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FACULTY OF TECHNOLOGY  
INDUSTRIAL MANAGEMENT**

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**DEVELOPMENT OF OPPORTUNITY PIPELINE  
In Case Company ABB Oy, Transformers**

Master's Thesis in  
Industrial Management

**VAASA 2014**

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## ABBREVIATIONS

FES	Front-End-Sales unit, ABB
ABB SI	ABB System Integrator
RFQ	Request for Quotation
KMPI	Knowledge Management Performance Index
CoP	Communities of Practice
BSC	Balanced Scorecard
KCP	Knowledge Circulation Process
PP	Power Products
PS	Power Systems
PA	Process Automation
DM	Discrete Motion and Automation

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Kauppatieteiden maisteri

**Oppiaine:**

(Tuotantotalous)

**Opintojen aloitusvuosi:**

2008

**Tutkielman valmistumisvuosi:**

2014

**Sivumäärä:** 90

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**TIIVISTELMÄ:**

Tämän tutkielman tarkoitus oli luoda opportunity pipeline ABB Oy Transformers-yksikölle. Case-yrityksen tutkimusongelma oli se, että heillä ei ollut tarpeeksi tietoa opportunity-projekteista markkinoilla, minkä lisäksi heillä ei ollut mitään systeemiä niiden hallintaan. Opportunity-tietojen puute vaikeuttaa tarjousresurssien allokoointia, mutta myös myyntiennusteiden laatiminen ja päätösten tekeminen on epätarkempaa.

Tämän tutkielman teoreettinen viitekehys, mikä koostui myyntiprosessista ja tietojohdamisesta, antoi perustan empiiriselle osiolle. Empiirinen osio koostui tutkimusmenetelmien esittelystä ja tutkimustulosten analyysistä. Tutkimusmateriaali kerättiin suorittamalla puoli-strukturoidut teemahaastattelut avainhenkilöille yksikön sisäisesti, sekä ulkoisesti ABB organisaation yksiöiden edustajille. Keskustellut teemat pohjautuivat tutkielman teoreettiseen viitekehykseen. Haastattelut analysoitiin kvalitatiivisin menetelmin ja samalla havainnoitiin yhtäläisyyksiä vastausten kesken.

Tutkimustulosten perusteella määriteltiin vastaukset tutkimuskysymyksiin. Muokatut toimintamallit kehitettiin ohjaamaan opportunity pipeline-aktiviteettejä, minkä lisäksi luotiin sisäinen tietojohdamisstrategia tukemaan opportunity pipelinen toimintaa ABB Oy Transformers-yksikössä. Kehitetyt toimintamallit ovat ohjeistuksia jotka pohjautuvat haastateltavien ehdotuksiin ja pyyntöihin, ja ne ovat pääasiassa suunnattu yksikön aluemyyntipäälliköille. Sisäinen tietojohdamisstrategia koostui ylimmän johdon tuesta, oppivan organisaation kulttuurista sekä mitaamisesta.

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**AVAINSANAT:** Myyntiprosessi, Tietojohdaminen, Tietojohdamisstrategia, Tietämyksen jakamisen esteet

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(Industrial Management)

**Year of Entering the University:**

2008

**Year of Completing the Master's Thesis:**

2014

**Pages: 90**

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**ABSTRACT:**

The purpose of this study was to create an opportunity pipeline for ABB Oy, Transformer unit. The research problem of this study was that in the case company they did not have sufficient knowledge of sales opportunity projects in the markets and furthermore any system to manage them. The lack of sales opportunity awareness complicates quotation resource allocation but also hinders sales forecasting and decision making.

The theoretical framework of this study, which consisted of sales process and knowledge management, gave the foundation to the empirical part. The empirical part consisted of introduction of the research methods and analysis of the findings. The research material was assembled by conducting semi-structured theme based interviews to key persons in internal and external units in ABB organisation. The discussed themes were based on the theoretical framework of this study. The interviews were analysed by qualitative methods and similarities were recognised among them.

By the basis of the findings of the interviews, answers to the research question were defined. Tailored operations models were developed to instruct the opportunity pipeline activities and an internal strategy was created to support the opportunity pipeline operations in the Transformers unit. The developed operations models are instructions based on the suggestions and requirements of the interviewees and mainly directed to the area managers of the Transformers unit. The internal knowledge management strategy consisted of top management support, culture of organisational learning and measurement.

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**KEY WORDS:** Sales Process, Knowledge Management, Knowledge Management Strategy, Knowledge Sharing Barriers

## 1. INTRODUCTION

In this chapter theoretical background of the study will be introduced, followed by rationalization of the research problem and research questions. Finally, the structure of the whole Master's Thesis will be described.

### 1.1. Background of the study

Sales process consists of multiple phases and covers the whole process from prospecting the customer to serving the customer. Traditional sales process consists of seven consecutive stages: (1) prospecting the customer, (2) preapproach, (3) approach, (4) presentation, (5) overcoming objections, (6) the close and (7) follow-up (Dubinsky 1980-1981.) Originally the sales process phases were identified the first time in the 1920, but it did not include the follow-up which was later on added to the model. Moncrief & Marshall (2005) suggest in their article "The Evolution of the Seven Steps of Selling" that the original steps should be updated to meet today's requirements but still the updated steps should lean on the original steps.

Later on, other modifications of the sales process have been introduced. One of the most noted ones is Shapiro and Posner's (1976) strategic selling which consisted of 8 stages. Its main idea was on nurturing the account relationship. Shapiro and Posner's process puts more attention to the strategic selling by weighing the development of relationship between the buyer and seller. Ingram, LaForge, Avila, Schwepker & Williams (2008: 14) introduced their 4 stage trust based sales process which weighs building the trust between the customer and salesperson by customer orientation, honesty and reliability. Johnston & Marshall (2013: 48) include 6 stages to their sales process which however is heavily based on the "seven steps of selling" model and Shapiro and Posner's 8 step model.

Although Moncrief et al. (2005: 18) suggest that the "seven step of selling" is outdated and all the successful sales organizations have moved beyond it, it still is the foundation of sales paradigm and therefore it is significant base for this thesis. According to Ding and Eliashberg (2002) a pipeline structure is applicable to describe process including multiple phases. Justification for using the "seven steps of selling" and sales pipeline as a theoretical



framework in this thesis is that identification of the steps is still valid and pipeline model is applicable sales model. The sales process steps are important to know since one aspect of this thesis is to view what knowledge can be shared in different sales phases.

Knowledge is widely recognized as one of the most critical factors for competitive advantage (Alavi & Leidner 2001). Nonaka & Takekuchi (1995: 6) discuss that eventually knowledge creation leads to competitive advantage, which is what every company is looking for. Well-known economist Peter Drucker and other authors such as Pender & Grant praises also the importance of knowledge in companies by stating that knowledge and the skills of the workers are the most important asset that the company has (Drucker 1999; Spender & Grant 1996).

In today's knowledge emphasizing business, intellectual capital can be seen as a major driver for innovation and competitive advantage. Whereas knowledge management can be seen as an activity for improving the business performance by means of intellectual capital or by knowledge assets (Marr, Schiuma & Neely 2004). The relation between those concepts is that knowledge management is the action and intellectual capital is the result (Marr, Gupta, Pike & Roos 2003.) Data, information and knowledge are all important subjects in the field of knowledge management but still there is no clear and unanimous acceptance for one definition for them (Mäki 2008: 12-14). However it is approved among knowledge authors that knowledge can be tacit or explicit, which influence of its sharing and acquisition (Nonaka & Takekuchi 1995: 62).

Since knowledge management is considered as organizational value and factor of competitive advantage, its use should be well planned to achieve its full potential (Alavi & Leidner 2001, Glazer 1998). To achieve its full potential, a strategy for its implementation and development is required, like for any major asset in the companies. Wu, Du, Li & Li (2010) discuss that in creating and delivering a successful knowledge management strategy top management support, culture of organizational learning and knowledge measurement are major factors.

Since knowledge is one of the major factors for achieving and sustaining competitive performance, it should be shared and transferred to all of its business units to assure the

competitiveness of the local business units and subsidiaries (Yang, Mudambi & Meyer 2008). Regardless of its importance and power, knowledge may be sticky and it doesn't flow systematically and unrestricted. Hence knowledge transfer and sharing the best practices throughout the corporation is one of the most critical activities for corporations. Four types of barriers can be identified that hinder the knowledge transfer: Characteristics of the knowledge transferred, of the source, of the recipient and of the context in which the transfer takes place (Szulanski 1996.)

## 1.2. Research problem

Since the competition grows tougher every day in transformers industry, the companies have to advance their operations continuously. Especially sales units have to find new ways to increase revenues and ensure the profitability of the deals. One way to ensure the competitiveness is to be prepared and to have knowledge about the markets in the industry. The ABB Transformers has realized that they do not have enough knowledge and information about the opportunities in the markets so that they could allocate quotation resources more efficiently. Also by having wider awareness about the markets, the forecasting of sales would be more accurate and the unit could be more selective towards the RFQ's.

The lack of knowledge and awareness roots from the problem that usually the first indication about a sales opportunity is when the unit receives a request for quotation (RFQ). No matter how critical or interesting the RFQ might be, the quotation resources may have been reserved to another project. This situation of poor allocation of resources leads to less prepared and less competitive quotation. Product design, no matter the product, is always more efficient, of better quality and more price competitive when given enough time and resources. The same law relates to transformers, and if the unit could reserve better resources to the quotation design phase, the quotation would be more competitive.

This thesis's motive is to solve the above problem by developing an internal knowledge management strategy and operations models for acquiring knowledge of potential project. Together the two outcomes of this thesis would form an opportunity pipeline which would

be effective gathering and sharing relevant information and knowledge about the opportunities from system integrator units and front-end sales units. The SI- and FES-units have a basic knowledge of the projects and RFQ's that are going to be hot in the future. If the Transformers unit would have the knowledge about the future opportunity projects earlier than during the arrival of the official RFQ, they could prepare more competitive quotations for the customers. The critical knowledge and information about the sales opportunities would be the rough amounts and types of the transformers offered and the schedule of the project but also the stages of the projects.

### 1.3. Research questions

Finding the answers for the main research questions will be the major outcome of this thesis. The answers are based on 6 interviews which will be conducted inside ABB organisation. The research questions are based on the presented research problem and the research questions are following:

**1. How to assemble and share relevant project knowledge about the sales opportunities between ABB units?**

- What knowledge is required and what can be shared?

The answer to the main research question will be the foundation developing the operations model that will be implemented in the Transformers unit. The purpose of the operations model is to assemble and share required project knowledge between different ABB sales units. The sub question will define the critical knowledge that the Transformer unit needs and what the external units can share. The definition is critical for developing the operations model because acknowledging the needs and possibilities is the baseline of this project.

**2. What factors of knowledge management strategy should be taken into account to support opportunity pipeline in ABB Transformers unit?**

The answer to the second research question will introduce the internal knowledge management strategy that will support the opportunity pipeline actions. The strategy will be based on top management support, culture of organizational learning and measurement. The purpose of the strategy is to support the launch and continuation of the opportunity pipeline project.

#### 1.4. Structure of the study

The structure of this Master's Thesis is divided into two main parts, theoretical framework and empirical study. Theoretical framework starts with introduction to the study, where theoretical background, research problem, research questions and the structure of this study are presented. After the introduction, the theoretical framework continues with examination of steps of sales process as well as with sales pipeline management. Sales process topic is divided into seven sales process phases which each forms an own subtitle. The theoretical framework's last part is about knowledge management. First the concept of knowledge, its forms, conversion and management are introduced. Second and third topics are about creating a knowledge management strategy and knowledge sharing. And last knowledge sharing barriers are studied.

The empirical part's first title is about the research methods. The topic starts by introducing the ABB sales environment so that the reader gets wider awareness of the research environment. After the presentation of the sales environment the research methods are introduced followed by the presentation of the analysis methods and ending to descriptions of the interviews. The second title of empirical part is the findings of the interviews. In this title the results of the interviews are analysed and outlined. Last title of the empirical study part is conclusions and discussions where the answers to the main research questions are introduced. The answer for the first research question will form the first outcome of this study which will be an operations model. The answer to the second research question will form the second outcome of this study by introducing an internal knowledge management strategy to support the opportunity pipeline. The conclusions are reasoned logically and are to be based on both theory and to the empirical results.

The structure of theoretical framework aim is to linearly apply into the knowledge management and sales process and pipeline theories. The references for theoretical framework are relevant and fresh articles, journals, researches and books. The research materials are based on the interviews and meetings with the persons in charge of the required knowledge in the Transformers unit, ABB system integrators and FES-units.

## 2. SALES PROCESS PARADIGM

In this chapter the sales process is introduced as a sequential paradigm with multiple phases. The earliest paradigm for sales process was introduced in 1920 in “How to Increase Your Sales” sales training book. Since then the phases of the process have been unquestioned but in last few decades new sales process paradigms and models have been introduced. In this section the phases of the sales process are studied by basis of the traditional “seven steps of selling” and also by Dubinsky (1980-1981) and Moncrief et al. (2005) updated seven steps of selling.

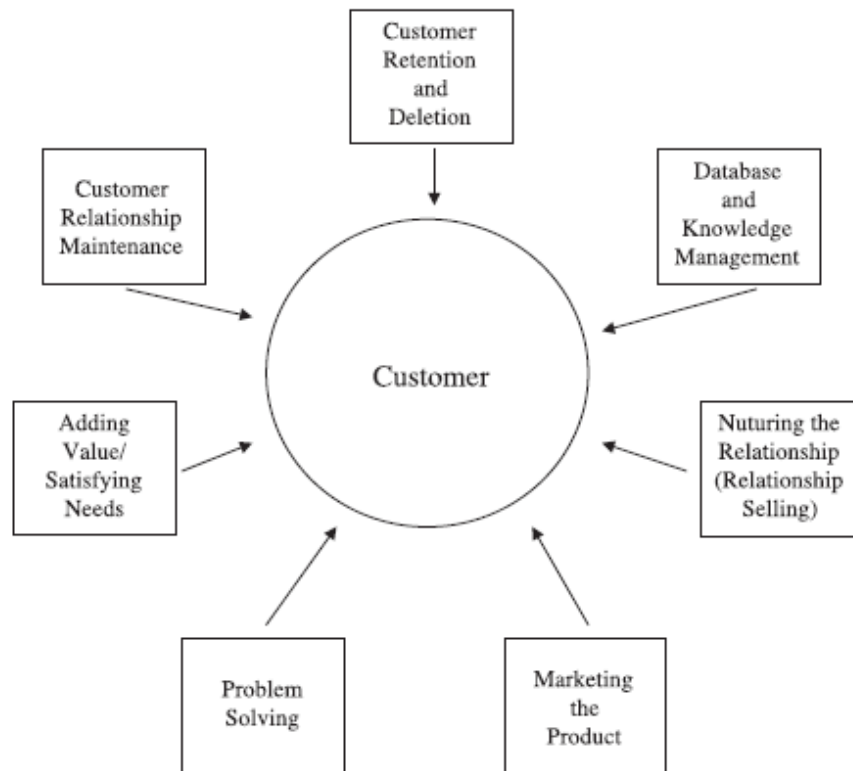
The second subtitle is about a sales pipeline, which is part of a management system for identifying the phases of the sales process. Although the sales process as a pipeline or a funnel model has not been widely discussed in the academic world, Florian Söhnchen and Sönke Albers (2010) have made one of the first researches of it in that context. Marjorie J. Cooper and Charlene Spoede Budd (2007) introduced a sales funnel as a part of project marketing cycle. Also Kotler, Rackham & Krishnaswamy (2006) have discussed the pipeline management model as a buying funnel. All the models are based on the original Moncrief et al. (2005) seven steps of selling. The opportunity pipeline, which is relevant for this thesis’s empirical part, consists of the first three phases of the pipeline.

### 2.1. Steps of sales process

The seven steps of sales process are still recognized though they were already introduced in the 1920’s. Later on some modifications and updates have been presented since the environment has evolved. The modifications have been driven by the changes in business environment and customer behaviour but also of the sales tools available. The shifts have been from one-time sales to dynamic and strategic sales by creating more value to the customer by relationship selling (Moncrief et al. 2005: 14.)

