1 Introduction

In this chapter the reader is introduced to the emerging market of Smart Utility and Smart Home, furthermore, general principles of the technology are shown. In addition to the problem discussion we also present company information about the employer ITP. Finally the purpose of the thesis is presented.

Forces of innovation alter the course of many industries. Currently there is a restructuring of the Swedish energy sector due to deregulation. This in combination with advanced technologies generates an innovative and a highly changeable environment. The result is differentiation of services and products. New actors are emerging and corporations grow larger. The Nordic countries have come furthest towards a deregulation of the electricity market in the EU. Deregulation in combination with technological infrastructure and entrepreneurship has created a unique setting were a new Industry is taking form.

This new Industry consists of technical systems for monitoring and measuring electricity consumption. The Nordic Industry is in the technological frontline. Currently the market is indistinct and no positions are taken. General policies in the EU suggest that the member states will follow in the footsteps of the Nordic countries considering deregulation. Therefore there is an enormous market opportunity for the Nordic actors.

ITP is a Norwegian company active in this new emerging market. The company is not operating in Sweden but considers a market entry since the Swedish market is large and similar to the Norwegian. In addition Sweden could be a key to further expansion within the EU.

1.1 Background

The advent of Information Technologies truly has changed the way we live our lives in a remarkably short time. Using IT to rationalize and save time and money in our daily routines, as we make bank errands and

grocery shopping electronically, whilst communicating with friends and family worldwide. Mobile phones and mobile Internet platforms have further, extended possibilities to integrate external information systems and communication; this is a significant step when merging different technologies. However, there are two sectors that remain unexplored regarding the benefits of emerging technologies: the Utility Industry and Home living environments.

Applying new technical solutions into the Utility Industry and Smart Home environment will bring staggering opportunities as well as threats to different businesses and companies. Utilities are currently operating their core business based on a true legacy system depending on outmoded meters for measuring their revenues and have no way to efficiently control or mitigate the ever-growing aggregated load dilemma or expand into new business opportunities. The Utility Industry is very much a mature Industry providing a commodity with the only possibility of differentiation through price and environmental issues.

Likewise, as home dwellers, we live in homes with no assistance from technological solutions for actively monitoring and reducing our energy consumption, or automatically controlling the multiple devices and appliances that are part of our daily home living environments.

Consequently, these two disparate scenarios have never had market names coined for them: Smart Utility and Smart Homes which represent significant revenue potential for the corporate entities that will provide solutions within these market segments. Where these two constituted needs appear, ITP's journey begins as being a provider of the infrastructure technology, that is required to innovate the Utility Industry, likewise, merging a platform in the same technology for residences of Smart Homes with the possibility of reducing energy consumption.

The Utility Industry is currently a service and commodity provider, when, providing electricity to residences and corporations. ITP's core business is to take Utility business one-step further in developing Utility companies product portfolio, giving the Utility Industry the possibility to add services to their core business and increase comprehension of user consuming patterns. Thereby, ITP provides a platform for refinement and development of the Utility Industry, which in turn enables the

creation of a new market, the Smart Home market. Since the Utility companies are ITP's primary customers, linking ITP with the end-users, it is crucial that ITP addresses and penetrates these entities.

ITP has focused its efforts on two product types; Smart Utility services and Smart Home services.

1.1.1 Smart Utility

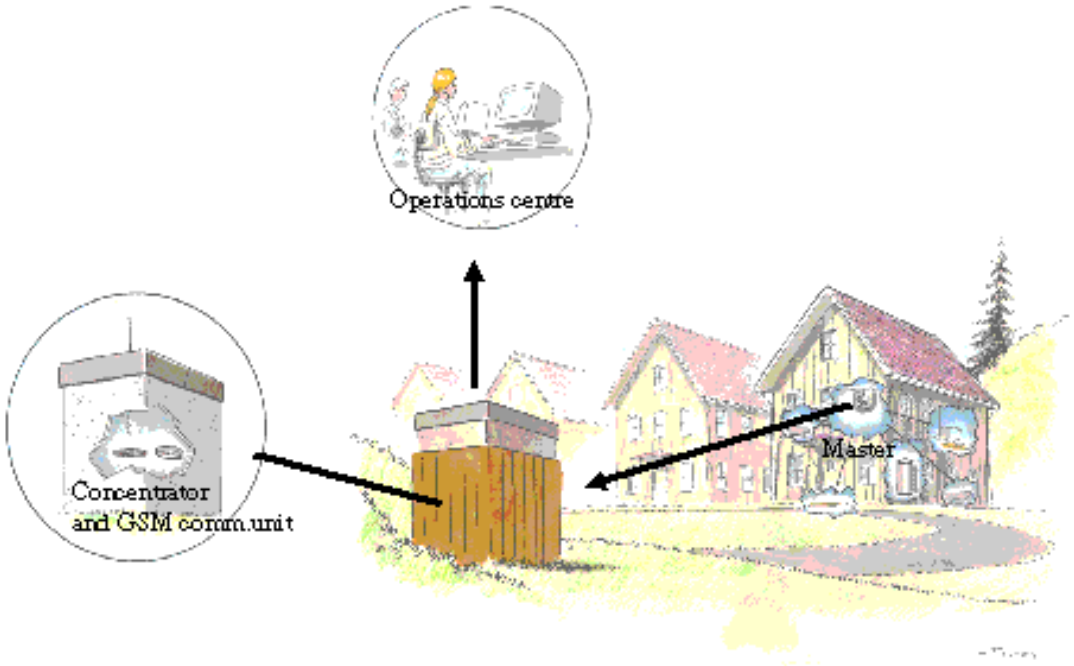
The Smart Utility services are directed towards the Utility Industry and its primary benefits are not to generate new revenues but to decrease costs and increase efficiency of the distribution of electricity. Smart Utility focuses on utility services enabling Utility companies to reduce operating costs and increase knowledge and functionality within their core business: delivering energy to customers. ITP's Smart Utility suite of products and services enables Utility companies to remotely read meters, intelligently reduce the aggregate load on their distribution grid, reduce loads during peak hours by percentages in specific neighborhood sectors, and gather detailed information about the energy consumption patterns. The Utility companies pay for the installation of the products and investment is returned by cut costs. [1]

Automated Meter Reading

The technique is based on an intelligent network that allows information to run in two ways. To be able to remotely read residential meters the Utility companies install a Master Interface Unit, MIU, in the customer's home. The MIU is conjoined with the normal electricity meter and a digital pulse reads the pulses from the energy that passes through the meter and digitally records the amount of energy used by the consumer. The MIU is also the control-center for all intra-home ITP applications.[2]

[1] ITP Business Plan, 2001.
[2] ITP Businnes Plan, 2001.

Picture 1



Picture 1 describes the function of an AMR system.[3]

To communicate information to the Utility company the MIU communicates with the Collector Interface Unit, CIU, located in the low-voltage substation in the residential neighborhood. The MIU gathers and stores information on the home's energy consumption, meter values, and general operating condition and the4n delivers this information to the CIU. The CIU collects information from all of the homes that are connected to the distribution side of the substation and delivers that information to the utility/Grid operator via a WAN connection, i.e. modem or GSM or radio. As the CIU aggregates information from multiple homes on each substation, it provides a central point of information about the network's status as well as status reports on an individual basis. This allows utilities to virtually segment their networks so that they can gather information specifically relating to the health, load, and energy consumption of specific regions. The collected information includes Hourly usage, Load usage, Meter value, and Outage information. Communication between the CIU an MIU is based on Power Line Cable

[3] www.itp.no, 2002-01-05.

(CEBus). For industial scenarios, the ability to add and monitor sub meters is entirely possible.[4]

1.1.2 Smart Home

Unlike the Smart Utility services the Smart Home services are directed toward end-users, residential consumers. The Smart Home services increase consumer comfort and reduce energy cost by enabling monitoring of, and intelligent solutions to, the electricity consumption. The Smart Home service consists of Smart Home devices, i.e. heaters, and an intranet system that links all household appliances into a cohesive network that enables the customers to remotely and locally monitor and control their living environment. Via a Web site consumers can remotely check if all doors are locked and the alarm is turned on. They can also remotely via a Web site or via a SMS turn on or shut down different residential devises. The Utility companies offer Smart Home services and devices for a small fee that is added to the normal electricity bill.

The term Smart Home services refers to the concept that all of these applications will focus on methods of achieving the following customer benefits based on the desire to increase comfort, safety, and overall quality of life: [5]

- Save the customer time
- Save the customer money
- Simplify the customer's life
- Enhances the customers leisure time and overall lifestyle

1.1 Problem recognition

ITP is currently examining the conditions for a market entry in Sweden. This calls for an Industry analysis of the different entities within the network. An analysis is the critical starting point of strategic thinking. Awareness of the environment is of great importance when deciding to enter a foreign market. Crafting strategy is made by analysis and there are two main situational factors when analyzing, external and internal factors. The main focus will be on external factors such as; the Industry and the

[4] ITP Business Plan, 2001.
[5] Teigen, 2002.

buyer group. The internal factors compared with the external factors give the prerequisites for a market entry.
ITP is acting within a fast growing market, innovation and entrepreneurship characterizes the business. The approach of international marketing combined with innovation theory concludes that there are barriers that the company has to overcome. Barriers of entry on a market depends on several factors, i.e. what phase the market is in, competitors and buyers network positions and difficulties of innovation acceptance. In the end the customer decides whether the product will be a success or a failure. ITP's business plan consists of two core functions; Smart Utility and Smart Home, where the technology of the latter depends on the former. Smart Utility allows the Utility companies to remotely read user meters and thereby allowing a new product to fill an existing demand. On the other hand, the Smart Home solutions are new products on a new market where little current demand exists.

The Smart Home and the Smart Utility market is therefore characterized by innovation and an environment that is complex and fast moving. In ITP's case the customers are Utility companies and Grid operators. Another factor that affects a market entry is the macro environment in the new market. In this case the Swedish electricity market is being de-regulated.

When considering a market entry strategy the first and main issue the board has to determine, is whether to enter. The decision is based on an analysis of the unknown market. The analysis is the first step towards strategic thinking and gives an awareness of the environment within the market. In the light of the environment there is also a need for the internal factors to be overlooked. This gives the board of ITP a comparing view of strengths and weaknesses, opportunities and threats connected with the Swedish market.

A well planned strategy aims to capture ITP's best growth opportunities within the new market and to defend against external threats to it. The strategy of this investigation should therefore be aimed at market entry with the consideration of an innovation market. This analysis contributes to the needed background for deciding whether to enter the intended market and how to accomplish that entry.

While studying future strategies it is essential to be aware of and comprehend the market environment that ITP is a part of and relate it to internal strategy. We find that there are three central factors to highlight. The first and most important is to be found within the external part of the company's network. The external perspective includes the buyers of Smart Utility and Smart Home products and services. The buyers of ITP's products are mainly Utility companies. Other important actors are ITP's Swedish competitors. The external perspective also includes the political and legal environment. The Swedish electricity market is currently undergoing a deregulation. Secondly it is of strategically concern that Smart Home Industry is an innovation market. Speed of diffusion is of interest and if the competitors are taking strategic measures to alter speed and adoption. The third aspect is how the internal strategy and competitive advantages are related to the conditions within the Swedish Industry.

- *How the Swedish electricity market is constituted?*
- *Who are the key buyers and what are their strategies concerning Smart Utility and Smart Homes?*
- *Who are, and what characterizes the Swedish competitors of ITP?*
- *What are ITP's strengths, weaknesses, opportunities and threats compared to other actors on the Swedish market?*
- *What key factors will determine success in the Industry?*
- *What are the possible outcomes of a market entry, i.e. strategic alliances, joint ventures or fully owned subsidiaries?*

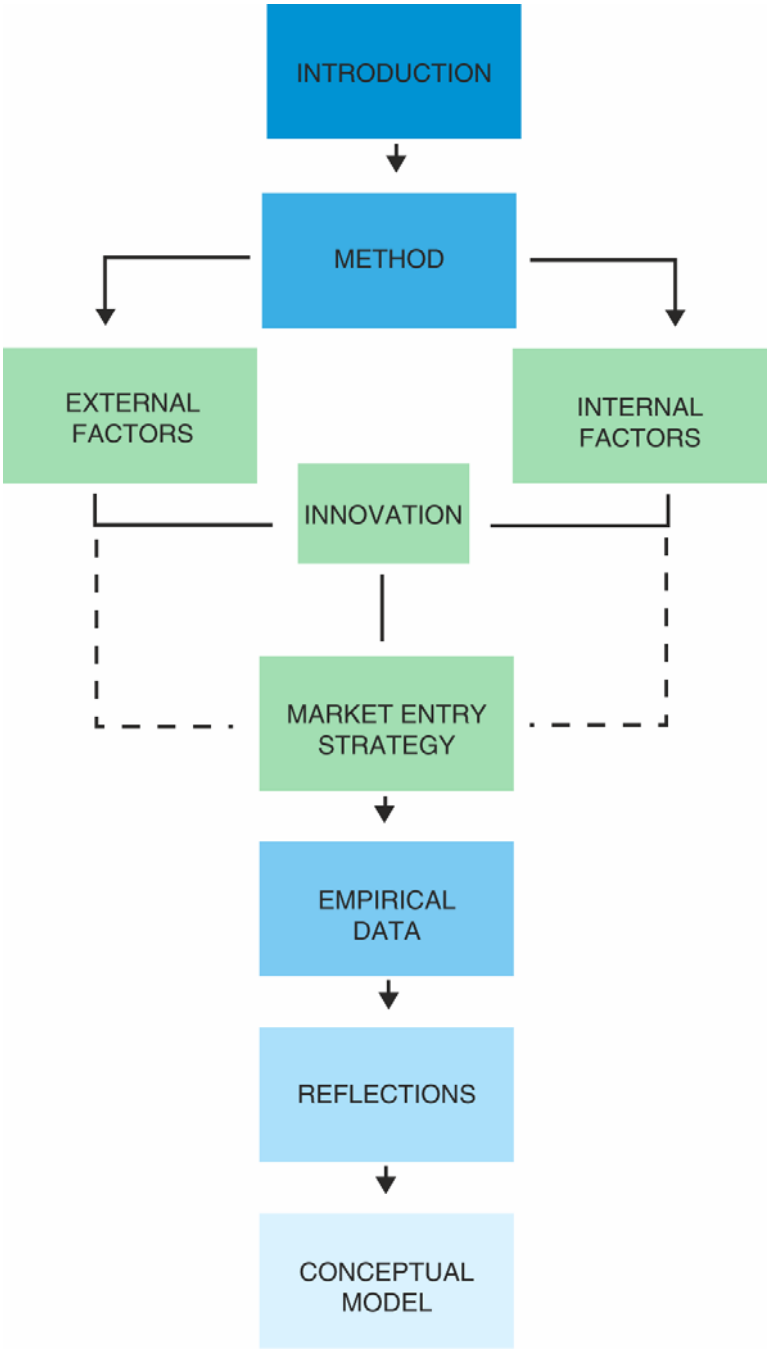
Technology has changed our lives in many aspects and in the last century the technological development has been rapid. Many new and classic theories disregard the fact of innovation when considering market entry strategy. This thesis therefore aims to explore the strategic measures a company can make to alter the speed of diffusion when acting on an innovative market.

- *If, and how, does an innovation market affect a market entry strategy?*
- *What strategic measures does an innovative company use to change speed of diffusion?*
- *What are the barriers of innovation when considering an innovative market?*

1.2 Purpose

The purpose of this thesis is to explore the Industry of Smart Utility in Sweden, the thesis will also present information for a market entry.

1.3 Disposition



The picture illutrates a disposition of the thesis.

2 Method

In this chapter we present the procedure that we used when forming this thesis. ITP faces a new market and therefore needs an information basis for decision-making. Thus, we initiated an explorative study based on in-depth and telephone interviews with key Industry actors and external experts.

The fundament of our thesis is to explore the Swedish market on behalf of ITP. Our study of the Smart Utility and Smart Home Industry may be defined as explorative. Previous studies are limited since the Industry is new, innovative, and the market is in its infancy. Hence, there is a fundamental information need. The Industry consists of competitors, buyers and other key actors, which we interviewed, gathered information about and, finally, analyzed. This thesis has a pragmatic approach, due to the fact that it is supposed to provide information for the employer ITP. Hence, the empirical and reflective parts of the thesis are extended. Nevertheless, the thesis will also aim to take marketing research one step further.

2.1 Scientific approach

Induction is a way of exploring reality and then forming standards of thought. Deduction is the opposite of Induction and is based on the forming of conclusions about reality from non-proven statements. The thesis will explore reality trough empirical data. These studies will be combined with theory in order to establish connections and conclusions i.e. abduction is the objective. [6]

The variables can, with an exploratory research method, be compared and interrelated even though the method does not support statistical verification.

2.1.1 Qualitative and Quantitative Methods

Within the scientific community there are two main research paradigms, quantitative and qualitative research. A quantitative model bases its results

[6] Andersen, 1994.

on quantifiable data and a qualitative model bases its results on non-quantifiable data such as attitudes, valuations, notions etc. Quantitative methods are used mainly when describing or explaining a relationship. Quantitative investigations are measurable and quantifiable by statistic methods. Quantitative studies and methods have their origin within "positivism" and "Natural science". The qualitative school is confident that not all social relations are possible to fully describe or explain by using scientific methods. A corner stone in the qualitative school is the assumption that an investigation consists of a unique combination of variables, qualities, or characters.[7]

Hermeneutics is defined as an interpretation doctrine that forms a fundament within the qualitative research methodology where researchers scientists takes subjective variables into account. Previous acquaintance is not seen as a hindrance to qualitative research, but rather as an advantage. One of the premises in Hermeneutics is that the researcher approaches the investigation with past knowledge.[8]

According to hermeneutics, research ought to be conducted with a holistic viewpoint, the opposite to only examining isolated autonomous variables. By using a holistic procedure, research relates all different parts in order to obtain a more profound understanding of the problem. The research process often goes back and forth between the entirety and the autonomous variables. However there are certain starting and end points when interpreting. This interchange between these points is called the hermeneutic spiral. In this spiral text, interpretation, understanding, formulations of new text, new interpretation and new understanding are intertwined. The different parts are connected in an entirety, which develops and expands the reflections.[9]

2.1.2 In-depth interviews

In-depth interviews are open personal interviews. In depth interviews are the most common method in qualitative research. Compared to telephone- or mail interviews these allow a more personal contact where

[7] Andersen, 1994.
[8] Ibid
[9] Svenning, 1999.

more complicated matters can be discussed and the interviewer stands a better chance to avoid misunderstandings.[10]

> *"By in-depth qualitative interviewing we mean repeated face to face encounters between the researcher and informants directed towards understanding informants' perspectives on their lives, experiences or situations as expressed in there own words"*[11]

Both body language and facial expressions can be noticed and taken into consideration, which both telephone- and mail interviews lack. The two main drawbacks with In-depth interviews that could jeopardize the reliability are the risks that the interviewer, unintentionally, asks leading questions due to articulation, or expresses presumptions by body language. We have been aware of these risks and taken precautions to prevent them from occurring, mainly by constantly being aware of the problem and trying to be well articulated and impartial. Also, in order to strengthen the reliability, all respondents were asked the same set of questions, provided that they were in the same group of interested parties. This also increases the comparability between the respondents.[12]

2.1.3 Telephone interviews

Telephone interviews are a method that can be utilized in both quantitative and qualitative studies. We have chosen qualitative interviews. One drawback with this method is that the respondents only participate with full involvement during a limited time. We only relied on the method in those cases when no alternative was at hand; the respondent for some reason only agreed to be interviewed via telephone. When the method was used we always made an appointment with the respondent in advance and stated the subject of the interview in advance. The purpose of this was to ensure that the respondent would be prepared and well disposed to participate.

The alternative method, the quantitative, would result in limited information due to its demand for standardized, precise questions, which

[10] Svenning, 1999.
[11] Taylor, Bogdan, 1984.
[12] Svenning, 1999.

result in standard answers. This method is more suitable for a statistical research i.e. a statistical confirmation of a research question. [13]

2.2 Validity and reliability

Validity is defined as; if the investigation is measuring what it is intended to measure[14]. This implies, however, that the investigation reflects reality. The necessity of validity exists in both quantitative and qualitative investigations[15]. Quantitative investigations require objective respondents and interviewers. Validity can be divided into external and internal validity[16]. Internal validity is the connection between theory and the empirical material in an investigation. The correlation between these components forms a basis for the internal validity. If the connection between the two components is disrupted the internal validity is suffering. Thus the investigation does not answer what it is supposed to answer. External validity is a measure of how well the investigation is applicable on reality. As our investigation is based on in-depth interviews, considerations must be made when assembling adequate questions as well as choosing respondents. These measures pose a validity risk.[17] To obtain high validity it is essential that the problem recognition correlate to the information need and the interview questions. Reliability on the other hand implies the credibility of the investigation[18]. Furthermore reliability is closely connected to objectivity of the investigation, the choice of method, and its execution.

2.3 Execution

The Information Need is an analytical view of a problem that illustrates the information gaps that need to be filled. Hence, the Information Need is the fundament that pillars the construction of the whole thesis. The Information Need was formed in consultation with ITP's management and our supervisor Christer Kedström, so that consideration was given to all parties involved. To form the basic structure of the thesis we applied the Funnel Metaphor, which describes a process where the Information

[13] Svenning, 1999.
[14] Nordstedts, 2000.
[15] Svenning, 1999.
[16] Ibid
[17] Andersen, 1994.
[18] Nordstedts, 2000.

Need, as a wide and vague definition of a problem, is being narrowed along a funnel. The output is a more specified description of the problem and gives a core focus that generates the structure for the different parts of the thesis; problem definition, purpose, theoretical framework and the interview questionnaire.

2.3.1 Qualitative research

The object of the thesis is to gather a broad spectrum of information in order to obtain a profound insight into the Industry and its players. A qualitative model is preferable for our objective because it better demonstrates the attitudes and underlying thoughts of the different actors in the network.

The research conducted during the thesis was mainly based on in-depth interviews. Telephone interviews were also used at some extent. The purpose has been to have as many personal interviews as possible, since this improves validity and reliability.

Our questions are formed so that there is no limitations regarding the answer alternatives, due to our belief that values, opinions and attitudes are better captured if the respondents are provided the opportunity to answer freely. The respondents should be free to develop their thoughts on the subject in order to reach more complete answers.

2.3.2 Interview Questionnaire

During the Funnel process, interview questions were formed to fill the information need. These questions were later sorted into different categories depending on whom the respondents would be. The comprehension of the questions was tested on the management of ITP and Christer Kedström. The internal validity, if the questions were measuring what they intended to measure, was also taken in consideration. The questions have been formulated in a pedagogic way, hence, reliability is increased.[19]

We utilized the chosen theories to analyze the gathered data thus the theory must correlate to the Information Need.

[19] Hollendsen, 2001.

2.4.3 Information gathering

We taped the interviews in order to get an authentic documentation, which is preferable as it gives the interviewer the opportunity to focus on what the respondent has to say. When taking notes too much attention and focus is demanded in the writing process. This reduces the focus on the respondent and the reliability of the notes is often reduced due to abbreviation and misunderstandings. The risk of relying entirely on taped documentation is that it would cause serious damage if the material were erased. It is also time consuming to analyze the taped material, as it is harder to get an overview if the answers are overlapping. Due to the drawbacks of taping interviews we combined the taping with taking short notes directly on the interview questionnaire to obtain some control of the order in which the questions were answered.

When analyzing interviews with chosen actors a frequently used strategy is pattern matching. The strategy is to continue interviewing additional actors until a pattern crystallizes. The theories applied are compared with the results of actor studies, and if they conjoin it strengthens the internal validity.

The chosen companies relevant for closer studies are mostly based on ITP's guidance, but as the project proceeded we acquired knowledge of new actors of importance. Expert interviews are interviews with persons who have a certain profession, position, education or other experience that might be essential and contribute to the actual area of scope. [20] We have chosen to define experts as the respondents that have a non-profit relationship with Industry. These persons are employed by the University of Lund or governmental authorities, which via their research or profession have insight in the Industry and its actors. A total of 20 interviews were conducted, the majority were in-depth interviews.

The process of collecting secondary data was made using the data systems Lovisa and Journals as, Harvard business review and Journal of Marketing, at the university library in Lund. Literature was also ordered from other libraries. Initially our supervisor, Christer Kedström, suggested literature on the subject. The Internet also provided information; primarily company websites where information was

[20] Rosengren, Arvidsson, 1992.

gathered, annual reports and other articles could be acquired. Furthermore, the data collection process has been carried out ongoing while developing the thesis. The gathering of written material has generated a substantial information platform consisting of literature, articles, reports and theses etc. This has contributed to a broad knowledge of the actors and the environment of our research.

2.4 Self-criticism

Objectivity is associated with difficulties when conducting a report. Sooner or later or rather more or less the author's own values will appear and it is an ongoing process to review where these emerge. Since our group consists of three authors we have all tried to be aware of this and avoid it by constantly editing our contributions. Nonetheless, not even this precaution is sufficient since we suppose that a group mentality to some extent has influenced the thesis.

To meet the demand of contemporary information considering primary and secondary theoretical data, the main parts of the information and models were at the frontline of research. However, one should not discard pioneering data and research as irrelevant. Therefore we have chosen to strike the golden mean and combine both frontline and epoch-making theoretical models. The empirical data, on the other hand, calls for recent and accurate information. Thus the empery was based on up to date annual reports, websites, and interviews.[21]

We are aware that our empirical material may endure tendency, since parts of the material comes from companies. In order to obtain non-tendentious material the researcher can use different sources of information. This has been made by comparing primary and secondary sources of information.[22]

A majority of the interviews were conducted with respondents within companies. Their views may be colored by company attitudes and values. This factor was taken into consideration when conducting in-depth interviews. By in-depth interviews personal trust is increased between

[21] Svenning, 2000.
[22] Svenning, 2000.

respondent and interviewer.[23] In this situation it is necessary for the interviewer to be objective and aware of colorful respondents.

The objective to fill the information needs has been fundamental for the forming of the interview questionnaire. Only those factors relevant and necessary for reaching the objective have been taken into consideration. External validity implies that empiric results should correspond to reality. Withholding essential information, lies and incorrectness have a negative impact on the external validity. This is hard to avoid but we have prepared the respondents on the subject for the interview and informed them that they have an option to participate or not.

Reliability is defined as trustworthy information. In the ideal case the researcher should be able to make the experiment several times with the same result. The reliability of this thesis is connected to the interviews and the interview questionnaire. Our interviews have been open and therefore reliability is connected to the information need and interview guides. This thesis include companies in an innovative Industry, hence the information flow sometimes is restricted due to company policy, non public limited companies, and individual factors. This affects reliability negatively, but we are aware of it.

Market entry strategy and innovation are vast areas of empirical research. This has also affected quality, and needs to be addressed. In order to improve the quality, certain areas of research were given priority; political and legal environment, the buyers of Smart Utility and the Smart Utility Industry.

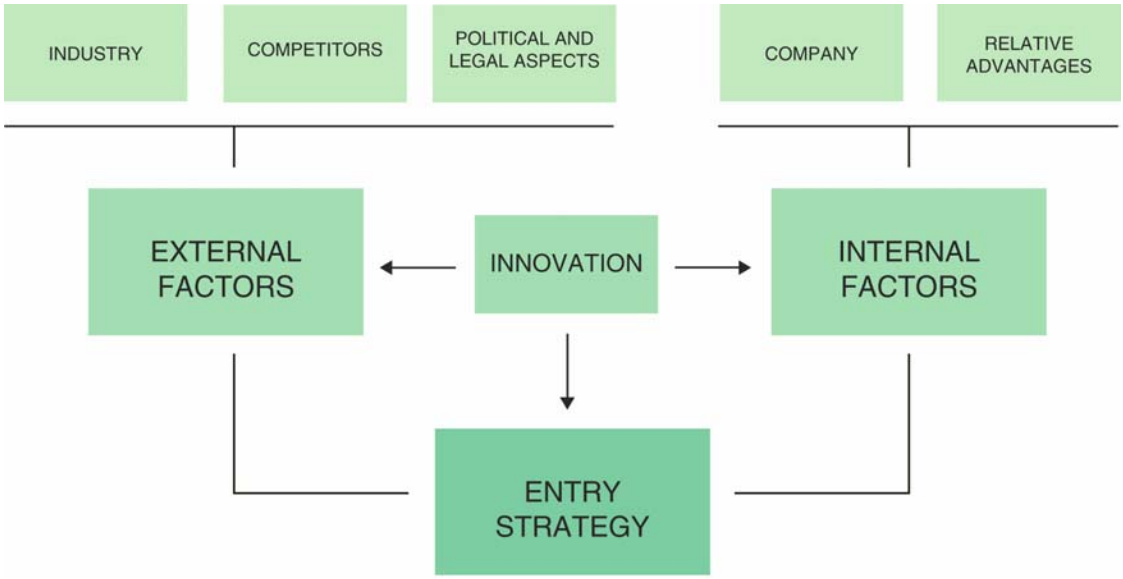
[23] Hollendsen, 2000.

3 Theoretical framework

Analyzing an Industry can be done in different ways; one way to do a thorough investigation is to shed light on the external environment and on this basis analyze the internal conditions. The internal analysis' aim is to show the situation and competitive position of the company in question. Infant markets are characterized in a different way and, because of this the diffusion and management of innovation need to be considered. Hence, three main theoretical areas appear; Strategic Industry Analysis, Innovation theory and Market entry.

Analysis of external factors includes Industry analysis, competitor analysis and macro analysis. This gives the conditions for further investigation of the factors influencing an innovation market. The external and internal analysis is thereby integrated with innovation theory producing a framework for strategic research. Hence the investigation of external and internal factors creates a foundation for a market entry framework. The model was exclusively constructed for this thesis and has its roots in international marketing.

Picture 3

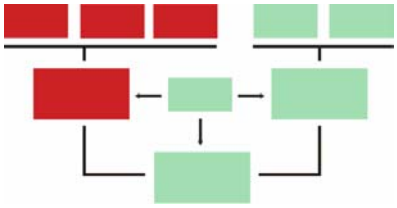


The picture illustrates the theoretical framework of the thesis.

Entry strategy will illustrate how a company can build a competitive advantage and thereby improve company performance when entering a market.

"Good strategy making is more outside-in than inside-out"[24]

3.1 External factors



The External factors consist of industrial analysis, competitor analysis, macro analysis, and the diffusion of innovation. The Industry analysis is mainly based on the five-forces-analysis[25] It is complemented with a political and legal analysis to give a broader perspective to the underlying variables concerning a market entry.

One important viewpoint of the Industry is that of the competitors and this aspect has been given a part of its own in the exploration. The different companies and actors within an Industry is also a part of the network. The network approach is therefore relevant when dealing with market entry theory. The external analysis is integrated with innovation theory. This is due to the unique characteristics of an innovation market.

3.1.1 Political and legal aspects

Political factors and legal environment are important variables to consider, especially concerning the deregulation within the EU. The political system is founded on government, government-agencies and government owned enterprises[26]. The government and its agencies create legislation and regulations that companies need to consider.

The EU is a central aspect that needs to be addressed when studying macro factors. The EU is today a union between the western states of Europe. Each country is a subject of EU legislation and regulations[27]. Practically this means that EU law is superior to the national law.

---

[24] Thompson, Strickland 1995.
[25] Porter, 1979.
[26] Daniels, Radebaugh, 1994.
[27] Svea rikes Lag, 2000.

Today the trend is moving towards further deregulation of society which in turn weakens barriers of entry. Other political matters that have arisen in the recent years are the environmental issues. [28]

3.1.2 Industry analysis

The five forces model presents a tool for determining an Industry's attractiveness[29]. An Industry is here defined as a group of companies that are producing a product or service that is similar and close to identical to each other[30]. In an Industry rivals within the same strategic group compete for market positions and benefits. This is the first force and is often the most significant; therefore it is also where strategy focus is most often placed[31]. The stronger one or more of these forces are the harder it is for a company within the Industry to compete and make a profit[32]. The five forces model is a tool for analyzing the environment. By the information output, opportunities and threats can be recognized. Finally, strategy can be initiated and implemented to meet the demands of the environment.

According to Porter (1979) the strongest of the competitive forces determines the potential of the Industry. In different industries different actors are in different power positions and therefore also influence the market in different ways. When dealing with a market or Industry that is still on the verge of establishment innovation theory is of interest. Innovation is complex and variable and is relevant when dealing with substitute products and services. The innovation theory gives rules of thumb for a market still in its infancy. In the environment of innovative and not standardized solutions threats of market entries and substitutes are, naturally, great[33]. The threat of new entrants is another issue that has to be addressed when investigating an Industry. Horizontal forces in the model are represented by suppliers and customers inside and outside of the Industry.

---

[28] Hill, Jones, 1998.
[29] Porter, 1979.
[30] Hill, Jones, 1998.
[31] Porter, 1979.
[32] Hill, Jones, 1998.
[33] Porter, 1979.

The power of buyers

Buyers are horizontal actors within the Industry network. These actors have various powers depending on different situational factors. In extension to the Industry the buyer often provides the company with a supply chain connected to the customers. When a buyer is in a position to demand or influence prices, they are considered a threat. Weak buyers results in the possibility for the Industry to charge more for products and services[34].

Special conditions affect the power relationship between buyers and the strategic group. The buyer group is powerful under the following conditions[35]:

- The buyer group is dominated by few and large companies buying great quantities.
- The product that is bought is undifferentiated, hence, no particular advantages or characteristics separate the manufactures.
- Due to dependence of the product, the buyer group is focused on price.
- If the buyers make a low profit on the product, it also affects the strategic group in terms of price consciousness. Therefore it tends to lower the profits in general in the Industry.
- The quality aspect is of relevance and if the buyer's product or service is unaffected by the quality of the Industry's product, the power is shifted towards the buyer group.
- Power is also shifted if the product doesn't save the buyer group money.
- Buyers are considering entering the business of the strategic group.
- The buyer group can also affect the power state within an Industry by influencing the customers to buy certain products. This is closely connected to retailing.

[34] Hill, Jones, 1998.
[35] Porter, 1985.

Customers consist of industrial buyers or consumers. Consumers are more or less price sensitive due to involvement and cognitive factors. Choosing the buyer to ones company is a key decision a company within a strategic group must take. The suppliers' opportunity to influence increases if the buyer is in a low power position. Central issues to gain power and increase revenues, when dealing with buyer groups, are therefore low cost production or unique products. Accordingly, the selection of buyers is important, since it may allow product differentiation and avoid a situation where buyers produce their own products. Naturally, power of suppliers and buyers change over time and this poses a challenge for companies to adapt. [36]

Rivalry in the Industry

The Industry itself poses particular conditions for the companies present. Competition between companies within a strategic group creates and differentiates positions throughout the Industry. The competition takes different forms e.g. price strategies or marketing. Low competition within the strategic group gives actors the possibility to raise prices and thereby improve profits. [37]

Competition depends on several different factors[38]:

- Competition is expected to be high if the Industry is characterized by many and equally powerful competitors. The Opposite of the fragmented Industry is the oligopoly and monopoly. This state of market structure is often characterized by government regulations, e.g. the present and past Swedish electricity producers.

