



UNIVERSITY OF GOTHENBURG

# **Employee competence development through information tools. ASCOM case study**

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## **Abstract**

*Information is being considered as an asset in the organizational environment. Firms strive to develop the effective information sharing strategy. The well formulated information strategy facilitates employees across the organization to build their competency, but also helps the firm to achieve their strategic goals. The information sharing becomes a prominent challenge if only focused on transmitting documents. Contrary, it should be well structured and accessible by all employees in order to achieve enterprise goals. Therefore, this paper investigates the way in which the competence of different target groups should be built through information tools. The working target groups addressed are i.e. sales and technicians at Ascom Wireless Solutions. The online tool for survey together with series of interviews is used as a methodology to identify the main channels for building competence and the limitations of these information tools. The main sources are Extranet, Technical reference library (TRL), Trainings and informal communication. In order for the users to obtain the needed competence, the identified channels have to improve the content of the information as well as the search possibilities that the sources provide. Therefore, the paper concludes with the proposed suggestions for the betterment of Ascom information strategy in order to build employee competence.*

**Key words:** Information strategy, Information sharing, Information channels, Information system, Competence

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# 1. Introduction

Information can be seen as one of the most important factors for the well-functioning of any organization. According to Choo et al. (2005) the use of information can result in a modification of the user's competencies. Consequently, information use in organizations incorporates the absorption and understanding of information in order to manage uncertainties, make decisions and negotiate situations or fix unsolved problems.

Nowadays, companies are growing aware of the importance of transmitting the right information at the right time in order to ensure that different groups can successfully access it. Furthermore, organizations store large quantities of information so that employees have the opportunity to expand their knowledge in various spheres of the enterprise. Information creators try to achieve the desired levels of information sharing as well as to create an eligible climate for users to utilize information for task completion or competence building (Barua et al., 2007). The producers and receivers are the key factors that influence information sharing, in this way making it a unique process (Andersen et al., 2004). The receivers can be represented by different types of employees which hold access to information and require it for the performance of their daily work (O'Brien et al., 2007). Hence, the manner in which the company produces, shares and uses information has become one of its most essential competitive weapons (Petri, 2001).

For information share to be possible, organizations have to possess an effective information system. Ward et al. (2002) explains that the information system is the process through which employees in organizations use technology. They collect, process, accumulate, utilize and diffuse information. The development of a suitable information system can be crucial for the existence of an organization, in terms of sales, efficiency and projected image.

In addition, time is a valuable aspect and on account of this, every step of the process of transmitting information should be accurate. Thus, if the information that is received is not beneficial or not comprehensible, it may not have the expected outcomes. Further research on this issue was done by Ward et al. (2006) who states that lacking an information system can lead to disagreements between co-workers, improper administration of information and unfit prioritization of work in different projects (Ward et al., 2006). An inappropriate use or absence of information can lead to competence stagnation and organization efficiency recession.

It has been found that the source of the majority of organizational problems is inadequate information (Harris, 2002). As a consequence, the employees' inappropriate information can result in unfavorable performance of tasks. Thus, information is closely entwined with competence building. Herling et al. (2000) defines competence as a set of knowledge and skills, which lead to a certain job efficiency. However, it is not enough to receive an amount of documentation or news in order to gain competence. According to Guallino (2008), information should be internalized and understood for it to be used. Researchers also state that the triumph of an organization over time is based on its capability to create employee competence (Herling et al., 2000).

This paper's main objective is to propose a way in which organization can create, publish, share user documentation and transmit information in the future in order to ensure that target groups have instant access to precise and essential information. The study is based on the case study of Ascom Wireless solutions in Gothenburg, Sweden. By investigating the way the

selected target groups (sales and technicians) receive information and how it helps in competence development, researchers were able to reveal problems in the current company information system. Therefore, the authors provide solutions and improvements to the identified problems within the information system.

## ***1.1 Background***

Collecting, accumulating, transferring, and using information are relevant factors in organizational processes (Feldman et al., 1981). Each unit in the organization must be aware of the information processes and perceive them as a necessity. In order to transmit information in a proper manner, strategy is required. Drawing on Merali et al. (2012), information strategy came to light in the 1980s when system information strategy literature was highly focused on gaining mutual acknowledgement of the operative significance of information systems and incorporating systems information strategy in the joint administration work plan. Harvard Business Review was the first article which emphasized a focus on information systems, incorporating them internally and externally, as well as a concern for information functioning in strenuous business games. Furthermore, the 1990s were recognized as an era of transformation, influencing information strategies in the sense that IT advanced and the electronic marketplace started to be used for creating efficiency and competitiveness. In the 2000s, network dynamics were introduced and considered as an important component of strategic information system design which is capable of enhancing domain knowledge.

Furthermore, Ward et al. (2006) states that information system strategy is perceived as thinking systematically and prearranging systems for the efficient sustained handling of information. Moreover, information strategy has a focus on the expansion of eligible resources for achieving effective and timely identification of information. It is imperative that information targets a specific user group in order to build competence in the appropriate way. There are many factors regarding information system strategy that can lead an organization to regression. The factors that can interfere with information strategy success within an organization are the information channels and information quality.

