest and conspicuousness towards LUT Energy's services.

After the customers become interested purchasing the service from the case company begins the needs analysis of the customer. This first meeting with the customer will be arranged in order to discuss and to clarify the customer's

possible problems. Personal selling skills are the most important marketing actions at this stage.

At the consuming process the customer has already selected one of the two services offered and the case company has to try to maintain good customer relationships and to make them long-term. Also the service provider has to recognize customer's possible hidden needs and to direct the marketing efforts there.

In order to keep the current customers and to gain new ones the case company should have references. Existing references are listed on the Appendix 4. LUT Energy should encourage its former customers' to word-of-mouth communication so that they would inform their energy auditing results to their interests groups and to their personnel and recommend the case company's service. This way LUT Energy gets more conspicuousness in the market and perhaps new customers. An example of this is to interview the customer and to publish it in the internet page, in some kind of energy business magazine or to use the interview as a marketing argument. Another way could be to get a large energy auditing project enough that it would break the news threshold, such as an energy survey done for municipality department.

7.2.3 ABC customer selection of LUT Energy

The case company could classify its customers according to their auditing needs by using the ABC customer selection, where the customers are divided into three groups. The ABC customer selection for LUT Energy is shown in the table 8.

Table 8. ABC customer selection of LUT Energy.

Customer groups	Criteria	Customers in the group
A group	Pumps, fans	Customer 1
B group	Building technique	Customer 2
C group	Other auditing targets	Customer 3
X group	Not interesting customers from the case company's point of view.	Customers 4, 5, 6

After this the case company conducts a clear marketing plan for each of these group, which includes the selecting of marketing channels, brochures and the service message. Companies that are part of the group A could be those, whose auditing needs are basically the pumps and blowers processes. Customers in the group B are those, who need some kind of building technique audits and companies in the group C have needs that do not fit in the categories A and B. Group X includes companies, that are not interesting customers from LUT Energy's point of view or their auditing targets are unable to carry out by the case company.

It is vital to generate good relationships in advance especially with the companies in every group, even though they may not want any auditing services now. In the future the companies' situation may change and then they may contact the case company. In the future the service provider could do continuing marketing analyses about the possible companies and list them. After searching for potential customers an info package about the case company could be sent to the companies' contact persons and according to their responses these companies could be divided into groups A, B and C.

7.2.4 Pricing of LUT Energy services

When the companies were asked in the survey questionnaire how much money their companies would be willing to invest into improving energy efficiency the answer were scattered. Half of respondents choose the option less than fife thousand Euros and twelve said that over fifteen thousand Euros. The scattered results for the question 8 (Figure 15) due to different company sizes; some were small, local firms and some bigger, global companies. But what can be said about these answers is that a good price for the case company's service from the marketing point of view would be less than five thousand Euros. This price would also be competitive against competitors' prices, which can be over ten thousand Euros.

Finding a good price for LUT Energy services is rather problematic. The price for its services may also reflect to the quality of the service from the customer's point of view. This is because the case company's name or reputation is not yet well-known on the market the customers may not have any idea about the quality of the service provider.

First the case company should study the actual monetary benefits the customers usually get from its service and how the customers value the competitors' services. When the benefits to the customer are defined, the case company can choose its price-quality strategy. Because the competitors' services on the market may be considered to have a higher value due to the Motiva's authorized system, LUT Energy should choose the good value pricing strategy to its base strategy. This means that the price for its service is relatively low and the experienced overall quality is middle when compared to the competitors' ones. But in time, when conspicuousness rises in the public, there are more references and the quality of the service becomes higher from the customer's point of view, the case company can change its strategy into middle value and later maybe high value. However, this moving upwards in the price-quality scale has to be done carefully, so that there will not be an overpricing feeling among the customers.

When pricing its services the case company has to consider the pricing tripod; the costs, competition and value to the customer of the services it is offering. Currently the costs are fixed and there is the basic audit and the wider audit, whose prices are already defined. The case company's price for a bachelor's thesis is three thousand Euros, and for a master's thesis it is fifteen thousand Euros. However, if LUT Energy chooses to re-plan its services and divide them into two offers, as presented earlier, the pricing has to be re-thought. These already productized services and fixed prices are easier to market and the benefits to the customers can be shown more clearly. However, there should also be some kind of looseness in the prices, for example if the customer has many energy audit targets the price for one target could be lowered.

When compared to competitors' prices of energy audits there is no great difference. Competitors' prices vary from a couple of thousands of Euros to tens of thousands of Euros. But the current situation is, and which may make the competitors' services more attractive is that most of their audits are done according to Motiva's authorized system. When done so, the Ministry of employment and the economy supports these audits financially. (Motiva Oy_B, 2009) Because the case company's audits are not done as Motiva has authorized, it has to come up with some other price advantage to the customers.

One point that LUT Energy could point in its price marketing and which could give the customer extra value is that if the customer chooses an energy audit done as authorized by Motiva it may take time, many months, and the financial support is not certain even then. The Finnish government does not support all kinds of energy audits. But if the customer chooses the case company as the service provider, it gets the energy audit right away and it does not have to wait for the decision from the government. One marketing argument could also be that even though there is no financial support, the investments the customer makes into energy audits now will pay back in future as energy savings. That is why the references play an important part here also. There could be some example

investment calculations from former projects to convince the customer how long time an investment now will take to get the money back.