- The Industry's growth is weakening and competition is therefore focused on market shares. The fight for market shares in a consolidated Industry will cut prices and profits. On the other hand a growing market will decrease rivalry between competitors. This is first and foremost the result of the fact that actors are expanding at nobody's expense.

[36] Porter, 1985.
[37] Hill, Jones, 1998.
[38] Porter, 1979.

- If the Industry is producing a product that is homogenous, the switching costs may be lower and therefore competition is expected to be high. Standardization and brand loyalty is in this situation low.

- High fixed prices bring a desire to compete with prices. With this type of competition margins tend to shrink when demand is dropping.

- Industries featuring large-scale producers risk facing overcapacity, especially when exit barriers are prominent. The exit barriers make companies stay in the business even if revenues are low.

- If the different competitors have varying strategies, origins and approaches, clashes are expected to occur more often and therefore increase competition.

Different strategies can minimize competition or shift power within the Industry, i.e. the creation of exit barriers for the customer. Mapping of the five forces also imposes a guideline for unveiling a company's strengths and weaknesses. Hence, adaptive strategy to meet the different threatening forces can be formulated and implemented. Porter (1979) illustrates how a company can find a position within the Industry where competitive forces are weaker, or by strategic moves weaken the surrounding forces. The five forces also give a tool for analyzing the future and foreseeing different scenarios.[39] When positioning a company to match the different forces surrounding it, it is essential to know a company's capabilities, i.e. if confronted with powerful buyers, prices and competition can be expected to be high and this situation might suit a low-cost producer [40].The strategic position can also be used in branding. Porter (1979) accentuates that the main issue is to establish a position within the Industry that is strong against all, or the most important, of the five "forces".

[39] Porter, 1985.
[40] Porter, 1979.

3.1.3 Limitations of the Industry analysis

Porter's model presents an static view of the Industry and is therefore limited. The development and change of an Industry is often made by innovation. Innovation is not considered in the classic model. Porter also focuses on the strategic group as a determinant of profitability, not at the single company[41]. Innovation can, and sometimes does, create or replace industries. Substitutes thereby alter the power and network structure. Nowadays innovation diminishes entry barriers and thereby opens markets for competitors. The elimination of entry barriers is, for example, made by lowering production costs. In addition, innovation alters the corporate structure of the Industry towards fragmentation. [42]

3.2 Competitor analysis

"If you know your enemy as you know yourself, you need not fear the result of a hundred battles."[43]

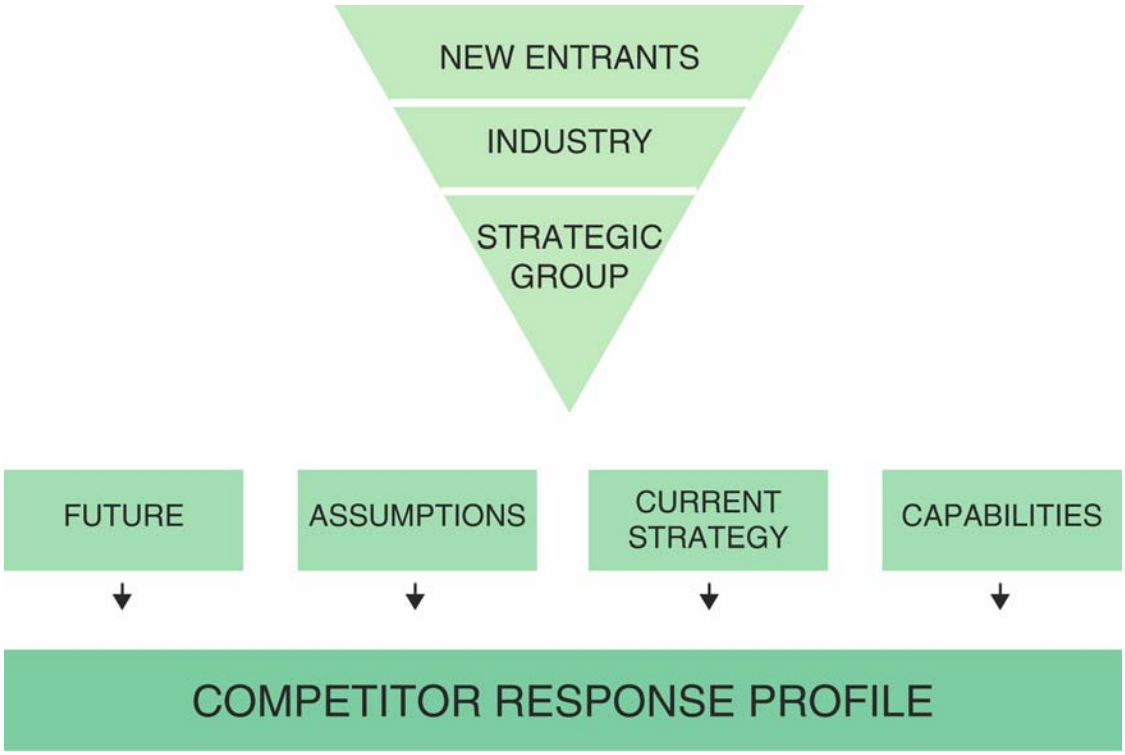
When entering a market there is a need for competitive analysis. The analysis is conducted by investigating the network and its constellations. The competitors, buyers and suppliers are arranged in different competitive positions in the network. The positions need to be mapped out and measured. Visions, goals, strengths, weaknesses and resources are therefore of importance. These factors need to be compared to ITP in order to make a comparison.

Competitor analysis is a part of the five forces analysis[44]. Competitors are not only the actors within a strategic group; they also constitute from substitute product and service developers. This fact also calls for an analysis of other possible market entrants. These entrants are characterized by the fact that they already have developed similar technology, but are not currently competing within the intended market. Substitutes are in the long run the most dangerous threat to a strategic group[45]. This is not only due to the substitute's relative advantage or

[41] Hill, Jones, 1998.
[42] Ibid
[43] Sun Tzu, *The art of war, London*, Hodder and Stoughton
[44] Porter, 1985.
[45] Hooley, Saunders, 1993.

technology improvement, but also the fact that when a substitute is being established on the market it brings a number of new competitors.

Picture 4



The picture illustrates a framework for analyzing competitors.

This fact calls for a classification of competitors. Hence, competitors are divided into three different categories; competitors within the same strategic group, competitors within the Industry and new possible entrants or substitutes. New entrants or substitutes are characterized by companies that are trying to diversify and thereby gain access to new markets[46]. Substitute producers have often developed new technology and therefore are trying to enter an already established market. Therefore a central aspect is to know which companies are considered competitors now and in the future[47]. In this case it is interesting to note that innovation is still present in the market of Smart Home and Smart Utility. There are four dimensions concerning competitor analysis that request a

[46] Hooley, Saunders, 1993.
[47] Rothschild, 1979.

highlighted position; future goals, assumptions, current strategy and capabilities [48].

3.2.1 Future goals

The future goals of the competitors is a central aspect, since they reveal the competitors' intentions and, hence, future market entries. One major task is to unveil and grade future competition. Large competitors often have an ambition to become the market leader and when a large actor is considering an entrance competition is expected to rise[49]. When competing against larger actors with more differentiated product portfolios, attention to different areas of the portfolio can indicate change in market focus.

3.2.2 Assumptions

Assumptions can, in turn, be defined as the gap between the company's own assumptions about the market and what it really can achieve. One way to illustrate the assumptions within a company is to use the value chain analysis. The value chain is not only a tool for understanding competitors, but also a tool for analyzing buyers and suppliers within an Industry[50]. Porter (1985) point out five major activities that is value-adding to a company's output. The value chain is therefore a mean for defining a company's position and cost efficiency. This is the essence of the value chain.

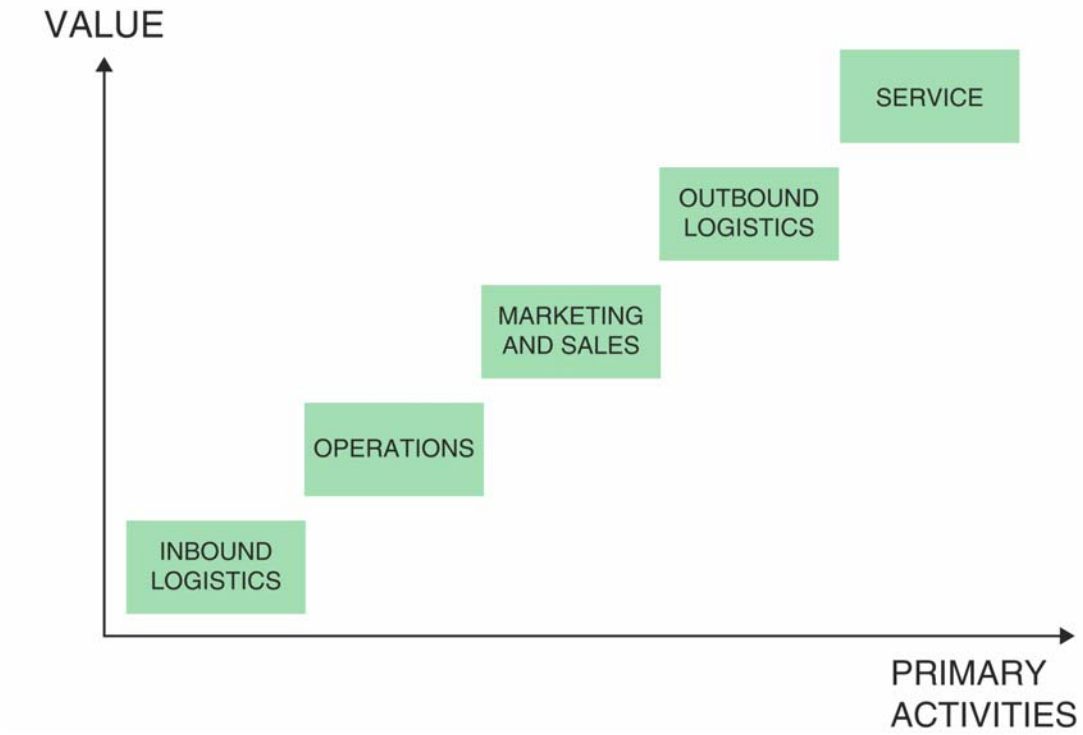
- Inbound logistics
- Operations
- Outbound logistics
- Marketing and sales
- Service

The *inbound logistics* indicates and manages the stream of products into a company. *Operations*, on the other hand, have been classified as the most important part of a company's business. This is due to the actual making, or assembly of the product. As competition gradually has increased

[48] Porter, 1980
[49] Hooley, Saunders, 1993.
[50] Porter, 1985.

during the twentieth century, differences between products are becoming smaller and therefore reduce the significance of operations. Innovation thus increases the importance of operations. Another aspect of operations is design of the products, design is considered as adding value to a product. *Outbound logistics* is the opposite of inbound; it supplies the company's customers with products or services. Time is one central aspect of the outbound logistics. The next step in the value chain is the *marketing and sales*. Communication between buyers and sellers is necessary to make a purchase possible. *Marketing* also includes the flow of information to and from the sales channel.

Picture 5



The picture illustrates the value chain.[51]

Last in the chain comes *service*. This part is considered as the one maintaining the product functionality for the customer, i.e. it includes "after-sales" activities and marketing. The value chain is providing central information to the competitor analysis, since it reveals advantages of specific competitors in different steps of the value chain.[52] The amount of value added to a product or service determines how much a customer is ready to invest[53].

The primary activities are supported by secondary activities. The secondary support activities are constituted by *firm infrastructure, human resource management, technology development and procurement*[54]. *Firm infrastructure* is defined as the overall management, finance, accounting and legal matters. *Human resource management* is a key aspect when dealing with all

[51] Porter, 1985.
[52] Hooley, Saunders, 1993.
[53] Porter, 1985.
[54] Ibid

types of personnel matters. According to Porter (1985) *technology development* includes the improvement of the product and optimizing of manufacturing process. Procurement, on the other hand is the management of the inflow of components to a company, e.g. purchasing.

Primary and support activities have different characteristics. They can be direct, indirect or connected to the quality aspect. Direct activities produce value for the customer, indirect activities support direct activities e.g. maintenance. The quality aspect makes other activities work by assuring they function properly. By studying the characteristics of activities, competitive advantage can be illustrated, e.g. indirect activities support and enhance direct activities giving the customer superior value. When studying complex activities, as marketing & sales, the different activities must be illustrated. Porter (1985) states three criteria on when to categorize activities; if the activity has different economic aspects, if the activity strongly affects differentiation and if the activity constitutes increasing costs and therefore is of future importance. The different activities and their priority found a competitive advantage. Nevertheless, the different activities should not be isolated but seen in their interaction within the company[55]. Hence, the connection and coordination between activities within the value chain is essential for the analysis. [56]

3.2.3 Current Strategy

Current strategy gives the analyst the answer to what the competitor currently is up to. An important aspect is how the goals are met. Hooley and Saunders (1993) point out three different dimensions to analyze, *corporate strategy, strategic purpose and core strategy*[57]. The *corporate strategy* is defined as the involvement in a specific strategic group. The corporate strategy can indicate where the main business focus is and therefore imply strengths or weaknesses in the designated market. *Strategic purpose* is the competitor goal priority considering the business unit. Elements of the *strategic purpose* could be profit or market share. The *core strategy* is the strategic business unit or units that deliver the main part of a company's profit. This factor is also an indicator whether the company is engaged in the strategic group that is analyzed. If involvement is high one can

[55] Thompson, Strickland, 1995.
[56] Porter, 1985.
[57] Hooley, Saunders, 1993.

suspect different competitor strategies, ranging from aggressive to defensive. This discussion includes the importance placed in knowing how significant a particular market is to a competitor and if they are ready for further investment[58]. [59]

3.2.4 Capabilities

A company's *capabilities* are constituted by its ability to resist and adapt to changes in the market environment. Variables that are relevant in determining a competitor's *capability* could be operational or generic variables like research & design, engineering, financial strength or marketing skills.[60] Another relevant instrument when determining a competitor's capability is the marketing audit. A marketing audit is examining and evaluating a company's business units current marketing strategy and tactics[61]. Hence, the instrument gives a view of the strategic group and how the different competitors consider their own positions. It could also give an insight into how the actors use marketing and sales channels in their business[62]. The *capability profile* therefore gives an insight in a competitor's strengths and weaknesses. These strengths and weaknesses can later be compared to other competitors.

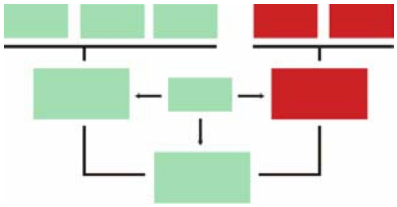
3.2.5 The competitor response profile

The last step in the competitor analysis is to determine the *competitors' response profile*. The *response profile* indicates how a company will respond to a change in the environment, e.g. a market entry. Innovative markets are constantly exposed to change and therefore it creates special conditions for the competitive environment. Hence, a *response profile* gives a universal framework of the competitor and the surrounding environment. It gives special insight in the strengths and weaknesses of the competitor and also reveals what strategy can be expected in the future.[63]

---

[58] Rothschild, 1979.
[59] Hooley, Saunders, 1993.
[60] Hooley, Saunders, 1993.
[61] Kotler, Gregor, Rogers, 1977.
[62] Ibid
[63] Hooley, Saunders, 1993.

3.3 Internal factors



The internal factors are constituted by a company analysis and an illustration of the competitive position. The company analysis is based on the competitor analysis and the value chain. The company analysis is based on the value chain since ITP is supposed to be comparable with competitors. The value chain is a partition of the elements that contributes value to a product or service[64].

To comprehend an organization's market position, one has to clearly understand the company's capabilities and distinctive competences. These help to define organizational and marketing strength and weakness, thus outlining a core strategy. When conducting a company situation analysis comprehension can be obtained through assessing the company's value chain and its benefiting resources. Reconciling the value chain, and the response profile in an analysis, related to competitors, the focal point of the company's market position would gain clarity[65].

3.3.1 Resource audit

When conducting an audit of the company recourses available, the first stage is assessing company strengths and weaknesses. There are several recourses available to a company, including: the physical resources of its plant and machinery; structural resources of its system and organization and the less tangible resources of its people and their skill. However, resources and their utilization in isolation do not constitute the strengths and weaknesses of an organization. Potentially useful resources may be utilized and be one aim for future development. Other resources may be stretched to breaking point and need additional support. To assess whether the organization has strength or weakness there has to be comparisons made. There are two alternative ways when conducting an assessment; making an historical comparison or exploring the organization's resource utilization and that of its competitors[66].

[64] Hooley, Saunders, 1993.
[65] Ibid.
[66] Ibid.

When making a comparison of ITP and its environment, an historical assessment is a blunt tool; because ITP is a young company with little historical records. The second approach assessing strengths and weaknesses comparing the company's resources and their utilization with major competitors' resources, is however a superior tool for assessment.

3.3.2 Customer-based assets

Customer-based assets are those assets of the company either real or imaginary, valued by the customer or potential customer. These assets often exist in the mind of the customer and are essentially intangible by nature[67].

One of the most important customer-based assets a company can possess is its *reputation* or *imag*. Company name confers an asset on all products of the company where it is clearly indentified[68] *e*.

For companies where corporate identity is a liability, or a non-existent asset, more emphasis is placed on building or acquiring individual *brand names* as assets[69].

For companies operating in international markets, as well as considering market entries, the *home country* can constitute either an asset or liability. The value of image of home country, company or brand should not be underestimated. Image often takes a long time to build up, but it can be destroyed very quickly by mistake. On the other hand, it is often more difficult for competitors to destroy a company's imaged-based assets, than to duplicate its technology or imitate its products[70].

Having *superior products* and *services* on the market, products that are, or are believed to be better in some way, e.g. cheaper, better quality, more stylish and up to date than the competitor's, can be a further marketing asset for the company. In addition to superior products or apparent dominance of the market can constitute an asset, as *market leaders* are often believed by consumers to be better in some way than the rest of the

[67] Hooley, Saunders, 1993.
[68] Ibid.
[69] Ibid.
[70] Ibid.

market. Simply being there and having high visibility gives an asset to the product. Another asset associated with market leaders is when a product or technology reaches the critical point of setting the *standard* in an Industry[71].

3.3.3 Distribution-based assets

Distribution-based assets are concerned with the manner in which the product or service is conveyed to the customer. The physical distribution network itself can be a major asset[72].

3.3.4 Internal assets

A *cost advantage* brought about by embracing up-to-date technology, achieving better capacity utilization than competitors, economies of scale or experience curve effects can be translated into lower prices for the customer. Where the market prize is sensitive as in the utility market, which conveys commodity items, a lower price can be a major asset[73].

The *technological* resource is of staggering importance in many organizations, especially in our present world of rapidly changing technology; the technical skill within a company is increasingly important. This involves the ability of the organization to develop new processes and products through research and development, which can be utilized in the marketplace. However, technical skills constitute more than development of new and innovative ideas. They also involve putting existing ideas into action, as well as an essential part of producing goods efficiently and to insure adequate quality controls[74].

Patents are important for exploiting new product inventions. This type of protection secures the holder of the patent and gives the opportunity to make and market the protected product, allowing the holder to license or sell those rights to others. They therefore constitute potential marketing assets of the company.[75].

---

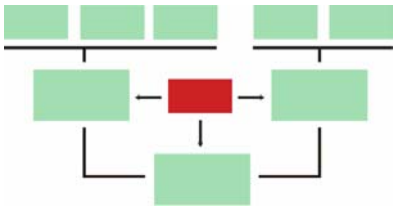
[71] Hooley, Saunders, 1993.
[72] Ibid.
[73] Ibid.
[74] Ibid.
[75] Ibid.

Another vital resource for an organization is its *financial standing*. The company's economical status to a large extent states the company's scope for action and ability to put its strategies into operations. It is easier to raise capital from outside to finance ventures if the company has a sound financial standing[76].

The information and systematic marketing research also provide valuable resources. New technological developments allow vast quantities of data to be collected and processed in a much shorter time. The companies that possess systems that can handle the information gathering are likely to achieve a strong market position, but until it is utilized to make better decisions the intelligence does not convert to an asset[77].

A major asset for many companies is their existing *customer base*. Particularly when a company is dealing with repeat business and with industrial clients. To create and maintain an existing core of satisfied customers can offer significant opportunities for further development[78].

3.4 Innovation



It can bring significant advantages for the first mover who exploits the possibilities of reaching markets with a innovation product or idea that can satisfy an unmet market demand. According to research done by Buzzell and Gale (1987) innovators that are first to reach the market averagely gain 35% higher payback on investment than their followers, and that 70% of market leaders describe themselves as having been the pioneers of their products. On the other hand research done by Cooper and Kleinschmidt (journal of marketing, 1995) shows that being first to market does not necessarily win, although it is a performance enhancer[79]. Managing innovation involves a complex and ever changing environment for a company affecting the whole structure, such as the firm's technology, its organization or its economic fundament and market strategies. Failure to see the complexity and poor managing can be

[76] Hooley, Saunders, 1993.
[77] Ibid.
[78] Ibid.
[79] Cooper, Kleinschmidt, 1995.

responsible for market failure of new products. Firms are sometimes cautious, and move slowly, which enables competitors to penetrate markets before them and benefit from first mover advantages.

3.4.1 Innovation management and strategy

Small companies with less then 500 employees in technology innovative industries are not well-documented which results in weak empirical evidence. However the evidence is adequate for determining some overall characteristics[80]:

- *Similar objectives* - to develop and combine technological competences to provide goods and services that satisfy customers' demands and that are difficult to imitate.

- *Organizational strengths* - flat organizations with ease of communication and decision-making. High degree of employee commitment and receptiveness to novelty.

- *Technological weaknesses* - specialized range of technological competences, inability to develop and manage complex systems, inability to fund long-term and risky programmes;

- *Different sectors* - small firms make a greater contribution to innovation in some sectors, such as software than in chemicals.

There are three essential ingredients that differs the outcome of a companies' innovation strategies. The *position* of the firm, compared to its competitors, in terms of its product, processes and technologies. The technological *paths* that the accumulated competences within the company has opened. Small firms tend to be specialized rather than diversified in their technological competencies and product range. New technology based firms that have emerged recently from large firms and laboratories in such fields as electronic, software and biotechnology. They are usually specialized in the supply of a key component, subsystem, service or technique to larger firms. The management of new technology based firms often faces two strategic problems. The first relates to long

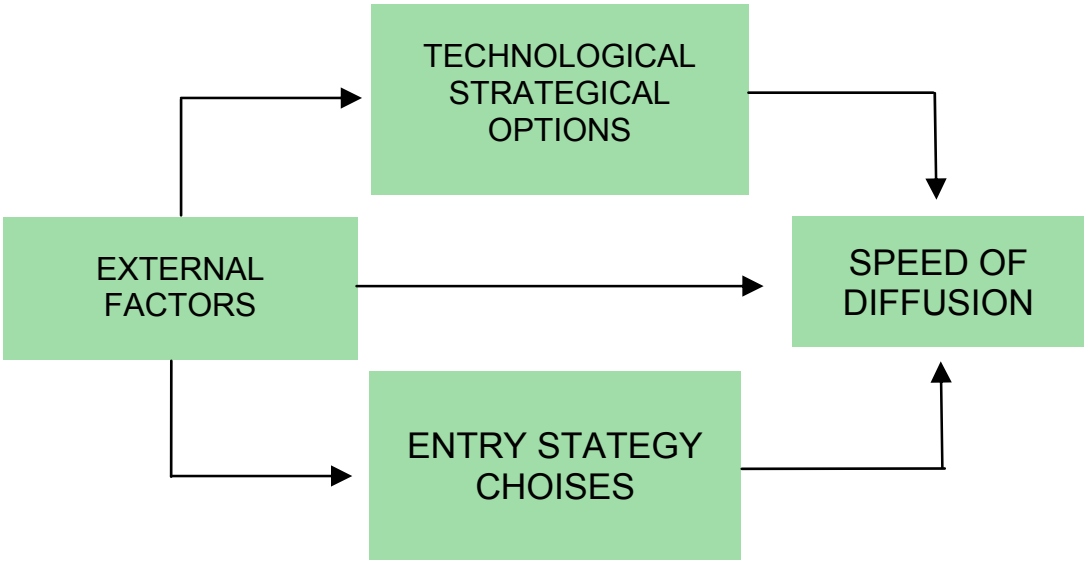
[80] Dolan, 1993.

term growth. Most companies provide specialized niche products with no obvious synergies with other markets and therefore very few of them can become superstars. How long the firm will survive is often dependent on its ability to negotiate the transition from the first to the second, improved, generation of products, and to develop the supporting managerial competencies. Secondly how far the new technology based firms will grow depends whether the management is aiming towards maximizing long-term value of the business, or merely seek an increase in income. Thus, owners of small firms often sell their firms after a few years and live off their investments.
The *processes* means an organizations ability to integrate strategic learning across functional and divisional boundaries. The different functions in small firms are less likely to be separated by physical and organizational distances than in large firms. This combined with experienced senior managers plays a central role in the integration of innovation strategies[81].

The diffusion of innovation is influenced by individual behavior and macro factors. However, diffusion is also affected by a company's own and the Industry's strategy[82]. The external diffusion factors are constituted by behavioral variables e.g. word-of-mouth, attitudes and values[83]. This is especially relevant when the product is aimed towards the consumer market. When targeting both consumer and industrial buyers, a company's strategy becomes an important factor for the diffusion of innovation. The company can alter or influence technological strategic choices and the entry strategy choices which in turn affect the speed of diffusion. The environmental factors are constituted by the macro variables and strategic decisions will depend on these[84].

[81] Dolan, 1993.
[82] Kuester, Gatignon, Robertson, 1999.
[83] Solomon, Bamossy, Askegaard, 1999.
[84] Kuester, Gatignon, Robertson, 1999.

Picture 6



The picture illustrates how speed of diffusion can be altered by company strategic matters.

Technological strategic choices include product compatibility, competence enhancing vs. competence destroying actions and different technological options. Product compatibility within an Industry is defined as the standardization of products. Different companies have different standards and sometimes compatibility is defined by government. In the innovative Industry standards are seldom defined and therefore products are technologically differentiated. On the other hand larger actors tend to create common standards e.g. the computer hardware business[85]. Compatibility also allows the product to be integrated with other technical solutions creating additional value. In addition to this, high compatibility also reduces future technological uncertainty and makes the product easier to use. The demand side of an Industry can respond differently when adopting innovation. First, the adoption process can be delayed because of the risk of compatibility, i.e. a buyer awaits standardization in the business to reduce possible switching costs. On the other hand, waiting implies the risk of being a laggard and therefore buyers adopt more quickly. Reducing compatibility can also be used as a strategy to create entry barriers. Compatibility is more or less product

[85] Tirole, 1995.

specific and to increase the compatibility towards the end-user there are four different criteria, that new products should meet[86]:

- *Important*: the customer must find the product valuable and market research on this matter is crucial.

- *Unique*: The product must be differentiated so that customers find the product to be unique in satisfying their needs.

- *Sustainable*: Competitors must find it difficult and resource demanding to copy the new product.

- *Marketable*: The firm must be able to produce, promote and distribute the products at a price that is acceptable to customers.

Hence, compatibility acts as a driving force for diffusion of innovation. In addition to compatibility, core competences constitute an important part of a company's human resources and developing of innovation. The core competences therefore create a competitive advantage. The advantage can be inverted to a disadvantage if innovation and management of innovation is reducing human capital within areas of research and development. In this case conflict will arise, e.g. between different business units.[87]

The main factors concerning market entry strategies and affecting diffusion of innovation are; market segmentation and target selection, order of entry, pre-announcing, market entry commitment, and the role of distribution[88].

3.4.2 Diffusion of innovation

Different actors or consumers adopt innovation at various times. How and when to target different segments of the market are key issues when dealing with diffusion of innovation. The diffusion of innovations refers to the process whereby a new product or idea spreads through a population. identified five different types of innovation consumers.

[86] Dolan, 1993.
[87] Kuester, Gatignon, Robertson, 1999.
[88] Ibid

Innovators are consumers that are willing to try out new products and ideas. They are venturesome by nature and prepared to take risks in buying products that will turn out to be disappointing rather than to take the risk of missing out on the opportunity to be first with innovations. *Early adopters* are less willing to experiment and are more conscious of social pressures than innovators. They adopt to innovation more carefully and are often seen as opinion leaders for others. *The early majority* hesitates even more and evaluates carefully before consumption. If they are exposed to sufficient information they will follow the opinion leaders. *The late majority* does not want to socially stand out in any way and will not purchase if their friends have not done it before. They rely more on word of mouth than information transmitted via media. *Laggards* resist new innovations for as long as possible. Sometimes they only adopt after the innovation has been superseded by something else. By targeting different segments of the population a company can influence the diffusion process[89]. Solomon (1999) illustrates the importance of opinion leaders as a target for new products. This will create an avalanche effect on the diffusion of the product, since word-of-mouth is essential. Being a pioneering company can result in first mover advantages and disadvantages[90].

When entering a market it is also of importance to create an accumulated demand for the actual product. The accumulation of demand can be made in different ways, e.g. by promotion[91]. The pre-announcing is also a tool for informing buyers of future products. Hence, buyers are prepared and conscious of forthcoming products, the switching path is hereby unveiled. Therefore the process of diffusion is lubricated, due to the fact that the buying process is implemented earlier.[92]

A company's market commitment is also affecting the diffusion process. The commitment is represented by the amount of resources directed to the business unit or innovation. Resources could be for example marketing mix and sales force.[93]

---

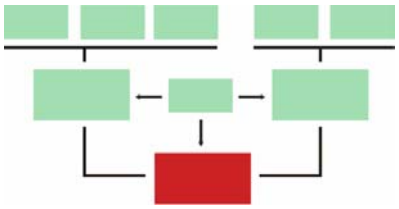
[89] Kuester, Gatignon, Robertson, 1999.
[90] Schonecker, Cooper, 1998.
[91] Jakobsson, Lundström, Widing, 2000.
[92] Kuester, Gatignon, Robertson, 1999.
[93] Kuester, Gatignon, Robertson, 1999.

The distribution strategy is another key variable affecting diffusion. Distribution actors provide a link between producer and customer[94]. The relationship requires a highlighted position due to the power shift in retailing in the last decade[95].

3.4.3 Barriers of innovation

Solomon, Bamossy, Askegaard (1999) highlights five criteria, from the viewpoint of consumers, that new products must meet to become a commercial success; *Compatibility* -the innovation must be compatible to the consumers general lifestyle. *Trialability* –consumers perceive new products with an element of risk taking which could be eliminated if the product could be sampled before it is adopted. *Complexity* – a product that is easier to understand is more likely to be chosen than the competitors' products. The simpler the product, the less effort is required from the consumer thereby lowering the perceived risk involved. *Observability* – refers to the ease with which product benefits can be demonstrated and communicated to potential customers. *Relative advantage* –describes the consumer perception of the benefits of the innovation compared to existing alternatives[96]. Kotler (1999) summarizes product development: "*to create new products, a company must understand its consumers, markets and competitors and develop products that deliver superior value to customers*"[97].

3.5 Market Entry Strategy



When a company is marketing in several countries or entering a foreign market for the first time, planning and setting objectives are major factors of success. First the foreign company must decide which market to enter, what product that must be deployed, and the level of resource commitment to attend to it. Foreign market opportunities do not always parallel corporate objectives; it may be necessary to change the objectives, as the foreign market may differ radically from the home market. One market may offer immediate profit but have a poor long-run outlook,

[94] Kuester, Gatignon, Robertson, 1999.
[95] Dawson, 2000.
[96] Solomon, Bamossy, Askegaard, 1999.
[97] Kotler, 1999.

while another may offer the reverse. Only if there are clear guidelines, objectives and systematic procedures can this be reconciled effectively[98].

3.5.1 Screening and analysis of the market

When a company considering a market entry, the first step in the planning process is to evaluate the potential markets. A company's strengths and weaknesses, products, philosophies and objectives must be matched with a country's constraining factors as well as limitation and potential. In the first part of this planning process, countries are analyzed and screened to eliminate those that do not offer sufficient potential for further consideration[99].

The next step is to establish screening criteria for evaluation. These criteria are ascertained by an *internal* analysis of company objectives, resources and other corporate capabilities and limitations. It is important to determine the reason for entering a foreign market and the returns expected from it: What is the market potential, profits, return on investment, competitive level, political stability, legal requirements and factors essential for the company's products? This could be labeled as an *external* or *macro* analysis[100].

A more detailed examination of the components of the marketing mix is the purpose of this second stage in the planning process. When target markets are selected the market mix must be evaluated in the light of the data gathered in the latter phase. In what ways can the product, promoting, pricing and distribution be standardized and modified to meet the target market requirements to avoid costly marketing pitfalls? The primary goal of this phase is to decide a marketing mix adjusted to the cultural constraints imposed by the uncontrollable elements of the environment that effectively achieves corporate objectives and goals. When these questions are answered a second screening of countries may take place with some countries dropping from further consideration. The next phase in the planning process is the development of a marketing plan[101].

---

[98] Cateora, Graham, 2000.
[99] Ibid.
[100] Ibid.
[101] Cateora, Graham, 2000.

3.5.2 Developing the marketing plan

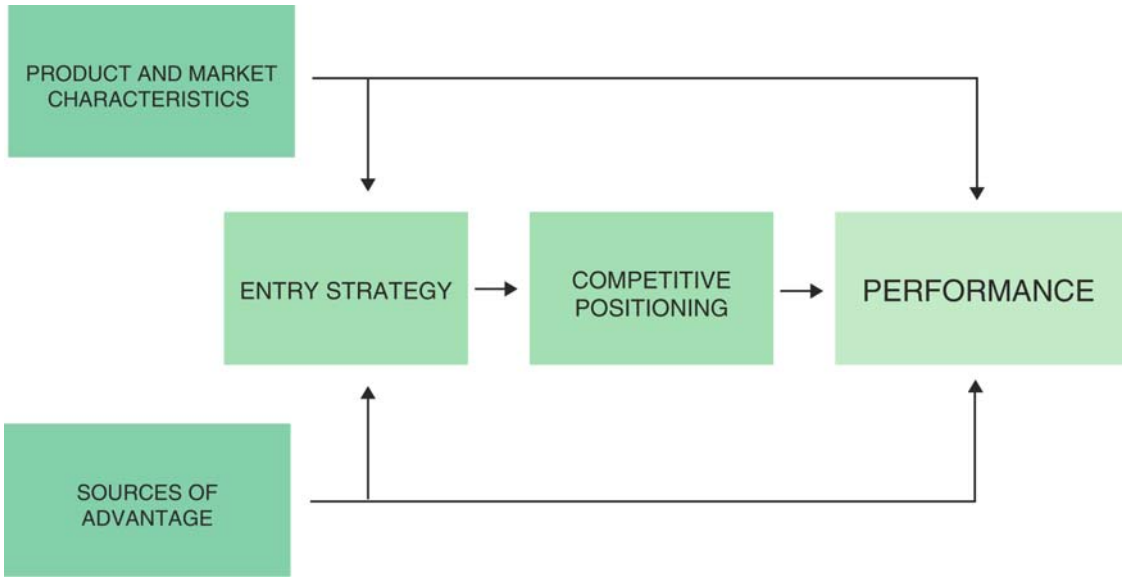
At this stage of the planning process a marketing plan is developed for the target market. It begins with a situation analysis evaluating the market environment, including Industry networks and competitors, and culminates in a specific action program for the market. This plan establishes what is to be done, how it is to be done and when. Included are budgets and sales and profit expectations. In this phase of the planning process, decisions are made to enter a market if it is determined that company marketing objectives and goals can be met[102].