The sources utilized for the share of information can be called channels. Harris (2002) states that channels are authorized by organizations and applied in order to form the stream of information and communication. Channels can be regarded as internal or external software, e-mail or face-to-face communication. Organizations can have different perspectives regarding the inappropriate usage of provided channels. The weak quality or limited access of a channel may lead to organization productivity decrease and decline in performance. The unsuitable adaptation of information channels to the organizational context can create complications in the information sharing process and information usage.

Information quality is another factor that can trigger information system strategy success. Poor quality of information is identified as unsatisfactory reports and incomplete or inaccurate data (Joshi et al., 2000). In accordance with the quality of the information, Ward et al. (2006) outlines further consequences such as increased cost in rectifying errors, dissatisfied consumers or lack of reliability. Regarding the information users within the organization, information quality may predetermine the degree to which data contributes to competence development. Problems gained due to information quality may also affect the efficiency of tasks performance. Drawing on Joshi et al. (2000), poor quality of information products may trigger additional work in order to rectify information errors or incompleteness.

Competence in the organizational context is one of the employee features influenced by information. Guallino et al. (2008) explains that competence is defined as the capability to maintain harmonized inoculation of tangible and intangible assets in a way that supports the organization to attain its objectives. In the same way, in order to sustain competence building, the organization should have the stored information updated constantly. The process of retrieving and assimilating information by the users is part of the competence development. The reasons that can affect this process are different expectancies, knowledge level, and tasks specifications of the information receivers. Hence, it can be said that information systems play an important role for competence building, which should be treated as valuable parts of an organization.

## ***1.2 Previous research work***

Previous research concerning the process of information sharing, information systems and employees' competence were identified. However, the researchers' perception of these issues differs. Heinrichs et al.'s (2004) research focuses on how information tools together with decision making models ameliorate the utilization of information and increase competence. Study results show that information tools and decision making models are the main support for information creators in organizations, who are thus able to achieve the timely delivery of information and reach efficient results. Heinrichs et al. (2004) states that these tools and models allow workers to provide precise and accurate information, which contributes to organizational growth. Researchers deliver a solution in order to gain a successful process existence. Therefore, the study suggests focusing on technology investments and on trainings for information developers. In a simpler statement, the core of successful information sharing and organizational competence building is to invest in information developers' trainings and technology tools.

Another research done by Bacha (2012) evaluates how the information system supports the employees' performances and organizational core competence. The researcher found that the information system has an important role in the organization members' tasks performances. The technical skills of the information system staff have an impact on the outcomes of organization. In order to construct a successful information system the producers need to have enough competence. Thus, whenever the information systems have a high quality, the users gain satisfaction and perform their tasks professionally. Bacha (2012) explains that, if the user can be involved in the information system's development process, both his and the organization's benefits can be achieved. The investigator noted that the users of the information system need to participate in trainings in order for the information system to be used in a proper manner and to support the employees' task completion.

Even though the presented studies bring to light many relevant factors that can affect information transfer with the purpose of raising competence in organizations either positively or negatively, previous research lacks issues that are approached in the present paper. First of all, in order to increase the quality of task completion, the guidelines for the way in which information needs to be shared should be specific, depending on different tools. Second, the presented studies only specify the benefits of information tools, overlooking the influence of information quality. The previous researches do not provide details of the solutions of how information needs to be shared within different channels in order to build employee competence. Moreover, the studies do not have the channels and information division approach concerning distinct target groups.

### ***1.3 Problem statement***

Information is an accepted phenomenon in today's organizations. It is a matter that companies come in contact with every single day through internal or external software, emails, face-to-face interactions or even through the telephone. Boddy et al. (2005) claims that personnel in organizations are able to carry out tasks efficiently if they obtain precise information at the right time. The author (Boddy et al., 2005) highlights that the significance of information systems increased considerably.

Information system maintenance and fruitful usability is one of the main concerns of the organizational environment. In order to establish an appropriate information system, the user's expectations as well as the most suitable channels required for the user's daily work, need to be considered. Harris et al. (2002) states that information is a competitive instrument which can be exploited through the employment of information technologies. Furthermore, the author (Harris et al., 2002) provides compelling arguments regarding the effect of technologies such as electronic transmissions which can increase communication pace, uphold collaboration and maintain either strong or weak connections with the headquarters. Drawing on Petri (2001), numerous employees in different departments rely on computer sources for completing work related tasks. Connected with the technology usage for information share, management problems can emerge. One example provided by Petri (2001) states that users had to get more awareness of what type of IT collaboration they required and how to monitor that the IT suppliers provide what was promised. Mutual comprehension must be a requisite of well-functioning.