The traditional seven steps of sales consisted of prospecting, preapproach, approach, presentation, overcoming objections, close and follow-up. The approach was based on closing the deal and selling the product. In today’s business environment customer orientation and relationship selling have been recognized as the core of the sales. See below

figure 1 which illustrates the transformation of the sales process where the customer has been foregrounded (Moncrief et al. 2005: 19.)



**Figure 1**, Evolved selling process (Moncrief et al. 2005: 19)

### 2.1.1. Prospecting

Prospecting is the first phase of sales process. Its function is to find potential and new customers. Dubinsky (1980-1981: 26) determines the prospecting “involves searching for and identifying potential buyers who have the need, willingness and ability, and authority to buy.” The main reason for prospecting is to increase the amount of customers, since

selling companies tend to lose customers. The contacts and potential buyers are prospects for the seller and often referred as leads (Moncrief et al. 2005: 16.)

Originally salesmen prospecting phase consisted of gathering names, phone numbers or addresses (Dubinsky 1980-1981: 27). Today when sales environment has changed significantly the prospecting has developed to find the prospects through different information sources. Such sources are directories, associations, internet and telemarketing (Johnston et al. 2013: 48-49). Moncrief et al. (2005:19-20) introduce in their evolved seven steps of selling process that prospecting is today often performed by marketing function because salesperson's time is more valuable when allocated to further functions of sales process. They also discuss that the prospecting function today is mainly handled by telemarketing, internet selling and organizational prospecting. The organizational prospecting includes database marketing and use of Customer Relationship Management.

In the Söhnchen et al. (2010) sales paradigm the prospecting phase and the Preapproach phase has been connected to a qualification phase. In their qualification phase they suggest that the prospects are to be identified through public information sources such as web pages, internal resources and subjective analyses of the sales employee. In their study they found out that larger pool of business opportunities does not automatically lead to larger number of closed deals. One reason for this is that sales people might still want to quote to the customer though they are not expecting the deal. Another reason may be because of the restricted resources of the companies, where they have to decide whether to invest in finding more prospects or allocate the resource in existing customers (Cooper & Budd 2007). Johnston et al. (2013: 49) says that the prospecting policy depends on organizations sales strategy, the products and the customer segment. Shapiro and Posner (1976: 71-72) says in their 8 step strategic selling process in the early phase that qualification of the leads is a difficult stage and a sales person must realize when "separate suspects from prospects." This means that in the qualification stage screening off the unlikely customer is a key function.

Johnston et al. (2013: 49) presents the qualification phase after the sales meeting but they still they also agree that the qualification is an important and difficult task. They list three questions to determine whether to abort or continue with the prospect:



1. “Does the prospect have a need for my product or service?”
2. “Can I make the people responsible for buying so aware of that need that I can make a sale?”
3. “Will the sale be profitable to my company?” (Johnston et al. 2013: 51)

### 2.1.2. Preapproach

In the Preapproach phase the seller performs research, where the needs of the customer are familiarized. Also previous correspondences and customer organization are investigated and all the relevant material is gathered to support the sales. Today, cell phone and computer are the main tools for information gathering. Customer relationship program's databases are a valuable tool to investigate the customer history together with the aid of organizations support staff's knowledge management. Today the technology has facilitated the preapproach phase significantly and the quality of information and knowledge has improved significantly (Moncrief et al. 2005: 15-16.)

After gathering the related information of the customer, the sales person develops a sales strategy. The strategy is based on more specific information than in the prospecting phase and its purpose is to be a roadmap for closing the deal. Because the information is more detailed in this phase the deletion of unlikely customers is more accurate (Dubinsky 1980-1981: 27.) One important aspect to the sales strategy is the person or persons to whom the sales is targeted. The more influence the target person has in the organization, the more useful the sales meeting usually is. Since the high-priced sales are decided at certain level of organization, the sales efforts should be addressed to persons enough power (Shapiro & Posner 1976: 74.)

### 2.1.3. Approach

Traditionally Approach phase has been seen as the first impression. When sales were made face to face and by travelling salesmen the approach phase consisted of first few minutes of communication. Dubinsky (1980-1981: 27) says that approach phase is a critical phase of the sale since the salesperson has to gain the customers interest immediately. Today when the selling environment has changed and the sales are made through multiple

communicative events the approach can be seen as actions to establish a foundation between the seller and buyer. Establishing a foundation can be seen as relationship selling. The relationship selling's and a good fountain's purpose is to build a long and lasting relationship and the salesperson object is to nurture it rather than pursuing to closing a deal (Moncrief et al. 2005: 16.)

In project sales environment Söhnchen et al. (2010) says that the approach phase aims to initiation of the first communicative event. These events can be an email, a phone call or a brochure and by the communicative event the selling organization tries to provoke an interest towards sold product or service. Since the sales environment has changed radically Moncrief et al. (2005: 19) discuss that the approach phase is no longer as relevant as before. They discuss that the relationship has have already been founded in earlier phases and is an on-going process. The value of a strong relationship between the selling and buying organization is significant since in today's business environment 80 % of company's revenue comes from 20 % of customers. So the key customers should be valued highly in the organizations and resources should be invested in nurturing the relationship (Moncrief et al. 2005.)

#### 2.1.4. Presentation

The presentation phase can be seen as a core of the sale (Dubinsky 1980-1981: 27). During the presentation the sales person gives information about the product or service and tries to convince the customer about the benefits of the buy. Söhnchen et al. (2010) writes "The main goal of the sales force must be to ascertain customer needs and to highlight the product's benefits with regards to these needs." In today's business environment the deals are mostly made after multiple negotiations and communicative events which challenges the sales force to perform and develop their presentation continuously. The presentation phase has shifted more towards marketing than actual selling and nowadays it is usual that these presentation events are more kind of problem solving situations than actual selling. Since the presentation phase has not only one main event but multiple communicative events, the presentation phase is hard to limit. The presentation is not anymore the primary function of the sale because the customers can collect the additional information through

internet, adverts and sales supporting departments of the selling company (Moncrief et al. 2005.)

Spiro and Weitz (1990) studied customer orientations effect to the result of the sale by the adaptive selling scale. The adaptive selling scale, ADAPTS is a 16-item scale which was developed to evaluate how the salesperson adapts their presentation depending the reception of the customer. They found out that customer orientation has positive impact on the result of the sales. In the study they also found some personal characteristics which are related to ability of adapt to the customers response. The significant characteristics that were found were gender neutrality, locus of control, empathy, natural motivation and self-monitoring. Guenzi, De Luca and Troilo (2011) discuss that customer oriented selling is now key element of sales and sales force is expected to impact positively to company's competitive advantage by nurturing and creating value to the customer relationships. However the customer oriented selling requires more effort from the sales force than traditional sales oriented selling (Spiro et al. 1990, Guenzi et al. 2011.)

#### 2.1.5. Overcoming objections

Overcoming objections refers nowadays to negotiations and in today's business the most desirable result of the negotiations is a win-win solution. A win-win solution requires compromises, involvement from both parties though they have different objectives and believes (Manning & Robertson 2004.) In the past when the focus was on closing the sale, the overcoming objections meant answering the questions the right way and getting rid of the hesitance of the buyer. However the true goal is still uncovering the true customer needs which may come up from the buyer's hesitance (Moncrief et al. 2005.)

Ingram et al. (2008: 214-217) identify the standard types of objections:

- Need: The buyer doesn't have a need for the product
- Product or Service: The buyer is not convinced of the product or service reliability
- Company: Another supplier is already highly involved in supplying similar product or service
- Price: The offered price doesn't meet the budget

- Time/Delaying: Buyer is not ready to make a decision (Ingram et al. 2008: 214-217)

For overcoming the sales resistance a LAARC method can be used, which is an acronym for Listen, Acknowledge, Assess, Respond and Confirm. It is a customer oriented method which emphasizes the salespersons social skills and discretion (Ingram et al. 2008: 217-218.)

Moncrief et al. (2005:20) suggest in their evolved seven steps of selling that the new phase is more problem solving than overcoming objections since the approach is consultative selling like. Consultative selling or “solution selling” tries to identify the problems, determines the needs as well as propose and implement a solution. Marshall, Goebel and Moncrieff (2003) found out in their study where they did a survey for 215 sales managers that listening skills are the most important skill of an effective salesperson. Hence we can say that Overcoming objections phase has evolved from convincing and promising, to listening and problem solving.

Söhnchen et al. (2010) did a noteworthy finding for overcoming objections in their research and discuss that smaller companies had a better probability to handle the objections than the bigger companies. This is interesting because this was the only stage of the sales process in their study where smaller companies surpassed the bigger companies in success and transition probabilities (Söhnchen et al. 2010.)

#### 2.1.6. Close

The close is the final agreement to purchase and was in the earlier days the ultimate goal and end to the process. If the salesperson could not close the deal and find an agreement with the customer, the effort was deemed to be a failure (Johnston et al. 2013: 52.) Moncrief et al. (2005: 15) writes that the closing phase was about simply asking for the order. This approach can be seen as a short-term thinking and today the firms focus on delivering a lifetime value to the customer. They also suggest that the closing phase has been shifted to adding value or satisfying the needs. The reason for the transformation is mutually identified goals for both parties (Moncrief et al. 2005.)

Moncrief et al. (2005: 20) identifies satisfying the needs of the customer as the key goal and that “sales organizations must add value to the customer’s enterprise.” The seller and buyer are working through the sales process towards mutual identified goal, the result is a win-win situation. Since the result is based on added value and customer’s gratification, the closing phase does not require any closing techniques but is a natural consequence of the whole process. However Johnston et al. (2013: 52) writes that in B2B selling and buying, a manipulative closing technique should be identified but used tactfully. (Moncrief et al. 2005.)

Shapiro et al. (1976: 75-76) writes that salesperson should “close” on each interaction which means that the salesperson should get agreements in the topics discussed from the customer. By continuously seeking for the agreements the salesperson can sense the outcome of the sale. Dubinsky (1980-1981: 27) studied different closing techniques and categorized them to four categories: Clarification closing (demonstrating the products function), psychologically oriented closing (strike to emotions or creating a sense of urgency), straightforward close (asking for the order or removing a single obstacle for not buying), and concession close (giving a price reduction). The concession close technique was found the most powerful technique in the study (Dubinsky 1980-1981: 27.)

#### 2.1.7. Follow-up

According to Moncrief et al. (2005: 21) the follow-up phase has evolved to customer relationship maintenance where the earlier salespersons call or a visit to the customer’s premises has shifted to providing continual service. The key factor for follow-up is customer satisfaction which requires an assignment of a team or a salesperson who attends to all the concerns of the customer. More specific it means continual service, consulting and nurturing the relationship rather than solving only the post-sale problems. Johnston et al. (2013: 53) says that the follow-up phase can consist of supervising, training or maintaining the products or equipment. If the customer relationship maintenance is done properly the customer will show loyalty and build a long-term relationship with the supplier which can encourage the customer to buy other services or products from the same supplier. Although the importance of customer relationship maintenance has been acknowledged, Shapiro et al. (1976: 76) says that the more post-sale services the product requires, the bigger the impact

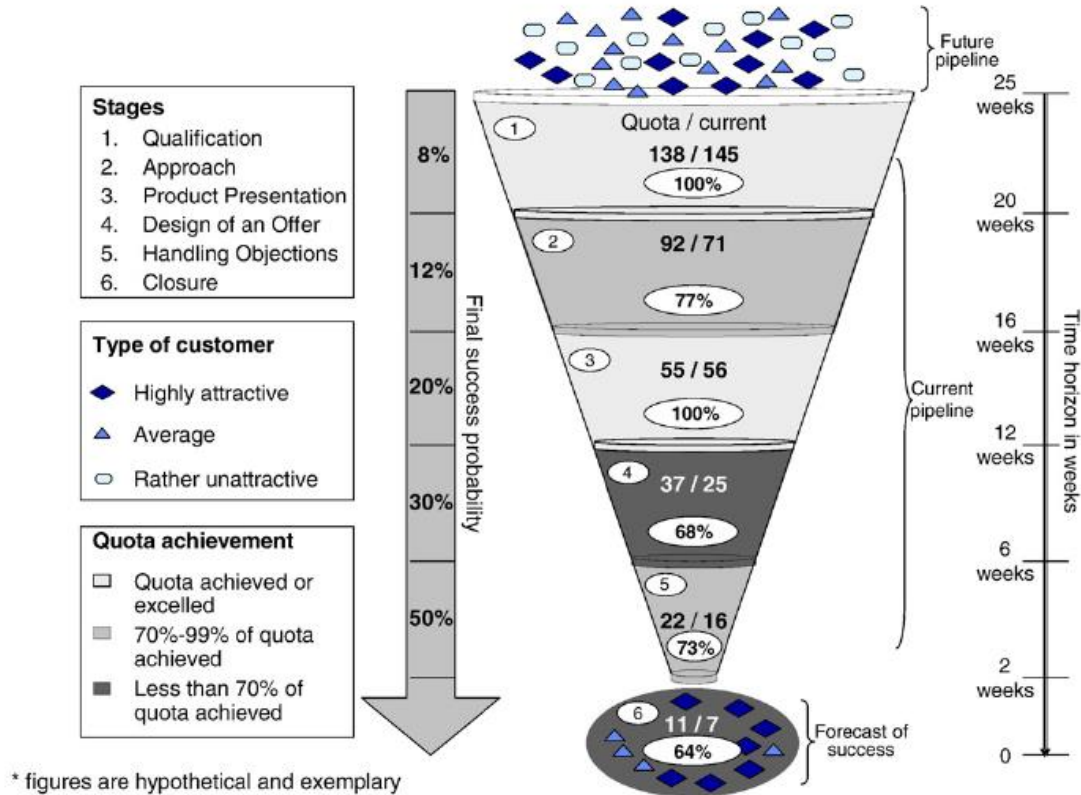
of proficient account management is to serve the customer (Moncrief et al. 2005, Johnston et al. 2013: 53.)

Dubinsky (1980-1981:32) found three underlying post-sale methods to categorize the post-sale activities: Customer service activities (consulting, training and maintenance), customer satisfaction oriented activities (handling complaints) and customer referral activities (getting customer referrals). Ahearne, Jelinek and Jones (2007) studied the positive traits of the salesperson behaviour and found that assiduity, communication skills and inducements towards the customer leads to satisfaction. Sportsmanship and empathy together with customer satisfaction creates trust between the parties (Ahearne et al. 2007.)

As Dubinsky (1980-1981) pointed out, handling customer complaints is an important activity after the sale has been done. The salesperson's task is to build a relationship with the customer to make them feel comfortable to complain about the product. This is possible when there is trust between the both parties (Ingram et al. 2008: 247-248). They also advice that after the trust has been achieved, customer's complaint and request should be listened. After that, the supplier should get agreement and find a pleasing solution and take action. Finally the salesperson should take care that all the agreed commitments are fulfilled (Ingram et al. 2008: 247-248.)

## 2.2. Sales pipeline management

Ding and Eliashberg (2002) discussed that a pipeline structure can be used to model project process which includes several stages. The main idea of the pipeline or funnel structure is that after every stage of the process, some projects are passed to the following stage and, some others are aborted by their probabilities to succeed. They also write that the company can interact to the results of the pipeline process. Chan, Nickerson and Owan (2007) write that the companies can influence positively to the outcome of the pipeline and only projects with the highest probabilities should be selected, however the flow of the pipeline should be optimally loaded (Ding, Eliashberg 2002.)