3.5.3 Entry modes

When a company chooses to go international, it must decide of an entry strategy. This decision should include an analysis of the market potential, company capabilities, and the degree of market commitment. When entering a market different variables are more important than others. This is naturally depending on product and type of market, but some general characteristics can be illustrated. When entering a market timing of entry is essential. Timing and advertising are linked and the higher investment the better long term performance[103]. Hence, Green, Barclay and Ryans (1995) declare that entering at the right time and thereby gaining medial attention combined with advertising are key factors for success. Other key factors for long term success are competitive positioning and quality[104]. The quality assures that relative advantages are sustained and position can be established. The position adds value to the product and is thereby positive in the long run.

[102] Ibid.
[103] Green, Barclay, Ryans, 1995.
[104] Ibid.

Picture 7



The model illustrates how different entry strategies affect performance.[105]

When acting on a small or non existent market a first mover can create an advantage. To gain this first mover advantage a company must have the capability to seize the opportunity. [106] First mover could build advantages e.g. reputation, establishing of supplier and distribution channels, this is important because first time customers tend to be more loyal and a unique brand can be created. First or early movers also suffer from disadvantages. These mainly consist of the fact that first moving is costly. Technological development is in the initial phase also fast, which easily makes company technology obsolete. Technology is easier for newcomers to grasp or even copy. In addition to this, when a market is growing, new consumers are not loyal to a specific brand. First moving therefore involves advantages and disadvantages. The organization might be more or less suited for first moving, depending on company specific factors. [107] High levels of uncertainty will generally influence larger actors to bide their time[108]. In addition to uncertainty, entry barriers will also affect the timing of entry. Low entry barriers will make it easier for competitors to

[105] Green, Barclay, Ryans, 1995.
[106] Schonecker, Cooper, 1998.
[107] Thompson, Strickland, 1995.
[108] Schonecker, Cooper, 1998.

enter. However, one must be careful when generalizing between industries and first mover advantages. Different industries have their own characteristics making first moving more or less attractive[109]. Finally when a company decides to enter a market, there are different ways to do this.

3.5.4 Export

Exporting is generally recognized as being the low risk method of internationalization. A firm is an *indirect exporter* when its products are sold in a foreign market without any special activity being undertaken within the company. The export operations, including all documentation, physical movement of the goods and channels of distribution for sale, are carried out by others and may indeed take place without the knowledge of the manufacturer himself. Indirect export may occur through an export house or a trading company, which will buy directly from the firm on behalf of a foreign principal and then arrange for the export of the goods[110]. Piggybacking is a third form of indirect exporting and occurs when one manufacturer uses its overseas distribution to sell another company's product along with its own product.[111]. Finally, exporting may take place indirectly when foreign buyers (perhaps from foreign wholesale of retail organizations) approach a company in order to sell on their home markets[112].

Direct export represents quite a different mode of supply, since the firm undertakes market research, handles documentation and transportation, establishes pricing policies, and so forth. The product is then typically sold at the foreign market by agents or distributors, a major difference between these two being that the distributor actually takes title to the goods and represents the manufacturer in the sale and service of the product which he carries; or through company technical specialist export salesmen; or through a sales subsidiary established by the exporting firm. Direct exports generally increases the commitment and facilitates greater

[109] Schonecker, Cooper, 1998.
[110] Young, Hamill, Wheeler, Davies, 1989.
[111] Ibid.
[112] Ibid.

control, and the information feedback from the foreign market as well. However, it is more expensive as it requires more direct investment[113].

Exporting has two distinct advantages. It avoids the costs of establishing manufacturing operations in the host country, which are often substantial. Secondly, when manufacturing the product in a centralized location and exporting it to other national markets, the firm may be able to realize substantial scale economies[114]. On the other hand exporting has a number of drawbacks. First, exporting from the firm's home base may not be appropriate if there are lower cost locations for manufacturing the product abroad. A second drawback to exporting is that high transport cost can make exporting uneconomical, particularly for bulk products. Another drawback to exporting is that tariff barriers can make it uneconomical. A fourth drawback to exporting arises when a firm delegates its marketing in each country where it does business to a local agent[115].

3.5.5 Joint ventures

A joint venture entails establishing a firm that is jointly owned by two or more independent firms. It includes the sharing of assets, risks and profits and participation in the ownership[116]. The equity share that the international firm holds in the venture is between 25 and 75 percent, meaning that the international company has enough equity to have a voice in management but not enough to completely dominate the venture[117].

Joint ventures have a number of advantages. First, an entity is able to benefit from a local partner's knowledge of the host country's competitive conditions, culture, language, political system and business system. Secondly, when the development cost or risk of opening a foreign market is high, a firm might profit by sharing these costs and with a local partner. Thirdly, in many countries political considerations make joint

[113] Ibid.
[114] competing in the global marketplace
[115] competing in the global marketplace
[116] competing in the global marketplace
[117] Young, Hamill, Wheeler, Davies, 1989.

venture the only feasible entry mode available[118]. There are a couple of major disadvantages with joint ventures. First, when a firm enters a joint venture it risks giving control over its technology to its partner. To minimize this risk one option is to hold majority ownership in the venture, this allows the dominant part to exercise greater control over its technologies[119]. A second disadvantage with joint venture related to the shared ownership arrangement is that it is difficult to integrate them into a synergistic international operation. When the international firms wish to standardize product design, i.e. quality standards or other activities, it can lead to conflict and battles for control between the investing firms if their goals and objectives change over time[120].

3.5.6 Wholly owned subsidiaries

In a wholly owned subsidiary the firm owns 100 percent of the stock. Establishing a wholly owned subsidiary in a foreign market can be done in two ways: the firm can either set up a new operation in that country, or it can acquire an established firm and use that firm to promote its product in the country's market[121].

When a firm's competitive advantages is based on technological competences, a wholly owned subsidiary will often be the preferred entry mode, since it reduces the risks of losing control over that competence. Furthermore, a wholly owned subsidiary gives a firm the kind of tight control over operations in different countries that is necessary for engaging in global strategic coordination[122]. The weakness is that when establishing a wholly owned subsidiary the firm must bear the full costs and risks of setting up operations in another country, and it is by far the most costly method of serving a foreign market. An acquisition also rises a whole set of additional problems, including those associated with trying to marry divergent corporate cultures[123].

---

[118] Ibid.
[119] competing in the global marketplace
[120] Young, Hamill, Wheeler, Davies, 1989.
[121] competing in the global marketplace
[122] competing in the global marketplace
[123] competing in the global marketplace

3.5.7 Strategic alliances

Strategic alliances refer to cooperative agreements between potential or actual competitors[124]. Firms ally themselves with actual or potential competitors for various strategic purposes. First, strategic alliances may facilitate entry into a foreign market. Firms also make alliances because it allows them to share the fixed costs and associated risks i.e. of developing new products or processes. Thirdly, an alliance is a way to bring together complementary skills and assets that neither company could easily develop on its own. Fourthly, it can make sense to form an alliance that will help the firm establish technological standard for the Industry that will benefit the firm [125]. Perhaps the greatest drawback with strategic alliances is that one, firm if it is not careful, might give away more than it receives for instance giving the competitor a low-cost tout to new technology and new markets[126].

One of the keys to making a strategic alliance work is to select the right kind of ally. A good ally or partner has three principal characteristics. First, a good partner helps the firm achieve its strategic goals whether they are market access, sharing the costs and risks of new product development, or gaining access to critical core competences. The partner must have capabilities that the firm lacks and that it values. Secondly, a good partner shares the firm's vision for the purpose of the alliance. Third, a good partner is unlikely to try to opportunistically exploit the alliance for its own ends; that is to expropriate the firm's technological know-how while giving away little in return[127].

[124] competing in the global marketplace
[125] competing in the global marketplace
[126] competing in the global marketplace
[127] competing in the global marketplace

4 The Industry of Smart Utility and Smart Homes

In this chapter the empirical results of the thesis are presented. It consists of four sections; the political and legal background of the Industry, Swedish key actors of the Utility Industry, the competitors within the Smart Utility Industry, and an internal resource analysis of ITP. The factor of innovation and market entry is integrated within each part. The exploration had its start in the Swedish Utility Industry and the focus were on the political and legal environment due to the similarity in technological, cultural, and demographical factors of the Swedish and the Norwegian markets.

Picture 8

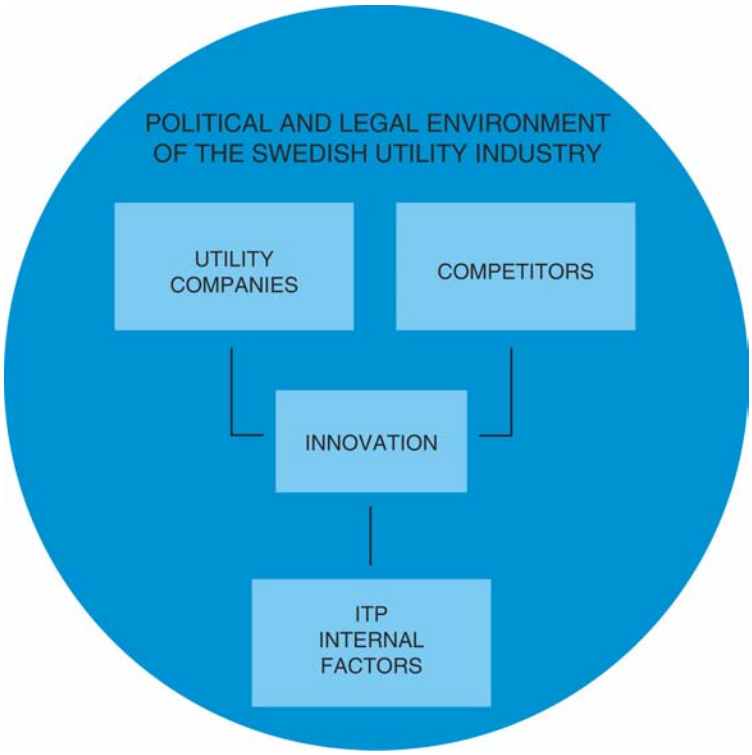


Figure 8 offers a disposition of the empirical results of the thesis.

4.1 The Swedish power market

The power market of the Nordic countries is integrated and de-regulated. To obtain further deregulation and increase competition there is a need for common laws and regulations. The goal of the EU is to have a common unregulated market concerning electricity. In the year of 2003, one third of the EU's energy market is to be unregulated. The Swedish energy market is since the deregulation 1996 exposed to competition concerning sales and production of electricity. Consumers and industrial buyers can switch Grid operator free of charge since 1999. Currently a government inquiry is proposing that preliminary billing also shall be put to an end. This is supposed to increase the consumer tendency to change supplier, therefore it will increase competition and lower prices. The transfer of electricity is however still regulated and monitored by *Statens Energimyndighet*. *Svenska kraftnät* is the public authority that is responsible for the short-term power balance and the maintenance of the power system.[128] In the last decades there has also been a change in the way electricity is produced. Environment friendly or "green energy sources" have emerged as an alternative of non-renewable sources[129]. The Swedish government is supporting and even promoting renewable sources of energy[130].

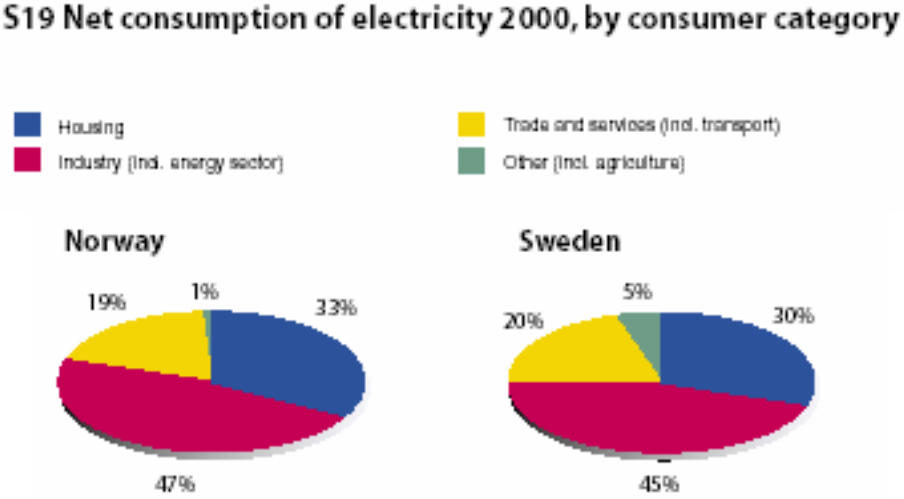
4.1.1 Energy consumption in the Nordic countries

The Nordic countries have different and varying consumption of energy. Energy demands depend on household usage patterns and the country's Industry structure. Sweden's energy situation has always been abundance. The country has a large amount of hydro and nuclear power, e.g. in 2000 approximately 93% of energy production were generated from hydro and nuclear power sources[131]. Due to the relatively cheap energy Sweden's Industry is by tradition energy demanding. The Swedish Industry is

[128] Regeringskansliet Näringsdepartementet, http://www.naring.regeringen.se/fragor/energi/elmarknaden.htm , 2001-12-05.
[129] Matsson, 2000.
[130] Regeringsproposition 1999/2000:134
[131] North, 2001.

responsible for close to half of the electricity consumption compared to the Swedish households for one third[132].

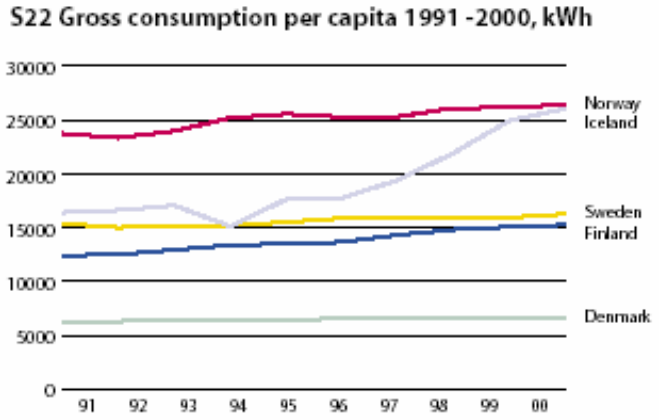
Picture 9



The picture illustrates electricity consumption in Norway and Sweden. www.svenskenergi.se

The consumption per capita is substantially varying between the Nordic countries. Norway has the highest consumption of electricity and Denmark on the other hand, the lowest.

Picture 10



The picture illustrates electricity consumption per capita in the Nordic countries. www.svenskenergi.se

[132] Hjelle, 2000.

Norway's consumption was in the year of 2000 remarkable, 408% higher than Denmark's[133]. The difference is due to the access of energy sources and different consumption patterns. In 1998 Sweden was the forth largest net user of electricity, per capita, in the world[134]. Sweden has a high share of electric heated properties, totally 32 TWh. The Swedish households represent about one third of total power consumption. A Swedish average household, using electric heating, use 22 000 kWh per year. Heating is represented by 12 500 kWh, 4000 by water heating, 2100 by cooking, 1000 lighting, and the remaining goes to other activities, e.g. washing and ventilation. [135]

4.1.2 Legal and political environment

One major governmental task is to create a dynamic electricity market. The Swedish Energy Authority (Svenska energimyndigheten, SEM) state that price-fixing on the market is closely related to the way of measuring. The electricity sales companies are currently using manual meter reading, which, according to SEM is expensive and ineffective. Electricity sales companies confirm that meter reading poses a problem, not only referring to the price-fixing but also the billing function. In the end competition is inhibited. The Swedish electricity sales companies confirm that remote meter reading is profitable; electricity distribution is more effective, this creates more satisfied customers, and personnel is used more effectively[136]. AMR has been implemented in small-scale in Norway and is said to reduce energy consumption with about 10%[137]. SEM is currently investigating the possibilities for a frequent meter reading concerning households and consumers on the Swedish market, using more than 8000 kWh per year. The potential government regulation is estimated to affect the market in 2006 and will include demands for the electricity sales companies to implement quarterly billing. This brings a need for alternative meter reading. [138]

---

[133] Hjelle, 2000.
[134] Elmarknaden, 2001.
[135] Svensk energi, http://www.svenskenergi.se, 2001-12-08.
[136] Energimyndigheten, 2001.
[137] Matsson, 2001.
[138] Energimyndigheten, 2001.

Currently the Swedish Competition Authority is of the opinion that the competition on the market is inhibited. The Swedish market has been concentrated around three large actors, Vattenfall, Sydkraft, and Birka Energi. The main problem of competition lies in the fact that the companies have three main functions; energy production, network service, and electricity sales. The Swedish legislation permits the different functions within the same organization if they are organized in different corporations with a parent company. This solution is somewhat backfiring on market competition due to relationship networks between management of the different corporations. The Swedish Competition Authority is viewing positively upon differentiation of services, among these AMR, within the energy Industry. *"This is a factor that can raise competition between different companies."*[139]

To obtain further deregulation a separation of Grid operators and sales companies is a must. The Grid operators are characterized by stiffness and non competitive environment. "*I believe that the Industry could lower the network fees with 30 – 40% if they were exposed to competition.*"[140] In addition to the inhibited competition between the Grid operators and the sales companies there is also the problems of transactions between them. In reality this means that capital is floating between the companies and therefore also affecting competition negatively. The Swedish deregulation has not been a success due to the fact that Swedish customers are not changing electricity supplier to the extent that Swedish Competition Authority has expected. The future of the energy market is in the hands of politicians and the EU. The Swedish Competition Authority's meaning is clear; to improve competition the market needs further and drastic legal deregulation, the market also needs to improve competition itself. Market deregulation finally depends on the political ambition of a free market.[141]

The conflict between the European commission and politicians is worth noting. Especially France represents a protectionist line of policy. Hence, the political ambition of deregulation is not always present within EU. *"French politicians delay and obstruct the deregulation of the power market in*

[139] Ankner, 2002 .
[140] Ibid .
[141] Ibid .

Europe."[142] Among the Swedish politician colleagues the will of deregulation is also inhibited, e.g. the Swedish state is a majority owner of Vattenfall which, is the largest and most powerful actor on the Swedish power market. [143]

The Swedish government has currently given Svenska Energimyndigheten (SEM) the assignment to investigate how competition can be increased on the Swedish electricity market. SEM is also looking for ways for households to save energy. Consumers are currently paying on a approximate basis, SEM wants customers to pay for actual electricity consumption. SEM's report is proposing that the Utility companies has to send bills four times per year. "*The proposition, if validated by government, would result in incitement for Automatic Meter Reading*"[144]. Automatic meter reading would increase competition, by making it easier to change power supplier and would also decrease energy consumption.[145]

The Utility companies views upon a more frequent meter reading were according to SEM diverse, e.g. there is a strong objection that AMR is not profitable. "Many Utility companies suggest that there are more costs than profits when considering Automatic Meter Reading systems."[146]

The SEM believes that the Swedish government will pay attention to the proposal. Hence, legislation is to be expected, that forces Utility companies to make two or more meter readings per year.[147]

When the Swedish electricity market was partly de-regulated the electricity trading and electricity producing companies were less motivated to produce unprofitable energy. In reality this meant that overcapacity which gave low or no profit was rationalized. At the same time as overcapacity is rationalized, overall consumption is rising. Hence the overcapacity of the Swedish market has more than halved in five years. In the year of

---

[142] Ibid.
[143] Ibid.
[144] Tureson, H, 2002.
[145] Ibid.
[146] Ibid.
[147] Ibid.

2001 the overcapacity was 12, 6% and shrinking[148]. The risk of blackout is imminent when load capacity cannot be met. Sweden was close to a blackout in the winter of 2001 when usage peaked during an exceptional cold period[149].

4.1.3 Functions on the Swedish market

On the Swedish market there are different actors. The different actors can be divided into the following subgroups[150]:

- End-users
- Electricity trading Companies
- Power Producers
- Net Owners
- System Owner

The end-users range from industrial buyers to consumer households. It is these actors that actually consume the electricity produced. End-users must have an agreement with a electricity sales company to be able to buy electricity.

The sales company is the actor who is trading electricity[151]. The role of the trading company is currently changing. In the past the companies have only provided the buyers with electricity. The prices were more or less regulated by government and therefore the only profitable service was to produce electricity[152]. Today there is rapid development in the service sector and several different services are introduced to the market by the sales companies. The electricity trading company can therefore have different tasks like sales, services or to be accountable for energy balance. Energy balance is a responsibility to have a smooth flow of electricity to the customer and from the producer.

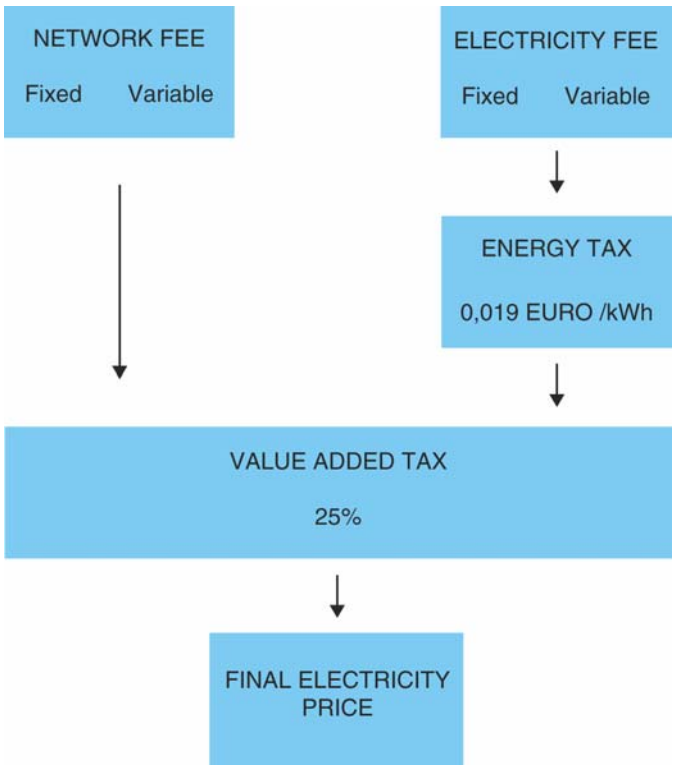
From the customer perspective the Swedish electricity price consists of a network fee and an electricity fee. The fixed network fee depends on the

---

[148] North, 2001.
[149] Morris B., 2001.
[150] Svenska kraftnät, http://www.svk.se, 2001-12-05.
[151] Ibid
[152] Peter Matsson, 2000.

main household fuse and also how much electricity is consumed. In addition to this, the fixed electricity fee is a subscription fee and the variable fee depends on the amount of energy bought. The customer accordingly receives two bills, one from the Grid operator and one from the electricity trading company.[153] Many of the electricity trading companies also own net companies and therefore they operate both on a de-regulated and a monopoly market.

Picture 11

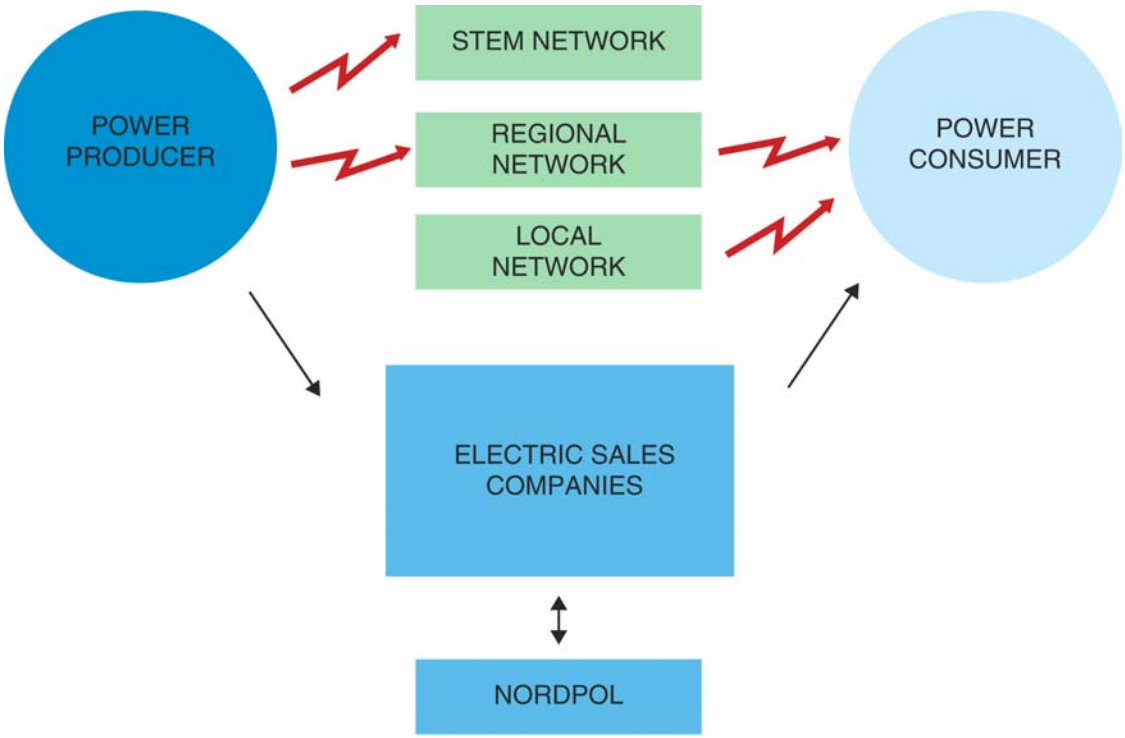


The picture illustrates how the Swedish electricity price is constituted.

The different electricity sales companies are buying electricity from Nord Pool or directly from power producers. Nord Pool is an exchange market where prices are volatile. Nord Pool is owned by Norwegian Statnett and Svenska Kraftnät and had a turnover of 291 TWh in 1999. Sweden had a total consumption of 140 TWh in 2001. [154] The horizontal dimension in the picture illustrates the physical flow of electricity and the vertical shows how different actors are buying and selling electricity.

[153] North, 2001.
[154] Näringsdepartementet, http://www.naring.regeringen.se , 2001-12-05.

Picture 12



The picture illustrates how the actors on the Swedish electricity market are organized.

The different Grid operators are responsible for the transportation of electricity from the producers to the different consumers. The net companies are divided into regional and local areas. The net companies currently operate on a monopoly market. The Grid operators are in turn connected to the Swedish electricity stem grid. The owner of the Swedish stem net is Svenska Kraftnät. The stem net is connected to Norway, Finland, Denmark, Germany, and Poland.

The power production plants are owned by power producers. The Nordic countries have different sources of energy; e.g. Norway's energy production is only based on Hydropower. In Sweden the amount of Hydropower is 55% and Nuclear power is accounted for 39%[155]. The remainder consists of renewable power-sources and, mainly, heat.

[155] Hjelle, 2000.

4.1.4 Actors and services on the Swedish electricity market

The six largest power producers accounted for 59% of the electricity on the Nordic market in the year of 2000.

Company	***Country***	***Sales TWh***	***Turnover Billion SEK***	***Other main activities***
Vattenfall	Sweden	87	28	Heating, gas, IT- and entreprenourship services
Sydkraft	Sweden	15	15	Gas, heating, IT- and consulting services
Birka Energy	Sweden	13	13	Heating, cooling, gas and telephone services
Graninge	Sweden	6	3	Heating
Göteborgs energy	Sweden	5	2,7	Heating, IT- and consulting services
Fortum	Finland	35	19	Heating
Statkraft	Norway	44	6	Service

Table X illustrates the largest Utility companies on the Swedish market[156] [157]

The largest actor is currently Vattenfall AB, which produces 18% of the total electricity in the Nordic countries.[158] In order to increase competition on the Swedish market, the Swedish government decided to

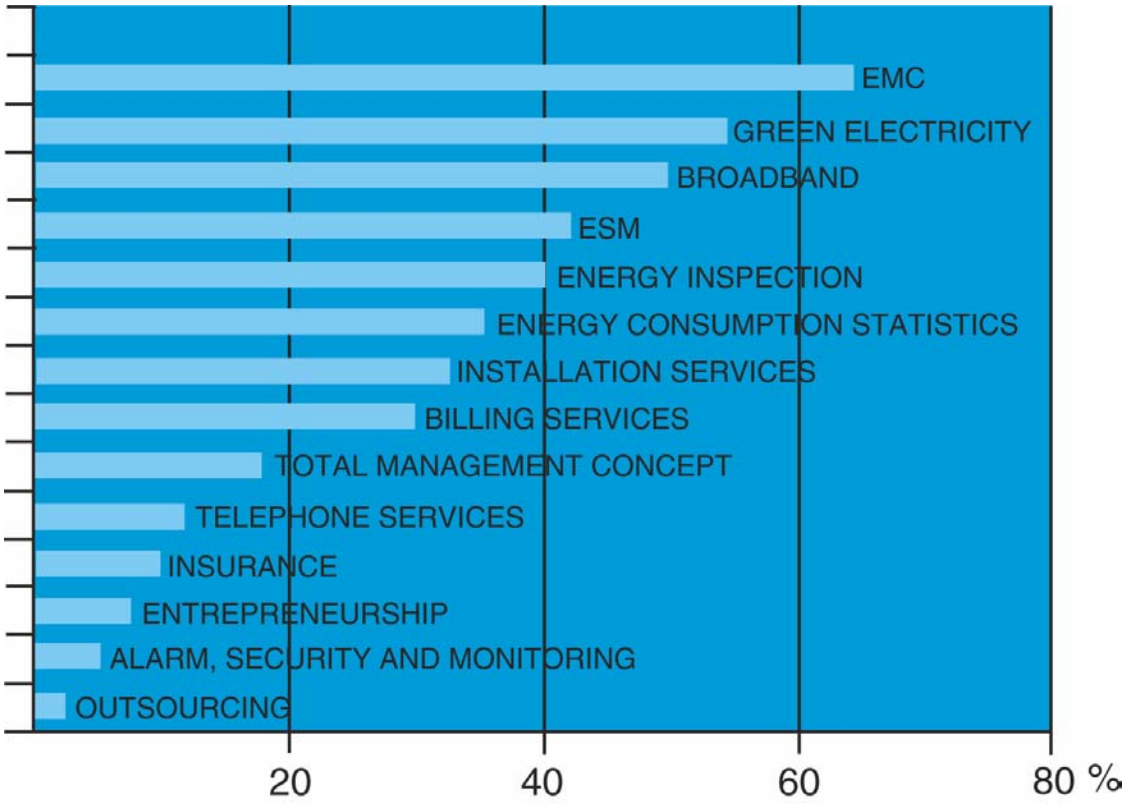
[156] Annual Report, Vattenfall, 2000.
[157] Annual Report, Göteborg Energi, 2000.
[158] Elmarknaden 2001, 2000.

split the traditional Utility companies into Grid operators and electricity sales companies. Due to the deregulation in 1996 new services on the Swedish electricity market are evolving. Today electricity sales companies are not only providing electricity but also a number of value adding services, ranging from broadband to usage-consulting and statistics. The present differentiation in the Utility Industry is positioning the companies on the market. New services have two main objectives; first and foremost the electricity sales companies want to attract new customers, secondly they want to develop new areas of revenue. The services can roughly be divided into two categories, those connected to electricity and non-electricity related services[159].

Currently there are some main value adding services that are common in the Swedish electricity Industry; energy management consulting (EMC), "Green" Electricity, Electric Security Management, and Broadband. [160] Broadband is currently the most important service to the electricity trading companies. It is offered by 49% of the investigated companies. Broadband is physically installed to the customer via the electricity cables and the company providing the service must therefore own the net connected to the customer. Broadband via the electricity grid is a cheaper alternative than optic cables. Mainly because the infrastructure needed is already installed and secondly because the electricity cables are cheaper than fiberglass[161]. According to Skånska Energi AB electricity grid is the only profitable alternative available when connecting the countryside to broadband. The table shows the most common services, in addition to the main business, provided by electricity trading companies in Sweden.

[159] Matsson, 2001.
[160] Ibid.
[161] Bratt M, 2001.

Picture 13



The picture illustrates the Utility companies differentiation of services on the Swedish market.

Tied to the electricity trading are services like electricity security management (ESM), energy inspections, energy consumption statistics, entrepreneurship, and installation services. These kinds of services have been available before the de-regulation but are not considered profitable[162]. The electricity trading companies are currently introducing new innovative products and services that are supposed to increase demand for older electricity-related services. Some of the most innovative Utility companies have developed new operational billing and installed AMR systems. In Sweden these companies are:

- Skånska Energi AB
- Smedjebacken Energi AB
- Sollentuna Energi AB

[162] Matsson, 2001.

The evolution of services on the Swedish electricity market have somewhat changed the ways of competition. The broadband service is complex and attractive due to the fact that it is a platform for other services, e.g. energy usage statistics and managing billing. Electricity trading companies are generally characterized by the ability to handle large amounts of customers, they are especially good at billing[163]. Therefore they look at businesses conglomeration. Vattenfall is an example of a company which has entered completely new markets. Today Vattenfall is not only a power production and trading company but also a telephone company with over 100 000 customers[164]. Today the large Swedish electricity sales companies are using manual meter reading.

4.2 The large Utility companies

The largest Utility companies represent a major part of the electricity production, electricity sales, and grid operating in Sweden. Since 1996 the trend is showing that the largest organizations are expanding, mainly by purchases of minor companies. The group of large companies consists of: Vattenfall, Birka Energi, Sydkraft, Graninge, and Göteborg Energi.