To make LUT Energy's service more attractive it could split its service offer into parts, so that the first audit is free of charge, if there are multiple audit targets in the company. This way the customer gets a better idea what the future savings could be and would be more willing to purchase the service, even though there would not be any financial support. In the future the case company could also get a license from Motiva so that also its services would get financial support. Then the customer could get more choices to choose from, whether the auditing is done right away without support or there is a waiting period and the financial support.

If the customer is still unsure about the price, LUT Energy could make an offer that the price of the service is proportioned to the future savings, for example a certain percentage. Figure 19 clarifies this pricing method.

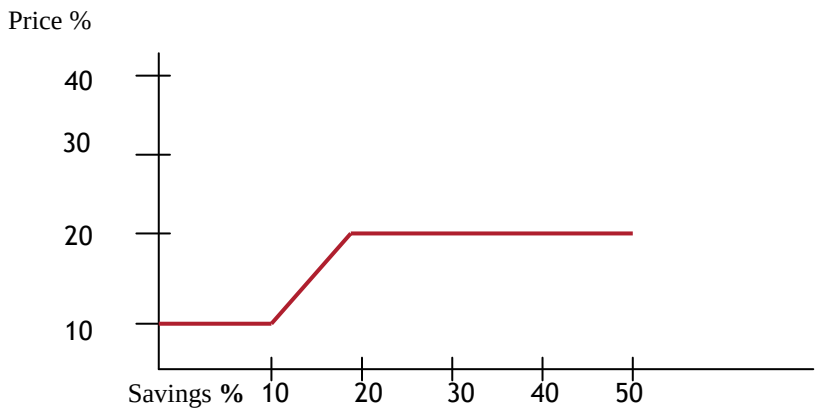

Figure 19. Price proportioned to the future savings

The price for the energy audit service would be fixed to ten percent of the savings, if the future savings are less than ten percent of the annual energy usage. If the future savings are ten to twenty percent of the annual energy usage, the price would be variable from ten to twenty percent, depending on the savings. If the savings are more than twenty percent of the annual energy usage, the price would

be fixed again, being twenty percent of the savings. By using this pricing method the customer would get a clear understanding of the price of the energy audit service. For example, if the annual energy usage is 16 000 Euros and the savings are ten percent, then the minimum price for the service would be 1600 Euros. However, if the savings are more than twenty percent, then the maximum price for the service would be 3200 Euros.

7.2.5 Creating a marketing plan for LUT Energy

When LUT Energy starts to create a marketing plan it should first select the target market. In this case the target market would be industrial companies and municipal institutions located in the South Karelian and Kymenlaakso region. Target companies should have more than five employees and some kind of production work. After this come the analyses of the current market, environment, legislation and competitor situations, which has already been made in the chapters 1.1.1 – 1.1.4.

After the marketing environment analyses the case company should choose its competitive factors and valuate them. In the table 9 can be seen the competitive factors for LUT Energy and how it can valuate those factors.

Table 9. Competitive factors for LUT Energy.

Competitive factor	Valuation
Consumer population	The scope and the loyalty of the customer population, the economic situation of the customers, customers position on the market
Conspicuousness and the company image	Customers opinion on the company
Technical and functional quality of services	Attainability, professional know-how, reliability
The versatility of the service offer	The wideness of the service offer, ability to improve one's services
Price competitiveness	Good price-quality ratio

Good, vide and loyal customer population works as an employee to get new customers and as an existing reference. For the case company it would be important to get customers who are likely to be in the same kind situation, who have same kind of needs and auditing targets. Company's image is important for standing out from the competitors. Conspicuousness often requires vide co-operation network and comes from the former projects and works. That is why references must be collected regularly. The two-dimensional quality must be managed carefully and it often comes from the reliability. Therefore case company's time management should be emphasized so that audits are ready when agreed.

LUT Energy should be able to re-plan its services, if the customers' need change. There should be some adjustability in the two services the case company will be offering in the future, if the customer so wants. This could increase customer's respect. The case company should also maintain good price-quality ratio in its actions and make it clear to the customer that the energy savings in the future are worth of paying now for the service.

LUT Energy should also choose a strategy to handle its customer relationships. Best strategy from contact, project and customer satisfaction marketing options

would the last one. This is because customer satisfaction marketing aims to create long-lasting and profitable customer relationships and to improve not only the service provider's but also customer's profitability. This would suit well for the case company because its service offer is already defined so that it aims to help customer to save energy in the long run.

Marketing potential of LUT Energy service

When the respondents were asked whether their company is going to make energy audits in the future twenty-one of them replied yes, as can be seen in the figure 14 (Question 7). Whether it is because of the current unawareness economical situation or the fact that company energy decision-makers do not know about the energy investments, sixteen of the companies replied that they do not know if they are going to do energy audits. Ten of the respondents said straight no.

According to the survey questionnaires question 2: "How big energy saving potential there is in your company according to your estimations?" most of the target companies replied that there is a small potential for saving energy as can be seen in the figure 9. Fifteen of them replied that there might be a big potential for energy auditing services.

The survey questionnaire companies were also asked openly that: "Would you be interested to purchase an energy audit service from LUT Energy?" (Question 11) Three companies from 56 respondents replied yes, nineteen maybe and twenty-four said no, as can be seen in the figure 18.

Due to these results for the questions 2, 7 and 11 (Figures 9, 14 and 18) there would be a good marketing opportunity to offer at least some small kinds of auditing services to these target companies by the case company. Because the saving targets would likely be small or partial processes, the most suitable service would perhaps be the energy audit of pumps and fans, which would concentrate to one or couple of energy saving target in the company.