Since information channels are adapted to certain target users, information quality is another competitive advantage that should be under supervision constantly. "Quality is the totality of features and characteristics of a product or services that bears on its ability to satisfy given needs" (Eppler 2003, p.17). Providing the context of what is intended by quality, it can be affirmed that this is an inherent factor for productive organizational performance. Examples of problems that information quality can induce are: ambiguity, lack of consistency, disarrangement in document structure, limited accessibility, or details deficiency (Eppler, 2003).

All in all, the issues discussed lead to the fact that companies demand a precise, efficient, professional and flexible information system strategy. This can assure the increase of employee productivity, cohesive collaboration and competence expansion. In addition to this, employers have the ability to investigate which unique method to follow in the information share process in order increase and maximize the target groups' competence.

### ***1.4 Purpose and research questions***

Numerous researchers consider that competence building and business advantage can only be gained if employees have access to information (Herling et al., 2000). Having this statement in mind, the purpose of this study is to identify and describe critical factors for developing competence. Based on the analysis of the results, the main objective is to create a suggestion describing how an organization can structure, publish and distribute user information in the future, to assure that different user categories have rapid access to accurate and relevant information. Therefore, the current study will address the following research question:



*How to build the competence of different target groups in an organization with the help of information and information tools?*

### ***1.5 Expected research contribution***

The current study reveals how information is shared in a multinational company using different channels and how employees can build their competence with the help of information. It also displays gaps in the information transmission processes and the content of information within an organization. The current research provides solutions and suggestions for improving the issues that were found. Hence, the proposed solutions to the problems are one of the several positive factors that can be used for future developments in industry especially when speaking of information sharing. Moreover, the research investigations can contribute in revealing recommendations of how enterprises can increase competence nowadays.

### ***1.6 Delimitations***

One of the research limitations is that this investigation is a case study and may not be applicable to a general organizational context. The problems regarding information quality and information transfer are applied to certain target groups (sales and technicians). Likewise, the knowledge level and educational background of employees can vary, which can affect the information applicability in different companies. Hence, findings might be unhandy for other cases. It is considered that information share and absorption is perceived in different manners. That is the reason for which the current research may not be adequate to other organizational groups. Another limitation noted is that the authors cannot ensure the success of all the provided solutions for information sharing due to the technological aspects that need to be implemented.

### ***1.7 Disposition of the paper***

The thesis consists of six parts. The first chapter is the introduction, which is composed of the background, the previous research works that provide a brief overview of what has been approached thus far and the problem statement presentation. The same chapter presents the research questions that the study intends to answer through data collection as well as the aim of the study, expected research contribution, delimitations and significant definitions. Chapter two regards the methods being used in this study, followed by the description of the research strategy, the approach, data sources and research quality. Chapter three covers the theoretical framework that is used for analyzing the data gathered throughout the research process. Chapter four illustrates the results of the research, through charts and text. The fifth chapter contains the analysis of the results based upon the collected data. In the same chapter the authors introduce the recommendations for future improvements that can be made in order to reach an effective information share. The last chapter, number six, presents the conclusion that answers the research question of the study and future research ideas.

### ***1.8 Definitions***

*Information* - Information can be described as all sources that a person takes use of in order to achieve understanding (Eppler, 2003).

*Information system-* according to O'Brien et al. (2007) an information system is a collection of personnel, processes and stocks that gathers, transfers and circulates information in organization.

*Information system strategy-* Information system strategy is an organizational prospect and planning about investments, arrangements, usage and management of information systems (Chen et al., 2010).

*Information channel-* Is considered to be represented by any intermediary by whom information is transmitted from sender to receiver (Swanson, 1987).

*Information quality-* Qualitative information is achieved when the information fulfills the demands and expectations of its creators, producers and users (Eppler, 2003).

*Competence-* Is identified as the wholeness of intellectual resources, proficiency, intelligence and approaches which are requisite for the human being to perform tasks efficiently in a certain occupational environment (Savanevičienė et al., 2008).

## **2. Methodology**

In the methodology section the authors will introduce and discuss the research strategy, research approach and methods and motivate their relevance in relation to the present study.

### ***2.1 The Research Strategy - Case Study***

The research strategy is a key element for any investigation. A researcher must analyze his options and select the strategy that is most suitable in relation to the question that he is trying to answer. If the choice is not proper it can lead to undesirable results. Saunders et al. (2003) identified several types of research strategies, some examples being: experiment, survey, case study and action research. Previous investigations indicate that case studies are applicable when exploring the usage of knowledge as this is a theme that cannot be isolated from its context (Yin, 1981). Due to the fact that the current investigation seeks to find details about the transfer and utilization of information, the case study was chosen as a research method. "A case study examines a phenomenon in its natural setting employing multiple methods of data collection to gather information from one or a few entities" (Benbasat et al., 1987, p.370). Woodside (2010) argues that case studies are adequate for the purposes of describing, explaining, predicting, and controlling. The descriptive study is characterized by matters that seek to reply to "who", "what", and "how" questions, while the explanatory study answers "why" questions. The prediction case study foretells future trends concerning the studied problem, while the control type tries to affect attitudes happening in the case study. It can be said that the present investigation is descriptive, because it answers a "how" question. The research investigates the way in which information can be transmitted efficiently within an organization. Aside from the identification of the right method, a decision about using a single case or multiple case studies had to be made. Benbasat (1987) states that a descriptive case study is valid to analyze a single case, as well as multiple cases. In the situation of the current research, a single case study is suitable due to the uniqueness of the case. Even though the issue of information strategy has been investigated before, every company has a distinct working system. That is why every case can be different, and results can vary.