4.2.1 Vattenfall

The history of Vattenfall started in 1909 when Kungliga Vattenfallsstyrelsen (KV) was founded. KV had the task of developing and expanding the production of electricity. This expansion was necessary especially regarding development of the Swedish Industry.[165] Vattenfall's electricity production was until the 60-ies based on hydro power. Since the 60-ies, Sweden's energy production has mainly been built out with nuclear power. Vattenfall is currently Sweden's largest actors on the electricity market. Vattenfall's main business is energy trading and production, mainly heat and electricity. The company is the largest net owner in Sweden. Germany, Poland, and the Nordic countries constitute the company's market. Vattenfall has about 2,2 million customers. Vattenfall has made a series of purchases, mainly of companies in Germany and Poland in the year of 2000 and the organization is therefore

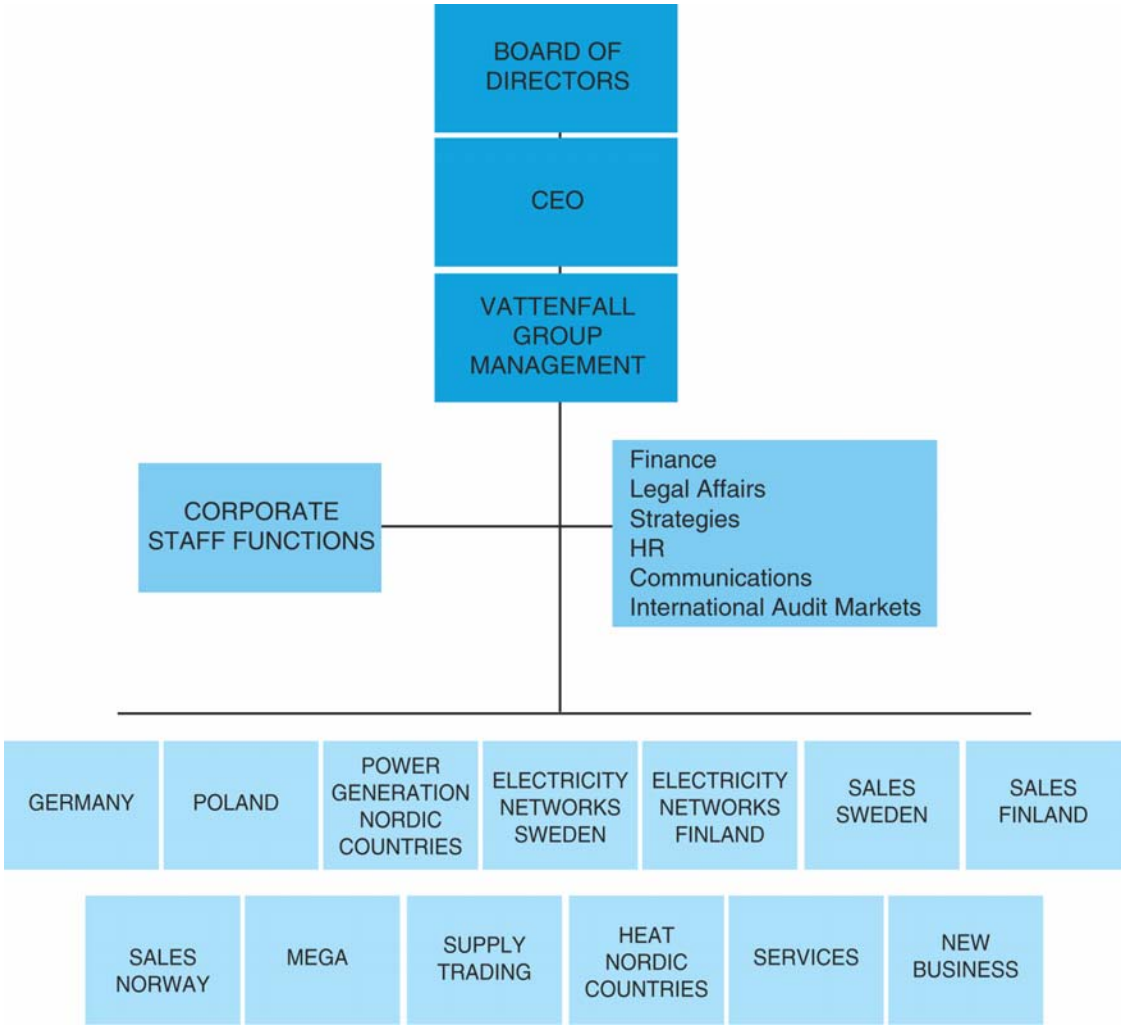
[163] Bratt, 2001.
[164] Honner, 2001.
[165] www.vattenfall.se, 2001-12-28.

decentralized with thirteen business units. Vattenfall is since 1992 a public limited company. [166]

Organization

Vattenfall is divided into three business units; The Nordic countries, Germany, and Poland. The Nordic countries business unit is in turn divided into several companies and functions.

Picture 14



The picture illustrates the organization of Vattenfall

The main functions within Vattenfall are; energy production, trading, sales, and networks. Vattenfall made in 2001 a restructuring of the

[166] Annual report, Vattenfall, 2000.

company. The new organization has been divided into 13 different companies. Sweden represents almost half of the Nordic market with its 19 million people. Vattenfall has currently 1,5 million household and industrial customers in Sweden. Vattenfall is presently becoming more of a service oriented company than before[167]. One of the producing units in Sweden is the company *"Elproduktion Norden"* which currently produces 18% of the electricity in the Nordic countries. The electricity produced is sold within the Vattenfall company group and to Nord Pool. *"Sales Sweden"* is on the other hand an electricity trading company. The main business is selling electricity, in addition to this a variety of different intelligent services and energy management services are available. Vattenfall is one of the main actors on the electricity wholesale market and the Swedish actor *"Vattenfall - Supply & Trading"* is responsible for the activity. Vattenfall is also a large electricity network owner. The company *"Electricity Network Sweden"* is maintaining the power networks and sells network services.[168] The market of Grid network is currently a monopoly market in contrast to the electricity market. This results in a general inertia within the network organizations, not only Vattenfall's Grid operator. Adoption and innovation management is therefore expected to be of less priority than in competitive businesses[169].

Vision and strategies

Vattenfall's vision is to be a leading European Utility company. The company is aiming to be one of the major players in Europe, with one of the best margins, and finally that the company will be experienced by its customers as the best supplier. The strategy to achieve the vision is to strengthen the company's position on the market, mainly by purchases. [170] G. Honner, information-director on *Vattenfall*, conveys that *"-Vattenfall has somewhat abandoned the strategy of commercial promotion in order to grow, instead we intend to grow by purchases."* Promotion is therefore not a strategic option when considering cost-benefit[171]. Vattenfall's strategy to reach appointed visions and goals is primarily focused on differentiation of the business portfolio. In the Swedish household market Vattenfall is becoming a

[167] Honner, 2001.
[168] Annual report, Vattenfall, 2000.
[169] Matsson, 2001.
[170] Annual report, Vattenfall, 2000.
[171] Honner, 2001.

multiple service provider while the industrial sector on the other hand is developing towards more tailor-made solutions[172].

The business concept of Vattenfall is to *"…develop the customers' competitiveness, environment, and quality of life through a unique combination of effective energy-solutions and world-class service"*[173].

Vattenfall's main strategy is to focus on the central activity; providing electricity to customers. To maintain profitability the company strategy is to obtain large-scale advantages. Besides the main strategy there is also a focus on finding other profitable services. Energy trading companies have the ability to manage a large number of customers. Vattenfall's goal is to become a market leader in infocom services, broadband, telephony, internet, and intelligent home services[174]. Vattenfall has therefore a strategy to expand its business to similar markets, i.g. the company has started a telephone company as well as a mobile phone business. The company has about 100 000 telephone customers today.[175] Broadband via the electricity cables is an example of an innovation Vattenfall is investing in, recently Vattenfall, Svenska Kraftnät och Bredbandsbolaget agreed to jointly expand the Swedish fiber optic network. In real terms this means that Vattenfall's infrastructure is used to offer broadband in Sweden. One billion SEK were invested in April of 2000 to improve broadband infrastructure and services. [176] The companies Arrowhead and Sensel in the Vattenfall company group are developing IT solutions and intelligent services. In addition to the IT based portfolio, insurance is another prospective market for Vattenfall to enter[177].

Vattenfall has previously tried to introduce Smart Homes on the market. However the project was shut down when tested on customers, there were no or little customer interest in paying for Smart Homes services. Hence Smart Homes are not a part of Vattenfall's current strategy. The Smart Home products and vision currently lie fallow within Vattenfall. G. Honner concludes, on the question whether there will be a future

[172] www.vattenfall.com, 2002-01-02.
[173] Annual report, Vattenfall, 2000.
[174] www.vattenfall.com, 2002-01-02.
[175] Honner, 2001.
[176] www.vattenfall.com, 2002-01-02.
[177] Honner, 2001.

breakthrough in the adoption of Smart Homes, *"-Yes absolutely, but we introduced the products when the market wasn't ready."* Vattenfall didn't have the endurance to create a breakthrough in customer adoption and diffusion. Smart Homes are, according to Vattenfall, compatible with consumer values, attitudes and beliefs. The electricity companies see a benefit from the Smart Home products, *"It brings a possibility to cross the threshold of the household, today we are only on the outside."* G. Honner, former director of Vattenfall's Smart Homes division, concludes. Vattenfall therefore sees that Smart Home products convey the possibility to offer other kinds of services and products. [178]

The Future of Vattenfall

The competition on the Nordic market was harsh in the year of 2000. Supply of electricity surpassed the demand and prices were decreasing. This resulted in lower revenues, despite an increase in electricity sales. Customers were also changing electricity at an increasing pace, which increased competition. Vattenfall expects that more customers will follow. In addition to increasing competition and lower revenues, customer disloyalty conveys greater administration costs for Vattenfall.

Vattenfall is a large company that has acted on a monopoly market. The company has been, and partly still is, owned by the government. One of the major tasks is now to adapt the organization to the de-regulated market and incorporate recent acquisitions[179]. The consolidation of the energy business is continuing and the result is larger actors. Vattenfall is a company that wants to play a role on the European market. The competition on the de-regulated market is increasing and economics of scale is hereby essential[180]. In five to ten years Vattenfall expects that less than ten actors dominate Northern Europe's energy market. Vattenfall expects to be one of those.[181]

4.2.2 Sydkraft

Sydsvenska Kraftaktiebolaget was formed to exploit hydro power on the Lagan watercourse and supply electricity to the main urban centers in

[178] Honner, 2001.
[179] Annual report, Vattenfall, 2000.
[180] Honner, 2001.
[181] Annual report, Vattenfall, 2000.

southern Sweden. On August 7, 1909, the Majenfors power station started to supply Malmö Yllefabrik, a textile mill. In the middle of the century, 2200 apartments in Malmö where connected to a new district heating network. As for today more than 90% of all properties in Malmö and Burlöv have district heating. District cooling is also being introduced, and more than 1,000 customers purchase total heat from Sydkraft Värme[182].

The Öresund cable came into service 1915, linking the Swedish and Danish electricity systems. This was the first of several links, which laid the foundation for an exchange of electricity suppliers throughout the Nordic region. Today the transmission capacity between various countries is steadily expanding. Since 1994, for example, the German and Swedish grid systems are linked via the Baltic Cable, one of the most powerful and advanced direct-current links in the world[183].

The first nuclear power reactor at Oskarshamn started up on December 12, 1970, and on August 19, 1971, Oskarshamn started to supply power to the grid network. Sydkraft decided to order an additional reactor for Barsebäck. The two Barsebäck reactors went into operation in 1975 and 1977[184].

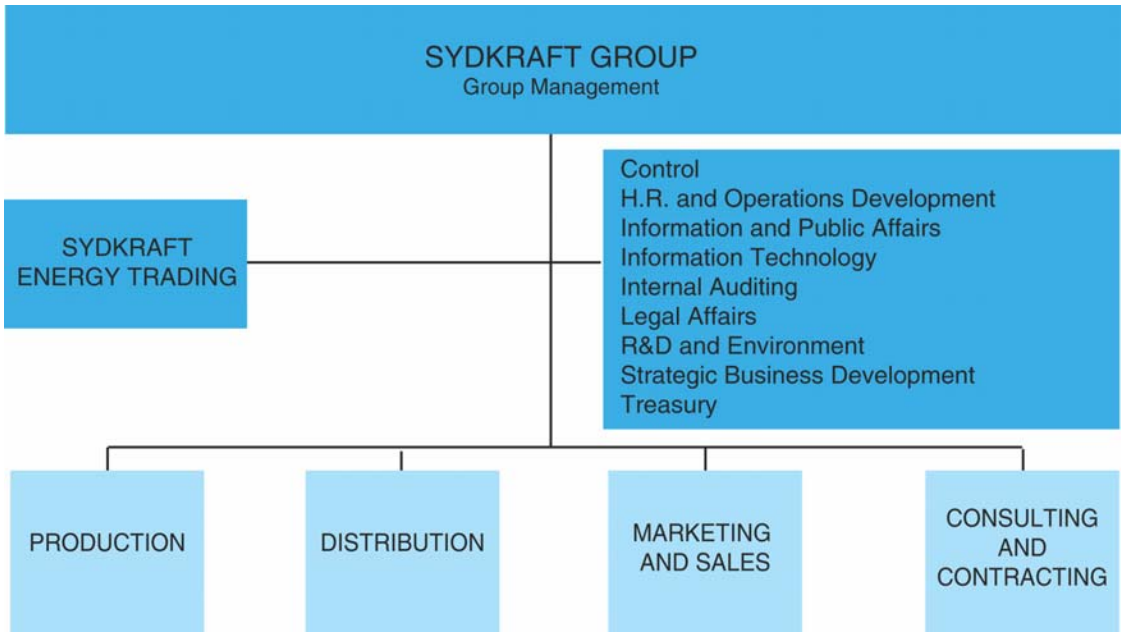
Organization

Sydkraft is a national and international supplier of electricity. In Sweden Sydkraft's geographical basis is in the southern parts of Sweden. "But as a result of the acquisition of Örebro Energi and the formation of sales subsidiaries in locations such as Lidingö near Stockholm and Sundsvall and Söderhamn in northern Sweden, Sydkraft has now acquired crucial national strongholds"185. Furthermore, the company has entities in Northern Europe in countries such as Norway, Denmark, Germany, and Poland186.

---

[182] www.sydkraft.se, 2000-01-02.
[183] Ibid.
[184] Ibid.
[185] Lindquist, 2001.
[186] Annual Report, Sydkraft, 2000.

Picture 15



The picture illustrates the organization of Sydkraft.

Nowadays Sydkraft is a subsidiary to the German energy company E.ON Energie since May, 2001. E.ON owns 61 percent of Sydkraft, while Norwegian Statkraft owns 35 percent and the rest is own by minor shareholders. The Sydkraft Group is divided into four business sectors - Marketing and Sales, Production, Distribution, and Consulting and Contracting. In combination with Sydkraft Energy Trading and Sydkraft Broadband, they form a complete energy group[187].

The Group contains about 70 operating subsidiaries, of which about 45 are staffed with own personnel. In all, Sydkraft has about 6 300 employees in sales, distribution and production of electricity, natural gas, LPG, heat, solid fuels, computer operations, waste management, broadband, and in metering, telecom and consultancy services[188].

[187] www.sydkraft.se, 2000-01-02.
[188] www.sydkraft.se, 2000-01-02.

Presently the entity serves approximately 900 000 customers with its services. A vast majority of the customers, 70 percent, are companies, and the rest end-consumers. Within the product portfolio Sydkraft is distributing electricity through their grids to 800 000 customers, and provides 600 000 customers with distribution and production of electricity. As for natural gas the customer base is 10 000 customers[189].

Vision and strategies

The Sydkraft Group's business concept is to market and sell energy solutions and services designed to increase the competitiveness, comfort and security of its customers in northern Europe. In order to realize its objectives and materialize the business concept Sydkraft focuses on four main visions in the three forthcoming years:[190]

- To have at least three million satisfied customers in northern Europe. The present figure is roughly one million.
- To have the strongest brand name in the energy sector.
- To be one of the most attractive employers.
- To be the most profitable energy group.

The energy market is changing rapidly. Restructuring and rationalization measures are in progress throughout the whole of Europe. Sydkraft's aim is to grow in order to create economies of scale and increased profitability. Growth will be achieved organically and through acquisitions. The acquisitions will mainly relate to electricity, gas and heating operations[191]. "*It is critical to focus on our core business to maintain competitiveness*" says C. Lindkvist. Acquisitions in new areas, such as energy and materials handling, will broaden the group's operational base with unchanged profitability. Efficient integration and development of the operations are extremely important to fully utilize the potential in acquired companies. Investments are also being made in new fields, such as broadband, where revenue potential is estimated to be considerable.

[189] Lindquist, 2002.
[190] Annual Report, Sydkraft, 2000.
[191] Ibid.

Therefore, Sydkraft ambitions strive to obtain a leading position as a broadband supplier.[192]

Concerning investments within Smart Utility systems and in the area of Smart Homes Sydkraft upholds a defensive strategy. This as they perceive that the present costs are too high in relation to returns. When tackling a more frequent meter reading in the future, Sydkraft relies on existing measurement techniques, and are considering integrating the customer in the reading process, self-custom reading.

However, the future need for Smart Home products is tangible, Sydkraft estimated the Smart Home market to pick up momentum within a timeframe of 2-5 years[193]. According to Curt Lindkvist " If the Smart Home concept is consistent with our product portfolio it will be absorbed, research in this area is conducted within Elforsk".

The future of Sydkraft

The Nordic market's demand for electricity will probably rise by about 20 TWh during the period 2001-2005, however, the increase in supplies will be marginal. One vital consideration is the high hydro production. During recent years, hydro production in Sweden has been about 20% greater than the normal production level. This is not assumed to be applicable in the future. It is possible with several years of lower, or even significantly lower, hydro production. This anticipated scenario will result in an approaching shortfall of electricity in the Nordic region. In other words, there will be a growing imbalance between supply and demand during this period. The de-regulation and restructuring of the German electricity market will probably be more rapid than was the case in the Nordic countries. But even if there is a merging of the Nordic, German and Polish electricity markets, it will still be physically impossible to import the quantities of electricity required by the Nordic region. This is almost certain to result in higher electricity prices in the Nordic market[194].

[192] Ibid.
[193] Lindquist, 2001.
[194] Annual Report, Sydkraft, 2000.

4.2.3 Birka Energi

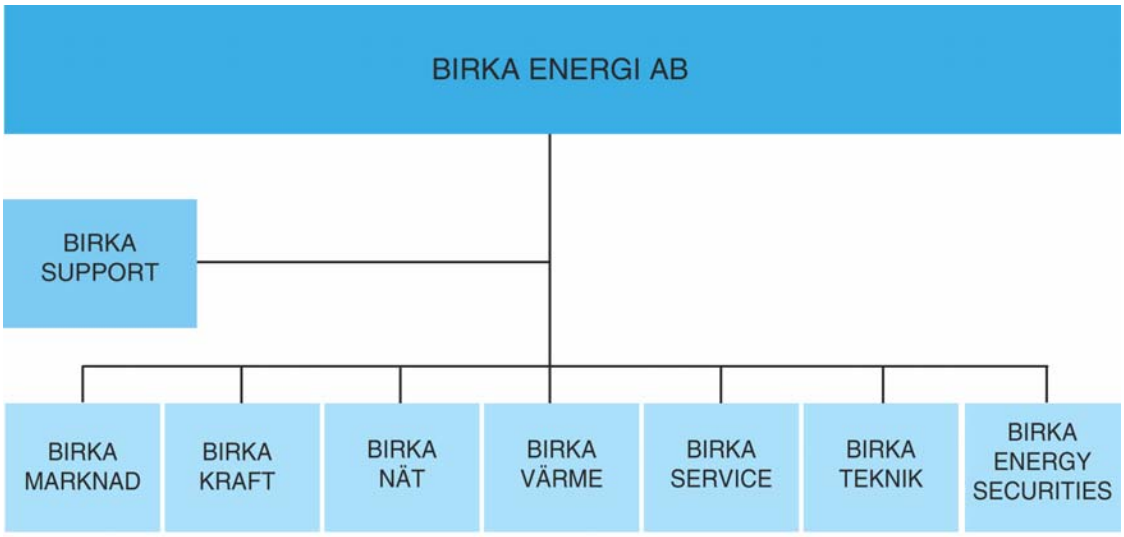
Birka Energi is a conglomerate of different Utility companies. Birka was founded in 1998. Birkas origin is in the Utility company Stockholms Energi. Birka Energi has the most customers in Sweden and is the third largest electricity producer. This makes Birka Energi one of the most important actors on the Swedish market. Birka is owned by the City of Stockholm and Fortum Power and Heat AB, 50% each. Fortum Power and Heat AB is in turn a Finnish company mainly owned by the State of Finland.[195] Birka Energi experienced tough competition in the year of 2000. The electricity price and demand of energy were decreasing. This restrained Birka Energi's economic growth.[196]

Organization

Birka consists of eight companies. The different fields of activities are electricity production, electricity sales, district heating and cooling, networks, entrepreneurship and services, and gas. Birka Energi has two brand names; Birka Energi and HemEl. The two brands are focusing on different types of customers. Birka Energi is aimed at industrial customers and HemEl's customer base is composed of households. Birka has about 800 000 customers.[197]

[195] Annual report, Birka, 2000.
[196] Ibid.
[197] Wennerhag, 2001.

Picture 16



The picture illustrates the organization of Birka Energi.

Birka consider themselves an innovative company. The company is of the opinion that they are good at adapting to customer needs and wants.[198] Innovation management is, for example, handled within the business unit Nya Affärer and hereby spread out through the organization. "*The unit is pragmatic rather than innovative"*[199]. The focus is to find products that are mature, both technically and considering the market.

Vision and strategies

Birka Energi was founded to meet the demands of the de-regulated energy market in Sweden. The de-regulated market calls for larger actors with the ability to adapt, invest, and improve ability to compete.[200] *"Birka Energi aims to become a partner of the customer."*[201]

As mentioned one part of Birka Energi's business concept is to use two different brands. This gives the company the possibility to adjust

[198] Ibid.
[199] Ibid.
[200] Annual report, Birka, 2000.
[201] Wennerhag, 2001.

marketing instruments, products, and services to the specific target audience. Having two brands is a differentiation from competitors.[202]

In order to differentiate the activities of Birka Energi the company offers telephone services, insurance, and security services. The reason why Birka Energi is entering new markets is the fact that the company structure is suitable for mass markets. HemEl for example is aiming to incorporate new products in order to fulfill the vision of being a home service company. Electricity is not a very profitable product today, it is seen more as a way of getting customers and hereby have the possibility to offer them other services and products.[203]

Birka Energi's strategy to remain a large actor is to secure the energy supply to the customers. This is made by improving supply networks. Birka is focused on becoming a full-service partner, i.e. the industrial customer can outsource power related activities to Birka. Today the company offers energy statistics and energy management to company customers. [204]

When considering Smart Utility and future legislation Birka Energi has two interested parties; Birka Networks and Birka Market. The Network organization is the one that would install such equipment. Today Birka Nät could read meters manually for 20 years at the same cost as installing an AMR system. Hence, "Today *Birka Nät hasn't really got an incitement to invest in remote meter reading"*[205]. On the other hand the present system of manual meter reading is responsible for high costs in e.g. administration. Therefore there is a conflicting situation between the net company and the electricity sales company. AMR would result in usable information for the customer.[206]

Birka Energi is a company focusing on Smart Homes and the company is concentrating on Smart Home services not hardware. Products and services that are associated with this concept are security, alarms, and convenience, e.g. control of lighting. Currently the market for intelligent

[202] Ibid.
[203] Ibid.
[204] Ibid.
[205] Ibid.
[206] Ibid.

homes is divided into a household market and an industrial market. The products and services connected to the industrial market are more practical, e.g. communication and monitoring of maintenance centrals, lighting and temperature observation. The main goal of intelligent services towards industrial customers is to save money. Birka Energi and Bravida have a common company called BBI which is selling and installing this type of equipment. Hardware is bought from different suppliers and not developed by the company itself. The main market is recently built estates.[207]

When considering households the profitability margins are considerably lower. Generally there is always a simple control system already installed in the property. Nevertheless, one service which is attractive and competitive is the security and alarms. Another attractive part is convenience. Empirical evidence proves that once a convenience system is installed for the customer other services and products will be sold. [208]

The future of Birka Energi

Birka Energi is consolidating the organization. The marketing and promotion of new services will mainly be made in strategic alliances. Birka will continue to develop a broad range of services that the market is demanding. The company HemEl will continue to invest in services connected to communications, insurance, monitoring, and security.[209]

The market of Smart Homes is still in an early phase. One strategy that Birka Energi is implementing is to associate the Smart Home with other products. In reality this means that an alarm function is not called a Smart Home but a security product and service. In this way Birka Energi is dissociating itself from the "*Smart Home*" concept[210]. Birka Energi believes that in 5 – 10 years intelligent homes in some way will be a reality. One key to the intelligent home is the digital TV network, which in a way makes the home interactive. In addition to this the flat plasma

[207] Ibid.
[208] Ibid.
[209] Annual report, Birka Energi, 2000.
[210] Wennerhag, 2001.

screens will make Web sites accessible from the digital TV network. These two factors will speed up the diffusion of innovation.[211]

4.2.4 Graninge Energi

Graninge is one of Sweden's oldest companies, its roots going back to the year of 1673. The company originates from the forest Industry. In the beginning Graninge used hydropower to generate kinetic energy to the Industry. Later the kinetic energy was converted into electricity. The company's energy production is concentrated to central Norrland in Sweden. Still today almost all of Graninge's energy production consists of waterpower. Thus Graninge has a sustainable energy production in the sense that production causes minimal emissions. Graninge is Sweden's forth largest Utility company. The company has been cultivating its business; from being a forest Industry to becoming a pure Utility company. [212]

Graninge is owned by Electricité de France (Edf), E.ON, and Sydkraft. Graninge also has two large private owners; the Nordin and Rudbeck families. The company is currently controlled by Edf, Nordin, and Rudbeck families.[213]

Graninge has one of the best financial situations among the Utility companies. The company has a high profit margin (14%) and a high solidity (53%). [214] In 1999 Graninge sold a company, called Skog & Trä, in order to improve the conditions for future investments.

Organization

The organization of Graninge can be divided into heating, electricity, and network. Graninge produces 3TW annually and the production is based on hydro power. The electricity sales reached 6TW in 2000. Graninge has expanded their Grid network in the latest year. The company is therefore one of the largest Grid operators in Sweden. Large parts of the Grid network are located in the centre of Norrland, Stockholm, and Kalmar. In Stockholm the Grid operator has 115 000 network customers.

---

[211] Ibid.
[212] Annual report, Graninge, 2000.
[213] Svensson, 2002.
[214] Annual report, Graninge, 2000.

In order to minimize the risks of the volatile energy market, Graninge has organized a trading division within the company. The trading division is one of the Nordic countries' most respected.[215] The company is implementing innovative products and services into the organization by a business development department. In addition, project groups that are non-organization bound are formed in an "ad hoc" way to solve problems or integrate knowledge.[216]

Vision and strategies

Graninge's business concept is *"Graninge will become one of the leading Utility companies in Sweden and Finland with emphasis on sustainable energy solutions. [217]"* Further Graninge will *"… offer environment conscious customers electricity, heat, and network services in an efficient, competent and service-minded way. [218]"*

Graninge is offering electricity, green electricity, windmill electricity, district heating, and network services. H. Svensson explains how the electricity market has developed since the deregulation in 1996 "*The service differentiation on the electricity market has lost some speed but is starting to recover."* Graninge is currently focusing on the company's main business.[219]

Graninge is also interested in entering other business areas. Graninge is currently focusing on broadband and different IT-solutions.[220]

The image of Graninge as a sustainable energy company is important. Graninge has a competitive advantage; the large amount of hydropower. Graninge is experiencing an increased demand for environment friendly energy solutions. The company is also expanding its windmill park.

Graninge is currently reading meters manually. A future customer self-reading of the electricity meter is not an option due to reliability problems. When considering investing in AMR equipment Graninge is

---

[215] Ibid.
[216] Svensson, 2002.
[217] Annual report, Graninge, 2000.
[218] Ibid.
[219] Svensson, 2002.
[220] Annual report, Graninge, 2000.

reluctant, due to the uncertain return on investment. *"The company will consider AMR as any other investment, profitability is a priority above all"*[221]. However, Graninge is currently testing and developing systems for monitoring customer electricity usage. AMR is a part of the company's strategy.[222]

Smart Homes are currently not a part of Graninge's strategy. The company is of the opinion that the customer value of the Smart Home is too low to generate profit. The Smart Home must be characterized by simplicity, energy savings, and possibilities to communicate in order to be a success.

The future of Graninge

The restructuring of the electricity Industry brings a wave of purchases. This wave will also influence Graninge to make purchases in order to grow, increase efficiency, and improve competitiveness. The legislation will force Grid operators to invest in Smart Utility. The technology used can vary but there is a need for this kind of products and services. H. Svensson at Graninge believes that legislation and the need for control of the electricity network will force the company to implement AMR. [223]

The Smart Home is an infant product or service. Graninge development department believes in the concept and answers the question whether Smart Homes will be a part of Graninge's strategy; *"– Yes, absolutely, but not today."*[224]

4.2.5 Göteborg Energi

Göteborg Energi is a company owned by the city of Göteborg. The company is the largest actor on the western Swedish energy market, with about 400 000 customers. The company has been active since mid 19th century and the core business of Göteborg Energi is electricity, heating, cooling, and energy management services.[225]

---

[221] Svensson, 2002.
[222] Ibid.
[223] Ibid.
[224] Ibid.
[225] Annual Report, Göteborg Energi, 2000.

Organization

Göteborg Energi's business organization is divided into two subgroups; Nät (GENAB) and Energi. The network organization Nät provides the customer with a network through which energy is provided and sold. Energy is in turn sold by Energi. The business units Nät and Energi are supported by Teknik, Marknad, and Mätning. These units provide technical support, marketing skills, and measurement of customer consumption. The business and support units are controlled by management.[226]

Visions and strategies

Göteborg Energi has clear economic visions. The profitability must be satisfactory to ensure "freedom of action"[227]. In the year of 2000 the economical the economical goals of 7% profitability were not met? This is due to high supply and low demand of electricity and decreasing prices on the market of heating. Göteborg Energi vision can be illustrated through the company keywords "Dynamism, Consideration, and Experience" [228]. In order to fulfill the vision the company is pushing hard for sustainability. In real terms this means that the company is investing in environmental certifying and optimization. In addition, Göteborg Energi is also putting major parts of the Göteborg Grid network below ground to increase reliability. The company strategy is to provide services, within the city of Göteborg, in the field of activities for the benefit of everyone.[229]

By purchasing companies in western Sweden, Göteborg Energi has entered new markets and strengthened its position in the region[230]. The strategy is to be diversified and hereby offer a broad spectrum of services. The trend is that industrial customers want more ad hoc solutions which include outsourcing of entire business units. Households, on the other hand, are demanding service, simplicity, and comfort. In order to obtain these demands Göteborg Energi is investing to become a full service

[226] Ibid.
[227] Ibid.
[228] Ibid.
[229] Ibid.
[230] Ibid.

provider. The company is because of this providing customers with energy management.[231]

Göteborg Energi considers themselves to be an innovative company, primarily because they are implementing new and innovative products and services[232]. Broadband is an issue high on the company agenda and a broadband network is currently being built. The broadband and its connected services have been gathered under a company named GothNet. The broadband service is in turn supposed to generate other profitable services. The services imagined are; cable television, security services, internet connection, and intelligent homes. Göteborg Energi considers partnership as a way of developing and providing these services. [233]

Remote meter reading and Smart Homes is presently not in Göteborg Energi's strategy. The company is currently using manual methods to read electricity meters. But possible future legislation will drive the company to implement remote meter reading on its household and high consumption customers.[234] B. Wictorén concludes that "The whole Utility Industry will have to invest in remote meter reading systems, mainly because of the cost-benefit aspect".

The Smart Home is defined by Göteborg Energi as a service or product that improves and increases comfort, and simplifies the resident's life. Services and products that are connected to this are alarms, security, and monitoring. The management of Göteborg Energi does not believe in complex solutions so "simplicity" is a keyword.[235] The company has already a service that is similar to the idea of an intelligent home. Göteborg Energi was the first company to introduce this service on the market and did so in the year of 2000. It is a surveillance service and allows the user to save energy, monitor, and control the flow of electricity, heat, cooling, lighting, ventilation, alarm-security, and water to

[231] Wiktorén, 2002-01-04.
[232] Ibid.
[233] Annual Report, Göteborg Energi, 2000.
[234] Wiktorén, 2002.
[235] Ibid.

a property. The service is also a platform for other future intelligent systems.[236] The system is controlled by the user via internet.

The future of Göteborg Energi

Göteborg Energi is a company that is looking to expand its business through differentiation. The company vision is to be a full service provider of different kinds of energy and power related services in western Sweden.[237] The company is therefore in an expansion period, e.g. district heating and broadband are key investments in the coming years. Göteborg Energi also focuses on sustainability and energy management. The de-regulation of the energi market is also affecting the company, an internal restructuring of the company is taking place. In real terms the importance of customer service is increasing and a strategy is implemented to respond better to customer demands.[238]

4.3 The innovative Utility companies

There are small actors on the Swedish market who has fully implemented Smart Utility systems. These companies have different characteristics, e.g. they are innovative and considers Smart Utility from a different perspective than the large companies. The smaller innovative companies consists of Skånska Energi and Sollentuna Energi.

4.3.1 Skånska Energi

Skånska Energi is not chosen for its size and major influence on the market as the other Utility companies that participate in our exploration. Skånska Energi is by far the smallest utility company, both in terms of annual turnover and number of customers. Nonetheless it is a very interesting company due to its innovational awareness. Due to their size they have found other ways to compete than using benefits of scale to lower cost. They do not care to be price leading but to provide the best overall service which reaches far beyond being a traditional utility company. Skånska Energi´s strategy is to emerge from being a utility company to become a service company. The electricity sales for 2001 was 231 697 MWh and the turnover was SEK 129,4 million.

---

[236] Information paper, Göteborg Energi, 2002.
[237] Wiktorén, 2002.
[238] Annual report, Göteborg Engergi, 2000.

Skånska Energi has 16 500 customers spread in an area surrounding Lund. The main towns within the area are Kävlinge, Södra Sandby and Dalby. 52% of the customers are people living in electrically heated residences and 33% are businesses and companies.