Marketing targets for LUT Energy service

According to answers for the question 6 (Figure 13) the most likely target with thirty-three answers would be manufacturing process and second most likely target would be heating and heat recovery. After these come compressed air and air conditioning processes. These targets could be divided into two bigger groups, manufacturing process and building technique. The case company could concentrate into offering for example info packages and pamphlets of former references about the projects concerning these two energy auditing targets to the customers. This way the possible clients would know what could be done in their company in orders to save energy and money, too. Of course this requires first taking a personal contact to the companies and asking them about the possibility for energy saving.

In the figure 17 can be seen the answers for the most important advantages that the energy audits can achieve (Question 10). The companies were asked to choose three most favorable advantages. According to the respondents finding the ways to save energy and shaping the overall energy usage in the company are the most important advantages. Worth mentioning is that less than half of them replied that supporting the environmental system would be an advantage, even though the Confederation of Finnish Industries is supporting intensive this kind of action. With only ten answers, energy audits were not seen as a solution to improve company's imago. This may be due to the fact that energy audits are a common procedure in Finland.

According to the answers for the question 10 (Figure 17) the message that LUT Energy should emphasize is that energy audits aim to find the energy saving potentials and to clarify the overall energy usage of the company. If possible, the case company could try to find out if the customer company in question has an environmental system and then also to emphasize the fact that energy audits also support the company's environmental system acts. However, this message should be different from the competitors' ones.

The persons who make the decisions concerning energy savings and whom the message and marketing efforts should be aimed are mainly located in the place of business. This case was in over the half of the companies (Figure 8, Question 1). Second most common answer was that energy saving decisions are made inside the company. Considering these answers it would be easy for the case company to find out, who are the persons in charge of energy issues, for example by contacting directly the company or searching the persons from the company's web page. These persons are the target of the marketing for the case company.

Service communication for LUT Energy

The respondents were inquired through which marketing channels they have heard about energy audit services. The most popular one was a direct contact from the service provider, this was answered nine times, as can be seen in the figure 12 (Question 4). The second most popular channel was advertisement and internet. Nine respondents also answered other channels which were company's own coaching, Motiva's coaching and different seminars about energy savings. According to these results the most effective marketing channels would be personal contacts, advertisement in the newspapers and in the internet and exhibitions. All of these channels are useful ways to increase case company's conspicuousness in the market, too.

After LUT Energy has defined the target customers through ABC customer selection and clarified the message that it wants to emphasize to its potential customers it is time to set the numeric targets for marketing. In this case it would be how many contacts will be received by using different channels. This would also help to decide in the future which marketing channels are most effective and which not. In the internet advertising the numeric target could be counted how many people have visited the case company's internet page and how many left their contact details. Second target could be how many contacts will be get when advertising, for example in the newspapers. Third target would be to calculate how many contacts will be got from the different exhibitions.

For the case company the advertising would be best and easily done in the internet. Logical, informative and easy to use web-pages are vital for customers to get information. There could also be a place for leaving personal contact details, if casual internet users comes to LUT Energy internet page and gets interested in the service offered. Another way to advertise could be different energy branches newspapers and local papers within the area of South Karelia and Kymenlaakso. Advertisement in the news papers can be expensive however, and that is why a small one would be better for the case company. The advertisement could include the LUT Energy's image and some well-defined marketing slogan and little information and contact details or just the company's web-page address.

However, in both cases of advertisements the message LUT Energy wants to emphasize has to be clear and easy to understand by the target groups. The message should be that the case company offers basic and wide auditing services. Because the students who do the energy auditions are not yet experts, this is why the message should not be that LUT Energy offers professional services. The professionalism will be earned in the future through good works and their references and earlier customers' recommendations and word-of-mouth communication.

Personal selling would be the best way to start the increasing of conspicuousness. By sending e-mails and direct phone calls to the target companies may get the best results. The most important thing to find out in the first place is the customer's needs. After gaining sales through personal selling and more money for advertising, using of different channels could be considered.

Conspicuousness in publicity can be increased through advertising, well-known works and by public presentations. Former references are useful in this case, and that is why the case company should continuously write some kind of references about the auditing projects. These could be published in the company's web page, and the best ones could be given to the customer's in the firs meetings. LUT

Energy could also ask about the local newspapers, if they were willing to write a story about the company's work to help to improve energy efficiency. One possibility to stand out in the public could also be to take part to the ABB's energy efficiency competition. (ABB_F, 2009) More publicity inside the university could be increased by putting flyer on the news stands, in order to attract enough students to do their bachelor's and master's thesis for LUT Energy.

Participating to the different exhibitions could be an effective way to do sales promotion. There are several exhibitions in the future where companies doing business in the energy branch are gathering together. These kinds of exhibitions are Expomark in the year 2010 and yearly arranged Energy exhibitions. Participating demands careful planning, preparation and some kind of numeric goals should be estimated. There is no use of participating if there are no clear goals. The most important goal in this case would be to make the case company's service more acknowledged. In order to achieve this goal LUT Energy could build a stand, which states the service message and publish enough brochures to be given away to the people visiting the stand. Best place for the stand could be a corner place in the middle corridor. Case company also should remember to enroll in time to the exhibition.