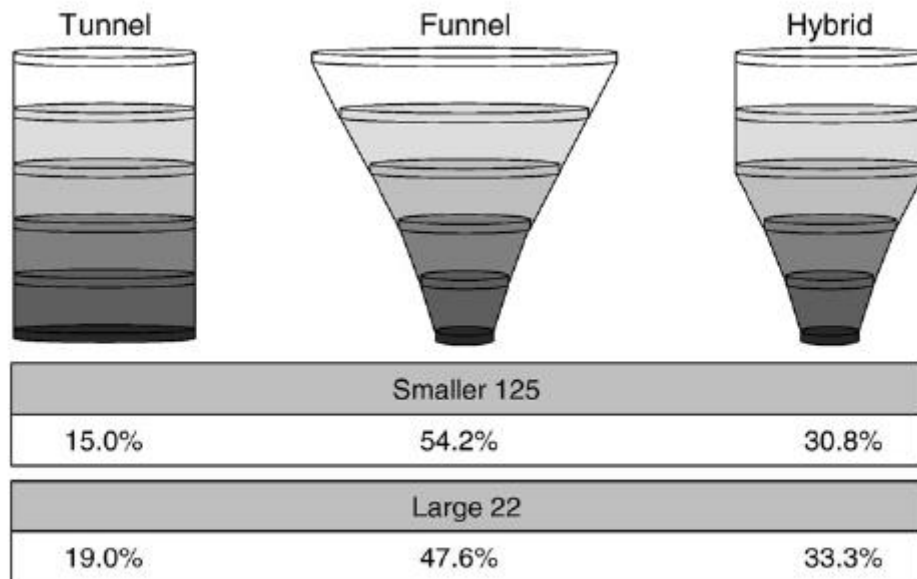


**Figure 2**, Exemplary Sales Funnel (Söhnchen et al. 2010: 1359)

Cooper et al. (2007) introduced the sales funnel in the context of sales management and discussed that focusing to the most advantageous opportunities and aborting the improbable prospects and leads, the resources of the sales are better used. They implemented the sales funnel to project operations and suggested that the sales funnel controls the amount of simultaneous projects in the backlog. Söhnchen et al. (2010) studied the actual structure and function of the sales pipeline in context of industrial sales by surveying 147 German business-to-business companies which actively sell projects. In the study they asked the companies to describe their sales processes. By the answers they structured a sales pipeline of six stage process which allows fewer projects to proceed to the following phase than to the previous. The probability of the success grows on each passed phase and every phase has its own time scale see Figure 2 which makes sales forecasting easier. Different shapes

of inputs describe the attractiveness of the opportunity, although usually the real values of them are unknown in the earlier phases. The optimal size of each phase should be analysed by the capacity of output, financial and sales resources (Söhnchen et al. 2010, Cooper et al. 2007.)

Sales funnel is well-applicable and accepted in the real business operations, and it reflects the process of industrial project acquisition. To mobilize the sales pipeline, constant evaluation and screening should be performed to allocate the scarce resources to the most promising projects. Well-executed screening should increase the rate of closing the most valuable projects, from which the research found weak evidence (Söhnchen et al. 2010.)



**Figure 3,** Assignment of responding companies to relevant pipeline structures (Söhnchen et al. 2010: 1362)

Funnel is not the only shape of sales pipeline according to Söhnchen et al. (2010). In their study they formed also tunnel and hybrid shape pipeline, although the funnel shape is the



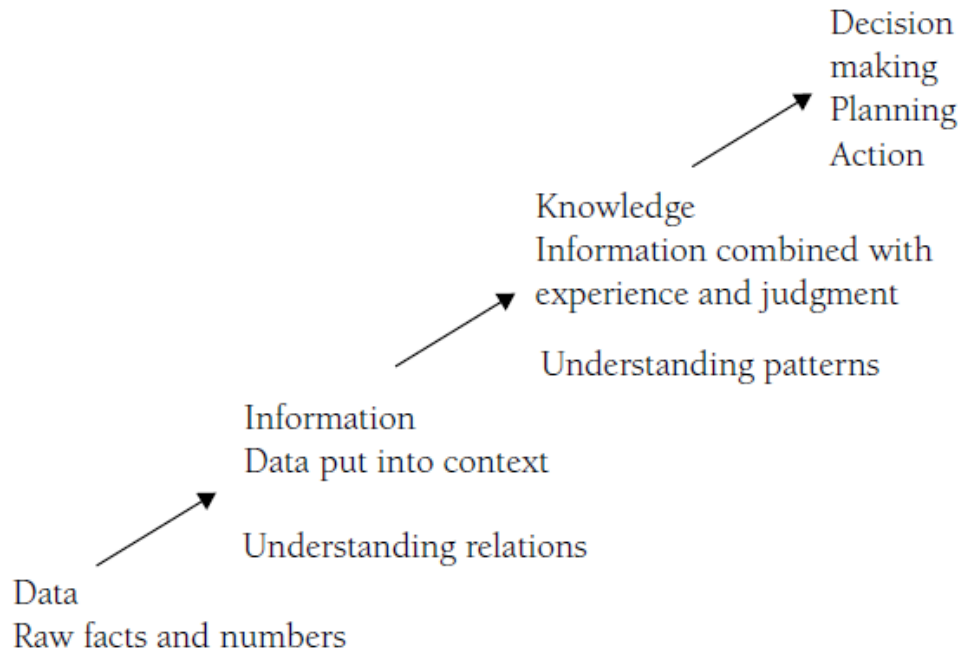
dominant type, see Figure 3 above. The Hybrid shape describes such companies where the first two stages are the same size and no screening is performed between those stages. Tunnel shape describes companies that do not screen of any projects during the sales process. A suggestion is that those companies supply specialized and valuable product where they do not face as much competition as the companies with funnel or hybrid pipeline. The results show that half of the companies described their sales process as funnel shape. Approximately one third of the companies suggested that their sales process is hybrid and less than one fifth of the companies announced that the pipeline is a tunnel (Söhnchen et al. 2010.)

### 3. KNOWLEDGE MANAGEMENT

This chapter discusses the knowledge, its management, sharing and strategy of knowledge management. First knowledge is studied on a conceptual level by introducing the different forms of knowledge, conversion of knowledge as well as knowledge management. The concepts are important to understand so that the reader can understand the later content. The second topic is about creating a knowledge management strategy which forms a basis for the answer for the second research question. Third and fourth topics are about knowledge sharing and its barriers. These topics have influence to the answer of the first research question.

#### 3.1. What is knowledge and knowledge management?

Data, Information and Knowledge are often misused and confused since they are interrelated to each other. Data can be defined as unprocessed facts and results but the definitions of the concepts of information and knowledge are not clear in the literature (Ajmal & Koskinen 2008). As mentioned above, the definitions of knowledge and information vary between the researchers. Al-Hawamdeh (2002) approaches the definitions by dividing the concept into tacit and explicit, and discuss that explicit knowledge is simply information. Knowledge however he separates to implicit knowledge or “know-how” which is possible to capture and codify as information and to tacit knowledge which cannot be captured since it is unconscious thinking or experience. Bhatt (2001) defines information as organized set of data. Knowledge he says is “organized combination of data, assimilated with a set of rules, procedures and operations learnt through experience and practice.” In Figure 4 below the pattern of data, information and knowledge is presented. Alavi and Leidner (2001) argues that knowledge becomes information when articulated and expressed or transmitted to understandable form such as text, graphics, words, or other symbolic forms. On the other hand information becomes knowledge once it is digested and understood in minds of individuals. Therefore it is personal and doesn't consider its attributes, and has been formed through individuals own actions and thinking.



**Figure 4**, From data to knowledge (Serban & Luan 2002:9)

### 3.1.1 Forms of knowledge

To understand the concept of knowledge, the two forms of it should be discussed. Knowledge exists naturally in explicit form and in tacit form. Explicit knowledge refers to meaningful set of information which is transmitted in to formal and clear language (Nonaka, Umemoto & Sasaki 1998). Often explicit language is referred as codified knowledge. Tacit knowledge however is personal and always context-specific. It can be intuitions, unstructured mental models and technical skills (Nonaka et al. 1998). Therefore it is hard or impossible to transmit into a formal language such as explicit knowledge (Nonaka et al. 1995: 59.) As introduced above, explicit knowledge is easily transmittable into text, manuals and instructions, therefore it is storable. This makes knowledge retaining possible within the organization. Companies would also want to retain and store the tacit knowledge but it is tedious, more expensive and harder or even impossible. Because of the

complexity of the tacit knowledge, transforming it to explicit form may lead to decreasing the quality of the knowledge because of lacking context (Mäki 2008: 18.)

### 3.1.2. Conversion of knowledge

In order to illustrate organizational knowledge creation and knowledge sharing, Nonaka et al. (1995: 62) constructed the four modes of knowledge conversion. The conversion is presented in the Figure 5 below.

		Tacit Knowledge	To	Explicit Knowledge
Tacit Knowledge		Socialization		<b>Externalization</b>
From				
Explicit Knowledge		<b>Internalization</b>		Combination

**Figure 5**, Four modes of knowledge conversion (Nonaka et al. 1995:62)

The vertical dimension shows the origin of the knowledge converted and the horizontal dimension shows the form to which knowledge is transmitted. The forms of knowledge, as mentioned before, are tacit and explicit knowledge. The four modes of conversion are:

- Socialization (from tacit to tacit): individual expertise and experience converted through socialization to common technical and cognitive tacit knowledge. Socialization takes place at informal processes and creates mutual trust in the community (Nonaka et al. 1998.)
- Externalization (from tacit to explicit): Process of articulating deductions and experiences through metaphors, concepts, hypotheses, analogies or models to explicit knowledge (Nonaka et al. 1998.). Usually the articulation is not ideal which can decrease the quality of knowledge (Mäki 2008:18).
- Combination (from explicit to explicit): new and existing explicit knowledge, such as product specification or test results, are organized together in order to create more comprehensive and systematic knowledge of a phenomena or object (Nonaka et al. 1998.)
- Internalization (from explicit to tacit): Is a process where documented knowledge is processed and converted by an individual to operational know-how usually “learning by doing” (Nonaka et al. 1998.)

### 3.1.3. Knowledge management

Alavi and Leidner (1999) define knowledge management as systematic process within organization that’s purpose is to obtain, retain and distribute both explicit and tacit knowledge of employees to improve the competitive advantage of the company. The competitive advantage is gained by more productive and effective work by utilizing knowledge management and distributing knowledge throughout the company. The challenge of the knowledge management is that knowledge is only useful to another individual when it is communicated in understandable and interpretable form. Knowledge when shared can be counted as organizational value (Alavi et al 1999.)

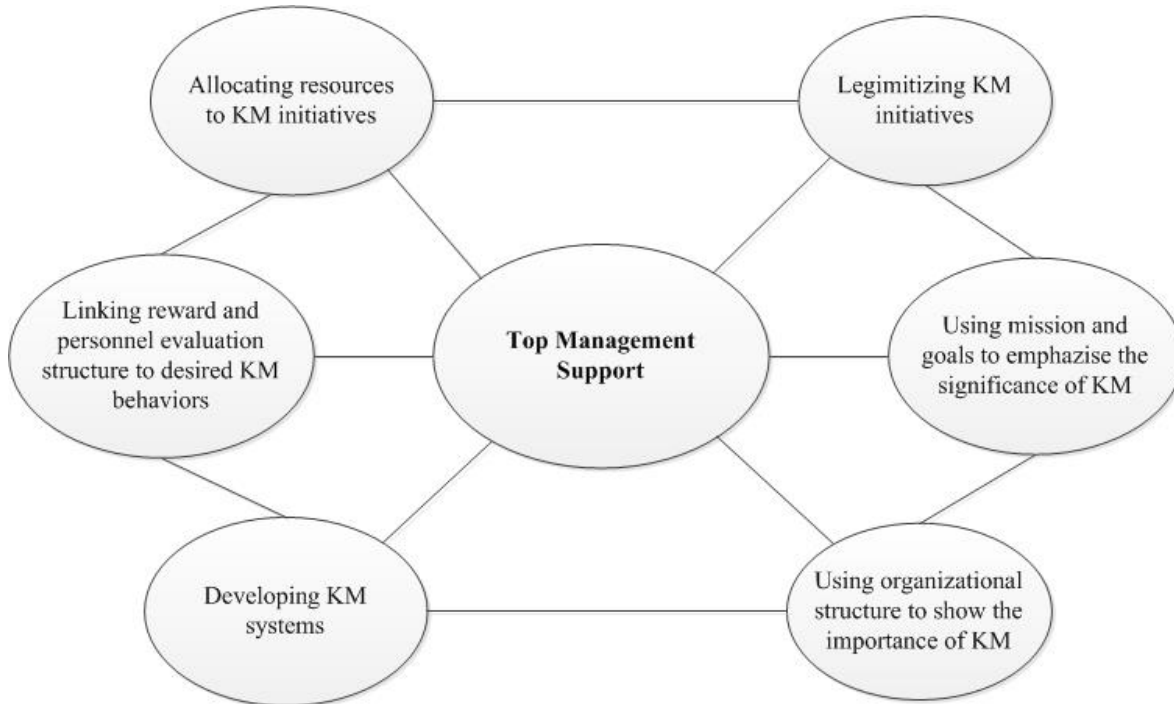
### 3.2. Creating a knowledge management strategy

There is no question about the importance of knowledge management in today’s business environment. Knowledge management has been recognized as the most important factor for competitive advantage. Holsapple and Wu (2008) write that effective knowledge

management can boost productivity and agility as well as increase market share, customer loyalty and quality. According to Wu et al. (2010) there are three main factors for creating and delivering a successful knowledge management strategy. The factors are top management support, organizational culture that emphasizes learning, and measurement of knowledge management performance. Those factors are more deeply covered in their own subtitles. Russ et al. (2010) suggest that levers have high influence in successful knowledge management strategy. The levers are separate functions but each of them gives the power for the movement. He also points out the important role of top management, since they decide the investments and resources but also provides the required leadership (Russ et al. 2010.)

### 3.2.1. Top management support

Wu et al. (2010: 262) discuss that top level management support is essential for developing and delivering a successful and useful knowledge management strategy. The Figure 6 illustrates the six facets that the management has influence on. The managerial actions can have immediate or indirect effects on organizational behaviour, depending of the facet. Changes in business environment may affect to the support of the management because usually the research & development and new knowledge creation are the first things to cut resources. Companies who are willing to invest in new knowledge creation in the long run and do not change their strategy every now and then, are the ones who evolve and success (Russ et al. 2010.)



**Figure 6**, Facets of top management support (Wu et al. 2010: 263)

Top management plays important role in allocating the resources since they decide which projects are the most potential ones. To ensure that the knowledge management initiatives are possible to be performed, proper resources are required at the right time and effectively. The crucial resources are financial, human, facilities and materials. The challenge is to commit the management to the project and ensure that the resources are available. One way to show commitment to knowledge management strategy is to develop a knowledge management system. The system that supports the knowledge management strategy allows the organization to enhance their knowledge resources by supporting new knowledge creation, knowledge sharing and its storing. According to Russ et al. (2010) cross-functional collaboration and external relationship are levers that support knowledge management strategy. Hence the knowledge management systems should be available for their usage also and enable everybody's inputs for more rich knowledge creation. Resource allocation and knowledge management system development are direct means for top

management to influence to the success of knowledge management strategy (Wu et al. 2010: 263:266.)

Top management can support the knowledge management strategy also by means that has more indirect effects. These elements are linking the knowledge management to the company's goals and mission as well as legitimizing the knowledge management initiatives. Since the mission and goals express the purpose and the future of the organization, they should also emphasize the significance of knowledge management. The goals and mission should be understandable and communicative to all members but besides the words, actions are more valued and easier to conduct (Desouza 2005). Therefore the example of managers continuously working towards the common goals and mission inspires employees to involve. Also the example and support of managers in daily work legitimizes the knowledge management initiatives. Legitimization encourages employees to bring knowledge management initiatives as part of their daily work and to emphasize their usefulness (Wu et al. 2010: 264.)