Organization

Skånska Energi AB is a private owned company. In February 2001 the customers were offered to buy shares in the company as a strategy to strengthen the bonds between customers and owners. The interest was vast and demand was several times bigger than the number of shares offered.[239] Today the owners consist of about 1000 different share holders of which no one holds more than 5%.[240]

Skånska Energi has two fully owned subsidiaries, Skånska Energi Marknad and Skånska Energi Nät. The first of the two handles market planning and strategies and the latter owns and maintains the grid.[241]

Visions and strategies

The main structural changes concern the transformation of Skånska Energi from being a traditional Energy provider to becoming a Service company. Skånska Energi has invested in a AMR system provided by SENEA, which enables the company to monitor the customer's energy usage online. Skånska Energi paid SEK 2500 per unit and the estimated return on investment for the system is 10 years or less. Skånska Energi also provides broadband and has constructed personal web sites for all customers allowing them to monitor their own energy consumption and informing them how to rationalize their consumption.[242]

A major problem for the Industry is the energy consumption peaks that occur at certain given times every day. When these peaks occur the grid network is almost at its maximum of what it can provide. In addition, days with cold temperatures demand even more energy, bringing the Utility company capacity to its limit. If there should be an overload on the grid network the Industry has to shut down the energy supply to

[239] Annual Report, Skånska Energi, 2001.
[240] Bratt, 2001.
[241] Annual Report, Skånska Energi, 2001.
[242] Bratt, 2001.

whole neighborhoods on a rotating basis. One way of easing the effects of energy consumption peaks is to educate the customers in being more rational energy consumers. Energy is bought and sold by the Industry on an open market and the price fluctuate and is always most expensive during energy consumption peaks. If the customers could change their consumer pattern, e.g. deliberately delaying the switching on of household machines in the morning, savings of up to 10-12% of the household's electricity costs could be made. Skånska Energi is trying to work out a strategy to reward customers that spread out their energy consumption more evenly during the day and one suggestion is to lower the fixed cost on the electricity bill.[243]

Future of Skånska Energi

Morris Bratt is certain that Smart Home devices that can regulate temperature and check if doors are locked will be at the market soon. In a longer perspective he predicts that these services will include intruder- and fire alarms and that Smart Home devices will be used by local hospitals and homes for elderly, allowing patients to stay in their residence and having their health status monitored remotely. Skånska Energi is very interested in this concept but is not aware of any company that conjoins AMR systems with Smart Home devices.[244]

4.3.2 Sollentuna Energi AB

Sollentuna Energi has about 23 000 energy customers, all of them within the municipality of Sollentuna. 11 000 of these also have Broadband supplied by Sollentuna Energi. The company does not produce any energy but acts as a provider via the electricity market and controls the local grid network.[245] The annual energy turnover is approximately 350 Gwh and the annual turnover in SEK is 300 Million.[246]

Organization

Sollentuna Energi is a small local actor on the Swedish Utility market but has shown itself to be an early adaptor of new technology, i.e. AMR. Local government of the city of Sollentuna owns the company and it was

---

[243] Ibid.
[244] Ibid.
[245] Ibid.
[246] www.sollentunaenergi.se, 2001.

founded in 1964 and consists of four different sectors with 40 employees in all. The two main sectors are Grid operation and maintenance, which owns and controls the local grid network, and Utility Trade, which handles the transaction of electricity from the open market to the customers via the grid network. The Utility Trade sector was founded as a subsidiary company when the Swedish utility market was de-regulated. The other two sectors are Heating and Broadband. The broadband is provided to customers in cooperation with Tele2 and Techsell.[247]

Visions and strategies

The main visions and goals are to remain as a company owned and controlled by the local government and to expand, mainly within the Heating sector. Within the Utility Trade sector the company wants to improve their ability to meat certain customers' demand for "green electricity", e.g. wind power. For the moment the strategies to achieve these goals are vague and needs to be redefined.[248]

Last year Sollentuna Energi implemented SENEAs system Custcom to improve their billing system of customers. The bill concists of two parts; one fixed and one variable. The fixed cost is for usage of the grid and the variable depends on the consumption of electricity. Custcom allows the Utility company to monitor each customer's electricity consumption on an hourly basis. This gives the company valuable information about its customer consumption pattern and results in more precise billing. The bill is based on the average of the three highest measurements per month. The Custcom device is installed and conjoined with the traditional meter in the customer's home and the measurements are sent to the Utility company via fiber- or signal cable. "*The investment in the Custcom system should be seen as a way to solve the legislation proposition, and besides, we needed information about our grid and customers. The cost even proved to be much less than what we first thought*"[249]

The future of Sollentuna Energi

Anders Jidinger predicts a decreased interest from the consumers to swap Utility companies and therefore the present focus on developing new

[247] Ibid.
[248] Anders Jidinger, 2001.
[249] Ibid.

services is going to be of less importance. Instead, the Utility companies will focus on improving existing services, e.g. the billing systems. The legislation proposition will facilitate decision-making concerning investment in systems like Custcom for the whole Industry.[250] Anders Jidinger knows about the concept of Smart Homes but is not aware of any technique or company that combines Smart Utility with Smart Homes. Presently, Sollentuna Energi has no visions or strategies concerning the concept of Smart Homes as a part of the company's product portfolio.

4.4 The Industry

The Swedish Industry of Smart Utility consists of several actors working on different technical solutions, strategies, and has different managerial organizations. The different competitors are presented in alphabetical order. The amount of empirical data per company is inconsistent, this is due to the fact that some companies are public limited companies. Hence, information is public and easy to obtain. Some of the companies are privately owned, which makes data relatively inaccessible. Privately owned companies within the Smart Utility Industry also tend to be small which also decreases amount of relevant data.

4.4.1 ABB Cewe

Cewe is a subsidiary to the ABB group and has 240 employees and is situated in Nyköping. Cewe buys circuit cards from well-established suppliers and assembles energy, water and heat sub-meters.[251] The sub-meters are assembled according to the DIN technique, circuit cards assembled and conjoined via slots inside the meters. Cewe's market lies within Europe and the products are distributed by wholesale dealers to the end-customers which mainly are Utility companies.[252]

Visions and strategies

The main vision is to become market leaders throughout Europe which they already are in some countries, e.g. in Sweden. Furthermore, Cewe strives to certify all products according to national and international

[250] Ibid.
[251] www.abb.se, 2001.
[252] Stig Högberg, 2002.

legislations, which not all competitors do.[253] "This means that our products are not on the low-price market", says Stig Högberg. One strategy to become market leader is to continually develop new types of meters, at least one new model each year, to meat the changing demands on the market. Cewe wants to be first in launching new technology on the market and this is facilitated by Cewe's ambition to acquire knowledge of market trends directly from the customers by listening to their requirements rather than to glance at competitors' products and solutions.

Organization

Cewe consists of 240 employees divided into several departments; inbound logistics, assembling, outbound logistics, marketing and sales, development and support. Since Cewe is an assembling company the inbound logistics are of great importance. Cewe buys all switch cards from well-established suppliers and this cost is estimated to half the annual turnover. Also the outbound logistics are important as Cewe applies the Just In Time concept. 95 % of the production is customer-ordered in advance. The benefits are that they have little cost of holding products in stock. The drawback, according to Stig Högberg, is that they are slow in adjusting their production line when high quantities are demanded. Most of Cewe' products are ordered by other ABB companies throughout Europe.

Stig Högberg says that all departments are equally important and cannot be ranked but he wants to highlight the innovation spirit that permeates the whole organization. They call it Shelf-solutions, which mean that all employees are encouraged to work out new products and solutions whenever they have some spare time. The name is derived from the fact that many of these new inventions have to lie on a shelf for a wile before they can be commercialized. According to Stig Högberg the benefits of Shelf-solutions cannot be quantified in economic terms but is of great importance for the company.

Products and services

Cewe was the first company to develop sub-meters according to the DIN slot technique, which they invented 15 years ago. This gives them high credibility on the market and they constantly develop improvements of

[253] Ibid.

the technique. Much effort is put into development of user-friendly solutions and the sub-meters provide users with accurate electricity bills, which allocate the energy consumption between the facilities. Cewe does not develop the systems supporting the meters but are only developing and assembling components and meters. Many of their customers are system developers and if Cewe were to develop systems of their own they would become competitors with their customers.

Cewe's sub-meters communicate via Bus, two cord lines, instead of via the energy grid network. This is a drawback for the company when negotiating with Utility companies since they already have the grid network installed. They do not want to invest in a parallel network. Heating companies, on the other hand, do not have a preinstalled grid network and are therefore more open to Cewe's solutions.[254]

Future and Smart Homes

The market of AMR is highly innovative and Cewe is open for cooperation between the actors to develop standardized products[255]. Cewe does not develop Smart Home solutions and Stig Högberg cannot see the demand for the products as of yet. However, in 10 to 15 years from now he believes that the market will be different; *"Since energy is not likely to become cheaper and people tend to seek solutions to save money there will be a demand for Smart Home solutions that cuts energy costs"*[256].

4.4.2 Actaris

Actaris is a supplier of residential, commercial and industrial electricity metering systems. The company also offers systems and services that surround the meter. These meters and systems allow customers to monitor production and load levels and create accurate bills. The main customers are Utility companies. In November 2001 Actaris bought Schlumberger Resource Management Services, with capital from LOB France, Jean-Paul Bize and Clermont Matton, two former Schlumberger. In 2000 Actaris' revenue was $750 million.[257]

---

[254] Ibid.
[255] Ibid
[256] Ibid
[257] www.actaris.com, 2001.

Organization

Actaris has 8000 employees in over 60 locations; the company operates manufacturing, sales, services and support centers across the world. The company has a development department for each meter and product type.

Products and services

Actaris is a worldwide developer and provider of meters, systems and services and is active in all utility sectors: electricity, gas, water and heat. Scandinavia is much ahead in this sort of technology compared to the rest of Europe. Actaris develops and produces the circuit cards and systems themselves, but in Scandinavia they do not have any manufacturing. All products are ordered from Germany, England and France.[258] The company invented communication on the low voltage grid network in 1986 which has given them much experience and Per Holkert says that reliability is the most value adding quality that the company' product has compared to its competitors.

Future and Smart Homes

"The future market looks very bright if the legislation proposal comes through", says Per Holkert. The Utility companies want Smart Utility companies to cooperate so that they can buy the hardware from one supplier and the software from another. In this way the Utility companies do not have to rely totally on one single supplier. This demands standardized products that do not exist at the moment but as Per Holkert puts it: *"True, but the customers (Utility companies) do not know this"*. The Smart Utility companies that establish strategic alliances or joint ventures are the ones that will be the most successful. Actaris has started negotiations with other competitors. There is no current demand for Smart Home products but future generations will probably want them. [259] Per Holkert do not know of any companies that integrate AMR technology with Smart Home solutions.

[258] Holkert, 2002.
[259] Ibid.

4.4.3 Infometric

Infometric was founded in 1995. The business concept is to create business opportunities in a de-regulated power market by offering a user-friendly, open system-concept for electricity trading and energy efficiency. Infometric is a small "*entrepreneurial*" company which cooperates in networks to give the customer a complete solution[260]. Currently the company has four employees. The company is focused on Smart Utility. Smart Homes are not a part of the company's strategy.[261]

Vision and strategies

Infometric's customers are primarily Grid operators and real-estate companies. The company is located in Stockholm and the business is focused on Sweden. Infometric is characterized by compability, e.g. the products protocols are based on Lon Works from ECHELON. This increases Infometric's products' compatibility with other products. Infometric is a member of Lon User Sweden, which is an association that aims at integrating products by using "the same language".[262]

To increase the speed of diffusion *"…it takes a lot of footwork, relationship marketing is the key to sales."* K. Bodman on Infometric's reveal. Infometric's main strategy is to work up a market by relationship marketing. This strategy is supplemented by the company's presence in professional journals, on exhibitions, and targeted commercial. The company is also pressing for a standard within the Industry, this will result in the possibility to add on other products and services to Smart Utility; research is, hence, prioritized.

Infometric's has outsourced the manufacturing of the company's products. The company aims at measuring not only electricity but also water, heat and cooling. The service is an important part of the company's strategy. K. Bodman recounts that *"Take for example the car Industry; the major sales are not taking place when a new car is sold but instead in the service and spare parts business."*

---

[260] Bodman, 2001.
[261] Ibid.
[262] Ibid.

Products and services

Infometric has fully developed AMR equipment. About 6000 units have been installed. The system's main components are measurement units, communication units, and software. The measurement units are used to gather and collect data.[263] The system is sold to[264]:

- Ånge Elnät AB
- Sydkraft Elnät Nord AB Sundsvall
- Graninge Energi AB Forse bruk Långsele

Future

Customer awareness is the greatest barrier. Bodman conveys that *"The barrier is both on the consumer and the Grid operator side. Today most consumers are not aware that they pay on approximated basis."* Infometric estimates the market to 1,5 million customers within five years. In the long run the company believes that all households will use AMR.[265]

Infometric's products are prepared and compatible with the somewhat universal Lon Works protocol. This means that the company is well adapted to the "intelligent home" products using the same language.[266]

Infometric is a small company with outsourcing as a strategy to grow. The main market is Sweden and the company believes that Stockholm is more innovative and therefore will be first out to adapt to AMR.[267]

4.4.4 Megacon

Megacon was founded in 1982 providing products and systems within power quality and security analysis, environmental energy and customized consumer solutions of electricity systems to the mining and constructing Industry. Megacon's product range of power quality has been pioneering, and is today market leaders within Earth leakage in Sweden and Great Britain. In 1998 Megacon's product portfolio was expanded to Energy

[263] www.Infometric.se, 2002-01-15.
[264] Ibid.
[265] Bodman, 2002.
[266] www.Infometric.se, 2002-01-15.
[267] Bodman, 2002.

Metering and monitoring using AMR. Large investments where made in this area as the AMR market were, and still is, estimated to have great revenue potentials. Main customers are Grid operators, real-estate companies and industries. Today Megacon AB carries out business by subsidiaries or via co-operation in Sweden, Finland, Norway, Great Britain and USA.

Organization

The Megacon group of companies consists of Megacon AB with totally owned subsidiaries Megacon Production AB, Megacon System AB, Energy Communications Systems Lidingö AB, Elektro Automat Olof Fasén AB and the British subsidiary Enercom Ltd.

Megacon's managing director Peter Stockhous owns the majority of the company, the rest is owned by institutional owners (30,8%), foreign investors (11,9) and 4,8% is owned by smaller shareholders[268].

Vision and strategies

Megacon's vision is to be market leaders, producing and selling solutions of electricity systems for Smart Utility, power quality- and security analysis[269].

In the year 2000 Megacon's turnover was SEK 69,4 million, and the company's profitability was 7,1 millions for the same time period. Megacon's ambitions are to increase company sales both nationally and internationally. The increased turnover will be amplified by internal growth and through acquisitions. The goal is to increase sales by 15-20 % annually and reach profitability of 5-10 % of turnover. The company's solidity (50%) is presently good, however the future solidity must be viewed in relation to Megacon's strategy of increasing investments in the Smart Utility area[270].

Megacon's goals will be obtained by continuing development of new innovative products and services within earth linkage and Customized

[268] Annual report, Megacon, 2000.
[269] Ibid.
[270] Ibid.

solutions[271], which are the revenue driving/generating business units[272]. In order to obtain a market leader position within Smart Utility, Megacon will mainly focus on two strategies: attendance and capability. When penetrating an innovative market it is essential to be present on the market, adapting the organization to the market environment and conduct marketing towards customers. On the Swedish market the focal point is on Grid operators and real-estate companies. A driving factor for Megacon is to deliver high quality products and services. The strategy is to be better than their competitors. [273]

The possibility of integrating Smart Home in Smart Utility solutions has been considered and the idea of smart residences may be attractive in the future. However the products must be profitable. The incitements for diffusion of the Smart Home innovation are functions for lowering energy consumption and security. "I *believe that alliances are critical, in order to form standards*"[274]. Perceived future product areas are e.g. security alarms and housing for the elderly [275].

Products and services

Megacon's business strategy contains three different product categories, development of Smart Utility for energy consumption, earth linkage and customized solutions. The two latter business units have the longest tradition and are presently the profit-earning units. The Smart Utility unit is thought to be prosperous in the future[276].

The demand of Earth linkage products is continuously increasing, and is one important pillar for company revenues. The customers served in this sector are for example hospitals, industries, offices, and computer facilities, which are vulnerable for disruptions of the electricity supply[277]. Customized solutions are a significant part of the Megacon revenues. As the name implies the production is tailored to specific customers, e.g.

[271] Ibid.
[272] Ulf Magnusson, 2002.
[273] Ibid.
[274] Ibid.
[275] Ibid.
[276] Annual report, Megacon, 2000.
[277] Ibid.

Atlas Copco, Ericsson and Daimler Chrysler. The products are primarily provided in two areas, electric power and electronics. Megacon provides instruments for control and allocation of low voltage power.

In the business unit Smart Utility Megacon provides hardware and software of energy and water metering, thus collecting, processing and providing billing systems remotely. The benefits are:[278]

- The energy supplier is able to provide precise billing service.
- Reduction of energy consumption.
- Excluding old legacy systems based on manual reading.
- Eliminating metering/reading errors.
- It is easier to change Grid operator
- In a near future billing via Internet will be possible.

MultiLog is a flexible hardware for gathering of electricity measurement. Communication between the units is transmitted via the electricity grid, radio, GSM or internet. The MultiLog hardware is based on the Lon Works technology, which makes it compatible with other systems and products. This choice of an open system, added with the strategy of creating alliances is a successful way of attracting real-state companies.[279]

According to Ulf Magnusson, the most value adding activity in Megacon's Smart Utility portfolio is the ability of complete and reliable control systems for meter reading and the providing of a precise billing service.[280] Megacons Smart Utility also reduces consumer's energy consumption, this is made by changing patterns of consumption.

Megacon adds value to the Smart Utility products through six stages in the value chain: Research and development, which is performed with a close look on the predicted customer needs notified by the sales personnel, and materializing this products. This feedback system is a valuable tool when seeking progress in product development. The second stage is inbound logistics. The importance of different hardware purchases is moderate. It is important to comprehend quality and the

[278] www.megacon.se, 2002-01-20.
[279] Annual report, Megacon, 2000.
[280] Magnusson, 2002.

range of hardware application, and to have a technical standard which is open, but the product value increases significantly when adding in-house fabrication. In-house fabrication is characterized by assembling inbound logistics components and compiling the units with Megacon products such as MultiLog. The fourth stage where value is added is through marketing. The focal points here are advertisements in Industry journals and magazines, direct marketing towards customers e.g. Grid operators, real-estate companies and industries. The last and the most important marketing channel is marketing through personal selling. "*It is critical to ensure not only the final decision makers, but the additional consultants and users/operators of the metering system, that our products are the best*"[281]. The fifth and most important stage that Megacon provides to its customers is the outbound logistics. The outbound logistics is distinguished by installation of the AMR-system at the customer, enabling a superior collection and billing system. The last stage is the after service, which contains long lasting guarantees with no charge for service and repairs[282].

Future

Megacon will continue development of new innovative products and services within their three business units, Smart Utility, earth linkage and Customized solutions. However, much is expected of the AMR unit in the future[283]. This is mainly due to two reasons: first, indications from real-estate companies' hints of an increased demand for remote meter reading services during 2001 and 2002. Secondly, and the most important factor: in order for this market to grow the proposed legislation of more frequent readings in Sweden must be realized[284]. This would generate an enormous market, within four to seven years the market for AMR will be estimated to SEK 1,5-3 billion. However, the year 2002 is a critical year for the AMR unit and Megacon's overall business strategies. This year or the next the AMR unit must reach break even, otherwise Megacon are to consider winding up this business unit, as it is eating revenues from the other two profitable business units[285].

---

[281] Ibid.
[282] Ibid.
[283] Annual report, Megacon, 2000.
[284] Magnusson, 2002.
[285] Ibid.

4.4.5 Milab

MiLAB was founded in1984 in Linköping by Jan Axelsson and Tommy Blohm. Jan Axelsson is the CEO and Tommy Blohm is head of R&D. The company has 15 employees and they develop and sell Smart Utility and supporting application systems to Utility companies and Grid operators in Sweden.[286]

Visions and strategies

MiLAB wants to supply products and support systems to the Swedish Utility companies, where MiLAB provides the system-knowledge and executes whatever goals the Utility companies set up. MiLAB wants 30-50% of the market shares. This will be realized by developing application systems today that will stand for the requirements of tomorrow and by marketing the products directly to the Grid operators and not via a third party.[287]

Products and services

MiLAB develops the hardware, the meters, and the software themselves but has outsourced the assembling to other companies. "*What is most value adding about MiLAB's product is that the Utility companies can start using their grid network for new things, like communication, in order to make more money*"[288].The application system is based on Echelons system LonWorkss which is an open system that is compatible with other LonWorkss products from other companies. This is unique for MiLAB and Enermet, according to Krister Westerberg. The market potential is estimated to 5000 measuring points , each costing 1500 SEK which gives a total of 7,5 Billion SEK.[289]

Future and Smart Homes

MiLAB acts in an innovation Industry and is open for cooperations with other LonWorkss Product companies. Krister Westerberg predicts that Smart Home solutions and products will not be demanded for a very long time due to low margins. He thinks that there are many possible services that end-users would like to have but would not be willing to pay for.[290]

---

[286] www.milab.se, 2001.
[287] Westerberg, 2002.
[288] Ibid.
[289] Ibid.
[290] Ibid.

4.4.6 SENEA AB

SENEA is a company with its roots in Vattenfall. The CEO Anette Brodin Rampe is a member of the board of directors in Vattenfall. SENEA is a supplier of complete systems for Smart Utility. The company was previously a parent company to 8 other enterprises. These subsidiary companies have been sold in order to focus on the main business, Smart Utility.[291]

Vision and strategies

SENEA's vision is to be a dominating actor on the Nordic market for Smart Utility. SENEA's strategy is to become both a service and a product supplier. The service consists of measuring, collecting information, billing, and customer service. In addition to service, the company has two products for measuring electricity consumption; Custcom 500 and Custcom 1000. To achieve the goal of being a service provider SENEA is implementing strategic alliances with other services providers, i.e. Bravida who is a partner for installing SENEA's system. SENEA is currently one of the leading actors on AMR in Sweden. The company's strategy is to fortify this lead-position by expanding the sales volume by 30% per year. In addition, return on investment is to be 20%.[292]

SENEA has experienced low profitability in the latest years. The main reason has been low demand for the Industry's products due to a piece of legislation called "schablonreformen". This legislation stated that electricity sales companies could use template billing, i.e. the customer pays in advance on an estimated basis. The system was implemented by the government to improve competition on the energy market. This has not been the result.[293] The low, or even negative, profitability within SENEA has brought a rationalization and the staff has almost been cut by 50% [294]. Hence the most important goal of SENEA is to become profitable[295].

---

[291] von Sydow, 2002.
[292] Annual report, SENEA, 2000.
[293] www.senea.se, 2002-01-13
[294] Annual report, SENEA, 2000.
[295] von Sydow, 2002.

SENEA's customers are primary Utility companies, Grid operators, and real-estate companies[296]. SENEA's strength is the ability to provide complete solutions to these types of customers. Today the Nordic countries have about 150 000 points of electric measurement, SENEA manages 120 000 of these. The main customers in Sweden are; Sollentuna Energi, Skånska Energi, and Smedjebacken Energi. Currently SENEA is involved in a project in northern Norway and the company is also prospecting in Finland. The goal is to obtain a high market share in Sweden, defend market shares in Norway, and to establish a base of operations in Finland. [297] The company has currently established cooperation with Helsingfors Energi concerning 3000 measuring points in the city of Helsingfors.

Smart Homes are currently not in SENEA's strategy. This is due to the non-existent profitability in the market. The company has different alarm and security tools integrated with its product line, these solutions are outsourced to other actors.

Products and services

SENEA has three complete systems installed in Sweden. The customers are:

- Sollentuna Energi
- Smedjebackens Energi
- Skånska Energi

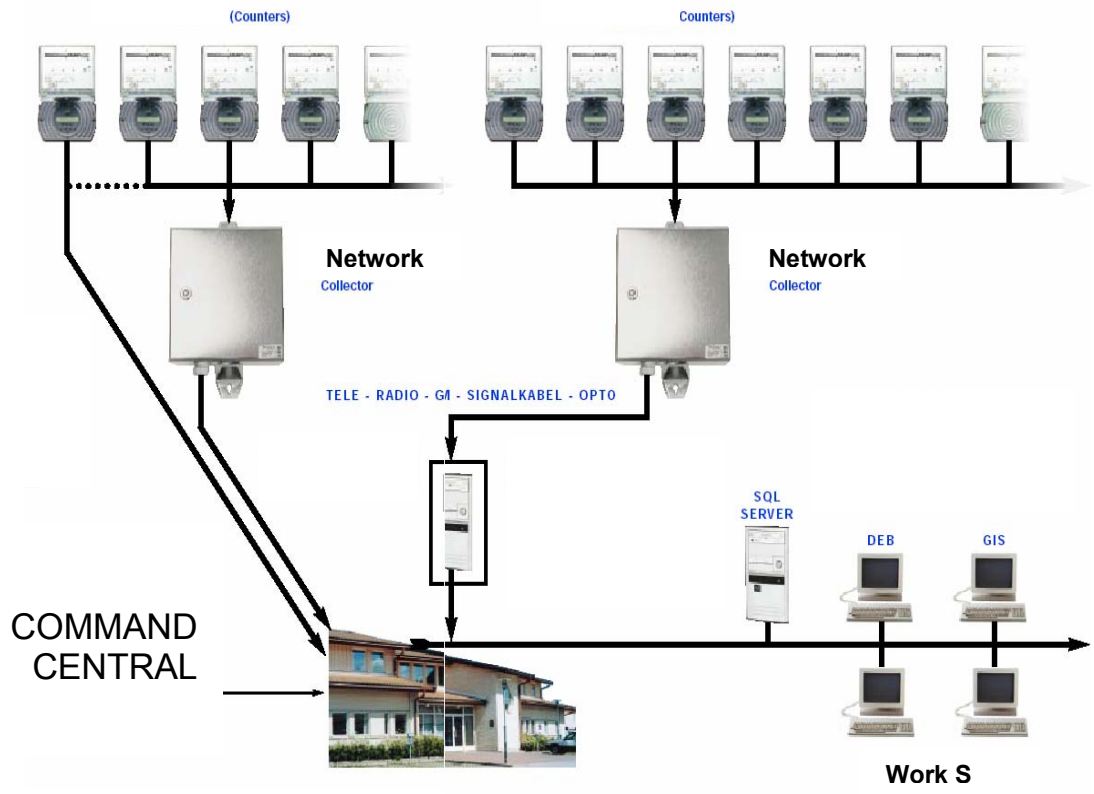
This brings a total of 120 000 measuring points in the Nordic countries.

Currently SENEA has two product lines; Custcom 500 and Custcom 1000. The products are AMR and the difference is that Custcom 1000 is measuring the consumption in a shorter interval. The product lines not only make SENEA a system-supplier but also a service, and technical supplier. This makes the company a full service provider with both the capacity and the skill to install complete AMR systems.[298] Different

[296] www.senea.se, 2002-01-13
[297] von Sydow, 2002.
[298] von Sydow, 2002.

services are integrated with SENEA's product lines by strategic alliances with for example billing companies. Currently SENEA cooperates with Kamstrup, a large electricity meter manufacturer. SENEA's product is possible to get integrated in an electricity meter. [299] One advantage of SENEA's products is that they are reliable; disturbances on the electric power network are avoided by using a broad frequency band.[300]

Picture 17



Picture X illustrates how SENEA's system works in reality. Informaition is passed on from each and every customer to a commanding office. The commander in turn sends the information to different work stations i.e. billing and customer service. www.SENEA.se, SENEA Custcom©, 2002-01-14, p. 3

Organization

SENEA consider themselves an innovative company and the company has totally 18 employees. The staff has been cut in order to be more dimensioned to the low demand on the market. Out of these employees

[299] von Sydow, 2002.
[300] Enlund, 2002.

there are four salesmen with the task of working up a market. To increase the speed of innovation diffusion the company is attending exhibitions, advertising in business papers, and using relationship marketing. On the technical side there are four employees working with software. The technical development is outsourced to a company named Nexus.

Future and Smart Homes

SENEA has a new majority owner; Mellby Switzerland, SA. This constellation has strengthened the company's financial position.

SENEA estimates the European market to about 200 million measuring points. Thus the company expects the market to become large. SENEA has been experiencing an increasing interest and demand in AMR in 2001.[301] The Nordic Countries are in the frontline both when considering legislation, de-regulation, and technology. The Swedish market is estimated to a total of 5 million measuring points. If the legal proposition will be ratified there is 1,5 million measuring points in 2006. In addition the Nordic market is expected to be the one first investing in AMR. [302]

SENEA is convinced that customer-reading is not an option for the electricity sales companies. This is due to the low reliability of the system, only 65% of the measured values are accurate. This brings a need for AMR products.[303] SENEA has also implemented a new service strategy. This means that the Utility companies are offered a complete "from measuring to bill" package[304]. In real terms SENEA has taken a step from being a product supplier to becoming a service provider.

4.4.7 Techhem

Techem are specialists on recording, processing and billing of energy and water consumption. Techem measures and collects measurements from over six million residences all over Europe, and are administrating over 33 million meters. Their customers are primarily real-estatecompanies, municipality and tenements.

---

[301] www.senea.com, 2002-01-14.
[302] von Sydow, 2002.
[303] von Sydow, 2002.
[304] www.senea.com, 2002-01-14.

Organization

Techem originates from Germany, where also the head quarter is situated. Techem is listed on the German stock exchange[305]. The company has over 2,700 employees in 14 counties in Europe[306]. Techem's Swedish subsidiary operates over the whole country and has offices in Malmö, Göteborg, Stockholm and Karlskrona[307].

Vision and strategies

Techem perceives themselves as a service and support company in the energy and water optimizing business. "*Our business concept is to process and provide measurement information for customer's billing systems*"[308].

Techem's vision is to become market leaders in Sweden, with 35 percent of the market. When penetrating the Smart Utility market one vital strategy is the product pricing system. The real-estate company funds the purchase and installation costs, of approximately SEK 4000 per installed unit. In this way the resistance for implementing this system in the residence is small. Furthermore, eventual energy reduction goes back to the resident, in the form of reduced energy bills. If there is no reduction the resident will not be punished by higher bills[309].

Products and services

"With our AMR systems our customers are able to collect and deliver statistics and precise billing to the resident, including heat, water and electricity measurements. The awareness of consumption statistics and precise bills is reducing the resident's energy consumption by 15-20 percent annually"[310].

This precise way of measuring electricity and water costs sub metered to the individual apartments actual consumption is done by. Hence, enabling energy reduction for both tenants and real-estate companies. The AMR communicates via radio, meaning that there is no need for access via fiber cable or need for electricity supply, this makes installations easy and cost

---

[305] Palm, 2001.
[306] www.techem.de, 2002-01-18.
[307] Ibid.
[308] Palm, 2001.
[309] Ibid.
[310] www.techem.se, 2002-01-18.

efficient[311]. To this Smart Utility system the customer is able to complement Techem's Smart Home product Assisto. Besides reducing energy consumption the customer is able to use security functions e.g. security alarms, light control, and regulating room temperature. All products are standardized, approved from a legal perspective and are safety tested. The price for the Smart Home products ranges from SEK 700 for a house alarm to SEK 15 000 for all applications and the investment is made by the resident. However, to be able to install a Smart Home product prior installation of AMR must be made[312].

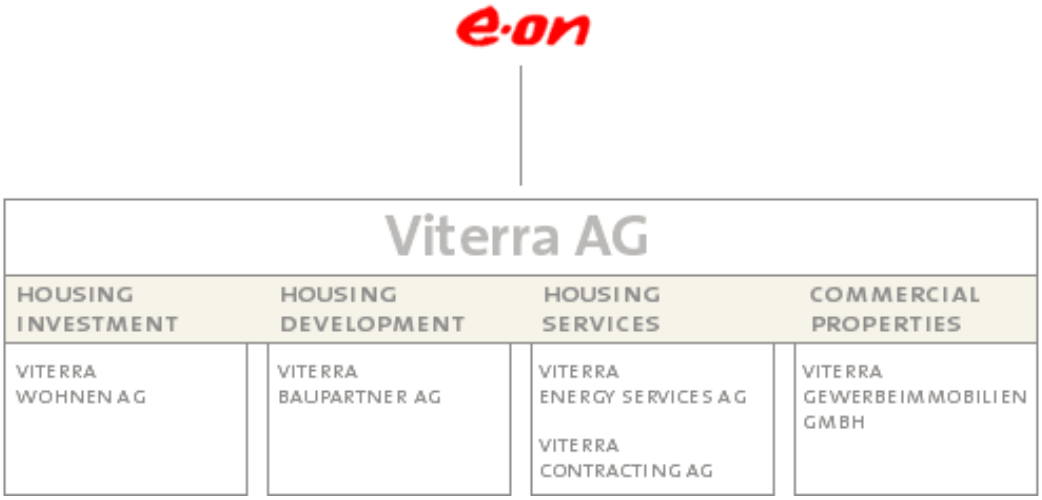
According to Lars-Olof Palm, the most value adding with Techem's AMR product are the ability of precise information on electricity and water consumption, the possibility of reducing electricity costs and the fairness aspect. Techem adds value to the customer with their products through six stages in a value chain. All Research and development, is performed in Germany this due the small size of the Swedish subsidiary. There is however a feedback system, which is a valuable tool when seeking progress in product development and special demands of the Swedish market. The second, stage, inbound logistics, is impotent as all hard ware is imported from Germany, directly from Techem or from subcontractors. In-house fabrication is characterized by assembling of inbound logistics components and is made in Germany or in other countries in Europe. The outbound logistics is distinguished by product installation, which is done by partners and is very much straightforward. The next stage where value is added is marketing and sales. The focal points here are, direct marketing towards customers e.g. real-estate companies and municipality. Presences at Industry exhibition are also of importance. The last and the most important marketing channel is marketing through personal selling. The last stage and the most important stage is the after service. "*The after service is really our business concept recording, processing and providing consumption data which the customer bases his billing system on. We are a service company*"[313].

[311] www.techem.se, 2002-01-18.
[312] Palm, 2001.
[313] Palm, 2001.

4.4.8 Viterra

Viterra Energy Services is part of the Viterra AG Group with earnings of EUR 1.3 billion for the year 2000. Viterra AG is wholly owned by E.ON AG with earnings of EUR 93.2 billion in 2000, E.ON is Germany's third largest industrial corporation focusing on the energy sector[314].

Picture 18



The picture illustrates Viterra's ownership and organization.[315]

Viterra Energy Services is a specialist in, measurement, cost allocation, billing, and revenue management of electricity and water consumption, providing services to utilities, municipalities, and industrial/commercial organizations. The company provides customized solutions in the gathering and processing of consumption information, or the managing of utility bills, as well as comprehensive money to the bank services[316].

Vision and Strategy

The customized product gives Viterra an advantage towards consumers, as customizing does the product more suitable for customer needs, either it is a technical issue or a price aspect that have to be considered. *"The*

[314] www.viterra.com, 2002-01-13.
[315] Ibid.
[316] www.viterra.se, 2002-01-13.

uniqueness of choosing different hardware gives us leverage and forms our core, which we will stick to"[317]. "*This core is our major differentiation towards our competitors, who in many cases are limited by only delivering own hardware solutions*".[318]

Secondly, Viterra perceives Smart Utility, to be an increasing market with great potential, this is due to the fact that the European energy market is becoming de-regulated. The Scandinavian countries, especially Norway and Sweden, are at the frontline within AMR, because of legislation and market de-regulation. As a result Smart Utility companies in these countries are world leaders concerning technology, for example regarding products and whole-solutions. Therefore, Viterra Sweden is going to be a platform for the development of Smart Utility for the entire Viterra Energy Service group[319].

Sweden is one of the countries with the highest expectancy of measuring points in the forthcoming years. In the five coming years the estimated figure will be 1,5 million measuring points, it is a vital market to focus on[320]. Viterra's goal is to manage 300,000-400,000 AMR within this time period. According to Lars Enlund this market share will be obtained through four different strategies:

One essential marketing strategy is to focus on personal selling towards customers, as Grid operators and real-estate companies. Other channels of marketing that will be utilized are Industry conventions and different seminars, where customers can be targeted. [321]

Another approach to promote Smart Utility is to lobby on consumer organizations and real-estate companies. The company is enlightening benefits of AMR for the end consumer, as it brings precise billings, statistics, and improves awareness. This could lead to reduction of energy consumption. An additional aspect is the viewpoint of fairness; in real-estate companies that today have common electricity tariffs, there is an incentive for separate billing. [322]

---

[317] Enlund, 2002.
[318] Ibid.
[319] Ibid.
[320] Ibid.
[321] Ibid.
[322] Ibid.