In order to attract people to the stand the case company could arrange some kind of info events and seminars about how companies could save energy by using LUT Energy services. After the exhibition more information, former references and offers can be sent to the people visited at the stand. Because participating to an exhibition requires a lot of investment, the analyzing whether the goals were achieved or not has to be done afterwards.

Word-of-mouth communication is especially important for LUT Energy to manage, because the company is small one and only starting its services marketing. The case company should find out what are the ways how customers find information about energy auditing issues and put their offerings in view there. Managing word-of-mouth communication and getting more information

about it could be done by interviewing former customers and ask about the new customers how they find the case company and how they heard about it.

7.2.6 Managing quality and customer expectations

Managing the quality and customer expectations towards LUT Energy auditing services is difficult. This is, because the audits are done by students, which may not have all the field knowledge required and can not be seen as experts in any way, compared to competitors' audit persons, who have a long time experience in doing audits. However, the case company should somehow overturn the customers' expectations that students are as capable of doing audits as people who have a longer experience and make them feel that the price-quality relation of the case company's services is superb.

LUT Energy should remember that the basis for client satisfaction and customer loyalty remains in the service quality it is offering. Managing the service quality involves managing both the technical and practical part of the quality. Technical quality is the energy auditing work itself, and practical quality is how the service is delivered to the customer. Because of this all the marketing work has to be planned beforehand and on purpose. Even though the energy audit work would be done accurately and well, the customer may feel that the service quality was poor if the delivery of the service fails.

The quality is composed of four factors, first being the tangibles. The case company has to make sure, that the image and the message it is marketing to customers both left the customer with a professional feeling. This means that all the advertising, first meetings and the auditing work itself must be done accurately and in time. Reliability, the second factor influencing the service quality is based on time factor, too. Projects, meetings and all the other work have to be done in time, as planned together with the customer. The students who do the audit work have to have responsiveness enough, so that audit projects are not dropped out during the process. This means that the case company has to use time

and effort before selecting the suitable students for each audit project carefully, and make sure that students will do the work within the time limit. The last factor involving the service quality is assurance. It can be created by showing references of former projects and discussing with the customers before beginning the project about their needs and problems thorough. That way customer feels that LUT Energy is there for trying to improve their situation, not only selling “a service”. Also some kind of feed back bland could be sent to each customer after audit project. In the blank customers’ could fill their feelings, positive and negative about the audit service and the marketing. This would help to improve quality, too.

In order to gain good quality to its services, the case company has to fulfil customers’ expectations. The experienced quality is built on all the actions the company does. That is why the marketing and students’ work has to be monitored so, that certain criteria will fulfil. These criteria could be that the marketing message is always the same, the meetings are done same way, the audit projects are done according to certain predefined procedure, and the results to the company are presented in similar way. This way, if the customer has some expectations towards the service provider, for example he/she has heard of the case company’s former projects through word-of-mouth communication, the expectations will disappear when the customer is treated in a similar way as former clients. However, this means that the former projects are taken care of creditably and the former clients have been satisfied with the service.

In the customer meeting situation the service provider should not promise too much efficiency improvements, especially if the auditing target does not have that much potential, rather promise a little less than more. This way the customer does not feel like his/her expectations did not come true and he/she may feel that the quality was poor. But if the saving calculations and results were better than expected, the customer can feel surprised and delighted when he/she did not expect so much, and feels that the quality was good, maybe even excellent.

8 CONCLUSIONS AND RECOMMENDATIONS

The goal of this study was to find out how LUT Energy should start marketing its services, how the pricing of its services could be done and how customer expectations towards its service could be managed. In this chapter, the three research questions are being answered with conclusions made, based on the received results and analyses of the results. Each of the research questions is analyzed separately and the conclusions are presented together in the table as well. The requirements for future research that arose during the research process are being presented in this chapter and the study is evaluated according to the general evaluation criteria of qualitative research.

8.1 Conclusions

Research Question 1. What is the best way for LUT Energy to start marketing its auditing services?

According to target companies' answers the mapping out of energy saving actions is topical for them in the year 2009. There is a large potential especially in the single audit targets, such in the pumps and in the building technique processes. Current energy efficiency market situation is going strong and companies make efforts to improve their actions' efficiency. The most important factors that affect this now and in the future are the price of energy, directions of the authorities and the improving of production and material efficiency. Also the current public opinion may require actions to stop wasting energy and companies have to act in a responsible way.

The legislation also requires companies to invest into energy efficiency. Most of the actions are still voluntary but this situation may change quite fast and therefore the companies should already start the necessary preparations. There will be legislations demands both from the state and from the EU. Companies who will subscribe to the legislation agreements will have to carry out energy audits or

analyses, that strongly increases need for these kinds of services. Finnish companies have already successfully participated into energy consumption work but there are still many targets, especially in the small and medium-sized industrial branch.

There are rather many same kind and sized companies in the Finnish market for the case company. The most important factor that distinguishes companies' services is whether they are authorized by Motiva or not. This can be a positive factor, if the customer gets benefits to pay the energy audits and it can be a negative factor if this decision making process of the allocation takes a long time because major savings could be achieved already during the waiting period.

LUT Energy's own market position is not strong yet. Only few energy audits have been done so far, as the references in the Appendix 4 show. But the case company has a great capacity to improve the situation and become a well-known energy audit service provider especially inside the region concerning South Karelia and Kymenlaakso. The reputation of Lappeenranta University of Technology as a skilled institution helps here to make the services seen as accurate and more professional.