The top management can support the knowledge management strategy by making modifications in organization's workings. Organizational workings changes according to Wu et al. (2010) are reward and personnel evaluation as well as taking knowledge management as part of the organizational structure. Since the major decisions regarding the organization are made only by few managers, the decisions may sometimes lack of proper acquaintance about the subject (Mukherji, Kedia, Parente & Kock 2004). Therefore a person responsible of knowledge management should be involved in the major decisions, if the organization sees the knowledge management as key driver for success. Personnel and reward evaluation motivates the employees to work more efficient and according to the management's expectations. Also evaluation gives the management better understanding of the performance and expectations of the employees. Reward and personnel evaluation is recognized as one of the main drivers for supporting knowledge management behaviour. Other than rewarding policies, human resources function plays important role in supporting the knowledge management strategy because they are responsible for recruiting and training. These factors enhance the knowledge management activities and support the knowledge management strategy execution (Russ et al. 2010, Wu et al. 2010: 265-267.)



### 3.2.2. A culture of organizational learning

Organizational culture has been determined by many different authors depending of the point of view. According to Schein (1990) organizational culture is what the organization has learned when dealing with internal integration problems and external challenges caused by the environment. Saxena and Shah (2008) determine the concept as “the way we see and do things around here” and it gives the organization its sense of identity. Common feature of these definition are that learning process is continuous cognitive, emotional and behavioural process that is based on the history, traditions and structure of the organization. According to Wu et al. (2010) organizational culture determines the fundamental foundation of its actions. They also distinguish communities of practice, employee training and organizational learning as the main factors for the culture of organizational learning (Wu et al. 2010:268.)

Organizational learning occurs in different levels from individuals to whole organization as entity. However the employees are the ones who learn particular rather than the organization, since the organization as an entity is not capable to think. The learning of organization is though possible since they have cognitive systems and memory which are not dependent of individuals (O’Keefe 2002.) Dodgson (1993) characterizes organizational learning so that organizations learn by mistakes and that organization’s learnings consist of its individuals throughout the organization. Organizational learning can be seen as an important part of knowledge management strategy. Organizations whose culture supports the organizational learning will success better in knowledge management initiatives because they both share common features such as storing, sharing, generation and application of knowledge (Wu et al. 2010: 268-270.)

According to Wenger, McDermott & Snyder (2002: 6) knowledge should be considered as an asset, just as any other critical factor in an organization. Regarding knowledge, Communities of Practice (CoP) are a functional way to create and share it. CoPs are informal groups of people who are bound together by their common interests and shared expertise which occurs in every organization. The groups are informal and the topics discussed are topical and related to the problems or objects of development, what the group members face in their work. The speech is free and they do not have any given agendas for

the meetings. That allows more creative solutions and proposal which leads ultimately to new knowledge creation, knowledge sharing and innovations. However the informality can be a double-edged sword because CoPs can be hard to integrate to organization and they are resistant to supervision and interference. Anyhow organizations can support them by identifying potential CoPs that foster the organization's strategy. By providing infrastructure that supports the functions and enables CoPs to apply their expertise. Also evaluating the communities to acknowledge the true value of them can increase their influence (Wenger & Snyder 2000.)

According to Wu et al. (2010: 270-271) employee training develops knowledge processing and thereby motivates them to seek more and new knowledge. Therefore it is valid to say that employee training is essential to dynamic organizations and to culture of organizational learning. Regardless of its importance, training doesn't always result in positive outputs. The challenge is to bound the new knowledge and learning to something concrete. The new knowledge should be applied, shared and documented for organizational use to make it improve the performance of the organization. Employee training improves innovation capabilities, new product commercialization and work organization, only when the trained employees are given opportunities to apply the learnings (Rahman, Ng, Sambasivan & Wong 2012.)

In addition, Russ et al. (2010) discuss that culture/tolerance of risk has influence on executing the knowledge management strategy. They discuss that failures should be accepted but also taken as a lesson. By accepting failures the company can create trust between its employees or partners which supports the knowledge creation (Russ et al. 2010.)

### 3.2.3. Measurement

According to Kannan & Aulbur (2004) measurement of knowledge management practices and intellectual capital is substantially beneficial to the organizations since it aids determining business strategy, process designing but also it provides competitive advantage. Reliable knowledge management performance measures are important tools for evaluating the progress of the knowledge management initiatives. Measurement gives

evidence about the current situation and helps to see the flaws and strengths of it. Therefore the development is more precise. Also measurement enables comparison to other companies in the market. Positive results can encourage the decision-makers to keep investing resources and build commitment to the knowledge management strategy in the organization (Wu et al. 2010.) Bose (2004) discuss that development of knowledge management metrics has begun in recent years but still more accurate and universal metrics are needed. The challenge in measuring the knowledge management performance is due its characteristic; you cannot see knowledge. Ahn & Chang (2004) agree that intangible characteristic of knowledge makes it difficult to measure and without proper measurement its development cannot be well-defined. Setting the goals for the knowledge management strategy are crucial for evaluate it. The number of goals should be limited from 3 to 5. Also the goals have to be measureable and well-planned, since pursuing to them shouldn't affect negatively to any other key figures. Choices are to be made since the amount of goals is limited (Russ et al. 2010.)

Bose (2004) suggests balanced scorecard (BSC) as an adequate measurement tool for knowledge management performance, since learning can be linked to process performance, which influences to overall performance. Balanced scorecard evaluates organizations in four key areas: financial performance, internal business processes, customers and growth (Kaplan & Norton 1996). However there are modified measurement tools which are linked to original BSC such as Fairchild's (2002) where he applies the BSC from two different perspectives to evaluate knowledge management performance. Since Fairchild's evaluation is basically a collection of other measuring tools it will not be more deeply studied here.

Lee, Lee and Kang (2005) introduced a Knowledge Management Performance Index (KMPI) to evaluate the effectiveness of knowledge management initiatives. KMPI is a logistic function, since the knowledge management success after a slow start, begins to rapidly increase but slows down at mature level. KMPI examines the knowledge circulation process (KCP); knowledge creation, knowledge accumulation, knowledge internalization, knowledge sharing and knowledge utilization. Each of the KCP processes is yet distinguished in to smaller constructs. The evaluation is based on survey where the employees and managers have to answer to different claims regarding the knowledge management initiatives. The KCP category constructs are:

- Knowledge creation: task understanding and information understanding
- Knowledge accumulation: database utilization, systematic management of task knowledge, and individual capacity for accumulation
- Knowledge sharing: core knowledge sharing, and knowledge sharing
- Knowledge utilization: degree of knowledge utilization in organization, and knowledge utilization culture
- Knowledge internalization: capability to internalize task-related knowledge, education opportunity, and level of organization learning (Lee et al. 2005)

The idea is that increasing KCP efficiency, the KMPI also increases which expands the knowledge intensity within the organization. In their study Lee et al. (2005) constructed a KMPI based on the KCP survey. They compared it to three financial measures which were stock price, price-earnings ratio and R&D expenditure. The study proved that there is statistical correlation between the KMPI and the three financial measures. Therefore they suggest that organizations should invest in appropriate design of KCP (Lee et al. 2005.)

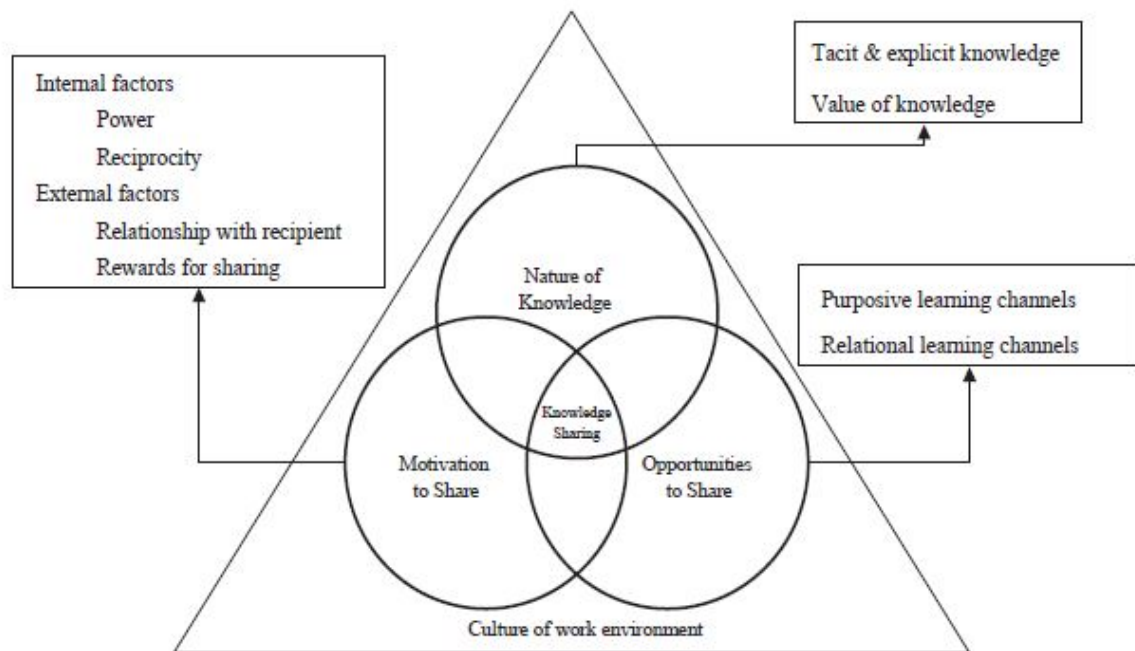
### 3.3. Knowledge sharing

Knowledge is counted as a competitive advantage since it is hard to imitate by competitors (Cabrera & Cabrera 2002; Abdul-Jalal, Toulson & Tweed 2013). Glazer (1998) writes that knowledge has economic value only when it is used. Alavi et al. (1999) discuss that knowledge becomes asset to the firm only when it is shared. The fundamental of knowledge sharing is the function of making the knowledge available to others within the organization. Knowledge sharing is a function where knowledge of an individual is transmitted to understandable form and expressed to another individual's use (Ipe 2003). Therefore knowledge has no value to the organization if it is not exploited and shared with others.

According to Hendriks (1999) knowledge cannot be passed on freely and therefore knowledge sharing requires at least two parties; one who possess it and one who acquires it. In order to share the knowledge, the possessors should express his knowledge in some understandable form such as speech or writing. This causes knowledge externalization,

since tacit knowledge is transmitted in to explicit knowledge. The following process is that the knowledge receiver has to perceive the knowledge shared, in other words internalize it. In this process the explicit knowledge is transmitted in to tacit knowledge. The barrier of the sharing lies between the two processes (Hendriks 1999.)

According to Ipe (2003) there can be identified four factors that influence knowledge sharing: nature of knowledge, motivation to share, opportunities to share and the culture of the work environment. The factors are presented in Figure 7 below, and the optimal knowledge sharing occurs in the centre and in the junction of them.



**Figure 7**, Factors That Influence Knowledge Sharing Between Individuals in Organizations (Ipe 2003: 352)

By nature of the knowledge is meant the two forms of knowledge; explicit and tacit knowledge. Since knowledge has to be converted in order to share it, its characteristics

should be recognized, see topic 3.1.1. Stenmark (2001) discuss that individuals by nature do not share knowledge without major personal interest. This is because they have concerns about the profits and losses of its sharing. Motivational factors can be divided into internal factors and external factors. Internal factors are knowledge as power for its owner and fruitful reciprocity. External factors are positive or negative rewarding and relationship evolution with recipient. Organizations should also enable and support knowledge sharing by informal and formal channels. The last element in the figure is the culture of work environment, which is discussed in chapter 3.2.2 (Ipe 2003.)

Multi-national corporations are separated cross-border organizations that transfer knowledge and information in multiple courses (Yang et al. 2008). Björkman, Barner-Rasmussen & Li (2004) discuss that companies that act globally receive competitive advantage over local companies when they combine existing internal knowledge to the ones acquired from subsidiaries. They say that socialization between units in multi-national corporations increases knowledge transfer. Social events are typically factory visits, inter-unit trips, international committees and training involving people from different units. Schulz (2003) emphasizes the role of socialization in knowledge flows and argues that informal channels are more efficient than formal channels. Also Subramanian & Venkatraman (2001) argue that cross-national teams have positive influence on knowledge transfer. To summarize the findings above, knowledge is shared most likely by socializing in face-to-face interactions in informal events.

#### 3.4. Knowledge sharing barriers

Szulanski (1996) among other scholars writes about the critical role of knowledge transfer to achieve competitive advantage over competitors. The difficulty of transferring knowledge lies in the tribulation to imitate it, like as other competitive advantages. He designates this difficulty as knowledge stickiness, however some authors use knowledge barrier term (Riege 2005; 2007). Szulanski (1996) divides knowledge stickiness by its characteristics into four categories: source, recipient, context and the transferred knowledge itself. Riege (2005) approaches knowledge sharing barriers from a different point of view and writes that there are three kinds of potential knowledge sharing barrier categories;

individual, organizational and technological barriers. However the factors are mainly overlapping, therefore Szulanski's categories are used as a point of view in this chapter.

Knowledge itself can cause sharing barriers. Implementing the knowledge might confront resistance among its users, if the transferred knowledge itself is not proven to be effective and there is no record of its usefulness. Individuals' communication skills plays major role in articulating the knowledge and proving its usefulness. Individual's national culture and language skills have effect to the justification of the use and assuring the receiver. Also lack of true understanding of the acquired knowledge and its connections to different variables may lead to situations where the knowledge is not exploited as it is on other environments. This causal ambiguity can be due incompetent staff. Also inability to utilize knowledge sharing technology provided by the organization has also influence in articulating and understanding the knowledge (Szulanski 1996: 30-31, Riege 2005.)

Knowledge stickiness's caused by its source are lack of motivation to share it, and that the knowledge source might not be recognized trustworthy. When the source is valued and recognized as an expert, the knowledge implementation meets less questioning. Hence trust has strong influence in knowledge sharing for both parties. People may fear others taking credit of it, and also receiving false knowledge. Lack of motivation as a factor can affect both on the source and recipient. Knowledge sharing and implementation requires resources, and people tend to require positive outcome of their additional actions. Another individual factor is the power of knowledge since knowledge holders regard themselves important to the company. Therefore they do not want to share it to others in fear of losing their importance. Management can encourage employees to knowledge sharing activities by rewarding and evaluating. Also creating an atmosphere where mistakes are not judged increases knowledge initiatives. Accentuating the importance of knowledge and organizing employees work so that they have time for it, motivation to share knowledge may increase (Szulanski 1996: 31, Riege 2005.)

Factors that cause stickiness because of the recipient are lack of absorptive and retentive capacity. As mentioned before, knowledge has value only when it is used. If the company does not have the capacity to exploit and retain it, the knowledge transfer is vain (Glazer 1998). Again the competence of employees has an effect in sharing and implementing of

knowledge together with organizational culture. It is obvious that organizational culture influences to all knowledge barriers. If knowledge management itself is not clearly recognized as a competitive advantage within the organization, the knowledge activities are not seen necessary (Szulanski 1996: 31, Riege 2005.)

Context, where the knowledge is designated to transfer, may also cause problems for knowledge transfer. Organizational structure may be constructed so that not all knowledge is applicable in everywhere. As well if the knowledge exchange relationship is too heavy to maintain and causes burden to its users, it will most likely lead to avoidance of knowledge sharing actions. Organization's size and segmentation to multiple layers hinders the knowledge flow. Above Organizational factors can make the knowledge sharing and acquisition so troublesome that employees skip them. Also inadequate IT infrastructure as well as arduous and unreliable knowledge management tools can complicate or take off the knowledge initiatives (Szulanski 1996: 31-32, Riege 2005.)

The most influential barriers found in Szulanski's (1996: 36) study were lack of absorptive capacity of the recipient, causal ambiguity, and an arduous relationship between the source and the recipient. What is interesting is that all of those factors are related to motivational issues. His study did not suggest any actions to overcome these barriers. However Riege (2005) suggests that motivating and encouraging individuals in capturing, sharing and applying knowledge, aids overcoming potential individual knowledge sharing barriers. Organizational barriers can be defeated by more visible structure and by including knowledge to company's strategy and goals, as well as strong leadership from senior and middle management. Technology related barriers can be beaten by modern and integrated mechanism and systems that are accessible to all potential users (Riege 2007.)