The case study's purpose of answering "how" questions, as well as its applicability when it comes to knowledge investigation, constitute main reasons for the choice of this research method. The company's information strategy can provide insight to a system that was not analyzed before, which brings novelty and originality to the research.

### ***2.2 Reason for choice of case study - Ascom***

In the process of identifying a suitable case, companies with a representative in Gothenburg were considered. Ascom Wireless Solutions was found to be the best option in relation to the research idea. Ascom is a large company which provides mission critical communication solutions in multiple areas, being one of the market leaders in the hospital segment. ([www.ascom.com](http://www.ascom.com))

One of the main reasons that made Ascom the subject of this research is that it is a multinational company with subsidiaries in over seventeen countries. This means that employees can have difficulties when transferring information and misunderstandings can occur when communicating. An international company requires a well-developed information strategy in order to function in a productive and developing manner. Ascom brings a new

perspective and represents a good source for analyzing the information sharing process and the way in which information is used in a company. Another reason behind the choice is that, due to the multicultural aspect of Ascom, the current study can be applied to many countries, not only to Sweden. It provides the possibility of getting an insight in the processes of sharing information and in how different people build competence on this information.

### ***2.3 The research approach***

The next step after selecting a proper research strategy is to determine the approach the investigation will take. In the previous studies conducted, two types of research approaches were found: inductive and deductive (Saunders et al., 2003). Thomas (2006) claims that the aim of the inductive approach is to eliminate the limitations of the theory and to enable results to arise from data. On the other hand, the deductive approach starts from theory, the data only helping to prove if the theory is correct or incorrect (Treadwell, 2011). Furthermore, Saunders et al. (2003) illustrate a comparison between the two types of approaches (inductive and deductive) regarding the data collection process. He states that the inductive approach is carried out by gathering qualitative data, while the deductive approach is done by quantitative data. The difference between the two types of data is that qualitative data is conveyed by words and analyzed by concepts while quantitative data originates from numbers and it is analyzed through diagrams.

It cannot be said that the current investigation has an inductive or a deductive approach. Even though the research started from a well formulated theory, due to the fact that it presents both qualitative and quantitative data, it can be recognized as a combination between the deductive and the inductive approach. Saunders et al. (2003) acknowledge the combination approach and recognize it as beneficial for research.

### ***2.4 Research methods***

One of the most important parts of any investigation is the selection of the research method. The method should provide the researcher with the means to obtain relevant data concerning the studied subject. Brannen (2012) identified two different types of methods: quantitative and qualitative. The author speaks about quantitative methods as defined by numbers and counting. Qualitative research, on the other hand, is based on the participants' beliefs and happenings which are translated into significant results.

Having in mind that the purpose of this research is to find the way in which information is transferred and how it helps in competence building, it was concluded that both types of methods are to be used. The quantitative method will help in acquiring a general view of the information transfer within the organization. Additionally, the qualitative method will enhance our understanding of competence building and provide a picture of the participants' expectancies in the future. A combination of both methods also gives the ability to analyze the issue from different angles. Treadwall (2011) mentions the use of a mixture between quantitative and qualitative methods. He labels this process as triangulation and states it is an advantageous way to search for the needed results.

## ***2.5 Data sources***

Saunders et al. (2003) claim that there are two types of data sources that can be used for conducting a research. Primary data is the first source, which represents new data that has been gathered specifically for a certain investigation. Secondary data is another source, which is constituted by results from previous researches, books, articles, and so on.

In the current paper, the authors utilize primary data, collected through two interviews and one questionnaire, as well as secondary data from previous articles and books. The reason for the choice of source is that the aim of this investigation is to convey an image of the present way of sharing information and a future vision of how information should be shared. The secondary data can create the big picture and provide a starting point, while the primary data is the basis of the case study.

### *Primary data*

With regard to the primary data collection, two interviews and a questionnaire were conducted in order to get a clear view of the problem addressed. The purpose of the first interview was to identify the basic issues considered when creating a document. The next step was to transmit the questionnaire which provides a helicopter view of the main problems identified in the current systems. The last step was the second interview, conducted with the objective of gaining in depth knowledge of the difficulties and possible solutions for a better-working information system.