AMR systems are associated with high investment costs especially in an initial phase, thus Grid operators and, to some extent, real-estate companies have been moderate when embracing AMR and relying on the present, inferior methods of measurement. Consequently, Viterra is examining a different pricing strategy: which implies a change from a customer purchase of the meter system when Viterra is handling the meter services, towards Viterra taking over the entire measuring management process for a certain time period. Instead of bearing a high initial cost the customer pays an annual or monthly fee for e.g. 7-10 years, after which the customer acquires the meter system. This approach is likely to encourage the customer to an investment, as the venture is spread out over a longer time period. Secondly, a lower investment-sum enables a decision on a lower organizational level, which facilitates the decision. [323]

The forth strategy to realize their goals concerning market shares is to link and standardize different suppliers' systems to Viterra's services, in order to make the service as complete and flexible as possible. [324]

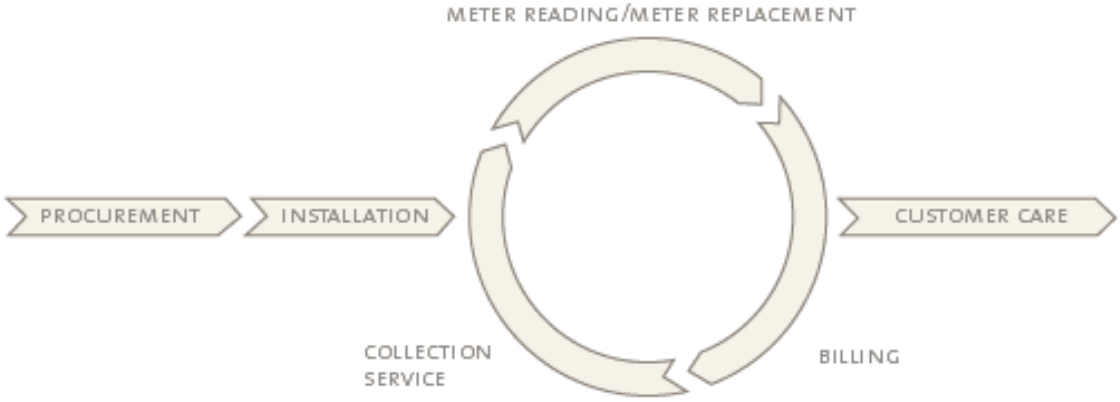
Products and Services

Viterra adds value to the customers with their products and services in four stages of the value chain: research and development, which mainly is situated in Germany. However, feedback systems are valuable tools when seeking progress in product and service development. The second step is inbound logistics and in-house fabrication. The importance of different hardware purchases are considerable when focusing on AMR for electricity consumption, as it is vital to comprehend quality and the range of application, in order to find a suitable solution for the consumer. The in-house fabrication of AMR for electricity consumption is, however, of moderate importance, as it mainly constitutes assembly. Nevertheless, in-house fabrication of AMR for water and heat measurement is of greater importance, as Viterra produces these types of hardware. The third stage where value is added is through marketing, personal selling, Industry convention and seminars. The last step is the most important; Viterra provides their greatest value in after-service. The after-service ranges

[323] Ibid.
[324] Ibid.

from AMR, gathering and processing of consumption information, managing billing, with the possibility of money to the bank services[325].

Picture 19



The picture illustrates Viterra's service strategy.[326]

Organization

With 4,400 employees serving the needs of more than 530,000 customers in 29 countries, Viterra Energy Services has a vast experience in processes and technologies for all markets and all environments. The company gathers approximately 40 million meter readings annually, and manages approximately 15 million bills annually, Viterra Energy Services earnings for the year 2000 was EUR 378 million[327].

In 2001 Viterra Energy Services acquired Etrem AB, which was adopted into the organization and today is called Viterra Energy Services Sweden. Its headquarters are located in Stockholm and have subsidiaries in Karlstad and Bollnäs. Etrem's turnover in 2000 was 174,7 million SEK, with a profit loss of SEK 8,1 million, this due to increasing competition resulting in lower margins[328]. For the year of 2001 an extensive efficiency program was launched with the aim of changing the downward trend. This program has turned out to be a success according to Lars Enlund, as

[325] Ibid.
[326] www.viterra.com, 2002-01-13.
[327] www.viterra.com, 2002-01-13.
[328] Annual report, Etrem, 2000.

the company has increased the earnings with 20 million SEK for 2001[329]. The Swedish division presently collects approximately 32,000 meter readings annually, and produces approximately 25,000 billings per year[330].

Future and Smart Homes

The present trend on the energy market is to focus on the core business, including Utility companies, real-estate companies and industrial/commercial organizations. This implies an increased demand for energy management; customer services stretching from gathering and processing of consumption information, to a complete billing system with money to the bank functions[331]. Viterra looks upon this trend with anticipation. Furthermore, proposed legislation and de-regulation of the Nordic markets is monitored extensively, as it is very likely to increase the AMR market. If the Nordic AMR market gains momentum and shows signs to be thriving it could be an indication for the future progress of the European energy market, and worldwide revenue potential. [332] "*Viterra being represented all around the globe, combined with E.ON AG's war chest, the next coming five years will be exciting.*" [333]

[329] Enlund, 2002.
[330] Ibid.
[331] Annual report, Etrem, 2000.
[332] Enlund, 2002.
[333] Ibid.

4.5 IT & Process

ITP was founded in 1992 and is situated in Oslo, Norway. The owner structure mainly consists of four entities; Mobil Data Invest (13,1%), Skartind (11,7%), Norsk Personal Gruppen (9,7%) and FirstNordic Norge Vekst (9,7).[334] Enermet is the market-leading actor on the Norwegian market and ITP comes in second place with 14 customers and 7500 measuring points. All actors within the strategic group are showing negative results and in ITP's case last year resulted in a 5 Million, NOK, deficit. ITP's financial standing is nonetheless considered solid. Recently the company was approved additional funding from its main owners.

4.5.1 Organization

ITP's 10 employees are all shareholders and they are spread out over two different sectors, Development and Marketing & Sales. ITP technicians have developed all products and systems internally which gives the company full control over product strategies. The marketing staff consists of three persons and their main focus is to establish the qualitative advantages and benefits of ITP's products and services. The marketing activities are sorted into the following categories:[335]

- Direct contact
- Advertisement
- Exhibitions
- Product demonstration
- Product test groups

The main selling strategy is to focus on strategic factors from a customer point of view, i.e. what the main benefits are for the customer. ITP cooperates with an advertisement company and focuses only on Utility companies and Grid operators, and not on the end-users. The company lets the customer's employees try out the products during negotiations. The products are user-friendly which enables the customers to do the installation themselves. Marketing & Sales is the most value-adding

[334] www.itp.no, 2001.
[335] Erik Teigen, 2001.

activity for the company at this stage. ITP has no current brand management strategy. [336]

The inbound logistics is important to ITP and they have well-established suppliers but are concerned that future demand will bring supplier capacity to the limit. To secure the incoming flow of raw material ITP is looking for additional suppliers.

The assembling activity is outsourced to a closely evolved partner but ITP is currently looking for additional assembling companies to secure the production-line capacity. This is of long-term strategic importance. The assembling company also holds the products in stock and the products are distributed from their facilities to the customer.

Service & Support is an activity that ITP has not focused on as of yet and they have no personnel handling these matters.

4.5.2 Visions and goals

"The market is definitely innovative since it is not consolidated and no standards are set."[337]

ITP seeks to become the clear market leader in supplying hardware and software for Smart Utility and Smart Home services. From the first product designed, ITP has followed its vision to create a line of hyper-functional products that can support applications from baseline utility-centric services to next-generation consumer-centric services. Because ITP has designed its system with respect to utilities and consumers, it has developed a core platform capable of doubling as the backbone of any Smart Utility and Smart Home application.[338]

"We want to become the leading actor in the Nordic countries within our sector"[339]

The strategy to fulfill the vision is to only develop and market products that are demanded on the market. ITP wants to differentiate itself as

[336] Ibid.
[337] Ibid.
[338] ITP Business Plan.
[339] Erik Teigen, 2001.

being a high-end supplier with slightly higher prices than its competitors, but with proven shorter payback time. Depending on how much of ITP's whole-solution, Smart Utility and Smart Home, the customer purchases the payback time varies between 3-8 years.[340] Furthermore, they want to highlight the functionality of their products and that they have based their products on an open system, allowing additional services to be added to their system. ITP is open for cooperation with other actors within the Industry.

The company also wants to enter the Swedish market. One strategy in doing so is to first orientate and map the Industry in Sweden. This thesis aims to do so.

4.5.3 Products

ITP has focused its efforts on two product types: Smart Utility Services and Smart Home Services. The technology is based on CEBus (Consumer Electronics Bus) standard, which is an open system that allows other companies, using the same technology, to add new service systems continuously.[341]

4.5.4 Smart Utility

The Smart Utility services are directed towards the Utility Industry and its primary benefits are not to generate new revenues but to decrease costs and increase efficiency of the distribution of electricity. Smart Utility focuses on utility services enabling Utility companies to reduce operating costs and increase knowledge and functionality within their core business: delivering energy to customers. ITP's Smart Utility suite of products and services enables Utility companies to remotely read meters, intelligently reduce the aggregate load on their distribution grid, reduce loads during peak hours by percentages in specific neighborhood sectors, and gather detailed information about the energy consumption patterns. The Utility companies pay for the installation of the products and investment is returned by cut costs. End-users do not pay anything for these services.[342]

[340] Ibid.
[341] ITP Business Plan.
[342] Ibid.

4.5.5 Smart Home

Unlike the Smart Utility services the Smart Home services are directed towards end-users, residential consumers. The Smart Home services increase consumer comfort and reduces energy cost by enabling monitoring of, and intelligent solutions to, their electricity consumption. The Smart Home service consists of Smart Home devices, e.g. heaters, and an intranet system that links all household appliances into a cohesive network that enables the customers to remotely and locally monitor and control their living environment. Via a Web site consumers can remotely check if all doors are locked and their alarm is turned on. They can also remotely via a Web site or via a SMS turn on or shut down different residential devices. The Utility companies offer Smart Home services and devices for a small fee that is added to the normal electricity bill.[343] This is how the Utility companies gain profit and thereby reduce payback time[344].

4.5.6 Patents

ITP's appliance for patents has been modest, due to two reasons: when registering a patent, the information becomes public to some extent; this enables competitors to gather knowledge about the company. Secondly, a patent is associated with significant costs when applying for it, and even if the innovation is protected a competing entity with vaster financial resources could duplicate the innovation and take a costly and time-consuming lawsuit with the patentee.

4.5.7 Market opportunity and Adoption of Innovation

Margins for the distribution of power are very slim and power has almost become a transparent commodity with little profit potential for the utilities that distribute and sell it. This gives the Utility companies a strong incitement to invest in technology that reduces costs and increases revenues. "The above service seems like a winning situation, however the ability to bundle services such as security and control and automation will increase the profit potential exponentially. And by offering these services to customers for a simple additional cost to their monthly electricity bill, customer adoption of Smart Home type services will not be a difficult task. Once utilities are able to take advantage of offering customers

[343] ITP Business Plan.
[344] Erik Teigen, 2001.

integrated convenience service packages, their ability to realize new revenues will only be limited by the ingenuity of the developers of the services themselves."[345]

4.5.8 Future

"The Smart House market only currently contains the niche, high-end, and super-expensive automation and control systems that only technology focused upper-class members of society have custom designed and installed in their homes. Until now, no company has ever been able to put together a mass-market deployable platform that can simultaneously spawn disparate markets through a technology offering that effectively creates a network in the home that can be leveraged for utility-centric services yet scalable and functional enough to allow next-generation consumer-centric services to exist on its framework"[346]

[345] ITP Business Plan.
[346] Ibid.

5 Reflections on the market of Smart Utility & Smart Homes

ITP is considering a market entry and therefore there is an information need. This chapter is aims to reflect upon the gathered information concerning the market key actors, political and legal aspects of the electricity market deregulation, how innovation affects marketing strategies, and how a market entry can be achieved. The reflections will be made with the theoretical framework as a tool for analysis.

The deregulation of the Swedish power market started in 1996. The business had been a monopoly market for over hundred years. Today Sweden is one of the countries that have come furthest towards a de-regulated electricity market. Nevertheless, Sweden has a long way toward full deregulation, but the ambition is present. Swedish Competition Authority and Svenska Energimyndigheten are currently the two authorities that work for deregulation and open competition.

5.1 The political and legal perspective considering Automatic Meter Reading

The formal report from Svenska Energimyndigheten suggests that several electric meter readings per year are needed to improve competition on the market. The Swedish Competition Authority also considers AMR as an improvement of competition. On the contrary the authority questions the Swedish government's intentions of creating a de-regulated market. The Swedish state has dual interests when owning 70% in the largest company Vattenfall. Different intentions within the EU are also questioned, strong political forces are delaying and retarding deregulation decisions.

The Swedish Government and Parliament have started the prestigious process of deregulation in Sweden. The deregulation has not been a success considering competition. Therefore there is a need for other measures. The Swedish Competition Authority is specific and suggests

far-reaching solutions; separate the electricity sales companies, power producers, and Grid operators. Svenska Energimyndigheten suggests another solution to increase competition and make households save energy. The authority is confident that the proposal, of four electric meter readings per year considering customers consuming above 8000 KWh, will be taken into consideration of the government. This would result in more than two meter readings per year and 1,5 million measuring points. In the end the legislation is a political decision.

Currently, Utility companies are manually reading the meters. The main reason for manual reading is cost and benefit. It is the Utility companies and Grid operators who decide to invest in Smart Utility. If legislation will result in four meter readings per year, manual meter reading will be more expensive than AMR. A general opinion of the Utility companies is that AMR is a result of not only legislation but also general restructuring of the Industry. The most evident example is the innovative Utility companies who already have invested in AMR. One reason that smaller companies adopted Smart Utility is that the benefits are easier to grasp within a small organization. Finally, legislation may catalyst the market for Smart Utility, therefore a peak in demand can be expected before 2006. There are empirical indicia suggesting that legislation will be a reality.

5.2 The buyers of Smart Utility and Smart Homes

The Swedish electricity market has been characterized by many electricity sales and net owning companies. Since 1996, when the deregulation was initiated, there has been a consolidation of the market. In real terms the large companies expanded and became larger. Today the market leaders in size are Vattenfall, Sydkraft and Birka Energi. These companies are also producing a major part of the electricity in Sweden. The Utility companies are also electricity grid owners. This means that network and sales companies have the same parent company. The electricity sales, production and grid operating in Sweden have been a monopoly market in more than 100 years. Hence, the Industry is conservative and somewhat characterized by routine. The exception is the electricity sales companies, who have been forced to adapt to an open market.

It is the Grid operators' decision whether to invest in Smart Utility or not. In this case the three large companies, Vattenfall, Birka Energi, and Sydkraft are reluctant to the investment. The current model of manual

meter reading is more profitable but assumes one measurement per year. On the contrary, smaller companies as Skånska Energi, Sollentuna Energi, and Smedjebackens Energi have implemented fully operational AMR systems that are cuts costs. Other companies that are testing or considering different Smart Utility systems are Graninge and Göteborg Energi. Indications reveal that Göteborg Energi, who were one the first on the market with Smart Home services based on Smart Utility and energy statistics, are currently looking for suppliers of AMR hardware.

The Smart Home buyers are more differentiated than Smart Utility buyers. Smart Home products can be divided into two consumer groups; households and industrial buyers. The Utility companies are interested in selling Smart Home products to both customers and households. Vattenfall is the most prominent example of a company that has made large investments in the development of hardware solutions concerning Smart Homes. Vattenfall came to the conclusion that households are only willing to make small investments when it comes to Smart Home products and services. Vattenfall invested in round figures 1 billion SEK in the Smart Home concept, today the company has no vision or strategy considering Smart Homes in their business portfolio. Nevertheless all of the Utility companies are convinced that Smart Home services and products will become a reality in the close future. Yet, the only Utility company in our study that has an explicit strategy and thereby offering Smart Home services and products is Birka Energi. Birka Energi is currently focusing on real-estateautomation within the industrial sector. The household market is too weak to motivate investments.

Vattenfall made a strategic mistake when introducing Smart Home products on the market. The market was not ready and Vattenfall sustained heavy losses. When considering Smart Homes one must consider if these products save households money. If they do there is incitement for a market. There have been Smart Home products on the market a long time, but they are positioned towards luxury segment.

5.2.1 The power of the buyer group

ITP's buyer group consists of Utility companies. The strategic group of Utility companies is differentiated, but some general reflections can be made. A small group of companies have a large market share and a large number of customers. This means that the Utility companies would buy

large quantities of Smart Utility and Smart Home products. Hence, the power of the buyer group is significant. Nevertheless, the smaller Utility companies are in another position, in order to survive in the shadows of the giants they have to be innovative and have a quick response to changes in market environment.

The Smart Utility and Smart Home products that exist on the market are technically differentiated. Different extension services and products are possible to integrate with AMR systems. Therefore it becomes vital for the Grid operator to choose a flexible Smart Utility system. When considering Smart Homes the market is even more differentiated. Currently there are no standards considering Smart Utility and Smart Home products, therefore the buyer group is adopting a wait-and-see policy. When applying a power perspective, however, this implies that the power of buyer groups is diminished.

The buyer group is dependent of the AMR supplier. This is due to the relatively long lifecycle of the hardware; generally more than ten years. In addition, many of the large buyers are focused on price. Paradoxically the large buyers have to invest in order to lower the price on the market. The focus on price is another factor that makes the Utility companies hesitates in investing in Smart Utility.

The quality of the different Smart Utility products is varying, at least in the aspects of upgrading and compability with other products and services. Nevertheless households will experience an improved service from Utility companies using AMR; billing will no longer be approximate, the electricity bill will arrive several times a year, statistical services may lower the household energy consumption, and AMR may provide a platform for other Smart Home services and products.

The main objection to Smart Utility and Smart Homes is that they do not save the Utility companies money. The investment of Smart Utility, compared to manual meter reading, does not pay off according to the larger companies. However, there are small companies that use Smart Utility systems and declare them profitable. Those companies account synergistic advantages, e.g. administration, billing, and maintenance benefits. These advantages are more distinct in smaller companies.

Households save energy if Smart Utility systems are in use, e.g. by consumption statistics on the bill. This is somewhat conflicting with the Utility companies' strategy; the electricity companies aim to sell as much energy as possible.

No Utility company has the intention, a few the skill, to enter the Industry of Smart Utility. The development phase of a complete Smart Utility system for was approximated to ten years by SENEA. This indicates that there is not enough time to develop a Smart Utility system owned by Utility companies. Only Vattenfall and Birka Energi has entered the business of Smart Homes, with diametrically opposed strategies. Birka Energi is not developing hardware solutions but serve as a supplier of systems. A new actor on the market of intelligent home services is Göteborg Energi who presents a remote controlled system based on SENEA's hardware.

When considering Smart Utility products the Utility companies are end buyers. Hence, Smart Utility producers do not need to consider other strategic groups than the one of the Utility companies. Nevertheless the suppliers of Smart Utility have other customers, e.g. Techem and Viterra have real-estate companies as customers.

The power state between the buyer group and the suppliers of Smart Utility is unbalanced. The buyers are considerably more powerful. The buyer group mainly consists of few and large companies. The trend of larger and more concentration of power indicate that there may be about five Utility companies in northern Europe within ten years. The Swedish Competition Authority refers to the axiom of 20-25% market share per company in a mature market. The electricity market has been a monopoly market for more than 100 years. This brings about a conservative company culture that is reluctant to innovation. The Swedish market divides Grid operators and electricity sales units into separate companies. The Grid operators still act on a monopoly market and are therefore more conservative than the sales companies which act on a competitive basis. Both Grid operators and sales companies have benefits of Smart Utility, but it is the Grid operator that invests in Smart Utility. Currently there is an interest in Smart Utility products but the large Grid operators are not considering investment, the investment is not profitable. Small Utility companies are of the opposite view. However, there is a conflict

between the interests of Grid operators and sales companies. Smart Utility substantially simplifies administration and decreases costs of the electricity sales company working on a de-regulated market.

The difference between Smart Utility solutions are considerable, which makes the buyer group dependent on making the best choice. The Industry of Smart Utility is currently in a consolidation phase, where standards are taking form. Companies within the Smart Utility Industry have difficulty to survive, e.g. SENEA has a negative result and profitability as a goal above all. Utility companies investment decision is complicated by the expected life time of Smart Utility hardware. The longer the life time the more limited to one standard the buyer is. Hence empirical results indicate that the buyer group is awaiting legislation, standardization, lower prices, and a consolidation of the Smart Utility Industry.

According to the empirical results the buyer group is powerful and therefore has the opportunity to influence the suppliers of Smart Utility. A solution to affect the power relation is to differentiate and offer unique products and services. Smart Home products are one possible solution that ITP possesses. There is only one Utility company that has an explicit strategy of Smart Homes, but all Utility companies believe in the idea and sees a market opportunity within 5-10 years. Providing a platform for Smart Home products can therefore be viewed upon as a differentiation and a competitive advantage. Many Utility companies are investing heavily in broadband which is an important part of the Smart Utility concept.

5.2.2 Barriers of innovation

Empirical results support the thought that the Utility companies are conservative. This especially correlates to grid operating companies who act under monopoly circumstances. The competition within the electricity Industry is expected to rise due to further deregulation. Utility companies are differentiating themselves by adopting other services than the core services.

The diffusion of Smart Home products and services are inhibited. The Utility companies consider the innovation too complex and without any real advantages towards end-customers. Smart Home infrastructure is

also considered expensive and therefore there are more costs than benefits. This narrows the consumer group that may be targeted. To deal with the complexity of the innovation, the Utility companies suggest that Smart Home solutions must be simple, use existing infrastructure, add comfort to the household, and at a reasonable cost. Birka Energi has a strategy to overcome the household norms; the Smart Home is integrated in a security function. In this way the Smart Home is introduced in a similar way as a Trojan horse. Vattenfall's Smart Home concept stumbled on the relative advantages; consumers saw none. The Smart Home is also difficult to observe, our homes are relatively private. Therefore the innovation is initially most likely to be found in new constructed houses.

When it comes to industrial buyers of Smart Homes there is other incitement for the investment. Smart Homes in industrial buildings are rather intelligent control systems. These systems have the advantage of saving the buyer money, which in turn increases the relative advantages and lowers norm barriers. Birka Energi offers alarms and security functions that are based on existing infrastructure, e.g. power lines in the building. This results in a solution worth its price compared to existing security systems on the market.

If one considers Smart Utility as an innovation there are certain barriers that have to be overcome in order to increase speed of diffusion. If the assumption that investors not act like machines but like humans is relevant, industrial customers can be viewed upon in a similar way as consumers. Hence, the main barrier of innovation is the *relative advantage* of the innovation. Evidently the main Utility companies see no relative advantages, at least not in the cost-benefit perspective. The complexity of the innovation can also be considered as larger when it comes to large customers. The large companies have many measuring points within a large geographical area. Therefore the implementation of a Smart Utility system can be considered as complex. The observability of the innovation has been earlier been low but several companies now have operational Smart Utility systems.

The Utility companies are differentiating themselves by offering different services and products on the market. The general strategy is to focus on the core product; providing power. A secondary strategy is to find other areas of revenue, e.g. broadband and consultant services. Empirical

results declare that broadband is included in every large Utility company's business portfolio. Broadband and Smart Home services are somewhat connected, Utility companies are interested and even believing in the concept. Nevertheless since Vattenfall's miscalculating of the market of Smart Homes, other Utility companies are playing a waiting game. The same fact is relevant for the Smart Utility market; Utility companies consider prices to high and therefore await possible legislations and a consolidation of Smart Utility Industry.

5.2.3 Buyer outline; what they are doing, where they are going

The buyers are characterized by different strategies considering Smart Utility and Smart Homes.

Actor	Business focus and company characteristics	Smart Utility & Smart Home strategy	Outlook
Vattenfall	Differentiating the business portfolio. The company is skilled at handling a large number of customers. Investing heavily in Northern Europe. Vattenfall Is the largest grid owning company in Sweden. Is an old State-owned company, empirical data indicates a conservative organization.	Not considering Smart Utility investment. The grid operating company is applying a wait-and-see strategy. Smart Home product developer towards households. Has made major investments but liquidated the business unit with the motivation; the market is not ready.	Vattenfall is visualizing themselves as one of the large European companies on the power market in the near future. The company's investment policy is to grow by purchases.

Sydkraft	Sydkraft is a large actor owned by E.ON. The company is the one, among the large Swedish companies, who has come furthest towards a modernization of the company.	Not considering Smart Utility investment. Motivation: it is too expensive compared to manual meter reading. Suggest customer reading as a substitute for Smart Utility. No current strategies for Smart Home products.	The company aims at an aggressive expansion in northern Europe; customers are supposed to increase from 1 to 3 Million in four years.
Birka Energi	Birka energi is differentiating its business portfolio, e.g. telephone services and broadband. Branding is made through two companies Birka Energi and HemEl. In this way Birka Energi will target two different customer groups; industrial and households.	Not considering Smart Utility, the company does not believe that the investment will pay off. Has a Smart Home business unit. Birka is focusing on services not products. The company is relying on strategic alliances and partnerships when it comes to Smart Homes.	Birka energi aims to consolidate the business. Promotion will be made through strategic alliances. The company will function as a strategic partner for suppliers. Main areas of development are insurance, security, Smart Home services, and communications.
Graninge	One of the best financial situations in the Swedish Utility Industry. Focus on sustainability. The company is controlled by EDF.	Not considering Smart Utility. The company focuses on pay back time. Nevertheless, the idea fits the "green" image of the company. No current ambitions of Smart Homes.	Graninge intends to grow by purchases. The company is focusing on "green" energy and sustainability.
Göteborg Energi	Owned by the City of Götegorg. Hence, strategy is affected by the local government. Aims at providing a broad range of services to the citizen of Göteborg.	Currently testing Smart Utility systems. Are currently considering offers from different Smart Utility suppliers. Offer remotely controllable home living environments.	Aiming to grow in western Sweden. The company also invests in different forms of energy, e.g. heat and gas. This strategy will make Göteborg Energi a "full service provider".

Skånska Energi	Small innovative company present in western Skåne. Flat organization and present where electricity is sold.	Fully operational system for Smart Utility. Considering building a broadband network system for providing Smart Home services.	The company aims to stay independent and expand its business in Skåne. A goal is to be in the frontline of technology.
Sollentuna Energi	The company is owned by Sollentuna local government. The organization is small and the company is an early adaptor of new technology. The company offers broadband to 50% of its customers.	Fully operational system for Smart Utility. Not considering entering the business of Smart Homes.	The company aims to stay in the ownership of the local government. Expanding its business with heating.

5.3 The power relationship within the Industry of Smart Utility

The Smart Utility Industry is characterized by a dozen competing companies. However, the different actors have different origins and structures, some are small innovative companies, and others have large investor/Utility companies supporting their businesses. Assuming this business structure the competition ought to be moderate as it has more than a few actors, which differ in size as well. Furthermore, the common Industry opinion is that when the legislation proposition is officially authorized, the market will grow fast and there will be room for all actors.

The Industry's view of a market large enough for all the competitors is confirmed by theories implying that in a growing market company rivalry is modest as the companies are expanding on nobody's expense. However, today the market is small, with few customers. At the moment rivalry is sharp, consequently the limited custom bases make it hard to have company surpluses, and it is of great importance to show off with implemented products that works. This is to get recognition within the

Industry in orders to achieve a first mover advantage when the market gains momentum.

The Industry is moving towards more standardized products due to two main factors. By compiling products the Smart Utility companies lowers the perceived risk that customers, Grid operators and others experience when facing large investments. The likelyhood of a conglomerate of companies surviving on an innovation market is higher. Secondly, the product value of AMR increases with a standardized concept, this as AMR products may be merged with other technologies and user areas. This consequently opens the field for more business possibilities for the companies working with the standard as well as fortifying their position against other competitors in the Industry. To modify a company strategy, using technological compatibility in products to speed up the diffusion process of an innovative product is a classical method. This is a clear and present trend within the Industry.

Presuming that legulation will be ratifized and the AMR market grows, the maturity phase in the product life cycle is estimated to occur rather soon. Some Industry actors predict rapid demand followed by a fast decline simply due to the fact that all measuring points will have been attended to. The expected product lifecycle for the first generation of Smart Utility products at the Nordic market has a time horizon of about 10 years. A generally known fact is that new technology companies have to deal with, when supplying specialized key components and subsystems to larger firms, is that they become dependent on single Industries. Therefore it is vital to implement strategies in order to not find themselves competing in a declining Industry facing overcapacity.

5.4 Competitor analysis

In this section the profiles of the Smart Utility actors are presented:

5.4.1 ABB Cewe

Cewe's main vision is to become market leaders throughout Europe developing and assembling electricity meters and components to the Utility Industry and Smart Utility Industry.

The Smart Utility market is characterized by being an innovative market with few standards. Cewe believes that the cooperation between actors

leads to more standards within the Industry and Cewe is open for cooperation.

As Cewe is an assembling company inbound logistics are of great importance, this part also constitutes half of the annual turnover. The outbound logistics are also vital in the value adding process as Cewe applies a Just In Time system in order to reduce products in stock. Consequently one drawback is when facing large contracts, and simply not having production capacity.

Cewe's current strategy to obtain their vision of being market leaders in Europe is by continually developing new types of meters every year, acquiring knowledge of market trends directly from the customers by listening to their demands rather than glancing at competitors' products and solutions. Another aim that Cewe has is that all products should be certified and standardized according to national and international legislations. Cewe is a company within the ABB group and much of the sales are directed to other ABB companies.

Cewe does not develop Smart Home solutions, as they do not see any demand for this type of product just yet.

Response profile

Cewe's main strategy is to remain a leading hardware producer to the AMR Industry, perceiving the AMR actors as consumers.

The willingness of working toward standards opens for eventual cooperation between new entrants and Cewe, for instance merging other actors Smart Utility with Cewe's meter hardware. However, a partner must be aware of Cewe's Just In Time concept for outbound logistics.

5.4.2 Actaris

Actaris is a supplier of residential, commercial and industrial electricity metering systems. These metering systems enable customers, who mainly are Utility companies, to monitor production and load levels and create precise billing systems.

The future of the Scandinavian market looks very bright. This is however much dependent on if the legislation of more frequent readings comes

through. The Scandinavian market is important to address, as it is much ahead in AMR technologies compared with the rest of Europe.

Actaris has no manufacturing in Scandinavia. All products are ordered from England, Germany and France. Hence Actaris Sweden is dependent of inbound logistics and operation from other companies but Actaris markets and sells the products in Sweden.

Actaris stresses the importance for Smart Utility companies to establish alliances or joint ventures. This as the Utility companies wants flexibility, which enables them to buy different products from different companies that are standardized. This ensures product delivery and future guarantees. Actari's strategy is to cooperate with other Smart Utility companies and negotiations have already begun.

As there currently is no demand of Smart Home products, Actaris has no strategy towards development of such products.

Response profile

The Scandinavian market is important to focus on initially. This because the market is the most progressing within the Smart Utility technologies, and also from a legislation perspective.

Actaris future strategies are permeated with ideas of cooperation with other permeated companies in order to create standards within the Industry. Talks have already been initiated. Therefore it is possible to assume that Actaris would be open to form alliances.

5.4.3 Infometric

Infometric's vision is to become a niche actor. The goal is not to compete with the larger actors, e.g. SENEA, Viterra, and Actaris. The company is expecting to grow mainly in Stockholm, i.e. Infometric believes speed of diffusion to be higher in urban environment.

Infometric is also pushing for standardization of the Smart Utility Industry, the company has a compatible hardware and software platform, Lon Works. In addition, standardization would also speed diffusion of innovation. Hence the Industry as a whole would benefit from a common standard.

Empirical results show that the Industry thinks that after-service of Smart Utility systems will be a large market. Infometric is targeting this market. Additional products will also be introduced to the market. Water and heat meter reading equipment are forthcoming products.

Infometric have outsourced both assembling and manufacturing of the products. Infometric believes that greater value is added to the product, since the partners are more cost-effective and technically skilled. This may be an indication of financial difficulty, i.e. the company can not bear the costs of a manufacturing section. Infometric aims at becoming a service provider, hence, service is a prioritized area in Infometric's value chain. Marketing and sales are also an important part of Infometric's business.

Infometric is targeting the Stockholm market. The different buyers are targeted with relationship marketing. This, along with a combination of presence in technical journals and on exhibitions, is supposed to increase speed of diffusion. Another measure to achieve this is standardization and compatibility. Infometric's products can be defined as compatible. This means that Infometric may have a competitive advantage.

Infometric also tries to overcome barriers between buyers and consumers. Customer awareness is a factor that is said to increase demand for Smart Utility products. Infometric is a small company and the possibility to change the values of a whole consumer market is limited.

Response profile

Infometric aims at becoming a smaller service provider with a differentiated product portfolio. The company is small and does not intend to compete with the larger actors of the Smart Utility market, instead it is focusing on creating a competitive advantage, e.g. compatibility and service.

The company is also focusing on the urban areas surrounding Stockholm. Currently there are no intentions of establishing themselves abroad.

5.4.4 Megacon AB

Megacon's vision is to become market leaders, producing and selling solutions of electricity systems for Smart Utility, power quality and security analysis. The clear ambition is to increase company sales both nationally and internationally.

Megacon have a positive view of the future. This view originates in two factors: first indications from real-estate companies, which hint of an increased demand for AMR the coming year. Secondly, and the most vital factor, is the proposed legislation of more frequent readings in Sweden, which would result in a growing market.

The most important step in Megacon's value chain is the outbound logistics, as this stage is where Megacon actually contributes real product value. The second most important stage in Megacon's value chain is marketing and sales. In this stage Megacon uses relationship marketing with a focal point on personal selling. A strategy when selling the product to Grid operators and real-estate companies is to ensure that not only final decision makers, but also the additional consultants and operators of the metering system get convinced of the product superiority. The third most important stage is operations. In this stage the purchased hardware is assembled with Megacon products.

Megacon's vision to become market leaders will primarily be obtained through strategies related to their marketing and their products. Megacon stresses that it is of importance to be present on a market and to focus on the customers. Megacon's main market strategy is to use tools such as personal selling, direct marketing, and magazine advertisements, on Grid operators and real-estate companies, which are their primary customers.

The second strategy is to drive product diffusion by delivering a superior product with the driving characteristic of costumer value. The ability of delivering a complete and reliable control system for metering that provides a precise billing service which reduces energy consumptions and the choice of an open system is the most value-adding quality in Megacon's products.

Megacon has considered a possible integration of Smart Home solutions in Smart Utility, but is holding back investments due to non-profitability.

Incitements for diffusion are functions which lower energy consumption: security and a system merge with an internet connection. Furthermore, Megacon stresses the importance of alliances when forming standards within Smart Homes.

Megacon have a number of company strengths, of which a substantial one is their product portfolio, specifically earth linkage and customized solutions. These two business units are presently the profitable units in the group of companies. This has to be considered as a financial strength; another strength is that Megacon has international representation.

An additional strength which Megacon possesses is company products and how they are differentiated. The major advantage is the choice of an open system, which have been a fortunate way of attracting real-estate companies, as well as being open for standardization. Megacon also strives towards being a service provider, as it purchases hardware and merges it with its own product. However, Megacon does not supply a total service for electricity management like, for instance, Viterra provides. Furthermore, Megacon's products are able to meter energy and water consumption.

Response profile

One of the greatest strengths that Megacon possesses is its products, which are compiled with external metering hardware. This increases the ability to tailor systems after customer's solutions. However, we believe that Megacon could increase customer value, hence company revenue by striving towards partly managing customer energy metering. Additional strong points are earth linkage and customized solutions, as these business units are driving the organization's profits. This makes it possible for the Smart Utility to endure short-term losses. However, there are limitations of how much loss the company can afford. The management have set a milestone that the AMR has to have a surplus next year, otherwise considerations will be made to put the business unit on hold. A weakness that was noticed during our exploration was that Megacon has no great investor or larger company backing them up financially.