## 4. RESEARCH METHODS

This chapter introduces the environment where the research is performed, the research method that is used, analysis methods and chronological description of the research actions. First, the research environment is studied in detail, since it is divided into three sectors: ABB Oy Transformers, ABB system integrators and ABB Front-End-Sales units. ABB Oy Transformers is the client of this thesis, thus this study is performed from their point of view. ABB system integrators and FES units are clients for ABB Transformers although they are part of the global ABB organization. Both of them work in different business environments where the business deals are made through different processes. Second, research method that is used in this thesis is explained. In this thesis a qualitative research is performed by semi-structural theme-based interviews to solve the research problem. Third, the methods that are used to analyse and structure the data gathered through interviews to build comprehensive conclusions. In the last chapter, the progress of this research will be described chronologically.

### 4.1. Research environment

ABB Group is a global market leader in the field of automation and power technologies with its 30 billion EUR revenue in year 2013. ABB Group holds five divisions: Power Products (PP), Power Systems (PS), Discrete Automation and Motion (DM), Low Voltage Products (LV) and Process Automation (PA). ABB Oy, Transformers belongs to international ABB Group. ABB Oy Transformers serves all the divisions except Low Voltage systems. Its large product portfolio makes serving large and diverse set of customer possible (ABB 2014; ABB 2013.)

#### 4.1.1. ABB Oy, Transformers

ABB Oy, Transformers manufacture and designs transformers and reactors which main function is to convert and limit the voltage in the electric grid to usable level. The unit's product portfolio consists of following oil insulated transformers:

- Power transformers for power plants and electrical distribution use

- Railway transformers for railway use
- Furnace and Rectifier transformers for chemical and metal industry
- Liquid type transformers for marine use
- Offshore transformers for oil & gas industry
- VSD transformers for mining, metals, paper and water industry
- Reactors for metal industry and utilities (ABB Transformers 2012.)

ABB Oy, Transformers has two major sales channels, ABB system integrators and local Front-End-Sales units. Together those two channels formed over 9/10 fraction of Order Intake (OI) in year 2013. Because ABB system integrators and FES-units share the majority of the OI, this study focuses on those two channels. The sales environments differ between those channels, thus they are explained more detail in their own subtitles below. ABB Oy, Transformers uses also 3<sup>rd</sup> party channels but because their overall order intake is so small it is limited out from this research. Mean yearly production volume is around 800 units, produced through three assembly lines. The assembly lines are divided by the transformers physical size and their power. The orders were received from 32 countries and they will be delivered to 62 countries worldwide. By order intake the biggest countries were United Kingdom and Sweden. This is due of railway deals in Sweden and United Kingdom and also Sweden's large electrical distribution markets in Sweden (ABB Transformers 2013.)

ABB Oy, Transformers belongs to small power transformers (SPT) in ABB's product group classification. The unit has a global lead-centre role in special transformers among SPT which allows the unit to quote special transformers worldwide. In mainstream transformers the unit is only allocated to quote to Nordic countries and Russia. The market allocation guarantees balanced order intake to the factories in SPT (ABB 2012.)

Typical and simplified sales process in ABB Oy Transformers starts when a RFQ is received from some FES-unit or ABB system integrator (SI). After the unit has prepared the technical and commercial offer it is sent back to its sender. Then, SI offers the product in part of their larger package, or FES-unit offers the deal to their customer. In most cases, the RFQ is sent back with modifications or re-bids based on the end-customers comments. In this point the ABB Oy, Transformers prepares a new quotation and negotiates with the sender, who is either FES or ABB SI. They handle their separate negotiations with their

customer who at the final stage either accepts or rejects the offer of FES or ABB SI. As a summary, ABB Oy, Transformers quotes for and negotiates with FES or ABB SI, who are considered as its clients.

#### 4.1.2. ABB system integrators

ABB system integrators (SI) are ABB units that handle large projects and systems. They do not manufacture any products themselves but deliver systems and solutions. Depending on the scope they engineer, design the solution and procure internally and partly externally all the components for it. System integrators (SI) are distinguished by their division, and ABB Oy Transformers does business with Discrete Motion and Automation (DM), Process Automation (PA) and Power Systems (PS) system integrators.

DM divisions SIs had the highest divisional SI shares of year 2013 OI. Typical solution of DM where the Transformers unit is involved is a pump application in oil industry where a transformer is required to feed a motor. The second largest divisional SI share comes through PA. Typical PA's solution where the unit supplies transformers is a mining application where transformers are required to feed motors and drives. The third divisional SI is PS. PS system integrators engineer substations and power grid solutions for example off-shore wind farms. Altogether ABB SIs forms little less than half of the Transformers unit order intake in year 2013.

Since ABB SIs business environments are large projects, the sales processes might take several years as a whole. Thus they have projects in their pipeline for at least 6 months further. Therefore it is presumed that the SIs are able to provide at least some knowledge and information regarding the opportunities. ABB SIs have limitations how much of the total project value has to be covered with ABB components. Because the SIs have a possibility to include non-ABB components to their packages, it is important to have close cooperation with them and quote competitive quotations to ensure orders and RFQs in the future.

#### 4.1.3. Front-End-Sales

Front-End-Sales units are local sales representatives that market and sell ABB Power Products (PP) divisions products to their local customers. Each FES-unit act nationally and serves customers only inside their designated country. Although they serve only local customers, they request quotations from ABB factories based on the product group allocations. Also they can influence to the customer's technical solutions and specifications which affects so that it may define which ABB factory is allocated to quote to the RFQ. The share of all FES-units of the Transformers unit's order intake in year 2013 was little over half of all the orders. Since FES channel has the most influence to the unit's order intake it is important to develop an Opportunity Pipeline solution that satisfies them.

Typically FES-units sell transformers to projects where the contractor or the end-customers wants to procure transformer as separate component. For example railway projects are completely sold through local FES-units. Because FES-units do marketing and continuously seek new customers in their markets, they have to have some knowledge about the future projects and RFQs. Therefore it is presumed that the FES-units are able to provide at least some knowledge and information regarding the ABB Oy, Transformers opportunities.

#### 4.2. Research methods

The empirical part of this study aims to find a solution for the research problem and to find answers to the main research questions. To solve the problem an Opportunity Pipeline was developed. The developed Opportunity Pipeline is not a particular tool but consists of an internal strategy and operations model for gathering and managing target project knowledge. Since this study is based on a development project it can be considered as a case study. The materials of this research were collected by semi-structured interviews and they were performed as face-to-face meetings. The interviews were theme based and involved open discussion and participation from both the interviewer and interviewees. All the interviews were performed as an individual interview except the DM interview where the director of sales and the sourcing manager were interviewed together. The discussed

themes were based on the topics discussed in the theoretical part of this thesis. Semi-structured and theme based interviewing was chosen because internal, FES and SI interviews focused on different issues and therefore the same interview outline wouldn't have been effective.

The main themes for all the interviews were based on the topics discussed in the theoretical part. The discussed themes were following:

- The necessity of Opportunity Pipeline
- Sales Process (Pipeline theory in internal interview)
- Target project knowledge management
- Knowledge sharing barriers
- Knowledge management strategy (only internal interviews)
- Suggested actions

The Internal interviews were performed to give a basis for developing the internal strategy and finding out the needs of the unit. Thus the discussed themes emphasized more on knowledge management strategy and the unit's needs. The interviews for FES- and SI-units were performed to find out more about their project knowledge management and to investigate their possibilities as well as motivation to participate to the Opportunity Pipeline. Hence the discussions focused on to their quotation processes, knowledge sharing barriers and working out common operations models. Before the interviews, covering letters were sent to each external interviewee to help them to prepare for the interview and to give basic understanding about the project. The covering letter and the interview outlines can be found as an Appendix 1 and Appendix 2.

The interviews were performed to key persons in the ABB Oy, Transformers unit, FES-units and in ABB system integrator units. The key persons were identified together with the Transformers unit's sales & marketing manager. The two internal interviewees were chosen to give an internal viewpoint regarding the project and also because the other interviewee has had already experiences of project knowledge sharing with the DM and PA division's SIs in Switzerland. The interviewees representing SIs were each chosen from one division with whom ABB Oy, Transformers does business with, except the PA division. The

selections were based on an assumption that the target project knowledge is managed differently in each division. The interviewed FES-units' key persons were chosen on the grounds that the unit does business with them the most. The interviewees are presented in table 1 below. The symbol is used in the analysis section to identify interviewees.

**Table 1,** Interviewee information

<u>Position, symbol</u>	<u>Channel</u>	<u>Division</u>	<u>Location</u>
Sales Manager, INT1	ABB Oy, Transformers / Internal	PP	Finland, Vaasa
Global SPT VSD Account Manager, INT2	ABB Oy, Transformers / Internal	PP	Finland, Vaasa
Director of Sales, DM1	System integrator	DM	Switzerland, Turgi
Sourcing Manager, DM2	System integrator	DM	Switzerland, Turgi
Product Manager, PP1	FES	PP	Sweden, Västerås
Sales Manager, PP2	FES	PP	Finland, Vaasa
Sales Manager, PS1	System integrator	PS	Finland, Vaasa

### 4.3. Analysis methods

The analysis of the interviews was based on the interview recordings. Each interview was recorded as an audio recording to guarantee tenability of the analysis and to secure that no answers were forgotten. The data received from the interviews was based on the interviewees' own experiences, wishes and knowledge. At first, each interview was analysed as an own data set where one interview was analysed and outlined at a time. The aim of the outlining was to separate the main themes from one another so that the analysis was more structured and reasonable. After the themes were outlined, the main points of each answer were discovered. Also one focus was to find topics that were not earlier taken account or thought of.

After the analysis was done for each interview as an own set of data, the answers were compared to other's answers. In the comparison part the first step was to find similarities between the answers. The second step was to reflect the answers of external interviews to the internal interviews because this thesis is wrote from the ABB Oy, Transformers point-of-view. The two comparison steps were performed because they gave ideas for the development of comprehensive operations model for project knowledge assembling. The second step emphasized on internal strategy creation.

The analysis of the interview answers is introduced in detail in the findings chapter. The findings chapter holds both, analysis as own data set and comparison phases with the two steps introduce above. The final version of the operations model and internal strategy are introduced in the conclusions and discussions chapter.

### 4.4. Performing the research

The first interviews were performed on 18<sup>th</sup> of February 2014 in ABB Oy, Transformers conference rooms. Although the preparations for the research started on 14<sup>th</sup> February when the interview frames were designed. The first interviewee was ABB Oy, Transformers sales & marketing manager, who is also an advisor for this thesis. The interview was recorded as an audio file and it lasted 51 minutes. Purpose of the interview was to find out the motives

of the unit as well as abilities and capabilities to exploit the opportunity pipeline. The second internal interviewee was Global SPT VSD account manager and he was interviewed on the same day in the Transformers unit's conference room. The interview was recorded as an audio file and the interview took 56 minutes. The purpose of the interview was to hear the interviewees own experiences of project knowledge sharing which he had already performed with one SI's sales unit. Second aim was to get comments about the whole idea from a member of the unit's sales team. Both interviewees had knowledge about the opportunity pipeline project before the interviews. They also received a presentation about the main theoretical findings of this thesis's topics before the interview.

Third interview was held on the 6<sup>th</sup> of March 2014 in ABB Oy, Transformers conference room. The interviewee was ABB Sweden's FES product manager for distribution transformers. The interview was agreed 4<sup>th</sup> of March on a telephone where the interviewee was told about the opportunity pipeline project. The interviewee also received a covering letter about the project and the agenda of the interview. The interview was recorded as an audio file and the interview took 70 minutes. The first aim of the interview was get more knowledge about the project and opportunity knowledge managing in ABB Sweden FES-unit. Second aim was to agree and hear ideas about the operations model with them.

The fourth interview was performed as a group interview in a conference room of ABB DM division's sales unit in Switzerland, Turgi on 12<sup>th</sup> of March. The interviewed persons were the sales manager and sourcing manager of the unit. The interviewees had received a covering letter before the interview. The meeting was arranged by ABB Global SPT VSD account manager who also took part in the interview. Before the interview a presentation about the opportunity pipeline project was held. The interview was recorded as an audio file and it took 50 minutes. The spoken language in the interview was English unlike in the other interviews where the spoken language was Finnish. . The first aim of the interview was get more knowledge about the project and opportunity knowledge managing as well as the sales process in DM SI sales unit. Second aim was to hear their experiences about the target project knowledge sharing with the Global SPT VSD account manager. Third aim was to agree and hear ideas about the operations model with them.



The fifth interview was conducted on the 24<sup>th</sup> of March 2014 in ABB Oy, Transformers conference room. The interviewee was ABB Finland FES sales manager for transformers and high-voltage products. The interview was arranged by the sales & marketing manager of the Transformers unit who had told the interviewee some preliminary knowledge about the project. The interview was recorded as an audio file and the interview took 90 minutes. Besides the interviewee and the interviewer, the sales & marketing manager of ABB Oy, Transformer was present in the event. The first aim of the interview was get more knowledge about the project and opportunity knowledge managing in ABB Finland FES-unit. Second aim was to agree and hear ideas about the operations model with them.

The sixth interview was conducted on the 10<sup>th</sup> of April 2014 in ABB Oy, Power Systems conference room in Vaasa. The interviewee was ABB Finland's Power Systems sales manager. A covering letter was sent to the interviewee before the interview to give awareness of the project. The interview was recorded as an audio file and the interview took 90 minutes. Besides the interviewee and the interviewer, the sales & marketing manager of ABB Oy, Transformer was present in the event. The first aim of the interview was get more knowledge about the project and opportunity knowledge managing in ABB Finland Power Systems unit. Second aim was to agree and hear ideas about the operations model with them.

## 5. FINDINGS

The findings of the empirical part are presented in this chapter. The empirical part of this study was conducted by semi-structured interviews to key persons in internal and external units. The interviews were based on the theoretical part of this study where the main titles were knowledge management strategy and the sales process. The findings are categorized to five main categories: necessity of opportunity pipeline and present state, sales process, knowledge management strategy, knowledge sharing barriers as well as suggested actions. Each of these main categories are divided into own title where they are divided into more detailed entities. The interviewees are identified by the symbols introduced in Table 1.

### 5.1. Necessity of opportunity pipeline and present state of opportunity management

Before the actual interviews, the interviewees' opinions or expectations regarding the cooperation and opportunity pipeline were not defined. Therefore the first positive signal was that all the planned interviewees agreed to an interview. The second positive signal was that all the interviewees expressed their interest to deepen the cooperation and sharing the opportunity project information and knowledge. Although all the external interviewees had some concerns about the implementation, and they exacted that the unit should also give some inputs that are valuable for the external units. Thus the common aim for this development project is to create a win-win result where all the parties benefit of it.

The mentioned concerns about the implementation of opportunity pipeline were mainly motivational. INT1 anticipated that some units are willing to take part in the cooperation and some may resist. He also mentioned that the challenge would be to sell the idea for the external units and justify its importance. As expected all the interviewees identified maintaining motivation as the biggest concern. They all added that if the sharing activities are valued and the inputted knowledge is used, the operation model would work. PP1 compacted well the fundamental term of this project "the biggest motivational factor is the results."

The hypothesis in the beginning of this project was that the external units were interested of this project because it should increase competitiveness of quotations. This was also an

assumption of interviewee INT1, who mentioned improving resource allocation, forecasting and preparing as their main motives for developing the opportunity pipeline. During the external interviews none said that improving the competitiveness of the quotations was the main driver for the cooperation. Rather than seeing the opportunity pipeline as a way of increasing the competitiveness, each saw its value different. DM1, DM2 and INT2 who have already had similar cooperation with each other mentioned that it has been useful since it has increased the collaboration between the units. The business environment is very dynamic thus quick reactions and cooperation is required to maintain competitiveness. The cooperation has enabled a common strategy creation for target projects and executing ABB slogan “one simple ABB” thinking. INT2 mentioned also that the transparency has increased awareness of the markets. PP1 mentioned that they can see the opportunity pipeline valuable if it improves the quotation process time-wise, since they wish to receive quotations earlier, which would give them more time for adjustments. PP2 and PS1 said that their present opportunity management is unorganized and they saw this project as a good initiation to improve it.