### *Questionnaire*

The questionnaire was created in order to identify the main trends, problems and dissatisfactions with the current way of transmitting information. A questionnaire is defined as the procedure by which several people respond to the same questions which are arranged in the same order (Saunders et al., 2003). Bethlehem et al. (2012) argue that questionnaires can be performed in several ways: by using paper forms, telephone, face to face, email, or transmitted through a website. For the present research, the web questionnaire was chosen because it is believed that it gives fast access to information from different parts of the company. It is also a suitable tool due to its characteristic of gathering a high amount of responses in a short time. Benefits of the web questionnaire have also been mentioned by Bethlehem et al. (2012) who specify that online surveys are easy to use and provide fast results with a low cost.

The online questionnaire consists of multiple choice questions, open questions and ranking questions. Treadwell (2011) defined multiple choice questions as questions which offer the respondents the possibility to choose one or several answers from a provided list of answers. The participants were given these options, in the following manner: “please check one answer” or “please check as many answers as applied”. Open questions on the other hand, enable the respondents to formulate answers in their own way (Saunders et al., 2003). The ability to express one’s point of view in open questions can provide undiscovered notions and factors. The last type, ranking questions, allow the respondents to rate the object that is presented (Saunders et al., 2003). This helps in identifying which are the most useful objects. The questionnaire answers were analyzed by using the SPSS tool due to the possibilities and accurate way of calculating that it provides. Based on the numbers obtained using the SPSS

tool, some charts were created using Microsoft Excel in order to obtain a better and clearer representation.

The *structure of the questionnaire* was created in accordance with the chosen theories for the analysis. The purpose is to get a general idea of the current way of sharing information and building competence in the organization, which will be deepened by the second interview. For this, five major parts were created. Firstly, the researchers started with background questions which reveal information about the respondent such as: country, job title and segments with which he/she is working. Secondly, respondents were asked to mention their main tasks and the competencies needed for the performance of these tasks. In this section, further questions about the respondent's competence were required. This part is essential because it identifies main competencies which will be further addressed during an interview. The questionnaire continued by referring to the channels employees use to get information. Several options of answering were provided, as well as the possibility to add other sources that people might use. This section aims to reveal the most used and least used channels, as well as their helpfulness for the target groups' competence building. The last two parts of the questionnaire regard the Extranet, which is considered the main tool for providing information within the company. Employees were questioned about the quality of the tool (Extranet) and the quality of the information that can be found on this page. As a consequence, the answers should reveal whether the tool is reliable and whether it is possible to build competence by using it.

### *Interviews*

The interview was defined by Lindlof (1995) as an interaction between two persons, where the interviewer supports the respondent to share his beliefs. The author (Lindlof, 1995) states that interviews are appropriate for comprehending in a better way the attitudes of an individual, as well as for noticing facts that cannot be seen otherwise. According to Treadwall (2011) there are three types of interviews that can be detected. The first type is structured interviews, during which the questions are well known and followed. The second type is semi structured interviews, which contains a set of questions, but allows the interviewer to change or add other questions during the discussion. The third, and last type, are the unstructured interviews, which imply that the flow of the conversation is dependent on the respondent, only some broad questions being asked in the beginning. For the current research, both interviews conducted were semi-structured. It is believed that this type of interviews are best suited to the purpose of this paper because it allows the authors to discover the necessary answers based on a set of questions, but also having the possibility to tackle different problems that might arise during the discussion.

The questions addressed during the *first session of interviews* were established and arranged with the purpose of revealing the factors which influence the way information is produced and transferred to the target groups. Five different themes were developed, which are explained as follows. The first theme consists of general questions about the respondent's field of work. Some examples could be the types of information produced and the target groups to which the information is addressed. This section helps the interview opening and provides details that allow the researchers to place the respondents in categories and determine further questions to be asked. The second theme regards the structure and quality of the documentation. The way in which information is developed and organized influences in a considerable manner the way the document is further understood by the users. This section is valuable because it gives insight on the issues information producers take into consideration when creating documents. The third theme is channels or systems. Since one of the main interests of this research is to

find out how target groups receive information, the channels play a significant role. From this section the authors are able to find out what are the most used means of transmitting documentation and the advantages of these means. The fourth category used in the interview was “communication with target groups”. The questions in this part referred to the communication between target groups and the producers of information that takes place before creating a document. Another aspect was the possibilities of getting feedback on information from the target groups. The last part of the interview seeks to address the competence issue. It is interesting to have this part in the research because it provides knowledge about the time that information producers spend on building competence. The time used for learning about products can directly influence the quality of the written documents.