The target companies for the case company are small and medium sized industrial companies and communal institutions, such as water purification plants in the area of South Karelia and Kymenlaakso. These target companies should have more than five employees and some kind of industrial production. The target companies are classified by using the ABC customer selection according to the energy audit needs they have into four categories. Most important thing to achieve are not only purchases, but also connections to the company.

The customer satisfaction is the right procedure for the case company to choose as its customer relationship strategy. This strategy is used in every customer meeting. Good client service is the key for long-term relationships. In every meeting the customers need to feel that LUT Energy's services are here to help to

improve customers' energy efficiency and profitability in the long run. In this way long-lasting relationships between the customers are made and customers may be willing to purchase many audits form LUT Energy. There could also be an additional person to be hired to handle the customer meeting, when the other co-operator handles the managing of auditing works.

Actions that LUT Energy could do in its marketing:

Firstly, in order to clarify the marketing the case company has to clarify its service concept. The core service is the energy auditing and the accessory service is the guidance of the students to the client company. In addition to these, LUT Energy should add some kind of extra support service to its service concept, in order to stand out in the market and make the service more attractive from the customers' point of view. These kinds of services could be energy saving education and seminars to the company, before or after the auditing process for extra charge.

Secondly, the service LUT Energy is offering will be divided into two offers:

- Energy audit for pumps and fans
- Energy audit for building technique

These two seem to be the two biggest auditing targets according to the target companies' opinions. After these actions some kind of numeric targets should be made. This could mean how many audits should be done within a year and how many contacts have been made. Both of these service offers should be productized and well-defined on the paper, so that the customer knows exactly what it gets.

Thirdly, LUT Energy should clarify its message that it wants to send to its customers. This message is then used in the advertising, pamphlets and every where the company presents itself in the public. The message could be due to the

needs of the customers, which were finding the ways to save energy and shaping the overall energy usage.

Fourthly, the marketing of the case company's services is done by the help of the three-way model. Both of the two services offered are marketed in the same way and simultaneously, but the parting has to be made clear, so that the customer knows the difference. Technical details have to be separated so that possible misunderstandings will be minimal. At the early stage it is important to awake interest. This means advertising in the newspapers and in the internet, participating exhibitions and performing in the public. Also direct contacts to the companies help. LUT Energy could ask from the local newspapers, such as Etelä-Saimaa, Kouvolan Sanomat and energy issued magazines if they could make a story about them, this would increase conspicuousness in the target area. At the same time an advertisement of the case company could be published, with the company's message it wants to state, logo and web page address. This also means that the web page should be renewed first so that it would include a box for leaving contact details, example energy saving calculations, some reference stories and detailed service offers for basic/wide audition, manufacturing process/building technique process and for energy efficiency education/seminars. There should also be links to the newspapers stories, exhibitions and public presentations where the case company has presented and will be present. At the same time when information details about the two service offers are published at the web page, also pamphlets are printed to show to the customers in the meetings and to be distributed at the exhibitions.

After the early stage the buying process stage begins. Here the marketing of LUT Energy services is aimed to the persons responsible for the energy issues in the company. Because half of the survey questionnaire companies replied that they would be interested to have more information about energy saving services, the persons responsible for energy issues are approached by e-mail or by direct phone call. By this time the case company should also be somehow familiar from the public and newspapers. The persons are inquired whether they would like to have

more information about the case company's services and what kind of energy audit needs they could have. In the approach e-mail should also be a link to the company's web page, where the interested customer would find former references about the auditing targets and specified service offers for basic and wider auditions.

After the buying process comes the consuming process. Here actual sales happen and long-term customer relationships are created. The most important thing to remember here is to collect references for to be used in the future. A good reference list is a sign of a qualified service provider. Customers are also encouraged to word-of-mouth communication, to tell about the results of the audits to their interest groups. This could also help to improve not only customer companies' but also LUT Energy's image.

Research Question 2. What is the optimal prize or pricing policy for the case company's service?

According to the results of the survey questionnaire the best price for LUT Energy's services would be less than five thousand Euros. But this fixed price may reflect to the quality of the service from the customer's point of view and some of the auditing targets may require more time and effort and that is why this kind of fixed price is not suitable for the case company. Neither this fixed pricing differs from the competitors prices, which it should do because of the Motiva's monetary support. Re-planning of prices is needed too, especially if LUT Energy divides its services into two separate offers.

The best policy for LUT Energy's service pricing could be that the price is proportioned to the future savings. By using this pricing method both the case company and the customer see immediately what are the minimum and maximum prices for the service even though the service would be tailored for each and every client individually. Additional prices would be charged for extra services if the customer decides to purchase those too. If there are many auditing targets in the

company this proportioned price could also be divided so that the first auditing would be free of charge and just after that the customer pays the price according to the pricing method.

Research Question 3. How to manage customer expectations towards quality of LUT Energy auditing services?

In order to make the customers to see LUT Energy's auditing services as professional as competitors' ones it has to make sure that both the technical and functional quality is managed properly. Because of this all the marketing work has to be planned beforehand and on purpose. Managing the quality of the service means managing the four quality factors. The case company's image and the message it is marketing to the customers has to be in order and leave the customer with a professional feeling. Customer meetings have to be handled accurately and in time and the students who are selected to do the different audits have to be selected carefully, too. Existing references of well-done former works show the customers that LUT Energy is as capable of doing audits as competitors, maybe even more capable because of the University's expert knowledge at the field of energy efficiency supporting the students work. A feed back bland could be sent to the customers after each project so that the quality can be monitored and made even better.