There is no organized opportunity management in the Transformers unit but the unit’s area managers hold some knowledge without systematically exploiting or retaining it. INT2 also confirmed this view by saying that he only shares the target project knowledge with his colleague, who partially shares same product allocation, but do not share it with other departments. This is one of the main reasons to start this development project according to INT1. The unit sees that the target project knowledge could be exploited not only by sales but also by designing and even production departments. INT1 added that usually the unit gets the first information regarding a project when they receive a RFQ. This causes sometimes problems since the quotation resources might be reserved already to other projects.

The present state in the external units’ opportunity management varied. PS1 and DM1/2 are using common tool for managing the sales process. The common tool for the system integrators is ABB ProSales which covers the whole sales process from early leads to order booking. Also PP2 and PP1 use the ProSales but not as a main tendering tool. According to PS1 ABB ProSales could be a good channel for the cooperation. The main quotation tool for PP1 and PP2 is CCP which is used in the Power Products division. CCP is also the main

quotation tool for the Transformers unit. When asked about the target project knowledge sharing through CCP, PP1 and PP2 did not see it possible at the moment. The rejection was mainly because they did not know if it would be technically possible. Using CCP in the future for the target project knowledge sharing, they considered possible if the operation model will continue and develop. Although PP1 said that their main tendering tool is CCP, they manage and report their opportunities by excel sheets. In their excel sheet they list all the projects from opportunity status to tender sent.

## 5.2. Sales process

The sales environment varies between the units, depending on their functions. System integrators' sales processes are the lengthiest and most complex since they sell packages including several components, services and installation. According to DM1 the concept and feed phase can take more than a year until they receive a RFQ. But after they have received a RFQ they have only 2-3 weeks to prepare a quotation. During the quotation preparation phase they have to place their RFQs for transformers, in which phase the Transformers unit comes along. Since the tendering phase is such a short time, it would be important that the issued projects have already been discussed through before the tendering.

The sales process of PS follows the same principals than the sales process of DM since they also deliver systems with several components and installation. Their timeline in the sales process is also lengthy since the time between a lead and receiving a RFQ is usually from half a year to a year. PS's early phase of the sales process however differs from DM because local FES units searches new opportunities in behalf of them. Therefore local FES units handle the first phases of the process and insert the lead information to the ProSales and when quotation is required, they assign the project to PS.

The sales environment of FES Sweden and FES Finland are very similar since they sell the same product but only in a different country. They do not manufacture, but are only ABB local representatives who sell ABB components. The difference is that the biggest projects in Sweden are ordered by companies that are owned by the state. Also Sweden FES's has more organized opportunity management. Both units have salesmen who work on the field

and try to search new opportunities. According to PP1, time scale depends on the project type since the biggest projects such as power plants are known 1-2 years and the smallest ones 3-4 months upfront. According to PP2, wind power projects are topical now and their time scale from opportunity to order is only around 6 months.

### 5.2.1. Sales process phases

When each interviewee was asked to reflect their own sales process phases against the theoretical sales process paradigm, they found similarities between them. However they all had focus more on the phases after receiving the RFQ. Reflecting the answers to the theory of seven steps of sales, the more focused phases are presentation and overcoming objections. The focused phases are diverged with the ones that Transformers unit is interested since INT1 listed prospecting, preapproach and approach as the interested phases.

Among external interviews PS was the only unit whose sales process begins from presentation. PS1 mentioned that they do not search new opportunities by themselves but it is done by local FES units. PS1 mentioned that after local FES unit has handled the prospecting, preapproach and approach phases, the project's responsibility is handed to them. In some basic cases FES units handle even the presentation phase. According to PS1 in most cases there should be knowledge already in the lead phase if the project includes transformer, although the final scope unravels not until the RFQ. In the basis of the theoretical sales steps the lead phase corresponds to approach phase (Moncrief et al 2005). Since there should be knowledge already in the early phases of the sale, if transformer is included in the scope, there is no problem to share it with the Transformers unit, spoke PS1. When asked if the Transformers unit could influence somehow in the early phase of PS project sale, PS1 spoke that there is no need to focus on the transformer in the early phases since it is more about the system overall. He also continued that they aim to get involved to spec & influence cooperation with the customer to steer the technical choices so that they favour ABB solutions.

According to DM1 they handle the whole sales process on their own unlike the PS sales unit. They have own account managers for different OEMs (Original Equipment

Manufacturer) who also do the prospecting but constantly searches for new leads. They search for new leads among the EPCs (Engineering, Procurement and Construction). According to DM1 they can bid their solutions without requesting quotation for the transformer if it is not specified in the project specifications or it is possible to estimate its price from the existing price list. He says that when they leave their quotation, the technical solutions regarding the transformer are not clear and they have the option to choose the transformer type on the basis of customer's preferences or the costs. If the transformer is not specified, they do not include the Transformers unit until the project design is clear. Regarding the influence possibilities of the Transformers unit, DM1 suggested that the area managers of the Transformers unit should participate more to seminars and events where they meet the end customers. He continued that it is important to influence on the end customer solutions as early as possible so they would prefer ABB components and solutions. Thus the spec & influence actions are important for the sales like it is for PS sales unit. Another way for the Transformers unit to influence is to share knowledge about the projects that the unit is requested to quote through other channels. Also they were interested about deviations and end customer information.

PP1 described their sales process according to 7 steps of sales process. Because ABB is so well-known in Sweden they do not focus so much on prospecting phase. They are requested a quotation in almost every project in Sweden. The next phases; preapproach, approach and presentation are dealt by the field salesmen who constantly meet and discuss with the customers and try to search new opportunities but also introduce ABB new components and solutions. PP1 also mentioned that the spec & influence actions are important for them and referred it to the overcoming objections phase. ABB Sweden aims to support and consult the end customers in the specifications generally, not regarding any specific project. She discussed that the Transformers unit's possibility to influence before the RFQ is to technically support as well as consult them. According to PP1 the basic specifications about the transformer are given to them quite easily. By the basic specifications are meant power and voltage. The problem is that almost every project they are involved, are public competitive bids. Therefore all the information is shared with the other competitors, or might be classified. Also some companies present their procurement plans for longer periods and some for shorter. For them the advance information is important because it aids

the quotation allocation. Although ABB has allocation rules based on power and voltages, FES units have some influence deciding to whom they send the RFQ.

PP2 agreed that their sales process follows mainly the 7 steps of sales, although they do not distinct the different phases clearly. He added that focus is more on the actions after they have received a RFQ, though the field salesmen constantly search new customers and opportunities. According to PP2 they do not want to do much screening since it will decrease the overall amount of RFQs they receive. He defined that prioritizing rather than screening is better way to classify customers. Their aim is also to influence on customers solutions before the RFQ so that they would prefer ABB components. The final scope appears from the RFQ, but sometimes they get the required information during customer meetings. Unlike the FES of Sweden, the Finnish unit do not have comprehensive system to manage opportunities and they have only targets set for upcoming quarter. According to PP2 the Transformers unit can influence on their sales process by providing quality presentation materials and by technical support. They would also appreciate if the Transformers unit's area managers could participate more to the customer meetings and plan mutual sales strategies. Also he mentioned that real time updates of the delivery times can be clincher in the decision making.

### 5.2.2. Pipeline management

The purpose of this study was to develop a pipeline to manage sales opportunities. Thus INT1 was interviewed about its management. INT1 said that because of the ABB allocation rules, no screening between the projects is possible. He continued that Transformers unit wants to quote to every RFQ they receive. Although screening isn't possible because of the allocation rules, projects can be prioritised. The prioritisation factors could be overall value and ABB internal priorities. Therefore the future opportunity pipeline follows a tunnel shape where all the projects will pass on following phases. According to Söhnchen et al. (2010) tunnel shape pipeline is used in companies that sell complex or valuable products. The statement is applicable since the units transformers are complex products and can cost up to 1,5 million EUR.

According to Chan et al. (2007) and Söhnchen et al. (2010) essential part of pipeline management is to determine the optimal amount of projects in the pipeline. INT1 spoke that “it would be interesting to determine the optimal size and amount of projects.” According to him sales hit rate could be one determinant. The yearly net sales could be multiplied by yearly hit rate to give suggestive optimal size. The problem is that not all the opportunities should be added to it but the target projects and projects which value exceeds a certain value. INT1 also mentioned that it is important to maintain a determined value of projects in the pipeline because then reacting to decreasing amount of opportunities and RFQs is faster and more accurate. Otherwise INT1 could not think of any other way to optimize the pipeline optimal size. Although INT2 has already operated target project knowledge sharing, he did not manage them by any pipeline model.

### 5.3. Knowledge management strategy

One outcome of this thesis will be an internal strategy for opportunity pipeline knowledge management. Thus the focus is on the internal interviewees INT1 and INT2 answers on the subjects of knowledge management strategy. The discussed topics of knowledge management strategy are presented in the theory section. Knowledge management strategy topics were discussed also with the external interviewees to give more perspective in developing the operations model with the external units.

#### 5.3.1. Top management support

INT1, who is the sales & marketing manager of the Transformers unit, was asked to comment on the 6 facets of the top management support. He spoke that the resources are one of the critical factors regarding this project. The baseline is that the resources are sufficient to guarantee the continuation of the opportunity pipeline. Although he saw that it will not require extra resources because it will not increase the workload. The workload should not increase because the some work will be done only upfront according to INT1. Also the knowledge sharing events will not require extra resources because they can be arranged together with other sales meetings. Regarding the knowledge management system, INT1 hoped that the tendering tool CCP could be used as the opportunity pipeline tool.



Therefore the knowledge management system should not require additional resources. He spoke that he will be responsible for the management of the opportunity pipeline. Also he will support and supervise the system's usage.

INT1 did not see a compulsion for additional rewarding of the opportunity pipeline actions because the activity should already be part of the work and goals. Opportunity pipeline should be a tool for reaching the sales goals and not as a meaning itself. Although INT1 did not see rewarding necessary, he saw that opportunity pipeline activities should be taken account in the employees' performance appraisals. He added that evaluation and development could be one aspect of motivating employees to execute opportunity pipeline activities. Opportunity pipeline should be highlighted in the goals of the employees. Since it could be one aspect of performance appraisals, there should be goals set and indicators for the follow-up. INT1 suggested that the amount of projects, total value, hit rate or the amount of customers who are engaged to the system could be proper indicators, although he admitted that finding a proper indicator is a challenge.

Since INT1 saw that opportunity pipeline activities are part of the sales work, legitimising the knowledge initiatives should not be a problem. The activities are only a new aspect of the work but still require support. INT1 saw that the sales work can be made more effective by strengthening the customer relationships and finding new opportunities. According to INT1 there is no need for changes in the organization structure because the opportunity pipeline should be a tool for spreading knowledge to other departments. The knowledge which will be managed through the pipeline should aid the designing department and ultimately the production.

INT2 highlighted the importance of system and some kind of stimulant when discussed of the top management support. He spoke that there should be a system where the knowledge is collected, retained and managed. The stimulant for the opportunity pipeline activities is a must. The stimulant could be evaluation or rewarding. However rewarding is not possible since INT1 did not see it necessary. INT2 did not see that the activities could take too much time because customer relationships are anyway important to take care of. In addition INT2 discussed that justifying the activities is not only an internal facet but it should also be considered in the BU level. FES units and ABB SIs should share more knowledge with the

factories because they all belong to same organisation and also the units should work more as partners.

PP1 did not see the top management support as a significant factor because both parties understand the benefits of the operation. PP1 also told that they are committed to the project. While PP1 did not require top management support, PP2 saw it as a compulsory factor. PP2 spoke that the changes in their workings will be so substantial that opportunity pipeline should give remarkable results, if the top management will not support it otherwise. He admitted that the top management should justify the activities to the salesmen on the field. PP2 also required support to this project so that the ABB SIs would split the projects to opportunities in the ProSales. If the projects would be split more precise to opportunities, it would be easy to see what components are required for the project. The difference between the FES units' answers can be due the present opportunity management in the units. In the PP1's unit the opportunities are systematically managed but in the PP2's unit they are not.

Of the ABB SI units DM1 and DM2 agreed that the top management support for the project is important, although they did not require any direct actions. They saw that because they already have so many tools and interfaces with the clients and suppliers that they do not wish to implement any new tools. DM1 wished that the tool and operations model would follow the slogan "KIS- Keep It Simple." PS1 however spoke that the cooperation should already have the top management support so therefore the project should not require any additional actions from the management. He also added that in this point it is about a mutual agreement of them and the Transformers unit.

### 5.3.2. Culture of organisational learning

Since the topic of culture of organisational learning is only related to the internal strategy it was not discussed with the external interviewees. In the internal interviews both INT1 and INT2 said that there should be no need for additional training regarding the implementation of the opportunity pipeline. INT2 based his opinion on his own experiences of the project knowledge sharing activities. INT1 saw that training is not required, at least not held by outside organisation. INT1 acknowledged that internal briefing and directions should be

enough. Important part, according to INT1 was to agree with all the area managers and their external contact with the actions. In the interview PS1 suggested that a briefing session about ProSales usage with their ProSales super user and the Transformers unit's contact person can be organised. INT1 who was present at the interview agreed that it would be a good idea. Therefore a training regarding the tool would be necessary but not regarding the opportunity pipeline itself.

The other topics of culture of organizational learning were also shortly discussed with INT1. He did not see organising communities of practise necessary. Though he agreed that the opportunity pipeline is not expected to work perfectly from the beginning and therefore there will be errors and mistakes on the road. Therefore failures should be allowed to be made.

### 5.3.3. Measurement

During the interviews it became evident that there should be tailored indicators with each external unit because each unit has their own motives. This should not be a problem since the operations models will be tailored for each unit. INT1 suggested that proper indicators could be total value of the pipeline, amount of clients whom the opportunity pipeline is implemented with, hit rate of the projects in the pipeline as well as how many projects are in the pipeline. He also agreed that the indicator should be simple and reliable. In the beginning, the amount of projects can be sufficient indicator to follow. One value to follow could also be the development of the hit rate. INT1 assumed that it should rise at least for the projects that are included in the pipeline. The suggestions of INT1 focus straight on the effectiveness and actions on the pipeline itself and not indirectly like the INT2 suggestions. INT2 suggested that improvement of transparency, cost savings because of the opportunity pipeline or the time used in the design for each quotation should be measured. He discussed that follow up and measurement are fundamental for the development of the pipeline but finding one will be a challenge.

PP1 saw that proper indicator for the opportunity pipeline could be hit rate since it is simple and easy to follow. Their system allows the follow up of hit rate development which means that they can measure the pipeline by themselves. PP2 wanted that the indicator for them

would measure the predictability and awareness. It should focus on the benefits of the pipeline and especially the work made upfront. The measuring should be constructed so that it shows the profitableness of the pipeline actions. PP2 suggested that indicators could follow the amount of projects in pipeline compared to all the orders or how many projects are in the pipeline before they receive a RFQ. However PP2 was concerned since they are already required lot of reporting and does not wish to have more.

According to DM1, DM2 and INT2 there has not been any measuring of their project knowledge sharing. Therefore DM1 and DM2 did not have any suggestions about the measurement. PS1 discussed that the measurement of the cooperation is not possible by any value since the success is based on the experiences and feelings of the participants. However he suggested that the quality of the ProSales data could be measured since their motive for the project was to improve their ProSales use. PS1 also agreed that comparing hit rate of the pipeline projects to hit rate general can be functional indicator.

#### 5.4. Knowledge sharing barriers

Comparing answers regarding knowledge sharing barriers is possible since all the interviewees were presented the same theoretical barriers. They were also asked to comment on those barriers that they see as a challenge to the opportunity pipeline project.