<b>Title</b>	<b>Date of interview</b>	<b>Time of interview</b>	<b>Place of interview</b>	<b>Duration of interview</b>
International trainer	2013-03-20	14:00 - 14:30	Ascom AB Göteborg	30 Minutes
User documentation manager, R&D	2013-03-20	15:00 - 15:20	Ascom AB Göteborg	20 Minutes
Technical documentation engineer, R&D	2013-03-25	10:00 - 10:30	Ascom AB Göteborg	30 Minutes
International trainer	2013-03-25	15:00 - 15:30	Ascom AB Göteborg	30 Minutes
International trainer	2013-03-25	15:45 - 16:15	Ascom AB Göteborg	30 Minutes
International trainer	2013-03-26	10:00 - 10:30	Ascom AB Göteborg	30 Minutes
International trainer	2013-03-26	14:00 - 15:20	Ascom AB Göteborg	80 Minutes
Interaction design engineer, R&D	2013-03-28	11:00 - 11:30	Ascom AB Göteborg	30 Minutes
Product marketing manager	2013-03-28	15:00 - 15:30	Skype video conference	30 Minutes
Technical documentation engineer, R&D	2013-04-02	10:00 - 10:40	Ascom AB Göteborg	40 Minutes

Table 1 – Interview participants that are responsible for developing information

*The second interview* was constructed as an extension of the questionnaire, yet having a focus on the problems and future view of the target groups (sales and technicians). The themes followed the same path, containing questions about the channels from where target groups usually get information, the quality of these channels and the problems that they face during a work day. The part that was added to this interview, and constitutes the most important side of this research is the change that employees would like to have in the current way of getting information. These are suggestions about improvements of the platforms (channels) used at the moment and improvements of the information the platforms contain.

<b>Title</b>	<b>Date of interview</b>	<b>Time of interview</b>	<b>Place of interview</b>	<b>Duration of interview</b>
Project support engineer	2013-04-29	08:00 - 08:25	Ascom AB Netherlands	25 Minutes
Project support engineer	2013-04-29	08:30 - 09:00	Ascom AB Netherlands	20 Minutes
Project support engineer	2013-04-29	10:00 - 11:00	Ascom AB Netherlands	60 Minutes
Project support engineer	2013-04-29	11:10 - 11:35	Ascom AB Netherlands	25 Minutes
Project manager	2013-04-30	14:00 - 14:43	Ascom AB Sweden	43 Minutes
Portfolio manager	2013-05-01	10:00 - 11:10	Ascom AB Denmark	70 Minutes
Marketing manager	2013-05-01	12:30 - 13:20	Ascom AB Denmark	60 Minutes
Technician	2013-05-01	13:30 - 14:55	Ascom AB Denmark	25 Minutes
Account Manager	2013-05-01	15:10 - 15:30	Ascom AB Denmark	20 Minutes
System design engineer	2013-05-03	09:00 - 09:44	Ascom AB Norway	44 Minutes
Project manager	2013-05-03	10:00 - 10:53	Ascom AB Norway	53 Minutes
Product manager	2013-05-03	11:00 - 11:25	Ascom AB Norway	25 Minutes
Channel manager in sales	2013-05-03	12:30 - 13:00	Ascom AB Norway	30 Minutes
Technician	2013-05-03	13:05 - 13:35	Ascom AB Norway	30 Minutes

Table 2 – Interview participants from the two target groups: Sales and Technicians

### *Choice of respondents*

In order to make sure that relevant results are to be achieved, the choice of the respondents represents an essential part of the research. The parties who act as respondents should be directly involved in the investigated problem. Woodside (2010) names these persons as key informants. Furthermore he states that they represent parts of categories that hold knowledge on the problem which is researched.

The purpose of the *first interview* was to get knowledge about the way in which information is produced. For this to be possible, several people that work with the creation of different documentation were contacted. From the training team, five international trainers answered the interview. Their participation is valuable because they produce the materials used in online and face-to-face trainings. The assistance of the research and development (R&D) employees is also important because they are involved in the product development process, and they are the main creators of information. The input from this department was of four participants. The last team contacted was marketing, obtaining one response. Marketing brings value to the research due to the possibility of getting the opinion of the main three



departments that produce different types of information in the company. In total, there were ten participants who responded to the first interview.

The *second interview* involved the two target groups, sales and technicians, in order to get a better understanding of the way in which they get information and the problems that they encounter. For this interview, the authors chose team leaders and managers as well as field technicians with the purpose of having a wide view of the problems at different levels within the company. The final participant number for this interview was of 14 employees.

An important part of the research was the *online questionnaire*. As the purpose was to gain a broad view of the information share, two selected target groups from different countries were addressed. The target groups represent the most important parts in a customer project and they are divided into sales and technicians. For this part of the research, the participants were not selected individually, seeing that the result was going to be general. The total sample was of 47 respondents.

### *Literature review*

Literature review represents the first step of this research. Lindlof (1995) argues that literature has a significant and useful role when projecting an investigation. He states that before starting a study, the researcher must be acquainted with the domain of the problem. Domain knowledge is gained by studying different types of literature. Another advantage of literature is that it provides awareness of theories and strategies that can be used for solving the problem.

The literature that was gathered for the current research is developed mostly in the area of information sharing in organizations, information strategy and competence. During the research, the authors kept updating and refining the literature in relation to the research questions. The main sources for gathering information were the library of The University of Gothenburg and Chalmers. Online sources were also used for collecting journals and articles.

The illustrated scheme represents the methods used in this research.