Megacon's main future strategy is to primarily focus on the Scandinavian market. In the second phase the company has an international

perspective, having subsidiaries in Great Britain and cooperation's in the US.

The analysis suggest that that Megacon would see ITP as a supplier or a possible future partner. This, since Megacon advocates more alliances in the Industry to increase standardization.

5.4.5 MILAB

MILAB's vision is to deliver products and support systems to Swedish Utility companies and to obtain 30-50 percent of the Swedish permeated market.

MILAB's future forecasts for permeated in general for the Swedish market are looking bright. MILAB estimates the market potential to 5 000 000 measuring points, giving a total market turnover of SEK 7,5 billon.

Research and development is of importance and is conducted at MILAB's headquarters in Linköping. Another important value adding step in the value chain is marketing and sales. Operation is constituted by assembly and is outsourced to subcontractors.

MILAB's current strategy to obtain their visions is to develop application systems today that will be satisfactory for tomorrow's requirements. This strategy implies to closely probe the Utility companies' needs and focus marketing towards them, using own marketing resources.

Today, MILAB has no strategy for developing Smart Home products due to low profitability.

Response profile

MILAB's main strategies are to approach Utility companies and Grid operators in Sweden, by listening to their specific needs. This presumably gives the strategy of delivering more customized products. Furthermore, MILAB is willing to cooperate with other competitors who have a LonWorks system, in order to obtain an Industry standard. This excludes ITP to form a possible alliance with MILAB, as ITP uses the CEBus system in their products.

5.4.6 SENEA

SENEA has three main visions for the future, the first and the most important is to reach break-even, which hardly any company in the Industry do today. The second vision is to be a dominating actor on the Nordic market for remote meter reading. The goal is to obtain a high market share in Sweden, defend market shares in Norway, and to establish a base of operations in Finland. Thirdly, to be able to provide a complete Smart Utility system, hence providing solutions from collecting consumption information to money to the bank services. This means that SENEA is taking the step from being a product supplier to becoming a service provider.

SENEA expects the European Smart Utility market to be large, an estimate of possible 200 million measuring points. The Nordic markets are in the frontline when considering legislation, deregulation and technology.

A clear tendency in SENEA's value chain is that the company has undertaken strategies of outsourcing parts of their production chain. This may specifically be noticed in technical development and outbound logistics. If these parts are of less importance because they are outsourced is hard do tell, however, SENEA have made legal arrangements with the suppliers in question to be solitary purchaser of their product.

The two most important activities in SENEA's value chain is, however, outbound logistics and marketing and sales. The first is the actual service, where gathering of measurements and managing the consumption information takes place. The latter is of significance as marketing and sales is how SENEA plan to work up the Smart Utility market, using relationship marketing. Marketing and sales is presently the most resource demanding activity.

SENEA's current strategy to obtain their visions is to provide a complete Smart Utility system which will be realized by forming strategic alliances with suppliers who add value to SENEA's products, e.g. billing companies and meter producers who are integrated with SENEA's production system. The clear trend is to outsource, and still deliver a complete product system. Other examples of outsourcing are the

installation of products that is performed by Bravida and some of the development is outsourced to a company named Nexus. One additional outsourced service is a Smart Home function; an alarm system, which is outsourced to Securitat. SENEA's policy in general is to not make any investments in the Smart Home area, due to non-profitability.

The key strategy behind reaching large market shares on the Nordic market is to speed up the diffusion of the innovation. The main strategy to increase the product diffusion is through relationship management, primarily with personal selling towards Grid operators and real-estate companies, but also through attending exhibitions and advertising in Industry journals.

SENEA's greatest strength is their product system Custcom. The Custcom system is a complete solution, from gathering of consumption information to billing service. The greatest leverage with the system is that it communicates via different frequencies, radio, GSM or broadband. This makes it very reliable, and capable to deliver measurements regardless of atmospheric environment. The custom system is also the most deployed system in the Nordic markets, as it is installed in 80 percent of all measuring points in Scandinavia. Another possible strength is SENEA's close ties to Vattenfall.

A possible weakness is the company's poor financial position. Even though the new majority owner, Mellby Switzerland, SA has strengthened the companies' financial position, SENEA still faces problems with profitability. Another alarming aspect of weakness is last year's rationalization, where the company dismissed almost 50 percent of the employees.

Response profile

The largest competitive advantage that SENEA possesses is their superior product system, which is reliable due to the ability of communicating in different frequencies. Furthermore, we believe that having large market shares today will be of assistance when excelling in the future. Managing 120 000 of 150 000 measuring points on the Swedish market generates routine as well as a good reputation within the Industry. Consistency and reputation added to SENEA's close ties to Vattenfall could give a possible competitive advantage if they were to sell

their products to Vattenfall related companies. This could be a presumed gateway to receive Vattenfall as a customer.

The major weakness is primarily SENEA's financial position and perhaps their managerial skills. The tendency in the Industry have been weak earnings and setbacks for most of the companies over the last years, however an employee reduction of 50 percent is noticeable and must have negative effects on the company. An additional weakening point of SENEA is that their products are not able to deliver consumption information on heating and water. This could be a reason why they target Grid operators so extensively and neglect real-estate companies

Future strategies are characterized by two main features; the trend of shifting the Industry's strategy towards being a service company rather than a hardware provider. To this strategy SENEA closely link its outsourcing, possibly because the suppliers are better and more cost efficient, producing different products and services, or the other side of the coin could be that SENEA is forced to let go of certain areas, due to a strained financial position. The second key strategy is to speed up the market diffusion by relationship marketing, starting at the Nordic market and then proceeding to the European market as this market gets de-regulated.

Last year's rationalizations have unquestionably alerted SENEA to be more watchful for changes in the environment. The main concern that ITP have to consider is how SENEA would react on ITP's entry on the Swedish market. SENEA may regard ITP as a competitor. It would, however, be worth considering a possible alliance between the companies, be it, formed under a general Industry standard or a specific one involving SENEA and ITP exclusively. In the latter scenario ITP could contribute with their value adding Smart Home solution. On the

5.4.7 Techem

Techem is a service and support company in the energy and water optimizing business. Their vision is to become market leaders, with 35 percent of the Swedish market.

The most important step in Techem's value chain is the after-service, since this step is where Techem contributes product value, providing

consumption data, which the customer bases its billing system on. The second most significant activity in Techem's value chain is marketing and sales, which are characterized by personal selling, direct marketing and exhibitions. The inbound logistics and operations are also of importance because all hardware is assembled and imported from Germany or other parts of Europe. This implies that Techem in Sweden is dependent on the functionality of the purchased products.

Techem's plan is to apply three different strategies when realizing the future goal of gaining a market share of 35 percent. First by targeting the customers with marketing tools such as personal selling and Industry exhibitions. The customers are mainly real-estate companies. The second strategy is through value-adding product attributes. These driving attributes are mainly chances of reducing energy costs, and a fair billing system. Techem's pricing system premieres the resident by lowered electricity bills if he changes consumption pattern. This creates a win-win situation. The third strategy is to provide extended Smart Home services focusing on consumer comfort.

Response profile

A strength is that Techem has a large organization backing them in Germany. It is conceivable that Techem in Sweden will get support in different areas, e.g. financial, managerial, and it is always favorable not being dependent on outsiders to provide inbound logistics.

Techem's strategy is to be the market leader in Sweden. This goal will be realized through bringing relative advantages to the customer, such as the chance of reducing energy consumption and Smart Home applications.

In a possible scenario where ITP enters the Swedish market it possible that Techem would not perceive ITP as a competitor in the strategic group, due to Techem's focus on real-estate customers.

other hand, Smart Homes are currently not in SENEA's business strategy, so it is likely that SENEA will consider ITP as another competitor in the strategic group.

5.4.8 Viterra

Viterra's vision is to obtain approximately 30 percent of the Swedish remote meter reader market within five years. This by tailoring products suitable for the customers needs, the uniqueness lies in the ability to choose different hardware to their systems.

Viterra's future forecasts for Smart Utility in general and the Nordic market in particular looks bright due to three main factors: The Scandinavian countries are at the front of Smart Utility due to legislation and deregulation which makes the companies world leaders concerning technology. With this background Viterra Sweden will be the platform for development of Smart Utility for the entire Viterra energy group. Secondly the energy Industry is focusing on their core business, which implies an increased demand for energy management. Lastly the forthcoming deregulation of the European energy market opens up for new markets besides the Nordic ones.

The most important step in Viterra's value chain is the after-service; as this part is the actual service where Viterra contributes real product value. The importance of this part will probably increase as Viterra plans to take greater responsibility of customer's electricity management in the future. The second most important step in Viterra's value chain is inbound logistics, this as Viterra purchases hardware from different suppliers. The knowledge of different hardware and merging them with Viterra's product in order to serve their costumers with the best-tailored product solution is vital. One additional important value-adding activity, that is resource demanding, is marketing and sales.

Viterra plan to apply four different strategies when realizing the future goal of gaining a market share of 30 percent. First, by using marketing tools such as personal selling, Industry conventions and organizing seminars, driving the market towards Grid operators and real-estate companies.

Secondly Viterra will deploy a new pricing strategy. The changed pricing strategy also implies a change in Viterra's overall business strategy. Instead of the customer purchasing the measuring solution with Viterra handling meter service, Viterra now takes full responsibility of the costumer's metering, collecting consumption information to delivering a

bill and even a money to the bank service. Besides appealing to customers willing to outsource their administration management the pricing system is also encouraging, as it spreads the investment over a longer time perspective, and consequently enables a decision on a lower organizational level.

Another approach Viterra uses to increase speed of diffusion considering Smart Utility is to lobby on consumer organization and real-estate companies, highlighting the advantages of AMR for the end consumer, as it brings precise billings, and lowered energy consumption.

The fourth strategy is to create alliances with different suppliers' system this to standardize products to Viterra's services. This, merged with other technologies opens up for more business possibilities as it increases customer value and fortifies Viterra's position against other competitors in the Industry. Using technological compatibility in their products Viterra speeds up the diffusion process of their innovative product.

Viterra is part of the Viterra energy group, which is owned by E.ON. It is an advantage having a big group of companies backing them up, for instance financially, as Viterra Sweden has a competitive advantage when selling products to E.ON companies. Thus, one important customer in Sweden is Sydkraft, which is partly owned by E.ON (61 percent). This beneficial position could also have disadvantages, as e.g. SENEA have close ties with Vattenfall.

Response profile

One great perceived strength, and a weakness at the same time, is that E.ON, the third largest Utility company in Germany, owns Viterra. This facilitates the progress to financial and managerial support. The extensive network of companies in Europe could be a great advantage for a future European market entry. However, being owned by a large and result-oriented company could be restraining, in an innovation perspective: There is a top decision that Viterra Sweden is not to do any investments in Smart Home.

Future strategies are characterized by two main features: The trend of shifting business strategy towards being a service company taking over the customers' entire energy metering management for a certain time

period. The second trend is Viterra energy group's strategy of using Viterra Sweden as a platform for development of all Smart Utilities, including the European market.

Viterra could see ITP as a supplier or a future partner, delving hardware, more than a competitor. We believe that ITP would get the same characteristics as other competitors within the strategic group.

5.4.9 Industry outline

This table presents a guideline for the Smart Utility Industry. In this section the main characteristics and future strategies of the actors within the Industry are presented.

Actor	Business focus and Visions	Smart Utility & Smart Home strategy	Outlook
ABB Cewe	Cewe's main vision is to become market leaders throughout Europe developing electricity meters to Utility Industry and AMR Industry.	Cewe's strategies are to continually develop new meters readers. Working for standards within the Industry. Cewe has no strategy of developing Smart Home.	Cewe's intends to remain a hardware producer to the AMR Industry. The willingness of working towards standards opens the field for an eventual alliance for ITP, e.g. merging ITP's hardware with Cewe's meters.
Actaris	Actaris is supplying residential, real-estatecompanies and industries with electricity metering systems. Actaris is a worldwide company.	Actaris stresses the importance of cooperation of Smart Utility companies in order to form standards and to ensure product delivery and future guarantees. Actaris has no strategy of developing Smart Home products.	As Actaris accentuates the importance of forming standards, it is possible to assume that Actaris would be open to alliances.

Infometric	Informetric's vision is to become a niche actor, not competing with the large Industry actors.	Informetric's goal is to grow manly in the Stockholm area. Their two main strategies are to direct relationship marketing towards their buyers. The second strategy is to work for standardization within the Industry.	ITP could perceive Infometric as a possible alliance partner for forming Industry standards. However, Informetric's ambition of being a niche company is not in line with ITP's visions.
Megacon	Megacon's vision is to become market leaders by producing and selling Smart Utility, utilizing different hardware to their system. Megacon has ambitions to increase sales both nationally and internationally.	To become market leaders Megacon is undertaking marketing strategies to focus on Grid operators and real- estate companies using relationship marketing. Delivering open and reliable products Megacon have no current Smart Home strategy.	Megacon strives towards supervising customers' energy management. Megacon is open for alliances.
MILAB	MILAB provides products and support systems to Swedish Utility companies and their vision is to obtain 30-50% of the Swedish Smart Utility market.	MILAB's strategy to obtain their visions is to develop products that will be satisfactory for tomorrow's requirements. Focusing marketing towards Utility companies.	MILAB is open for cooperation with other Smart Utility companies, but since MILAB uses the LonWorks, this excludes ITP from possible alliances with MILAB.
SENEA	SENEA's vision is to become a dominating actor on the Nordic market for Smart Utility. This by providing a complete Smart Utility system. The goal is to obtain a high market share in Sweden, defend market shares in Norway and establishing operations in Finland .	SENEA will obtain their visions by strategic alliances with suppliers, e.g. billing companies and meter producers, utilizing relationship marketing towards Grid operators. SENEA's has no Smart Home strategy.	SENEA is focusing on delivering a complete solution but is trying to extend services towards taking over billing activities from the Utility companies.

Techem	Techem is a service and support company in the energy and water optimizing business focusing on real-estate companies. Their vision is to become market leaders within the meter reading market. Techem is represented in 14 countries.	Techem's strategies are to gain a market leading position by implementing relationship marketing. This brings relative advantages such as the possibility of reducing energy consumption and providing Smart Home services to the customer.	It is presumable that Techem will not perceive ITP as a direct competitor as Techem is focused on real-estate customers.
Viterra	Viterra's vision is to obtain 30% of the Smart Utility market in five years. Its business focus is on delivering tailored products to Grid operators and real-estate companies with the ability of choosing different hardware suppliers to their system. The geographical area is primarily the Nordic market but Viterra has international ambitions.	To obtain company goals Viterra utilizes four strategies; addressing relationship marketing towards Grid operators and real-estate companies, new pricing and responsibility areas towards customers, lobbying on consumer organizations, form alliances with suppliers obtaining standards and merging technologies. Viterra has no Smart Home strategies.	Viterra strives towards taking full responsibility of customers' energy management, delivering money to bank service. It is presumable to believe that Viterra would perceive ITP as a future supplier of hardware or a future business partner more than a competitor.

5.5 Analysis of internal factors

There are differences between ITP and some of its competitors concerning the human resources. ITP is a small company and therefore human resources are limited. The core business is product development followed by marketing activity and there are several examples of companies in Sweden who have bigger development and marketing entities. Nonetheless, the efforts made by ITP technicians are characterized as very innovative.

The Marketing activities have been successful since ITP has a number of customers in Norway. The Marketing and Sales activity are currently a strength for the company but it will require further investment in human resources if an entry on the Swedish market is to be realized.

5.5.1 Company assets

Image is a customer-based asset that is highly important. ITP has a good reputation in Norway with many well established relations. This is a strength for the company. Lack of image is considered a weakness and that is the case for ITP in the current Swedish market. None of the potential customers, and only a few of the competitors, know of ITP and their products. ITP products have several unique selling points but they are not adequately communicated to the Swedish market. Image is closely connected to brand names and it is important to have solid brand names that communicate the qualities that the company wants to be associated with. ITP wants to be associated with high quality and this is the case, to some extent, in Norway but not at all in Sweden. The concept of Smart Homes is not viewed favorably in Sweden, due to Vattenfall, Electrolux and Ericsson failures in the Industry. ITP has no current strategy on how to improve the general opinion.

Another asset is the goodwill that is the outcome for companies that have satisfied customers. The Utility companies are unwilling to take risks and therefore it is more likely that they will choose a supplier that already has other customers. There is currently only one other company with a bigger market share than ITP in Norway and this results in positive spin-off effects, i.e. generating goodwill. This is not the case in Sweden. However, ITP can take advantage of the fact that they have satisfied customers in Norway due to the similarity of the Industry and culture between the two

countries. The similar cultures results in high reliability between the countries and there is no indication that the origin is a drawback when entering the other country's markets.

Market leaders are often the ones involved in setting the standard for an Industry when the market is maturing. ITP is one of the leading actors in Norway and that, in combination with their open system, gives them the chance to influence coming standards. The fact that the system is open for further expansion is an asset in itself.

The possibility of increasing customer revenues is a unique selling point for ITP Smart Home services. In contrast to the Smart Utility services, which only cuts costs for the customer, the Smart Home services add financial value. Since ITP is the only company that markets these services they have the chance to be the first to hit the market and receive first mover advantages.

It is a strength that ITP has a close partnership with the assembling company that holds the products in stock and takes care of the distribution. It is also positive that ITP has taken steps towards expanding the production company base. This is in order to spread out production to more than one partner if the customer demand should require more than the production capacity of the original assembling partner will allow.

Having lower prices than the competitors is usually seen as an asset but having higher prices can sometimes communicate better quality. In ITP's case, prices are higher than most competitors' although ITP points out that their products allow faster return on investment than the competing products. This fact is a major asset to the company but only if it is properly communicated to the potential customer's trough the marketing activities.

The technological resources constitute a major asset for ITP. Yet, they have very few registered patents. It is not always an asset to have patents as they give away much of the technical solutions they were meant to protect. The patents are very detailed and it is relatively easy for a competitor to slightly alter the technology and thereby, legally, start producing copies. It is costly to register patents and they can never fully

protect technological solutions. However, it must be seen as a drawback that ITP do not have more patents. Even if they cannot fully protect inventions they can certainly make it harder for the competitors to legally copy the products.

All companies in the Industry have negative cash flow. The market has not yet taken off on the product life cycle curve. This makes the financial standings relatively poor for the vast majority of the players. ITP has recently been approved more financial resources from its main owners which gives the company an opportunity to expand into Sweden.

It is a strength for the company that the organization is small and flat and communication is direct. All employees own stock in the company and the motivation is high. This could be seen as an innovation management strategy to encourage the employees.

5.5.2 Reflections on ITP

ITP wants to become a market leader in the Nordic countries. The company will reach this goal by differentiating itself as a high-end supplier of multifunctional products with a faster payback time than its competitors' products. ITP also deliberately differs in pricing its products. This can be explained by either higher costs then the competitors or as a strategic choice to signal higher quality. But due to the faster return on investment the price will probably not be disfavorable when marketing the products. ITP products follow the electricity flow, ranging from products tailored for Utility companies to products tailored for the end-consumer. This diversion is a strength as ITP can offer Utility companies whole solutions that the competitors do not. Competitors have neglected or chosen not to enter the market of Smart Homes, which gives ITP a head start within this area.

5.6 ITP's value chain

The Inbound Logistics consists of incoming flow of raw material, in ITP's case, circuit cards. These products are supplied by well-established partners but ITP are concerned about the availability of components in the future. Raw material has to be supplied continuously, at a low price and the capacity of the suppliers has to be flexible. ITP is dependent on good, long-term relations with the suppliers.

5.6.1 Future goals

ITP's core activity is to develop products and support systems. This must be seen as a strength because much of the future of ITP lies in keeping ideas of coming products secret. The assembling of the products is outsourced to partners, which gives ITP resources to fully concentrate on the core activities. One weakness in outsourcing the assembling is that the dependence on the partner is high. If the relations, based on trust, between ITP and the partner were to end switching costs could be high, not only economically but also due to the fact that the partner is up to date about ITP's technical solutions and the status of product orders etc. This makes ITP vulnerable to complications in the relationship.

If research and development is ITP's core activity, Marketing and Sales is a close second. It is up to the Marketing and Sales activity if ITP is to reach its goal to become market leading in the Nordic countries. The human resources are too small for a market entry on the Swedish market and it must be assumed that it is only dimensioned for the present activities on the Norwegian market.

The market of Smart Utility is not of the kind that needs fast, continuous deliveries to distributors. ITP products are whole-solution systems which require vast capital investment from its customers. Order negotiations take long time and often small-scale test deliveries are made. Once an order is made the weak spot is not to be found in the Outbound Logistics but in the assembly line, which has to have capacity for sudden large orders.

ITP has also partially outsourced after-sales service to partners. As reasoned above, this makes the company dependent on the partner and vulnerable as the partner is well orientated in the product's benefits and advantages, but also its faults and disadvantages. The Service and Support activities are poorly coordinated. This can very well result in losing orders if the customer sees these activities as critical factors.

5.6.1 Current strategy

ITP has five clear strategies to fulfill the future goal of becoming market leader in the Nordic countries. First, by using marketing tools as direct contact, advertisements, exhibitions, and product demonstrations.

Secondly, ITP has priced its products higher than the competitors, due to either higher costs or as a marketing strategy to imply better quality than the competitors. The negative impact of the higher pricing that could affect buyers is compensated by faster return on investment.

The third strategy is to let the Utility companies take over the marketing activities of the Smart Home services that are directed towards end-consumers. It is in the Utility companies' interest that their customers adopt these services and that they will be the ones marketing and supplying the products. The fourth strategy is closely connected to the third and concerns the customer adoption of the Smart Home services. Once the Utility companies offer their customers the increased home automation control and living comfort services, for a small additional cost added to their electricity bill, positive Word Of Mouth would increase the possibilities of new customers.

The fifth strategy concerns the whole solution offered by ITP. The company only develops products that are demanded on the market and offer whole solutions, taking Smart Utility one step further when expanding it to cover Smart Home services as well. None of the competitors do that. This, and the fact that ITP uses an open technological standard (CEBus), may increase chances for success. The Smart Utility service cuts the customer's cost but does not increase revenues. On the other hand, Smart Home services increase revenues for the Utility companies. By being the only actor offering an additional service that will increase revenues ITP has an advantage when entering a new market.

Last, one goal is to expand into the Swedish market. This process is initiated by letting the authors do a mapping of the current Swedish market situation. It is difficult to analyze the substantial of this intention, as much of the result of this thesis will be the fundament for decision-making and therefore an analysis would be speculative.

5.6.2 Capabilities

The Marketing and Sales activities are well coordinated and vary in a wide specter. Evidently the Marketing and Sales activities have been successful since ITP is the second largest actor on the Norwegian market. Marketing and Sales activity is currently strength to the company. However, there

will be a shortage in human resources if ITP tries to enter the Swedish market, which must be seen as a weakness and a threat.
It must be seen as a strength that ITP develops its own products as they then keep full control over their core business. Furthermore, the company utilizes an open technological platform that enables their services to grow further under other companies' custody.

Barriers of Innovation

All barriers of innovation has been met by ITP products which gives them competitive advantages:

- *Compatibility*. ITP is one of the few companies that have developed open systems that allow other companies services to be added to their own.
- *Trialability*. One of ITP's marketing strategies is to let employees from potential buyers try out the products during the negotiation phace.
- *Complexity*. The products can be installed by the buyer and do not need assistance from ITP. The Smart Home services are user-friendly and easy to set according to preprogrammed settings.
- *Observability*. See *Trialability*.

5.7 Market entry strategy analysis

The market entry analysis is founded on the reflections of external and internal factors. Thereby the Industry and macro factors are analyzed with the theoretical market entry framework. In this way this thesis takes the analysis one step further. The performance model is illustrating key strategies for improving performance at a market entry.

5.7.1 Outline of Political, legal and buyer aspects concerning a market entry

Competition is today inhibited on the Swedish electricity market. The Swedish Competition Authority is addressing the issue by proposing a continued deregulation of the electricity Industry. The authority is also illuminating the problem with billing; billing is too complex and approximate, which in turn is non consumer-friendly and obstruct competition. In addition, the Swedish government is pushing hard for a sustainable society but without having to cut technological and economical growth. Electricity consumption has increased over the years, at the same time supply of energy has decreased. The result is higher

prices and, hence, a more conscious consumption pattern. In this light the Svenska Energimyndigheten has been given a task from the government; to propose how energy can be saved and competition on the market be increased. The proposition from the Svenska Energimyndigheten inflicts four meter readings per year instead of one. In this case manual meter reading is not cost effective. From the Swedish AMR Industry's point of view the legislated number of meter readings per year is essential; if Svenska Energimyndigheten proposal is taken into consideration of the Swedish government, the Smart Utility Industry is awaiting a rapidly increased demand from the Grid operators.

The Utility Industry is characterized by large and powerful actors. The largest player Vattenfall is owned by the Swedish state. The buyers are powerful and may therefore be able influence the Smart Utility Industry. The largest actors are characterized by inert organizations due to the former monopoly on the market.

The proposal from SEA is currently being formulated and internal sources reveal that a probable scenario is government legislation with two or more meter readings per year. This would affect the demand situation of the Swedish AMR market, since the legislation is to gain legal force in 2006. The affected measuring points numbers 1,5 million. Thus an initial market is associated with legislation. When and if demand is increasing, presence on the Swedish market is an advantage for ITP since the buyers of Smart Utility not are aware of the company and its products.

5.7.2 ITP – Sources of advantage

ITP differentiates itself by focusing on the ability to expand and customize their system to suit the unique requirements of the different customers. They are the only player that offers Smart Home services in addition to Smart Utility services. ITP focuses only on marketing activities concerning Smart Utility, directed to the Utility companies. The Smart Home services are directed toward end-users, and the Utility companies are supposed to undertake all marketing activities directed to that sector. In this way ITP reaches two different customer sectors for the cost of one. The reason why the Utility companies undertake the cost to market ITP'S products is because it is in their interest that end-users utilize them. By offering the end-users ITP'S Smart Home services via the their infrastructure, the electricity grid, they can charge an extra fee, added

on the electricity bill, and thereby gain profit. Smart Utility services allow Utility companies to cut costs but Smart Home services allow them to increase revenue. This results in faster payback time for investments in ITP'S products, compared to the competitors.

ITP'S systems are based on CEBus technology, which is an open system that allows other companies to add their services onto the system. In this way a customer is not forced to only use services from one provider but have the option to choose what is best for the time being. This is not unique for ITP but it is beneficial when negotiating with potential customers.

The timing is right for an entering on the Swedish market. The legislation proposition will be determined soon and a positive result will increase the demand for AMR. ITP'S financial standard is solid.

5.7.3 Product-market characteristics concerning a market entry

The Smart Utility Industry is distinguished by a dozen rivaling companies. The companies have different origin and structures, some are small innovative companies, and others have large investors, in some cases Utility companies, supporting their business. The Industry is truly in its infancy characterized by innovation, with the companies trying to reach break-even.

As the market has not consolidated yet and the customers are few, hence the rivalry is sharp. Companies strive to and cultivate relations within the Utility Industry to obtain existing measuring points as these generate reputation of consistency and binds customers for the future as the switching costs are high. This creates natural barriers towards competitors. However, the positive market prediction, due to demand and legislation factors, and the present Industry constellation, indicates that it will be a market with great potential and there will be a market share for all competing companies. Initially the rivalry is predicted to be non aggressive, as there would be an expansion on nobody's expenses.

The Industry is moving towards standardization. This mainly due to two factors: Compiled products and alliances would lower the perceived

investment risk by the costumers. Secondly product unification adds value when merging other technologies, enabling new user areas.

Estimations of a fast accelerating product cycle followed by a fast decline, requires planning for next generation products. Possible new product constellations are a merge between Smart Utility and Smart Home products

5.7.4 Entry strategy

The market is still in its infancy and has not yet taken off on the product life cycle. It has all the characteristics of an innovation market; there are no standards set, and it has not been conciliated. The meters are not innovative in themselves or the market they are sold on. The innovative contribution are the services that surround the meters and together they form the concept of Smart Utility. These services allow the meters to become intelligent, and that is fundamental for all the other services offered, i.e. customized billing systems.

One essential factor when entering new markets is the need for means of funding. ITP has recently negotiated with its main owners concerning the need for additional financing. The strategy to enter the Swedish market has been included in these negotiations and ITP's request has been approved and there is no financial hindering/obstacles for a market entry.

The magnitude of investment needed by ITP varies from different areas of activity. Some activities only need marginal investments while others need to be fundamentally reconstructed.

ITP wants to niche itself as a provider of products with high functionality and extension ability. ITP's technology is based upon an open CEBus system, which is only compatible with other CEBus-based systems. Some of the competitors have also seen the benefits by offering customes open systems, but instead of CEBus, based theirs upon LonWorkss. ITP's system is thereby not compatible with the whole spectra of systems on the market. Since there are no product standards within the Industry yet, it is hard to predict which system that will become the dominating.

A number of the customers are predicted to outsource the billing system and some of the competitors have seen possible market positions in being

a provider of these services. This is another innovative turn on the market and currently ITP has not developed these kinds of services and risk to be lagging behind.

First or early movers benefit form medial coverage. ITP cannot take the position of a first mover on the Swedish Smart Utility market since there already are players active on the Swedish market. If the legislation proposition comes through there may be an increased demand resulting in more entries of presently unknown actors. Since ITP already are looking for possibilities to enter they will be among the early movers and benefit some of the first mover advantages. Regarding ITP's Smart Home services the chances to become fist mover are good. This will create a reputation and a general knowledge about the company, which may also affect the Smart Utility services.

ITP's marketing and sales force and promotional efforts are dimensioned for the present activities on the Norwegian market and no measurements has been taken concerning an investment in additional human resources or promotion budgets, concerning a market entry in Sweden.

5.7.5 Competitive positioning

As the current Smart Utility market is unexplored territory, there is no clear fragmented competitive positioning set yet. The different competitors in the Industry are striving towards a desirable market position, in the perception of the Utility companies. However, there are a couple certain points of improving perceived position, mainly characterized by marketing issues.

Marketing and in particular relationship marketing is of great importance, as Smart Utility companies position themselves in the Industry. Marketing efforts are directed towards real-estate companies and Utility companies, which are conservative and characterized by few key persons deciding on large investments, in particular the Utility companies. This makes personal selling the most useful marketing tool for the Smart Utility Industry. Other marketing tools used in the Industry are direct advertising, Industry conventions, seminars and Industry magazine advertisement.

When taking different competitive positions Smart Utility companies form different marketing strategies to appear favorably to the customers in order to drive the market and increase the speed of diffusion, and in this way differentiate from the competitors.

Current marketing strategies within the Smart Utility Industry:

- Convincing the Utility companies of relative advantages of Smart Utility, pinpointing the benefits over existing measurement alternatives, and benefits like reducing peak loads, reliable and sufficient measurement systems.

- The high investment risk that Utility companies perceive associated with Smart Utility is to be over come by alliances and standard forming in the Industry. These features will secure future supplies and after sales service of Smart Utility products, as well as increasing customer values as different Smart Utility technologies are merged and compiled in other utilization areas. Furthermore, the Smart Utility companies are deploying new pricing strategies, which are based on annual pricing in the contrary to a large investment initially. This strategy could also be developed into a scenario where the Smart Utility companies handle the Utility companies' entire energy management, from collecting measurements to money to the bank services.

- An additional method of driving the Smart Utility market is by lobbying on external groups like politicians and consumer organizations, in order to awaken an incentive of precise billing and reduction of energy consumption.

.

As the market is an innovation market ready to take a leap forward, with predicted revenue potentials, the possibilities of a unique position for ITP are favorable. The Smart Utility Industry is predicted to have a fast accelerating life cycle followed by a fast decline. To obtain an early mover advantage it is vital to have financial and marketing recourses and production capacity, to meet the demands, as there initially will be production capacity problems when supplying the demanded Smart utility products. When the market matures and declines the rivalry consequently increases. This will leave Smart Utility companies two possible choices:

first, supervising and handling existing meters after sales service at the Nordic market, while preparing market entries at deregulating markets in Europe. Secondly, develop next generation products, e.g. Smart Homes focused on energy reduction and living comforts. Additional way of extending the product life cycle is by shifting the after sales service toward managing customers entire metering, billing and employing money to the bank services.

6 A conceived model for market entry strategy considering speed of diffusion

When entering a new geographical market it is essential to know its characteristics. The innovative market of Smart Utility poses great challenges and opportunities for ITP. In this chapter a conceived model for entry strategy considering diffusion of innovation is formulated. The Smart Utility actors should improve the conditions for diffusion by strategic instruments, the reasons being both profitability and survival.

6.1 The buyer group and the political environment

The Industry of Smart Utility and Smart Homes is in an initial phase. The major buyers of Smart Utility are the Utility companies. Currently there is reluctance among the large Utility companies towards the diffusion of Smart Utility. The reasons vary, but the Utility companies promote high costs as the most prominent. On the other hand, small and innovative Utility companies already have invested in AMR systems. These companies consider the AMR systems profitable. The opinions towards AMR investment are, according to empirical results, diametrically opposed. Hence, one can assume other underlying causes, more than just the price, for the different opinions.

The large Utility companies are adopting a standby policy onwards AMR investment. The main reason is price. This can be interpreted as a strategy to signal towards the AMR Industry to implement price-reducing measures. The small and more innovative actors have the advantage of more flexible organizations. Hereby, other value adding variables than price are considered when investing in AMR, e.g. improved customer service and lowered administration costs. The smaller companies must

also be quicker to respond to changes in the environment, in order to survive. Otherwise they will be taken over by larger actors. Hence, the fact that smaller actors are adapting can be a sign of a change in the environment. This trend is also verified by the Swedish Smart Utility Industry that experiences an increased interest in their products.

When a large Utility company invests in AMR equipment it could result in lowering the prices on the market. Hence, none of the large actors want to become a first mover. An abiding strategy also increases probability of standardization of AMR products; this shifts the balance of power towards the Utility companies' advantage. When a standard is established on the market, the compatibility with other products is increased. A high compatibility adds value to the AMR products and therefore an investment can be motivated from the Utility companies' point of view. Empirical results show no evidence that Utility companies are considering to enter the Industry of AMR, e.g. manufacturing and development of AMR products. High development costs and different strategy priorities are factors that support this opinion.

Utility companies have a large number of measuring points. This conveys large and extensive investments when, and if, they consider investing in Smart Utility. The investment is also being made in an infrastructure which makes switching costs high. Therefore, the security factor of the buyer is of importance. The Utility companies express that they want to buy from an actor that will be on the market even in the future. The system must also be tried out and fully tested. Hence, minimizing risk is an important aspect when considering marketing measures towards Utility companies.

Currently the large Utility companies on the Swedish market are in an expansion phase. Vattenfall and Sydkraft are aiming to become large actors on the European market. Hence, the priority of investment lies in purchases of other foreign competitors. This means that the organizations are being reorganized and that Smart Utility investment is not prioritized.