In the interviews all the interviewees highlighted motivational issues. Therefore we can conclude that it will be the biggest challenge of this project. INT1 and INT2 added to the motivation issue that bottom line to the motivation is how the idea and project is justified to the other units. INT2 also continued that based on his experience you get answers when you ask and demand. Therefore it is about each user's own efforts. From the external units PP1, PP2, DM1 and DM2 as well as PS1 specified the motivational issue by saying that seeing someone using and exploiting the knowledge motivates the other users the best. According to Szulanski (1996) the motivation to share as a barrier is caused by the source itself.

The lack of retentive and absorptive capacity was highlighted the second and third most by the interviewees. Those barriers according to Szulanski (1996) are caused by the recipient.

PP1, PP2, DM1 and DM2 as well as PS1 discussed that seeing someone using the shared knowledge motivates the users to the activities. This issue is also related to the lack of absorptive capacity barrier which was recognized by INT1, PP1 and PP2. PP2 was also concerned because they have lot of valuable knowledge, but addressing it to the right person is not simple. Lack of retentive capacity was acknowledged by INT1, INT2 and PS1. Based on the answers, the external units were mainly concerned about the absorption, and the internal interviewees were concerned about the retention.

Only PP1 and PP2 highlighted heavy relationship as a barrier. PP1 related the heavy relationship to organizational structure barrier by saying that “because we work in a matrix organization there is already lot of reporting.” One reason that both FES units highlighted heavy relationship might be that is more reporting in FES units than in the other involved units. INT1 and INT2 did not see the heavy relationship as a barrier since the area managers are already in contact with the customers, thus it will not increase the workload. PS1 and INT2 saw also updating the project information as an issue. Both were concerned that updating and adding new data to the pipeline will be forgotten or it will be done too seldom. INT1 one also discussed that causal ambiguity can be a barrier and explained that all the users may not understand what to do with the knowledge.

DM1 and DM2 did not see heavy relationship as an issue, but mentioned that they already have so many interfaces with the customer that they do not want any new one. All the other external interviews also highlighted that the system and operations model should be simple as possible.

In the table 2 below the answers regarding the knowledge sharing barriers are presented as a table format. In the table the answered barriers are on the horizontal dimension and the interviewees are on the vertical dimension.

**Table 2**, Knowledge sharing barriers according to interviewees.

	motivation to share	absorption	retention	relationship	updating	causal ambiguity
INT1	X	X	X			X
INT2	X		X		X	
PP1	X	X		X		
PP2	X	X		X		
DM1/2	X			(X)		
PS1	X		X		X	

### 5.5. Suggested actions

In the interviews, all the interviewees were asked to suggest ideas and their requirements regarding the operations model for opportunity pipeline. Developing the operations model according to the suggestions is crucial for the success of the project, since each unit requires tailored operations model.

#### 5.5.1 Transformers unit

According to INT1 the area managers of the Transformers unit will implement the operations models with their clients, based on the present area and product type allocation. Thus the workload should be even and the area managers can continue on working with their existing clients. Although each area manager will be responsible of the opportunity pipeline actions among their own areas, the sales & marketing manager of the unit will be responsible of managing and exploiting the knowledge together with the executive group of the unit. INT1 required that the project knowledge should be at least six months upfront since they have only follow up for two months by their Hot Project-list. The actions should be continuous to maintain the buffer. If the unit has data for six months upfront, they have enough time to adjust to changes in the markets. The critical knowledge regarding opportunity projects in the pipeline should at least include:

- Transformer type/product family
- Approximately number of units and value

- Project schedule (time of delivery)
- End customer
- Customer chain
- Installation country
- (Additional comments)

INT1 suggested that CCP, which is the tendering tool in the unit, could be a proper tool for the pipeline management because it is already in use and has the functions. However he continued that in the beginning the pipeline can be managed by simple excel files. If the pipeline succeeds, it should be implemented to the CCP in the future. INT1 hoped that no new tool should be implemented for the pipeline use. INT2 stated that the present operations model with the Switzerland's DM unit operates well. The received knowledge has been sufficient and has included the critical knowledge INT1 mentioned.

#### 5.5.2. DM Switzerland sales unit

Since the project knowledge sharing with the Switzerland's DM unit has worked well, INT2 suggested continuing it. The problem is that according to DM1 and DM2 they have changed their follow methods of target project due a merger with another ABB unit. Therefore the same operations model cannot continue. They suggested SharePoint as the project knowledge sharing tool. They already use SharePoint in their unit and it is suitable interface to share files and knowledge from both sides according to DM1. They do not like to send lists by email because they tend to get lost and the receiver cannot do any updates to it. Another option could be Team Space which is similar tool for sharing.

The tool should have a log file where the changes are logged. They also require face to face meetings at least once in every 6 months where the projects can be discussed more precise. Otherwise the communication can be maintained by email and telephone. DM2 added that it is important to maintain frequent communication where the project statuses and progress are discussed. In addition to the project knowledge they wanted to agree about escalation of project issues. If projects have issues or major problems they want to agree who the issues will be escalated.

### 5.5.3. FES Sweden

The present opportunity management system in the FES Sweden would be suitable for the project knowledge sharing. They use simple excel sheets for opportunity knowledge management and it includes all the critical knowledge that INT1 specified. According to PP1 the list can be filtered so that it can be shared it with the Transformers unit. PP1 hoped that the list could be talked through in meeting held once a quarter. Otherwise the updates can be can be discussed by telephone once in every two or three weeks. The meetings could be added to other events where the contact persons meet, since talking it through should take approximately one hour. In addition to the critical knowledge, PP1 required that the pipeline should improve the quotation time and also in some cases they want to set target prices. PP1 also demanded an evaluation time to see if the project is profitable. The evaluation time could be one year. After the evaluation time they want to see if the pipeline is productive for their perspective. The improvements they want to see are increasing hit rates or other direct results.

### 5.5.4. FES Finland

According to PP2 the present state in their unit regarding the opportunity management is unorganised. They do not assemble continuously opportunities, but assemble once in a quarter an excel list of targets. Therefore PP2 will create an excel sheet more precise and applicable for the opportunity pipeline. He added that producing and sharing the critical project knowledge will not be an issue. PP2 suggested that the tool should be a common database where both units can add files and comments. This would guarantee that both units will benefit of the operation model. According to PP2 SharePoint could be a functional tool since they wished a common database for the sharing activities. Although they use CCP, they do not use it for opportunity management. In the future it would be natural tool for it since it would be transparent for both units. Therefore it was decided that if the opportunity pipeline succeeds, CCP will be implement. Like other interviewees PP2 acknowledged the importance of continuous meetings. According to PP2 the time used in the meetings would not be used for nothing. In the meetings the delivery times and current situation of the factory could be also discussed because they can be key factors in some negotiations according to PP2.



#### 5.5.5. PS Finland sales unit

According to PS1 they would prefer using ProSales as project knowledge sharing tool, since it is their primary tendering tool already. Reporting through ProSales is easy and giving access to the Transformers contact person in ProSales will not be an issue. Requirement for using ProSales is that PS unit will add the opportunity knowledge to the system. The super user of ProSales in their unit can brief the contact person of Transformers unit about the ProSales functions. In addition to cooperation through ProSales, they agree that continuous meetings once a month will be necessary. Otherwise project knowledge can be updated by email or telephone. PS1 also discussed that their intention is to deepen the communication and relationship with the Transformers unit and this project is a good starting point for it.

## 6. DISCUSSION AND CONCLUSIONS

The purpose of this study was to develop an opportunity pipeline for ABB Transformers unit. In this study the opportunity pipeline was not considered as a tool but a development project which consists of operations model and internal strategy. The operations model is based on the answer of the first research question and the internal strategy is based on the answer of the second research question. The answers are formed through comparing the theoretical framework to the results of the empirical part. The research questions are following:

- 1. How to assemble and share relevant project knowledge about the sales opportunities between ABB units?**
  - What knowledge is required and what can be shared?
- 2. What factors of knowledge management strategy should be taken into account to support opportunity pipeline in ABB Transformers unit?**

### 6.1. Operations model for assembling and sharing project knowledge in ABB organisation

By the basis of the interviews it became evident that each external unit required a tailored operations model. Since the external units represented different sales environments and different working methods, each had their own motives to come in to the project. Besides motives, they all had own requirements which had to be taken into account when developing the operations model for them. Furthermore the external units managed their opportunities differently which meant that different tools should be used for sharing the knowledge.

Although each unit were developed a tailored operations model, the fundamentals were the same. The knowledge will be shared through an agreed system but also during meetings. All the interviewees highlighted the role of face to face meetings. The meetings were seen as an events where the projects can be discussed profoundly and share knowledge that is not possible through any system. The meetings were also seen as a chance to discuss general situations of the markets and the units. The meetings were required to be held

continuously and the frequency depended on the geographical location. Besides meetings, communicating weekly by telephone and email were seen necessary. Therefore the operations model has to include continuous meetings and more frequent communicating by telephone or email where the opportunities are discussed.

Based on the internal interviews each area manager of the Transformers unit will be responsible for implementing the opportunity pipeline among their own allocation areas. This means that the area managers will share and assemble the project knowledge and the sales & marketing manager will be responsible of managing it. The opportunities will be created in to the CCP tool as opportunities by area managers, since the system has such function. Through the CCP, reporting and managing the opportunities is more practical. Besides CCP, other used tools are Excel, ProSales and SharePoint. These three tools will be used for sharing and assembling the opportunity knowledge. SharePoint will be implemented with DM sales unit and FES Finland, Excel sheets will be at least in the beginning shared with FES Sweden. A pilot with PS sales division in Vaasa will be launched regarding the ProSales. The experiment will be started with them, because ProSales is their main tendering tool and they were willing to give an access to their projects in the ProSales. If the ProSales is seen as a useful tool it can be implemented with other significant ABB SI units.

One aim for the interviews was to define the critical knowledge what the Transformer unit needs and also what the external units can share. Based on the internal interview the required information is following:

- Transformer type/product family
- Approximately number of units and value
- Project schedule (time of delivery)
- End customer
- Customer chain
- Installation country
- (Additional comments)

On the grounds of the external interviews, sharing the required knowledge will not be a problem. Although all the identified information is not possible to add to CCP they are still valuable for the Transformers unit since the knowledge improves preparation and awareness of the markets.

The different phases of the sales process did not seem to have an influence on the knowledge acquisition but the knowledge was received unregularly. Therefore the phases when the external unit will acquire project knowledge do not follow the seven steps of sales. Furthermore the seven steps of sales are not possible to use as project statuses since the units do not clearly classify the projects to different phases. Also the Transformers unit's possibilities to influence before the RFQ were not dependent on the different phases of the sale, although the interviewees saw that the 7 steps of sales were mainly applicable. The influence possibilities that the interviewees saw were more participation to the customer meetings, technical consulting and product support as well as quality marketing materials. Also updated reference lists and deviations are valued by the external units. The area managers of the Transformers unit have to demand and ask more knowledge of the projects if the information is not corresponding to the identified critical knowledge.

Since the common opinion was that the opportunity pipeline should benefit all the parties involved, it is critical that the area managers follow the agreements. All the interviewees highlighted that that the cooperation should have positive results on their working. The requirements are unit specific, but if they are seen as useful, they can be implemented with other units also. FES Sweden required that the Transformers should send their quotations earlier than they sent now. They want to give target prices in some projects and they want to have an evaluation period regarding the continuation of the opportunity pipeline. The DM sales unit of Switzerland required that a person who the issues will be escalated should be agreed for each project. They also require that Transformer unit will share their knowledge regarding the end customers or projects they might be interested. FES Finland and PS were also interested of the knowledge Transformers unit has about the end customers and opportunity projects. Thus it is important that the area managers of the Transformers unit will be active to share their knowledge also, and not only collecting it from the external units.

In addition to the specific requirements, each unit wanted to have different indicators for the opportunity pipeline evaluation. Most definitely each unit will follow their own indicators alone, and therefore it is important to participate and continuously follow the development as partners. The partner thinking is important to keep in mind since all the units should benefit of the opportunity pipeline actions. To secure motivation of the external units' involvement to the operations model, it is essential to follow up and guarantee acceptable values in all the indicators. In addition to maintaining the motivation, it is important to get results of the pipeline to overcome the lack of absorptive and retentive capacity as a barrier. The agreed indicators are following:

- FES Sweden: hit rate improvement compared to previous similar projects
- DM sales unit: not specified
- FES Finland: indicators for foreseeing (pipeline projects share of total orders)
- PS sales unit: Quality of ProSales data and improvement of hit rate

Regardless of the indicators followed, the biggest factors for maintaining the motivations is to secure that all the units experience that their knowledge are important and the activities are effortless as possible.

Since sharing knowledge has many challenges, the knowledge barriers should be considered. The most influential barrier identified by the interviewees was motivation to share. Therefore creating positive results are important. Second and third most significant barrier discussed were lack of absorptive and retentive capacity. Thus the Transformer unit has to guarantee that CCP is a suitable opportunity knowledge tool and also show that the shared knowledge is valued and useful. Other knowledge barriers discussed were heavy relationship and too seldom updating. Because of these opinions the cooperation should be effortless but still frequent enough to maintain the accuracy of the knowledge.

#### 6.1.1 ProSales

ProSales is the primary tendering tool for ABB SIs, and in the Transformers unit it will be used for independent opportunity searching. A pilot with PS unit will be launched where its use will be monitored. The baseline is that PS unit will start adding opportunities for all the

components under the main projects. This allows the contact person of Transformers unit to perceive those PS projects that involves a transformer as a component. In the ProSales the user can see the defined critical knowledge of the projects and thus it is practical tool for opportunity searching. Another baseline is that PS will give an access to the contact person of Transformers unit to for their projects. This should not be an issue since they have already committed to this.

Since ProSales is mainly used for independent opportunity searching, the user has to be familiar with the system. The PS unit has agreed to give a briefing or training regarding its use. The area manager that will work with the PS unit will attend to this session. Also it is recommended that other area managers would attend to it. Besides searching the opportunities only in ProSales, the area managers should actively demand more knowledge about projects which information and opportunities are not properly inserted. It is expected that not all the opportunities will be inserted to the projects and therefore the area managers have to be initiative to demand more information.

The connection between CCP and ProSales will improve in the future since the interface between ProSales and CCP is developed by ABB IT system developers. There will be implemented a function to initiate a CCP tender from ProSales. The integration will avoid double entries of the projects, facilitate the follow up as well as facilitate the communication between PP and ABB SI sales units. Also sending quotations and RFQs by email will not be necessary since the all are inserted in the same system. This will improve security and reliability of the tendering process. The Transformers unit will need to follow the development of CCP closely and be active implementing new functions. The integration of the ProSales and CCP will be introduced to PS and FES Finland units, since it is also important to involve the external participants of the opportunity pipeline to the development.

#### 6.1.2 SharePoint

SharePoint will be implemented with Switzerland's DM sales unit and with Finland's FES unit. The platform allows sharing different types of files to accessed people. It also allows users updating files in the database and automatically updating the changes to other users.

Furthermore it will keep a log of changes made and therefore tracking them is easy. These features were all the requirements which DM1 suggested, and therefore it is applicable tool for project knowledge sharing.

Since DM1 discussed that they will start listing their top-5 projects, and that list will be used as an opportunity sharing list. The list will be uploaded to the database and updated when needed. The Transformers unit can share their own deviations or any files that are related to the projects or end customer and in that way supporting the DM unit. Thus the knowledge will be shared both ways. Own file/database shall be created for the top-5 projects and if required an own subfolders will be created under that for each project. The project specific files will be uploaded to the subfolders. Since SharePoint is not used in the Transformers sales department at present state, additional training is most certainly required of its use. The use of difference between ProSales and SharePoint are that SharePoint is a database/platform for sharing project knowledge whereas ProSales is tool for searching independently new opportunities. The opportunities found through them will be inserted to CCP.

## 6.2. Internal knowledge management strategy to support opportunity pipeline in ABB Transformers unit

Since the knowledge management strategy is created only for the Transformers unit, the internal interviews had most weight and especially the answers of INT1. However the topics were discussed also with the external interviewees to get more knowledge. The foundation of the knowledge management strategy for ABB Transformers is the three factors introduced in the theoretical frame of this study.