In order to fade out customer expectations towards LUT Energy services the auditing work has to be monitored so that every customer gets same kind of service and will be treated in the same way. This helps to decrease doubts of the customers about the quality, if there is word-of-mouth communication between customers. The customer should also be left with a superb feeling of the quality. This means that the service provider should not promise too much efficiency improvements, better is to promise less than more and let the customer be surprised of the results.

The answers to the three research questions with conclusions for them can be seen in the table 9.

Table 10. The answers to the three research questions

Research questions	Answers to the research questions
1. What is the best way for LUT Energy to start marketing its auditing services?	**Conclusion 1.** Currently there is a great potential for energy audit services and also the legislation requires companies to improve their energy efficiency. However, LUT Energy's market position is not strong yet, but the reputation of the LUT could improve the situation especially in the target regions. **Conclusion 2.** Target companies for the case company are small and medium sized industrial companies and communal institutions. These companies are classified by using ABC customer selection and the customer satisfaction procedure is chosen as a customer relationship strategy for the case company. **Conclusion 3.** The case company should clarify its service concept and add some kind of extra support service, like education and seminars to its service offer. **Conclusion 4.** LUT Energy should divide its service offering into two offers: Energy audit for pumps and fans and Energy audit for building technique **Conclusion 5.** LUT Energy should clarify its marketing message that it wants to send to its customers. **Conclusion 6**. The marketing of the case company's services is done by the help of the three-way model
2. What is the optimal prize or pricing policy for the case company's service?	**Conclusion 7.** The best price for LUT Energy's services is less than five thousand Euros and the best policy for LUT Energy's service pricing could be that the price is proportioned to the future savings.
3. How to manage customer expectations towards quality of LUT Energy auditing services?	**Conclusion 8.** To make the customers to see LUT Energy's services as professional ones it has to make sure that both dimensions of the quality are the managed properly. **Conclusion 9.** To fade out customer expectations towards LUT Energy services the auditing work has to be monitored so that every customer gets same kind of service and will be treated in the similar way.

8.2 Evaluation of the quality of the results

When evaluating the overall success of the questionnaire, I am confident with the results and satisfied with the response rate, which is quite high, 84. The survey questionnaire measures the things it was planned to measure, and it helps to answer especially the research question one and partially the research question two. Research question three was mainly answered with the help of the theoretical part. However, because of the readily made answer options in the survey questionnaire some respondents may have been answered according to the options, and then the real opinions of the respondents may stay hidden.

The questionnaire was sent to persons who are responsible for the energy issues at the target companies. However, in some cases the respondent may have been a person who does not know anything about the energy issues of his/her company and may just have answered to the questionnaire in a general way.

Because the respondents were able to answer anonymously and I do not believe that respondents answered dishonestly, or at least if found the amount of these answers relatively low. I find the answers of the survey questionnaire quite reliable, though the authenticity of the answers can not be verified. In order to note the inner reliability of the measurement the same kinds of statistical units should have been measured repeatedly but I wanted to make the questionnaire as simple as possible to answer so the same kinds of questions were not repeated. I also wanted to get as many answers as possible so that the opinions of the respondents would be seen more explicit. The outer reliability could be authenticated by repeating the measurements in other researches and situations. The reliability of this research may decrease the relatively low amount of samples (56).

The answers and data that were received by the survey questionnaire could have been analyzed more, for example by using the cross-tabulation of certain answers. This may have given more in depth answers and opinions. However, I already found that the answers of the questionnaire itself help to answer the research questions enough, and that is why this no cross-tabulation was done.

8.3 Further research needs

This chapter presents the issues that came up while making the thesis, and may require further studying because it may bring some extra value for LUT Energy. The main research need concerns the marketing actions of LUT Energy's services. Because this study produced only base lines for the case company's marketing, more in depth study especially for the marketing plan for each ABC customer selection's groups would be helpful.

Research need 1: Clarifying the marketing plans for each customer groups

This requires the case company to clarify more in depth its marketing plans and brochures of the services it is offering for each of these groups that it selects in order to market its services in a professional way. It may also require further marketing research and analyses of the customers' needs.

Research need 2: Word-of-mouth communication

The company could find out how the word-of-mouth communication between its customers conducts. What the companies tend to tell each other about the services they purchase or do they tell anything. This further research helps to manage the quality of the service the case company is offering.

Research need 3: Re-planning of services offered

In the future LUT Energy could find out whether the distribution into two service offers is the best for each customer or not. If not, it may require re-planning and maybe some adjustments into its services. The case company also could consider adding more extra services into the service offer, not just education and seminars.

Research need 4: Marketing channels

Some time should also be sacrificed in the future to think about the marketing channels. The case company should find out which of the proposed marketing channels (newspaper ads, exhibitions, direct calls and internet) are most effective and bring most contacts and customers to its services. The channels with least contacts should be dropped out and consider some new ones.