A catalyst for the Smart Utility market could be the proposed legislation of several meter readings per year. The large Utility companies are opposing such legislation. The legislation would, if accepted by the

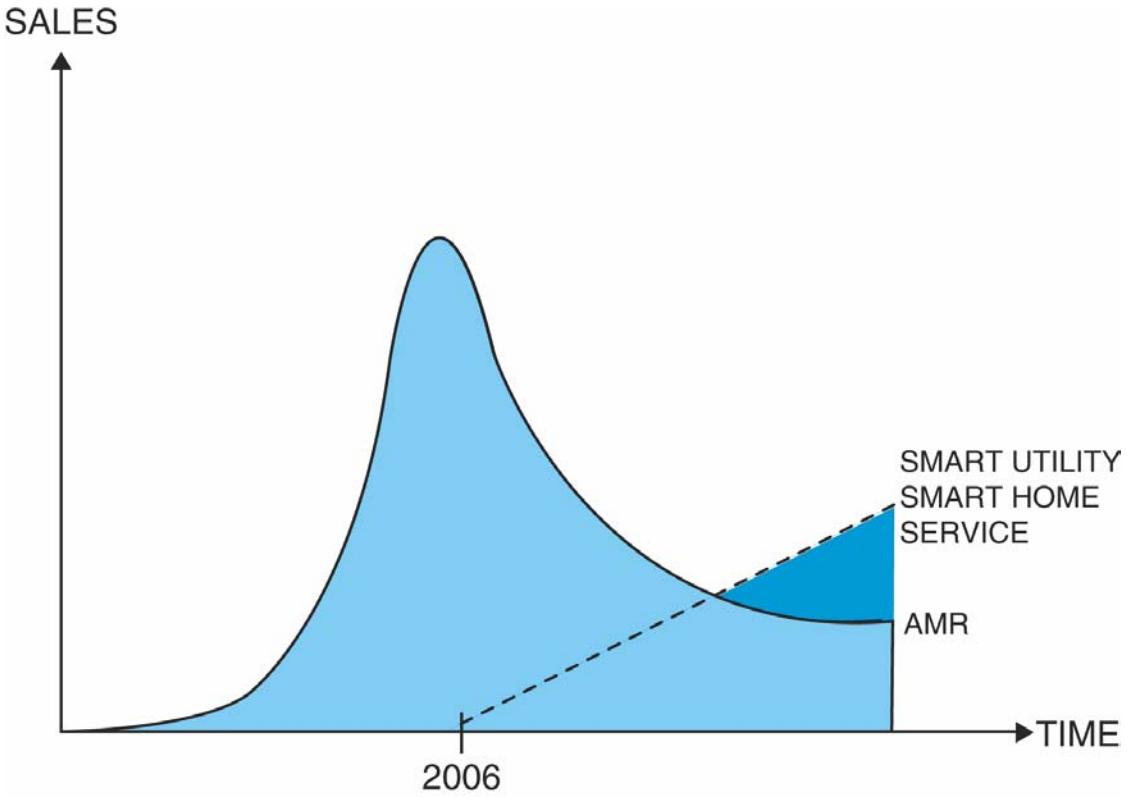
Swedish government, increase competition and decrease energy consumption. Interesting to notice is that this is contrary to the goals of the Utility companies; selling energy and increasing profitability. Increased competition leads toward lowered prices and, hence, lowered profitability of the Utility Industry. Therefore there is a natural resistance of the Utility companies who aims at growing by purchases.

The Smart Home concept has earlier been targeted towards the luxury market, the idea has been to monitor and control the home living environment. Today technological progression and customer knowledge has produced a setting where the products are fitted for a mass market. The purpose of Smart Homes is to increase comfort, security, and pleasure.

6.1.1 A possible market evolution

The empirical research hints that the market of Smart Utility will grow fast. If the legislation proposal is ratified by the Swedish Parliament the demand for AMR will increase rapidly in the forthcoming years, a peak in demand is expected before 2006. As a result of this, an increased demand for other Smart Utility products, Smart Utility services, and Smart Home products is a likely scenario. Empirical data also suggest that the Smart Home will become a mass-market in the future.

Picture 20



The picture illustrates a conceptual demand curve of AMR and the initiation of a Smart Home market.

This rapid expansion of the Swedish AMR market will initially generate great demand. In this initial phase competition is low and there is room for many actors. Since the AMR product life cycle is relatively long it is likely to expect a fast decline in demand and therefore increased competition. Hence, the key issues for the Smart Utility Industry are: development of next-generation products in the Smart Utility portfolio, implementation of a service strategy, and additional focus upon the Smart Home idea.

The conceptual demand curve is likely to be similar in other countries. The reason is legislation, consolidation of the Utility Industry, and restructuring of Utility companies. A grasshopper metaphor is expressive; the different markets in the EU are about to mature and the Smart Utility Industry in the Nordic countries have the opportunity to expand and enter new geographical markets.

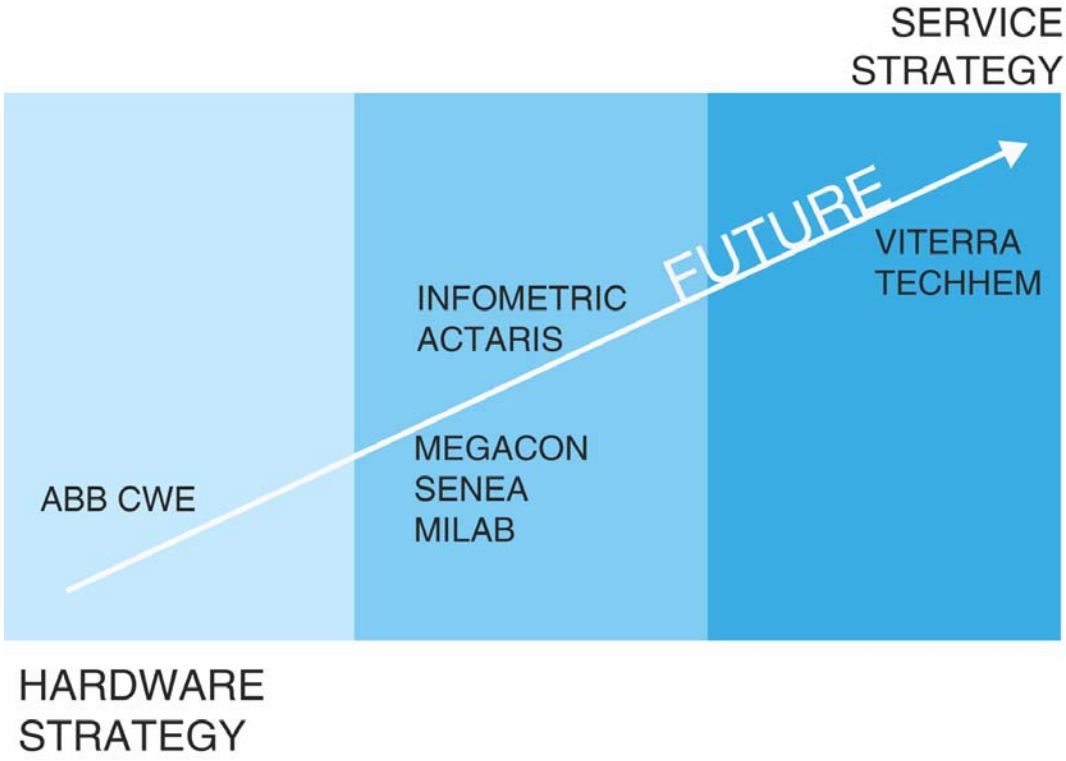
6.1.2 The Smart Utility Industry

The Smart Utility market is an innovation market in its infancy but is starting to grow in the Nordic markets, primarily focused on Norway and Sweden. This is due to far-reached deregulation of the two countries energy markets. It is also in the Nordic countries that the Smart Home technology is taken the furthest, hence, these markets are presently the most interesting for the Smart Utility Industry. Barriers when entering an innovation market, are primarily emphasized by three factors: technical recourses to develop Smart Utility products, willingness to take risks, and financial recourses.

The Swedish Smart Utility market consists of a dozen rivaling companies and as the market is in a preliminary growth stage, it is not yet consolidated and there are no clear competitive positions to be seen. The Smart Utility companies are characterized by having different origins and organizations, varying from being small Swedish innovative companies, to companies that are subsidiaries to large European Utility companies.

If the legislation of more frequent AMR readings is sanctioned the Smart Utility Industry is predicted to have a fast growing life cycle, where there will be revenues for all competitors. However the market will reach maturity at an early stage, as a consequence of all measuring points being covered, followed by a rapid decline. This will leave Smart Utility companies two possible strategies open for consideration: first, to supervise and manage existing meters and supplying after service to the already existing market, whilst preparing market penetrations at deregulating markets in Europe. The second strategy is to develop next generation products, e.g. Smart Homes focused on energy reduction and living comforts, which are merged with Smart Utility products. An additional way of extending the product life cycle is by shifting business strategy from delivering hardware towards developing after service; managing customers entire metering, billing and money to the bank services.

Picture 21



The picture illustrates the trend of service strategy in the Swedish Smart Utility Industry.

The main incitement of this trend comes from the Utility companies' willingness to outsource their metering services, when focusing on their core business. Furthermore, this is a method for Smart Utility companies to secure long-term revenues. This is made by binding the Utility companies over a long period of time. They will perceive a lowered investment risk due to the integrated cooperation.

6.1.3 Key success factors of the Smart Utility Industry

The legislation factor together with convincing the Utility companies of the relative advantages of Smart Utility is of importance to market growth. Smart Utility service is the most cost efficient method for frequent meter reading compared to the alternatives, manual meter reading and customer meter reading. In addition Smart Utility obtain informational consumption patterns and are more reliable measuring systems that facilitates fault localization in the operators electricity grid.

The system will also enable peak load reduction. These factors are the most significant to ascertain Utility companies to invest in AMR systems.

It is likely that a legislation will be ratified. Therefore it is essential to be present on the Swedish market when it takes off; building up company reputation, production and logistics. An additional factor of consideration that is most likely to leverage when the market takes off, is to have as many customers as possible and manage their measurement points. This as the Utility companies perceive a risk when investing in Smart Utility. Having customers and running existing systems indicates that the Smart Utility company provides a tested and consistent product.

The high investment risk that Utility companies associate with Smart Utility, is to be overcome by alliances and the forming standards within the Industry. These two features will ensure consistent products and future after sales service, as well as increasing customer values as different Smart Utility technologies are merged and compiled with other technologies. Furthermore, the Smart Utility companies are deploying new pricing strategies, which are based on annual pricing in contrary to Utility companies making large investments initially. This strategy does also facilitate the scenario where the Smart Utility companies handle the Utility company's entire energy management, from collecting measurements to money to the bank services.

An additional method of driving the Smart Utility market is by lobbying on external groups like politicians and consumer organizations, in order to address their need of precise billing and control of energy consumption.

As the Smart Utility market is expected to have a fast growth, followed by a decline, added to the ongoing deregulation process of the European energy markets, there are justifications for Utility companies to focus on new markets with new revenue potential. In this stage it is a great advantage having an international network with subsidiaries that facilitate future market expansions.

Summing up key success factors:

- Legislation

- Relative advantages
- Preparation before the market takes off
- Measurement points
- Lowering perceived investment risk
- Lobbying on external organizations
- International network

We believe that the AMR metering will be a standard when Utility companies collect consumption information in the future, due to legislation and with the relative advantages of Smart Utility. The competitive position in the Smart Utility Industry is striving from the present focus on providing hardware products towards becoming a more service oriented Industry, i.e. handling customers' energy management, collecting measurements and money to the bank services. Another very likely scenario to occur is a conjunction between Smart Utility products and residential devices e.g. heaters, lights, radiators, alarms etc. We also believe that reputation within the Industry is of essentiality.

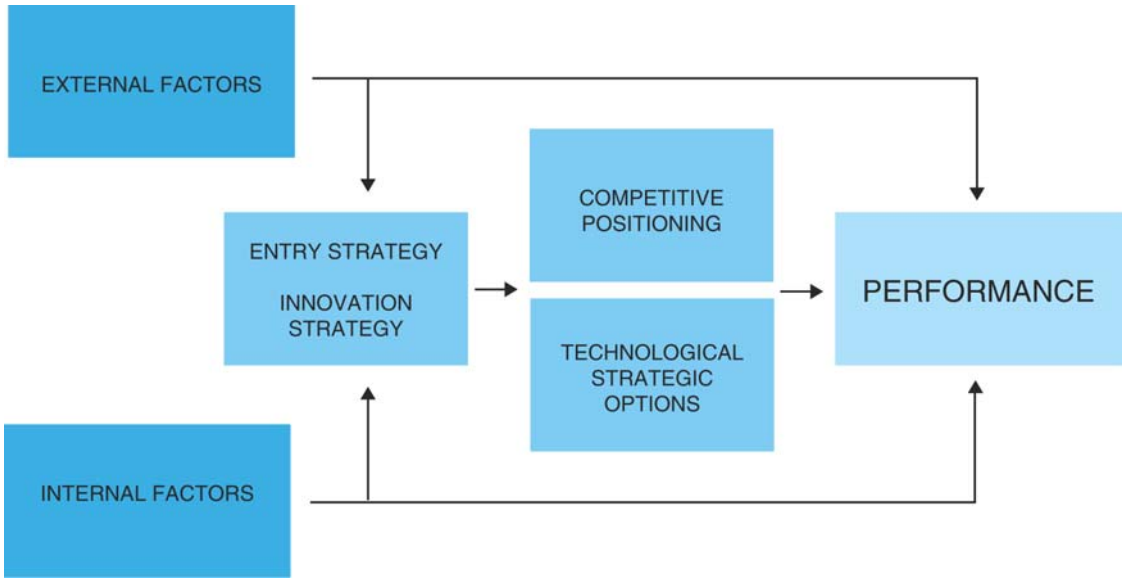
6.2 A Conceptual model for market entry strategy considering speed of diffusion

A key issue of the Smart Utility Industry is the diffusion of innovation. Today some Swedish companies are on the edge of bankruptcy. This is due to high development costs and low demand for the Industry's products. The companies are applying different strategies to increase speed of diffusion. Increased speed of diffusion would increase demand for the main product, AMR. It would also increase demand for the Smart Utility concept, and Smart Home services. Hence, profitability of the Industry is closely connected to the diffusion of innovation. ITP is considering an entry on the Swedish market. Strategic options are essential when entering a market. The different strategic options are related to performance, e.g. profitability and market share. When entering an innovation market it is also paramount to consider measures to influence speed of diffusion. Empirical evidence supports the incitement for increasing speed of diffusion on the innovation market of Smart Utility.

When formulating strategies inputs from both external and internal factors are indispensable. The external factors provide information of the

Industry and relevant macro factors. On the other hand, internal factors constitute a basis for comparison and possible positioning. The essence is to position the company towards a unique position. The external and internal factors support and constitute a foundation for a market entry strategy. Technology development is swifter in an innovative market environment than in mature markets. In this case the Smart Utility is a substitute to manual meter reading and monitoring of energy consumption. Hence, the prediction of substitutes to Smart Utility is futile when doing an on-the-spot account. To illustrate and map out substitutes, continual research must be conducted.

Picture 22



The picture illustrates the connection between innovation diffusion strategy and market entry tactics. The conceptual model illustrates a strategy-performance relationship.

Variables that are central to the entry strategy are; order of entry, marketing strategies, and distribution. Being first on a market is associated with first mover advantages and disadvantages. In ITP's case the company is not first on the market. Marketing strategies that affect performance includes pre-announcing, relationship marketing targeting buyers, and presence on exhibitions. The buyer group of an innovative market is looking for security, i.e. they want a long term relationship with the supplier. Hence, the distribution channels are also supposed to grant the buyer the security of a long term relation. Empirical evidence suggest

that presence on the Swedish market is a key to relations, security, and long-term business.

When a company is trying to establish themselves on an innovative market there is also a need for implementing an innovation strategy. The innovation strategy is aimed towards overcoming the barriers of adoption. The Swedish Smart Utility companies use different strategies, mainly marketing towards buyers and politicians. Relationship marketing is an important tool for overcoming the barrier of adoption. Currently, the innovation strategy also contains the concept of innovation management.
Innovation management is the creation of an environment where the probability of development of new products and services is high. The Smart Utility actors are mainly small entrepreneurs with flat organizations. The small firm generates commitment and can thereby handle complex development. This aspect is closely connected to technological strategic options.

Technological strategic options are instruments a company can implement to affect speed of diffusion. The Smart Utility Industry's smaller actors are pushing for standards, increased compatibility, and strategic alliances with other technical industries. This increases the value of the Smart Utility products and services and therefore also the performance of the Industry. On the other hand, technically superior actors can counteract and delay standardization of the Industry. This is done in order to maintain technological advantages.

Competitive positioning is a central key to profitability. A company that is second in a certain market position is also likely to have lower profitability, hence, a unique position is a key advantage. An emerging market is more differentiated and in the Swedish Smart Utility market no positions are established. To establish a position in an innovative market is, therefore, central to future profitability. When establishing a position it is important to be consistent.

The conceptual model of market entry strategy considering speed of diffusion is describing important variables concerning entry strategy on an emerging market. The conditions on the Swedish market highlight the question of overcoming barriers of adoption. These barriers are

prominent and must be overcome in order to improve performance. The model can be related to other high tech industries and emerging markets, e.g. the cellular phone Industry in the USA in 1984-1999. The cellular market was innovative and no positions were cut out. Legislation and deregulation at that time had great importance for the growth of the Industry. When speed of diffusion increased a booming market was the result. Finally the framework suggests that innovation strategy is included in a market entry, if and in that case, when, ITP enters the Swedish market of Smart Utility.

6.3 Market entry strategy considering ITP's prerequisites

The timing is favorable for a market entry into Sweden, due to the fact that none of the competitors have a clear position and that the approval of the legislation proposition will increase the demand for Smart Utility products.

Since the legislation proposition is highly imminent, the timing for a market entry is right and should be initiated immediate. Preferably, before the Swedish Parliament decides on the matters, so that ITP can establish relations to key actors, such as customers, distribution channels and potential partners on an early stage. This is essential for the market positioning and will strengthen ITP'S position in the rivalry to obtain first mover advantages. First mover advantage is a major factor of success in the Smart Utility Industry. If a customer is tied to a provider of Smart Utility that customer will be considered as lost by the competitors due to the high switching costs. The effect if ITP were to tie up customers at an early stage would be that barriers of entry for new entrants would be raised. Since every tied customer is considered lost there would be less incitement for new actors to enter a market with a decreasing number of potential customers. This would also affect the competitors that already are on the market as the rivalry would become more aggressive. This scenario is very likely to occur when the market consolidates and matures.

ITP has innovative and creative technicians which imply that the company has an innovation management strategy. This is an asset that must be preserved. The whole-solutions that conjoint Smart Utility services with Smart Home services is a unique selling point that must be highlighted in marketing activities. This will help ITP to get the desired

position as a supplier of user-friendly expandable Smart Utility and Smart Home products and services. ITP must continuously survey the market to, on an early stage, detect trends of demand and react to them. Also changes in the competitor's product portfolios can indicate new trends. One of ITP'S strategies are to only produce products that are demanded on the market but if ITP could focus a bit ahead of the actual demand trend, by developing tomorrow's products today, it would truly give them an edge. By following the trend and initiating the development of a billing system they will be one of the actors that will gain first or early mover advantages. Since ITP wants to differentiate by being a whole-solution provider it will also strengthen their market position and make their portfolio more complete.

There is a current demand for systems that can be continuously expanded with new innovations. Some of the Utility companies fear that closed, static systems, will force them into a situation where they will be dependent on one single Smart Utility company. They want to avoid investing in a technology that could become obsolete and since it is an innovative market no one knows which technological solution that will survive. ITP has an advantage as they have developed an open system that is more likely, than the closed ones, to be standard setting. ITP must highlight the open CEBus system when marketing and promoting their products to be able to cease this opportunity to position themselves as a secure longtime provider of a constantly update-able system. Furthermore, if ITP could make their CEBus system compatible with LonWorks they would gain much stronger market position by offering a multi-compatible system. Furthermore, a whole new market would open. Customers that already have Smart Utility suppliers today are seen as lost customers by the competitors, but this does not necessarily have to be the case. If ITP develops a multi-compatible system they can still sell their Smart Home services to these customers. In this way ITP combines their Smart Home system with a competitors Smart Utility system. The result is that the customer gets a service that the original supplier could not offer and ITP profit from a customer that former was seen as lost. Another additional benefit is that a multi-compatible system would definitely meet the requirements from the Utility companies, which are characterized as risk avoiding and prefer opens systems that do not force them to solely rely on one single service provider. This would strengthen ITP's market position. One criterion is that ITP recognizes these

opportunities and take measurements to adequately communicate these qualities through market activities.

ITP provides a whole-solution that follows the electricity flow, from the Grid operator to the residents. The Smart Utility concept provides the Utility companies with AMR services and an insight to the function and status of the grid network and consumption patterns. The Smart Utility services decrease the Utility companies' costs and are only marketed towards this segment. The second component in ITP'S whole-solution is the concept of Smart Homes. This is addressed to end-consumers and will increase living comfort and cut energy consumption during peak load hours. Further, it will automate their home and allow the end-user to remotely control their residence. This concept will increase revenues for the Utility companies as they provide the products for an extra fee that will be added to the electricity bill. Hence, it is in their interest that the end-users adopt the innovation and all marketing activities will consequently be handled by them. Due to the revenues, the pay-back time will be much shorter than investments in competing systems as these only decreases costs and do not affect the revenues. ITP'S whole-solution is unique and the fact that the Smart Home concept will open a new market for the Utility companies, with a possibility for them to differentiate and increase revenue, is a factor that positions ITP as a possible market driver that will set the path of the whole Industry evolution. These visions are only realizable if ITP properly emphasizes them in their marketing.

Some ITP'S functions need to be expanded to be able to meet the requirements of a market entry. First, the human resources in marketing and sales need to be expanded, preferably by forming a whole new entity consisting of marketers with good insight in the Swedish market and a sales force that are fluent in Swedish. This entity should be placed in Sweden as presence is important in positioning strategies. Secondly, ITP need to expand their support service. There are two types of support services. One type is the traditional after sales service/support. This is a value adding part of the value chain that ensures a customer that the quality aspect will be seen to even after a purchase. There is no strategy behind ITP's present support service and this has to be addressed to be able to ensure customers value-for-money. The other form of support service is based on the competitors' differentiation to become an

alternative for the Utility companies billing function. If the Utility companies are to let a Smart Utility company administrate the AMR system they can also outsource the billing function to them. ITP has not developed a billing system yet, but one basic criterion for a functioning billing system is a well coordinated and managed support service.

ITP is an unknown company in Sweden. Image is important to obtain a competitive position and this requires long-term strategies. ITP has a good competitive position in Norway and much of the strategy behind that position is duplicatable to the Swedish market. However, this is time consuming and should be initiated as soon as possible. ITP has no clear brand management strategies that manages the attributes and image that the company wants to be associated with. This is an important marketing tool and the company should consider forming a strategy. The image of Smart Home products is negatively associated in Sweden and ITP should avoid using that name in marketing activities. Instead, they should highlight the abilities and benefits of their services and not associate these services with the concept of Smart Homes.

The Utility companies require providers of Smart Utility that are solid and obtain a position that implies that they will be on the market over a long period of time. Furthermore, they want constellations that consists of different actors which would imply that the market and the technology has passed the most turbulent stages. Consequently, ITP need to position itself as a serious long-term player and one way of doing that is by allying with other players within the strategic group. A strategic alliance with a competitor on the Swedish market would mean that ITP gets full access to an established customer base and can benefit from the partners established relations and image. Criteria's for the parties are that they share the same company philosophy and vision. Furthermore they need to complement each others product portfolios. ITP has various unique selling points to offer and they could benefit from getting access to a fully developed billing system.

ITP would benefit substantially by entering the Swedish market. We perceive that a strategic alliance or a fully owned subsidiary would be the most favorable entry strategy to the Swedish market. With a strategic alliance ITP would gain advantages; company reputation, established customer base, relations to buyers, and service billing systems. Empirical

evidence and analysis suggest that the most attractive companies for an alliance with ITP would be SENEA or Viterra. These three companies have an existing customer base and are well established on the Swedish market.

There are many possible ways for ITP to enter the Swedish market, e.g. a *fusion* or *joint venture*. Innovative industries are less likely to share technology in strategic alliances and therefore a *joint venture* or *fusion* is the only action available if a rational partnership is to be established. From ITP's perspective SENEA could be a desirable partner for a joint venture or fusion. An advantage of a *joint venture* with SENEA is their market leading position in Sweden. ITP would be contributing with compatible Smart Home products and extended Smart Utility. However, SENEA have no current strategy for Smart Home products, and are rather moderate towards the concept. There is also a need for balance between two companies in a joint venture. SENEA is a larger actor and therefore the power balance between the actors would not be equal. This could become a conflict between different interests. SENEA also has a strained financial situation which would affect a partnership negatively. Furthermore the company also has a past as an entity in the Vattenfall group. This could be a disadvantage when promoting Smart Utility to other Utility companies. The two largest benefits of a *joint venture* with SENEA is the fact that the company is noted to have the best technical solution on the Swedish market.

A *strategic alliance* with an actor on the Swedish market is also an available option. One of the most attractive possible strategic partners is Viterra. If a *strategic alliance* with Viterra were to be accomplished ITP would serve as a subcontractor to the company. The advantage of being a supplier is that ITP does not have to establish an enterprise on the Swedish market. ITP's Smart Utility platform could hereby be *exported directly* to the Swedish distributor Viterra. Hereby, capital and innovation strategy could be focused on developing existing and next-generation products. Viterra's strategy is not to manufacture or develop but to market and sell different Smart Utility systems. Viterra is part of an international company group, E.ON. By a partnership ITP would gain access to an international scene at a lower cost. Nevertheless, the advantage of being a supplier could soon turn into a disadvantage, if Viterra would decide to form alliances with other Smart Utility producers. Thus, the risk of having a single buyer

on the Swedish market is expected to be high. The power-relationship would also be affected; Viterra is a much larger and more powerful actor than ITP. Viterra has no current strategy concerning Smart Homes. Viterra already has a partnership with SENEA and currently they are negotiating and testing an AMR system with Göteborg Energi. These facts indicate that Viterra is in a strong bargaining position if a strategic alliance were to be considered.

The Swedish market is similar to the Norwegian. Therefore the last and most probable scenario is that ITP establishes a subsidiary in Sweden. The advantage with a subsidiary is that ITP in this way better exploit the market opportunities. In this way ITP can stay independent and have full control over strategic decisions. By establishing a subsidiary in Sweden, ITP establishes a local presence, which is essential due to the fact that, relationship marketing is a key to success. Buyers are also focusing on security. A presence brings the possibility to implement a billing service strategy on the Swedish market, which is a service strategy that can be a key a key to future profitability. Another reason for establishing a subsidiary is the fact that time is of the essence. ITP will also have the opportunity to influence compability and standardization. Choosing actors for strategic alliances is a process that takes time; ITP do not have that time.

The establishing of relations within the Swedish Industry will take time. The authors suggests that a fully owned subsidiary may be the most rational way of initially entering the Swedish market and from there establish relations that could lead to future alliances or joint ventures.

6.4 The research quality

The quality of an exploratory research is hard to determine due to quality being a subjective and vague concept that is defined in different ways in the research society. Our research is explorative and qualitative, thus the statistical quality is of less importance than in a quantitative research. The quality in an explorative research can be defined as having high reliability and validity. This is attained in this research by closely connecting the problem definition with the empirical studies.

The main critique to the theoretical framework is that the Porter analysis only gives an instant view of the Industry actors. To obtain a more

complete picture of the market of Smart Utility continuous business intelligence is necessary. The value chain is also a somewhat blunt tool when analyzing an innovative Industry. This is due to the secrecy of the entrepreneurs. Nevertheless, the value chain is in this case suitable to analyze different companies' general characteristics and strategy focus.

The reliability and validity is improved when having a larger sample. The research was limited to ten weeks, which, in turn also restricted the area of research. When conducting empirical research one or two key respondents were interviewed per company. This affects quality negatively but secondary information, e.g. internet and annual reports, were used to improve and verify primary information. An innovative Industry may be more concealed than a mature Industry. This is due to the fact that the companies included in this thesis possess technological and strategic advantages. Thus, some interviews were of varying quality due to discretion from the respondents.

This investigation has two target audiences; University of Lund and the company ITP. The University of Lund demands that the investigation takes marketing research one step forward. On the other hand ITP needs accurate information and strategy. Two employers call for delicacy from the employed.

List of References

Interviews

Ankner, S-A, Energy Expert, Konkurrensverket, 2002.

Bratt, M., CEO, Skånska Energi, 2001.

Bodman, K, Product Manager, Infometric, 2001.

Enlund, L, AMR Manager, Viterra Energy Services, 2002-01-11.

Holkert, P, Head of Marketing, Actarris, 2002.

Honner, G, Information Director, Vattenfall, 2001.

Stig Högberg, Product Manager Cewe, 2002-01-16

Jidinger, A, CEO, Energy Trade, Sollentuna Energi Handel AB, 2001.

Magnusson, U, Marketing Manager, Megacon, 2002-01-09.

Matsson, P, PhD Student, Load management in buildings, LTH - Lund University, 2001.

Tuvfesson, I, Professor, School of Economics and Management – University Lund, 2001.

Lindquist, C, Head of Strategy and Analysis, Sydkraft Elnät Syd, 2001.

Palm, L-O, Head of Marketing, Techem, 2001-12-20.

Svensson, H, Product Manager, Graninge, 2002.

Teigen¸E, CEO, ITP, 2001.

Tureson, H, Expert, Energimyndigheten, 2002.

von Sydow, L, Vice CEO, Senea, 2002-01-10.

Westerberg, K, Marketing Manager, Milab 2002.

Wiktorén, B, Marketing Manager, Göteborgs Energy, 2002-01-04.

Wennerhag, P, Marketing Manager, Birka Energi AB, 2001.

Published In Print

Andersen, H, (1994), *Vetenskapsteori och metodlära*, Studentlitteratur Lund.

Andersson, Axelsson, Ekberg, (1999), Entering an Eastern Market – Analysis and Strategy Formulation for Skanska in Lithuania, Lund University.

Cateora, P, Graham, J & Gahuri, (2000), *International marketing,* McGraw-Hill Publishing Company.

Cooper & Kleinschmidt, (1995), Journal of marketing.

Daniels & Radebaugh, (1994), International Business – Environments and Operations, Addison-Wesley Publishing Company.

Dawson J, (April 2000, 10:2) Retailing at century end: some challenges for management and research, Int. Rev of Retail, Distribution and Consumer Research.

Dolan R., (1993), Managing the new product development process, Addison-Wesley Publishing Company.

Energimyndigheten, (2001), Delredovisning av regeringsuppdrag – Uppdrag att studera om mätperiodens längd bör regleras och om preliminärdebitering av elförbrukning bör avskaffas.

Energimyndigheten, Elmarknaden , (2001), Alfa Print, Sundbyberg.

Green D., Barclay D. & Ryans A., (1995), Entry Strategy and Long-Term Performance: Conceptualization and Empirical Examination, Journal of Marketing.

Gruca T. & Sudharshan D, (1995), A Framework for Entry Deterrence Strategy: The Competitive Environment, Choices, and Consequences, Journal of Marketing, July.

Hill Charles W. L., Jones Gareth R, (1998), Strategic Management an Intended Approach, Houghton Mifflin Company, fourth edition, Boston, New York.

Hjelle A. (2000), Statistics, Nordel.

Hollendsen, S, (2001), Marketing Management: -*A Relationship Approach*.

Hooley Graham J., Saunders John, (1993), Competitive Positioning – The Key to Market Success, Prentice Hall, Trowbridge.

Kotler,P, Armstrong, G, (1999),*Principles of marketing*, ninth edition, Prentice Hall Europe.

Kotler, Gregor, Rogers, (1977), The Marketing Audit Comes of Age, Sloan Management Rewiew, vol 18.

Kuester S., Gatignon H., Robertson T.S, (1999), Firm strategy and Speed of Innovation, INSEAD Working Paper Series, Fontainebleau France.

Jakobsson M, Lundström J, Widing Michael, (2001), Foodia – Marknadsanalys vid en produktlansering, Lund University.

Matsson P, (2001), Elstatistik som energitjänst – Fokus på Hushållskunder, LTH - Lund University.

Matsson,P, (2000), *Energi- och Mervärdestjänster på Elmarknaden i Sverige*, Lunds Universitet.

North, G, (2001), *Residential Energy Use and Control – Technical Aspects*, LTH, Lunds Universitet.

Rosengren, K.E & Arvidsson, P, (1992), *Sociologisk Metodik* Stockholm: Almqvist & Wiksell förlag AB.

Porter Micael E, (1985), Competitive Advantage – Creating and Sustaining Superior Performance, The Free Press, Macmillan Inc, New York.

Porter M, (1980), *Competitive Advantage*, The Free Press.

Porter M, (1979), How competitive Forces Shape Strategy, Harward Business Review, March – April.

Rothschild William E, (1979), Competitor Analysis: the missing link in Strategy, Management Review, no7.

Schonecker T. & Cooper A., (1998), The Role of Firm Resources and Organizational attributes in Determining Entry Timing: A Cross-Industry Study, Strategic Management Journal, nr 19.

Solomon, Bamossy, Askegaard, (1999), Consumer Behavior A European Perspective, Prentice Hall.

Sun Tzu, The art of war, London, Hodder and Stoughton

Svea Rikes Lag, (2000).

Svenning, C, (1999), *Metodboken.*, Lorentz förlag, Lund.

Taylor, S & Bogdan, R, *(*1984), *Introduction to Qualitative Research Methods.* John Wiley & Sons, New York.

Thompson Arthur A, Strickland A. J., (1995), Crafting and Implementing Strategy, sixth edition, Library of Congress Cataloging-in-Publication Data, IRWIN, USA.

Tirole J, (1995), The Theory of Industrial Orgnaisation, Cambridge:MA:The Mit Press.

Young S, Hamill J, Wheeler C, Davies J.R, (1989), International Marketing Entry and Development, Prentice Hall.

Supplied By Companies

Annual Report, Birka Energi, 2000.

Annual Report, Etrem 2000.

Annual Report, Graninge, 2000.

Annual Report, Göteborg Energi, 2000.

Annual Report, Megacon, 2000.

Annual Report, SENEA, 2000.

Annual Report, Skånska Energi, 2001.

Annual Report, Sydkraft, 2000.

Annual Report, Vattenfall, 2000.

Elmarknaden 2001, Energimyndigheten, Alfa Print Sundbyberg, 2000.

Göteborg Energi Property monitoring, PM, 2002.

From The WWW

www.abb.se, 2001.

www.actaris.com, 2001.

www.Infometric.se, 2002-01-15.

www.itp.no, 2001.

www.megacon.se, 2002-01-20.

www.milab.se, 2001.

www.naring.regeringen.se , 2001-12-05, Näringsdepartementet.

www.naring.regeringen.se/fragor/energi/elmarknaden.htm ,2001-12-05.

www.senea.com, 2002-01-14.

www.senea.se, 2002-01-13.

www.svenskenergi.se, 2001-12-08, Svensk energi.

www.svk.se, 2001-12-05, Svenska kraftnät.

www.sollentunaenergi.se, 2001.

www.sydkraft.se, 2000-01-02.

www.techem.de, 2002-01-18.

www.vattenfall.com, 2002-01-02.

www.vattenfall.se, 2001-12-28

www.viterra.com, 2002-01-13.

www.Viterra.com, 2000-01-14.