### 6.2.1. Top management support

None of the interviewees required directly support of the top management on BU or higher level, although few of them acknowledged that is good have their approval. Direct involvement of the top management was not seen necessary because a mutual agreement for cooperation was seen adequate. In this internal strategy by top management is meant the

executive group and especially the sales & marketing manager (INT1) of the Transformers unit.

Like in many projects, resources are the foundation for a successful project. Thus INT1 have to guarantee that the resources required are available when needed. Although the pipeline will not significantly increase the work load, the actions may be in the beginning tedious. After the implementation and transitional phase are passed, the actions when receiving the RFQ should be less time consuming. Also the meetings are important way to strengthen customer relationships and therefore valuable. The meetings should not require extra resources since they are to be scheduled together with other sales events.

There should be no need for additional rewarding for opportunity pipeline actions. The opportunity pipeline is not a meaning itself but a tool to achieve sales goals. Although the actions should not require rewarding, the actions should be assessed and taken as one aspect in employee appraisals. Continuous evaluation and development are worthwhile means to motivate employees.

Another feasible method to motivate users to knowledge initiatives is to highlight them in the mission and goals. In the Transformers unit the opportunity pipeline should be highlighted in the goals of the area managers. Since area managers have yearly sales targets, they should also set opportunity targets. This would mean that each sales manager should provide an agreed value of opportunities yearly to the pipeline. In addition to internal goals, area managers should agree common goals with external unit which could be bound to the agreed indicators. Mutually agreed goals will motivate both sides and steer the functions to desired direction.

One facet of top management support is to develop a system for knowledge management. The system should be easy to use, reliable and integrated into existing systems and processes. Thus CCP will be opportunity management system where the area managers add the opportunities and where INT1 manages them. Second tool is ProSales which is new tool in Transformers unit but used in ABB SI units. Since it is not used previously in the unit, its use will require attention and support. As ProSales, SharePoint is a new tool in the unit and therefore the same instructions apply to it. Furthermore a common SharePoint database will



be created with DM sales unit and if necessary with FES Finland. The top management has to guarantee that existing IT systems support the use of the tools and the accesses to required databases are granted.

By the basis of the interviews there is no need for modification of organisational structure to support the knowledge management. Since the opportunity pipeline is only an additional tool for achieving sales goals it will not affect to other departments' functions. Furthermore the opportunity pipeline is a tool for assembling knowledge which can be spread to other departments to improve their operations. Besides the sales department, the knowledge can be exploited in the design department and possibly in the production departments. The knowledge will be mainly spread through the executive group of the unit.

The last facet of top management support is legitimising the knowledge initiatives and activities. Together with the resources, legitimising might have most impact to the motivation of the area managers executing the opportunity activities. The actions, such as nurturing customer relations and searching new sales opportunities, are natural part of the sales work. Therefore implementation of the opportunity pipeline only brings a new dimension to the current sales tasks. Sales team have monthly meetings where they discuss through monthly sales and targets with a hot project list. One method to legitimise the opportunity actions is to discuss through the opportunity list during the meetings. This should emphasise the importance of the opportunity pipeline and also activate area managers continuously executing the opportunity functions. Also the legitimisation of the opportunity activities should be taken up in the BU level meetings by the executive group. This would improve the collaboration with the units in other divisions and also bring new knowledge of existing similar development projects and tools.

#### 6.2.2. Culture of organisational learning

The second factor of the knowledge management strategy which was dealt in this study is culture of organisational learning. Among the interviewees it was not considered as an important factor since opportunity pipeline is only a tool. However culture of organisational learning consists of aspects that should not be forgotten. The most important way to develop the culture is to provide training if necessary. The focus on the training should be

on the systems used, because based on the interviews the actions are natural part of the sales work. Also ProSales and SharePoint are not familiar systems in the unit. Regarding the ProSales, PS unit committed that they can brief the contact person of the unit in the ProSales use. Furthermore the opportunity functions of CCP are not presently known in the unit, thus every area manager should pass CCP training and get a certificate of its use. Also INT1 should pass the training since he has to know how to make reports and manage the opportunities in the system.

Organising additional communities of practice are not required. The area managers already form an unorganised group where they discuss topics related to their work. However regarding the culture of organisational learning, failures should be accepted but taken as a lesson. It is realistic to expect that the opportunity pipeline has a rough start and failure will be made. Decisive is that how the failures are handled and how the unit will maintain its commitment to the path chosen. Thus commitment will be crucial for executing the strategy and most of all to the opportunity pipeline itself.

### 6.2.3. Measurement

The third factor of the knowledge management strategy for the opportunity pipeline is measurement. Measurement is significant factors since without it, the development would be inaccurate. Development of the pipeline will be crucial since the tools and systems are changing and developing in ABB organisation constantly. Proper measurements guarantee that the right indicators are followed and decoded right. In this study measurement is divided into two parts; measurement of the actions of opportunity pipeline and measurement of the pipeline flow.

Measurement of the opportunity pipeline actions consists of measurement of its effects. The indicators to follow should be variation of hit rate and how many projects have been involved in the pipeline of all the orders. Measuring these values will be possible only after several months since it will be possible only after enough data has been collected. Variation of the hit rate should be compared to similar projects among the same product family. The value can be compared quarterly or even monthly to see the trend. Whereas the amount of opportunity projects of all the orders should be measured yearly. These values can be

measured together with the external units and also they can be used as common goals. The challenge will be that these indicators can be measured only after several months, whereas many of the users would like to see rapid results to maintain their motivation.

The second part of the measurement is the internal measure of the pipeline flow. Since the opportunity pipeline is totally new method, the optimal flow and size of it is hard to define accurately. A rough estimation of the pipeline size could be assumed by the basis of yearly net sales and existing hit rate. The optimal size of the opportunity pipeline could be calculated by formula; “yearly net sales x hit rate (%) = optimal size”. The problem is that all the opportunities should not and will not be added to the pipeline since only target projects and opportunities exceeding 100k EUR should be added to it. Also lead and opportunity knowledge is not available of all the projects. Furthermore all the external units are not involved in the opportunity pipeline, so it will not cover all the RFQs the unit receives. Therefore it is not applicable method to define the pipeline size and accurate definition is possible only after there are more results of the pipeline use. The optimal flow of the pipeline should be followed monthly during the sales department meetings. The area managers should provide agreed value of opportunities monthly, like they do now with sales target projects.

### 6.3. Conclusions

This study has developed the foundation for the opportunity pipeline by developing an operations model and internal knowledge management strategy. To summarize the operations model foundations, each area manager of the Transformers unit is responsible for the opportunity pipeline actions. They need to use tools and systems agreed with the external units and add the opportunities to the CCP. Besides the sharing tools and systems, regular meetings are crucial since the opportunity pipeline is not just project knowledge sharing through a tool or a system, but a chance to deepen collaboration and get involved into the customers processes. In addition to the meetings, communications has to be held regularly by telephone and email. Area managers of the Transformer units have to demand and ask for further information if the critical information is not received. They have to maintain the motivation of the external units to participate by securing acceptable values in

the indicators but also value the effort what other users do. Furthermore area managers should influence as much as possible to the sales by participating more to events where they meet customers, offer competent technical consulting and product support. Also the transformers unit should produce quality marketing materials with accurate and topical information. The used tools will be CCP, SharePoint and ProSales.

The internal knowledge management strategy consist of three main factors; top management support, culture of organisational learning and measurement. In this study top management support and measurement were more focused than the culture, although training and briefing of the systems will be required. Furthermore the failures along the path are expected but must be taken as a lesson. One part of the culture of organisational learning is commitment, which will be a key factor for the success and continuation of the opportunity pipeline. Although there will be failures the organisation must continue on with its strategy and not make decisions based on too short evaluation time.

The top management support consists of six facets introduced in the theoretical framework. None of the interviewees saw the influence of management higher than their own unit required. All the interviewees saw that mutual agreement for cooperation was adequate at this point. Therefore the internal strategy concerns mostly INT1 but also the executive group of the Transformers unit. Most influential facets were resources and legitimising the knowledge initiatives, also system was highlighted. The baseline is that there will be resources available when needed. The executive group should discuss about the project in their meetings in BU level which can lower the knowledge sharing barriers. Also it may facilitate implementing system updates and developments earlier. Despite the facets of top management support, the most important matter is the commitment the management.

The third factor of the strategy was measurement. Proper measurement will allow more effective use and more accurate development. The measurement was divided to two sections; measurement of pipeline activities and measurement of the pipeline flow. The chosen indicators for pipeline actions were variation of hit rate and the amount of involved opportunities of all the orders. These indicators can be measured internally but also together with external units. Getting sufficient results are crucial to maintain the motivation of external units. The measurement of the pipeline was related to its optimal size and flow.

Accurate size and flow can be defined only after there is enough project data in the pipeline.

## 7. SUMMARY

The aim of this study was to develop an opportunity pipeline for case company ABB Oy Transformers. The purpose of the developed opportunity pipeline is to search, assemble and share knowledge about opportunity projects for the Transformers unit. In this study the developed opportunity pipeline was not considered as a tool but a development project to implement a systematic opportunity management. The structure of this study was formed of two parts, theoretical framework and empirical study.

The theoretical framework was divided into two parts; sales process paradigm and knowledge management. The theoretical sales process part consisted of definition of different phases of the sale and of sales pipeline management. In this study a paradigm of the sale was divided into 7 phases. The traditional phases were introduced with updates that are more relevant in today's business environment. The different sales phases were studied since it was presumed that exacting project knowledge was dependent of the different sales phases. The sales pipeline management introduced the concept of the sales pipeline, and also its use and different modifications since the purpose of this study was to create an opportunity pipeline.

The theoretical knowledge management part consisted of definitions of essential concepts, creating a knowledge management strategy, knowledge sharing and knowledge sharing barriers. The essential concepts discussed the different forms of knowledge, conversion of knowledge and knowledge management itself. Creation of knowledge management strategy introduced three factors that support it; top management support, culture of organisational learning and measurement. The creation of knowledge management strategy part formed a foundation to the answer of the second research question of this study, since one goal was to define most influential factors to support the opportunity pipeline project. Thus an internal knowledge management strategy was created. Also knowledge sharing and its barriers were defined. The recognitions were important since it gave relevant answers to the first research question.

The two main theoretical entities were connected in the empirical part since one presumption was that the exacted knowledge was dependent of the different phases of the sales process. In the empirical part theme based interviews were conducted to 6 persons in

ABB organisation. The themes discussed were the sales process paradigm, knowledge management and their subtitles, present opportunity management as well as suggestions for opportunity pipeline implementation. Two of the interviews were conducted inside the ABB Oy transformers unit, and four of the interviews were conducted to external ABB sales units. The external units involved were sales units from Discrete Motion and Automation, Power Systems divisions as well as Front-End-Sales units from Finland and Sweden. The interviewed persons were identified as the key persons who manage sales opportunities in their own sales units.

The interviews were analysed first each as an own data set by outlining the main points discussed, and then comparing the discussions and finding similarities between them. One perspective was to reflect the external discussions with the internal discussions since this study is written from the Transformers' point of view. The findings were categorised to five subcategories; necessity of opportunity pipeline and present opportunity management, sales process, knowledge management strategy, knowledge sharing barriers as well as suggested actions regarding the opportunity pipeline. The analysis of the interviews gave two outcomes, operations model for the opportunity pipeline and an internal strategy for knowledge management.

The two outcomes were defined to answer to the research questions of this study. The first outcome, operations model consists of directions which each area manager of the Transformers should follow. The operations model is partly applicable for all the external units but also unit specific instructions are introduced. In addition, instructions for use of ProSales and SharePoint are presented. The second outcome was internal knowledge management strategy, which consisted of three factors; top management support, culture of organisational learning and measurement. The purpose of the internal strategy is not only to support the pipeline management and its actions, but also commit the unit the operation model itself.

The goals set for the study were achieved since an operation model and an internal strategy were created. The outcomes were formed to answer to the main research questions. The two outcomes were developed by the basis of the interviews conducted and the theoretical part of this study. The covered theory supported the empirical part sufficiently, although the

sales process part could have had more focus on the knowledge management in different sales process phases. The definition of the main theoretical entities was a challenge because this was a case study and therefore there were no preliminary knowledge about the development of the opportunity pipeline.

The results of this study are only applicable to the Transformer unit, since this was a case study and written from its point of view. The results cannot be directly generalised to other ABB units although the basics should be the same. Furthermore these results are not applicable outside ABB organisation, although they might describe similar multinational corporations that have wide portfolio and matrix organisation. The outcomes of this study were operations models for pipeline activities and an internal knowledge management strategy for opportunity pipeline. The contribution of these outcomes and this study was to launch and agree about the cooperation with external units and to establish a foundation for the opportunity pipeline. The operations model and internal knowledge management strategy forms the foundation of the opportunity pipeline.

Since this study focused on the opportunity pipeline creation, there are now follow up results of its use and operation. Thus further studies should be conducted about the pipeline's use to get results of its influence on overall operations and other functions. The motive of creating an opportunity pipeline was to improve resource allocation, forecasting and also awareness of the markets. Thus its impact to those subjects should be studied. Also the optimal size and flow of the opportunity pipeline should be defined when there is sufficient amount of data available of its use and projects in the pipeline. It is essential to develop the opportunity pipeline continuously since new systems and tools are implemented in the ABB organisation. Also the tools and systems used vary significantly between the ABB divisions. The systems used for assembling and sharing the project knowledge should also be studied more profoundly since this study focused on the strategy and operations models.



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## **APPENDIX 1, Themes of the interviews**

### Necessity of the opportunity pipeline

- The competitiveness of the tenders
- Are the tenders sent on time

### The management of the project opportunities

### Sales process

- What different phases of the sale can be distinguished?
- What information/knowledge can be exacted in different sales phases?
- How can the Transformers unit influence to the sales process before receiving the RFQ?

### Possibilities to share opportunity knowledge

- Critical information: product type/family
- Approximately total value
- Schedule of the project

Extra: End customer, other bidders, installation country, and other ABB units involved

### Best ways to share the knowledge

- Meetings
- Excel, CCP, SharePoint, ProSales
- Frequency

### Knowledge management strategy

- Top management support
- Culture of organisational learning
- Measurement

### Knowledge sharing barriers



- Knowledge is not proven
- Causal ambiguity
- Motivation to share
- Untrusted source
- Lack of absorptive capacity
- Lack of retentive capacity
- Organisational structure
- Heavy relationship

## **APPENDIX 2, Covering letter for external interviewees**

Dear interviewee

I study industrial management in University of Vaasa and I am writing my master's thesis for ABB Oy, Transformers. The working name is "Opportunity Pipeline". The purpose of the opportunity pipeline is that by gathering and exploiting project information already before receiving the RFQ, the unit would be able to foresee and prepare better quotations for target-status RFQs. If some project information is received earlier than receiving the RFQ the unit is able to allocate the quotation resources better, which will lead to more competitive quotations. When the workload of designers is allocated more efficient, they have more time to seek cost-efficient solutions. Also the knowledge about the customer chain and other parties involved, increases synergy and cooperation between ABB units. Besides, the sales forecasting is more accurate with better knowledge about the opportunities.

My thesis has two goals. First goal is to create an internal strategy for ABB Oy, Transformers for gathering and managing information and knowledge of target-projects. Second goal is to design an operations model for gathering and sharing target-project information with ABB system integrators and FES-units. The project information, which is the subject of interest, is the basic information about the target-projects before the official RFQ. To make the predictability possible ABB Oy, Transformers is interested to foresee the target-projects around 6 months before the RFQ. The most critical information is the transformer type, approximately number of units, the total value and delivery time.

There is already similar systems knowledge sharing models in use among ABB organisation. For example the Transformers unit has had fruitful cooperation regarding the project knowledge sharing.

In order to achieve the goals set for the thesis we would like to ask your cooperation with the project. I would like to enquire a possibility for a meeting with you, where I would introduce the project in more detail and would perform an interview. The interview would

be semi-structured theme based meeting where we would also discuss about the development of knowledge sharing process.

Yours faithfully,

Jaakko Salo

University of Vaasa, Industrial management