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APPENDICES

APPENDIX 1: Energy auditing companies at the Finnish market*

Company	Authorized by Motiva	Services offered	Employees	Location
ARE	Yes	Properties' energy efficiency	1900	Vantaa
Conres	Yes	Energy survey Industry's energy audits and energy surveys Energy analysis of process industry	3	Vantaa
Elomatic	No	Properties' and industry's energy efficiency Energy analysis of process industry	700	Turku
Emati Oy	Yes	Properties' energy efficiency		Espoo
Empower Oy	No	Consulting services for the improving of energy efficiency	3000	Helsinki
Energiakolmio	No	Energy efficiency services for private and public sectors	58	Jyväskylä
Enespa	Yes	Properties' energy efficiency	1-4	Helsinki
Fatman	Yes	Energy survey Industry's energy audits	Under 50	Helsinki
Finnenergia	Yes	Properties' energy efficiency Industry's energy audits Energy analysis of process industry	2	Kuopio
Fortum	No	Energy efficiency services for companies	14000	Espoo
Foster Wheeler Energia	Yes		500	Espoo
LVIS-Insinööritoimisto Olli Linnermo Oy	No	Residential and business properties' energy surveys		Helsinki
Millat konsultointi Oy	Yes	Energy audits		Helsinki
Oy Indmeas AB	No	Power plants' energy surveys	20	Espoo
Pöyry Building Services Oy	Yes	Energy surveys	250	Espoo
TAC Finland Oy	Yes	Properties' energy efficiency	300	Vantaa
YIT	Yes	Energy analysis and energy efficiency services	26000	Helsinki
WSP Environmental Oy	Yes	Energy audits for industry, power plants and properties	350	Helsinki

*All the information of table has been found from the companies' internet pages

APPENDIX 2: The covering letter of the e-mail

KYSELY ENERGIAKATSELMUSPALVELUJEN HANKKIMISESTA

Arvoisa Vastaanottaja!

Tällä tutkimuksella pyritään kartoittamaan yrityksenne mielipiteitä LUT Energian energiakatselmuspalvelujen hankkimisesta. Tutkimus on osa diplomityötä, jonka teettäjänä toimii Lappeenrannan Teknillisen Yliopiston Energiatekniikan yksikkö.

Tutkimukseen vastaaminen tapahtuu internetissä. Tutkimus sisältää 11 kysymystä ja aikaa vastaamiseen menee noin 5 minuuttia. Pääsette kyselyyn klikkaamalla alla olevaa linkkiä.

#codelink

Vastaathan kyselyyn mahdollisimman pian, kuitenkin viimeistään torstaina 7.5.2009. **Vastausajan päättymisen jälkeen kaikkien vastanneiden kesken arvotaan ilmainen energiakatselmus.** Voittajaan tullaan ottamaan yhteyttä 11.5.2009 mennessä.

Kyselystä saatavia tietoja käsitellään ehdottoman luottamuksellisesti. Tutkimus julkaistaan diplomityönä loppukesästä 2009. Mikäli teillä on kysyttävää kyselystä, voitte ottaa yhteyttä kyselyn tekijään.

Yhteystietojen jälkeen on lisätietoa LUT Energian Energiakatselmuksista.

Lämmin kiitos vastauksista jo etukäteen!

Ystävällisin terveisin,

Antti Tuviala
Tekniikan Yo
E-mail: tuviala@lut.fi
Puh: 0405683670

LUT Energian Energiakatselmus

Lappeenrannan teknillisen yliopiston LUT Energian tarjoaman energiakatselmuksen avulla voit säästää energiaa ja ympäristöäsi. Autamme teollisuus- ja kuntasektorin energiankuluttajia vastaamaan ilmastonmuutoksen asettamaan haasteeseen suorittamalla energiakatselmuksia erilaisiin kohteisiin.

Erityisosaamisemme keskittyy pumppausprosessien energiatarkasteluihin, mutta toteutamme myös laajempia tuotantoprosessien energiavirtatarkasteluja sekä katsauksia esimerkiksi kiinteistöjen energiankulutukseen.

Energiakatselmuksen tuloksena esitetään:

- Kohteen nykyinen energiankäyttö ja sen säästöpotentiaali
- Tekniset toimenpiteet säästön saavuttamiseksi
- Investointien takaisinmaksuaika
- Hiilidioksidipäästövähennys

APPENDIX 3: The survey questionnaire

1. Millä tasolla energiansäästöihin liittyvät päätökset yrityksessänne tehdään?

   Konserni
   Toimipaikka
   Kunta
   Muu, mikä?

2. Miten suuri energiansäästöpotentiaali toimipaikassanne on arvionne mukaan?

   Suuri
   Pieni
   Ei juuri mitään
   En osaa sanoa

3. Onko energiansäästötoimenpiteiden kartoittaminen yrityksessänne/toimipaikassanne ajankohtaista?

   Kyllä
   Ei
   En osaa sanoa

4. Onko energiankatselmustoiminta teille tuttua?

   Kyllä
   Ei

5. Jos energiankatselmustoiminta on teille tuttua, minkä kanavien kautta olette kuulleet niistä?

   Internet
   Messut
   Mainokset
   Myyntimiehet
   Suora yhteydenotto katselmuksen tekijältä
   Muu, mikä?

6. Missä kohteissa toimipaikassanne tarve energiankatselmuksille mahdollisesti on?

   Atk-laitteet
   Ilmanvaihto
   Lämmitys
   Lämminkäyttövesi
   Lämmöntalteenotto
   Paineilmajärjestelmä
   Tuotantoprosessi
   Valaistus
   Muu, mikä?