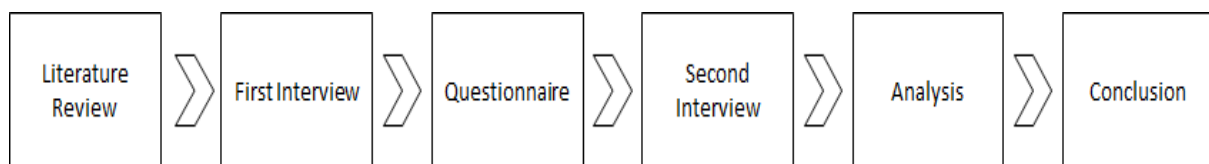


Figure 1 - The process used for gathering and analyzing data.

## **2.6 Research quality**

Kirk et al. (1987) argue that the objectivity of a study can be divided into two parts: validity and reliability. In this section these two parts are going to be discussed.

### *Validity*

Validity was defined as the authenticity of the results obtained from the conducted research (Whittemore et al., 2001). Researchers divided the validity of a study in two different parts:

internal and external validity (Roe et al, 2009). It can be said that the current research achieved both types (internal and external), this being explained as follows.

The first type, internal validity, represents “the approximate validity with which we can infer that a relationship is causal” (Morgan et al., 2000, p.529). This was accomplished in the present investigation by presenting the opinions and thoughts of the respondents without any alteration. The recordings of the interviews and Excel data from the questionnaire provided relevant means for maintaining the real answers and consulting them during the investigation.

The second type of validity (external) refers to the extent to which the results of a research can be suitable to other cases (Saunders et al., 2003). Due to the fact that Ascom is a large company with a high number of employees, and because the research was conducted in several countries, it can be said that a part of the outcomes can apply to other companies as well.

### *Reliability*

Reliability is one of the factors that determine the success of an investigation and it concerns the timeliness of the research. Kirk et al. (1987) mention reliability as the degree to which a research will have the same outcomes independent of the time or way it is conducted. For the present investigation several methods were used in order to ensure reliability. By conducting both interviews and questionnaire it was possible to find several angles of the problem from distinct sources. The authors believe that the findings would not differ if the research was carried out again, unless the information system used at the moment is changed.

## ***2.7 Research ethics***

In research, ethics can be defined as the adequate comportment of the researchers when interacting with the respondents (Saunders et al., 2003). During the current research the ethical considerations were respected. The participants in the interviews were informed about the goal of the research and the purpose of the interviews. The permission of the interviewees was requested for recording the discussion. The authors did not pressure the respondents in any way, giving them freedom to answer in the way they considered more suitable. Furthermore, at the beginning of the questionnaire the authors attached a text informing the respondents about the purpose of the survey and assuring them that their answers are completely anonymous. The participants were also guaranteed that their responses will not be altered in any way.

### 3. Theoretical framework

In the current chapter the authors are going to present different theories that are used when analyzing the information transfer within companies. Unless the authors possess a clear measurement process of the information system, the outcome cannot be completely reliable (Garrity et al., 1998). Based on the identified theories a proper framework for the analysis will be developed.

#### *The DeLone and McLean Model*

In previous research, DeLone and McLean (2003) state that measuring the information system success is essential in order to perceive the efficiency and usefulness of the information system. The information system success model was created with the purpose of bringing together important aspects of former investigations, and as a results the authors of the model identified six important dimensions which should be taken into consideration: system quality, information quality, use, user satisfaction, individual impact and organizational impact (Drury et al., 1998) A benefit of the presented model is that it represents a causal model, which allows the observance of the relation between elements and their mutual influence (DeLone and McLean, 2003).

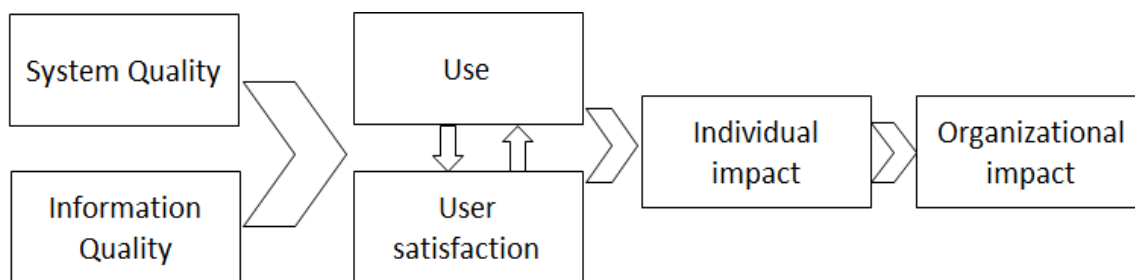


Figure 2 - DeLone and McLean Information System Success Model (DeLone and McLean, 2003, p.12)

The first step of the information system success model (DeLone and McLean, 2003) is the *system quality*. The system quality dimension incorporates the software and data of the information system, in other words, the tool used to transmit information (Gorla et al., 2010). Dwivedi et al. (2012) argue that the system quality represents the wanted features from an information system, which are usually measured by usage and efficiency aspects. The most usual characteristics which are investigated when speaking about system quality are “access, convenience, data accuracy, ease of use, efficiency, flexibility, interactivity, navigation, reliability and system features” (Dwivedi et al., 2012, p.5). The system quality is essential for the success of the information system because without an accessible and reliable source of getting information the employees cannot build their knowledge about the development of different products or the development of the company.