7. Onko toimipaikassanne tehty tai tullaanko tulevaisuudessa tekemään energiakatselmuksia?

   Kyllä
   Ei
   En osaa sanoa

APPENDIX 3: The survey questionnaire

8. Paljonko arvionne mukaan yrityksellänne/toimipaikallanne on rahaa käytettävissä energiansäästöselvitysten tekemiseen?

   Alle 5000€
   5000€ - 15000€
   Yli 15000€

9. Olisitteko kiinnostuneet saamaan lisää tietoa energiakatselmustoiminnasta?

   Kyllä
   Ei

10. Mikä tai mitkä ovat mielestänne tärkeimmät edut, mitä energiakatselmuksilla halutaan saavuttaa?

    Energian käytön kokonaistilanteen hahmottuminen
    Energiakustannusten säästömahdollisuuksien löytyminen
    Yrityksen imagon parantaminen
    Yrityksen toiminnan laadun parantaminen
    CO_2-päästojen vähentäminen
    Vapaaehtoisen energiansäästösopimuksen velvoitteiden saavuttaminen
    Ympäristöjärjestelmän mukaisen toiminnan tukeminen
    Ympäristövaikutusten vähentäminen

11. Olisitteko kiinnostunut hankkimaan energiankatselmuksen LUT Energialta?

    Kyllä
    Ei
    Ehkä

APPENDIX 4. LUT Energy / CDMC's references

Tekijä	Aihe	Työn laatu
Useita tekijöitä, LUT Energia	N. 350 erilaista diplomityötä energiatehokkuuden aihepiiristä	Diplomityö
Viholainen, Juha	Taajuusmuuttaja virtausmittarina	Kesätyö
Hammo, Simo ; Viholainen, Juha	The accuracy of flow calculation without metering	Julkaisu
Ympäristötekniikan yksikkö	Valtakunnalliset pumppauspäivät	Tapahtuma
Viholainen, Juha	Taajuusmuuttaja virtausmittarina	Kesätyö
Värri, Hanna	Rinnankäyvien pumppujen energiatarkastelu	Diplomityö
Hammo, Simo; Viholainen, Juha	Flow measurement of parallel pumping systems	Julkaisu
Ruuskanen, Anne	Optimization of energy consumption in wastewater pumping	Diplomityö
Jokiranta, Jarkko	Teollisuuden energiansäästö	Kandidaatintyö
Lampen, Heidi; Tanskanen, Riikka; Kortelainen, Juha; Tikka, Tuomas; Talberg, Auli	Energia-auditoinnit: pumppausprosessien energiatehokkuus	Erikois- ,kandidaatti- ja DI-työt
Ympäristötekniikan yksikkö	Valtakunnalliset pumppauspäivät	Tapahtuma
Nenonen, Heli	Pumppauksen energiakulut, Matlab -simulointi	Kesätyö
Viholainen, Juha	Developing of the Variable Speed Drive –control in simulated parallel pumping systems	Diplomityö
Ramu, Jenni	Water Treatment Technology	Opetusmateriaali
Juhmen, Jaano	Spec for pump consultants	Pientutkimus
Viholainen, Juha	Rinnankäyvien pumppujen ohjaustapojen kehittäminen simulointiympäristössä	Tutkimusraportti
Ympäristötekniikan yksikkö	Valtakunnalliset pumppauspäivät	Tapahtuma
Taskinen, Teemu	Calculation analysis of energy saving tools for fan and pump applications	Diplomityö
Aranto, Niina	Competitor comparison: variable speed drives in pumping applications	Diplomityö
Koskinen, Ville	Energiaa säästävä uusi viemäriveden pumppausteknologia	Diplomityö
Kortelainen, Juha	Supplier energy audits in thermal power plants	Diplomityö
Välimäki, Essi	Life cycle cost in heating, ventilation and air-conditioning systems with drive	Diplomityö
Aranto, Niina	Competitor comparison II: variable speed drives in pumping applications	Tutkimusraportti
Karhula, Sanna	Future development of energy efficiency in the industry in the European Union	Diplomityö
Rantsi, Jari	Power consumption in carbon capture and storage systems (CCS) and possibilities to reduce power consumption with variable speed drives	Diplomityö
Aranto, Niina	Energia-auditointi: Nordkalk Oyj Abp:n vesilaitos Lappeenrannassa	Tutkimusraportti
Aranto, Niina	Energia-auditointi: Energiankulutus ja potentiaaliset säästökohteet ABB Oy Pitjänmäen elektroniikkatehtaalla	Tutkimusraportti
Rouvinen, Satu; Aranto, Niina	Energia-auditointi: Kauko-Telkon Haminan terminaalin pumppaamo	Tutkimusraportti
Rossi, Mikael	Energia-auditointi: ABB Oy Pitjänmäen elektroniikkatehtaan valaistus	Kandidaatintyö
Sinkkonen, Anssi	Energia-auditointi: ABB Oy Pitäjänmäen elektroniikkatehdas: Lämmöntalteenotto ja sen kannattavuus eräässä ilmastointikohteessa	Kandidaatintyö
Kainulainen, Piia; Kosonen, Ella	Energia-auditointi: Energiankulutus ja potentiaaliset säästökohteet ABB Oy Pitjänmäen Tellus- ja Service-taloissa	Kandidaatintyö
Erkkilä, Satu	Energia-auditointi: Energiankulutus ja potentiaaliset säästökohteet ABB Oy Pitjänmäen Konetehtaalla	Kandidaatintyö
Viholainen, Juha	Uusi Energiaa säästävä ohjaustapa: rinnankäyvien pumppujen ohjaus dynaamisten toiminta-arvojen avulla	Jatko-opinnot, useita julkaisuja