The second step, the *information quality dimension*, regards specific characteristics of the products from the information system (Gorla et al., 2010). DeLone and McLean (1992) state that the quality of the information can be measured by analyzing several factors, such as relevance, usefulness, clarity, format, accuracy, completeness, and timeliness. Hence, it can be said that both the information content as well as the way in which it is presented has an important role when speaking about information quality. Gorla et al. (2010) mention that the

content of the information reveals its relevance for the user, the accuracy, and whether all the information needed is in the document. The manner in which the document is created and structured, its layout, discloses if the file is easy to read and if important facts are easy to identify. The information quality dimension resumes traits of the system's output that uncover its usefulness for the target users (Dwivedi et al., 2012). Moreover, DeLone and McLean (2003) believe that the evaluation of the system quality or information quality individually, could hold the highest significance for the quality element. One factor that was found to be interrelated and influenced by information quality is system use. If the user is not satisfied with the quality of the information that implies that he will not use the system in the future.

The third step of the model is the *use of the system* which can be seen as a meaningful part in this model, with great importance for analyzing a system. "Information systems can improve the quality and productivity of individuals, groups and organizations, only if they are actually used" (Garrity et al., 1998, p.106). Because system utilization can be time and resource consuming, this section presents measurements on how much a system is practically used by the target groups (Seddon, 1997). When analyzing the use of a system, diverse factors have been identified, some examples being: amount of use, frequency of access, use versus non-use, voluntary or motivated use and so on (DeLone and McLean, 1992). Another significant feature considered by DeLone and McLean (2003) when analyzing the use is the nature of the information system. This can be established by the scope that people have for using the system. The authors also believe that if the system is not used, its benefits are not fulfilled. The use of the system was found to affect user satisfaction directly, good impressions from using the system leading to higher user satisfaction (DeLone and McLean, 2003).

The fourth dimension is *user satisfaction*, being considered the shortest mode of measuring the effectiveness of a system and it represents the degree of satisfaction that the user presents (Seddon, 1997). For evaluating user satisfaction, DeLone and McLean (1992) suggested the several factors: satisfaction with specifics, overall satisfaction, information satisfaction, enjoyment, user satisfaction. It can be said that the user satisfaction stands for the effect of the first three factors (system quality, information quality and use).

The fifth part of the DeLone and McLean model (2003) is the *individual impact*. One of the vital parts of assessing an information system is revealing its impact on the users, if it was beneficial, or neutral. The individual impact can be rated based on information understanding, and awareness, improved decision making, improved individual productivity and competence, task performance and improvement in the process of identifying problems (DeLone and McLean, 1992). In order to have a productive task performance and to build competence in an effective manner, the information system should provide the necessary information in a reliable format. When employees are not able to build competence, organizational success cannot be achieved. Because competency is one of the main focuses of this research paper, and one of the outcomes of the DeLone and McLean Success Model (2003), further details are going to be provided on this subject.

The last step of the model is *organizational impact*, which was defined by Gorla et al. (2010) as the profits and advantages of the company, as a result of using an information system, and it is attained by business performance. A positive organizational impact is detected when operational costs are reduced, profits are increased the volume of work increases and there are overall productivity gains (DeLone and McLean, 1992).

## Competence

The employees' knowledge, skills, and competencies were mentioned previously, in the DeLone and McLean Success Model, under the name of "individual impact", as a result of a proper information system (Drury et al., 1998). Spencer et al. (1993) defines a competency as a specific trait of a person that is connected to a high performance when executing a job, or task. Herling et al. (2000) emphasized the necessity of recognizing the significance of human resources and their competencies because they immediately influence an organization's success. The human-based asset of an organization is comprised of the competencies and expertise of the employees. It is believed that the key for having a successful organization, gaining advantage and building competence is the accessibility to information. Moreover, it is considered that competence insinuates that a person has the ability to highlight a positive and timely performance of tasks, and that these performances can be improved by trainings at the workplace, and practice (Herling et al., 2000). By participating in organized trainings an employee can become familiar with the organization and its products. As well, people have the opportunity to ask questions, solve misunderstandings and satisfy curiosities during an established course. Building competence can be difficult, with many obstacles that can be faced during the process of getting the needed knowledge and information for performing organizational tasks. Goh et al. (2009) mentioned some of the impediments met in this process, examples being the absence of trainings, an inadequate information system or weak information quality.

## The Saarinen Model

According to Saarinen (1996), there are four steps that should be taken into consideration when reviewing the effectiveness and success of an information system. These steps can be enumerated as follows: the success of the development process, success of the use process, quality of the information system process, and impact of the information system in the organization. The model representation can be seen in Figure3.

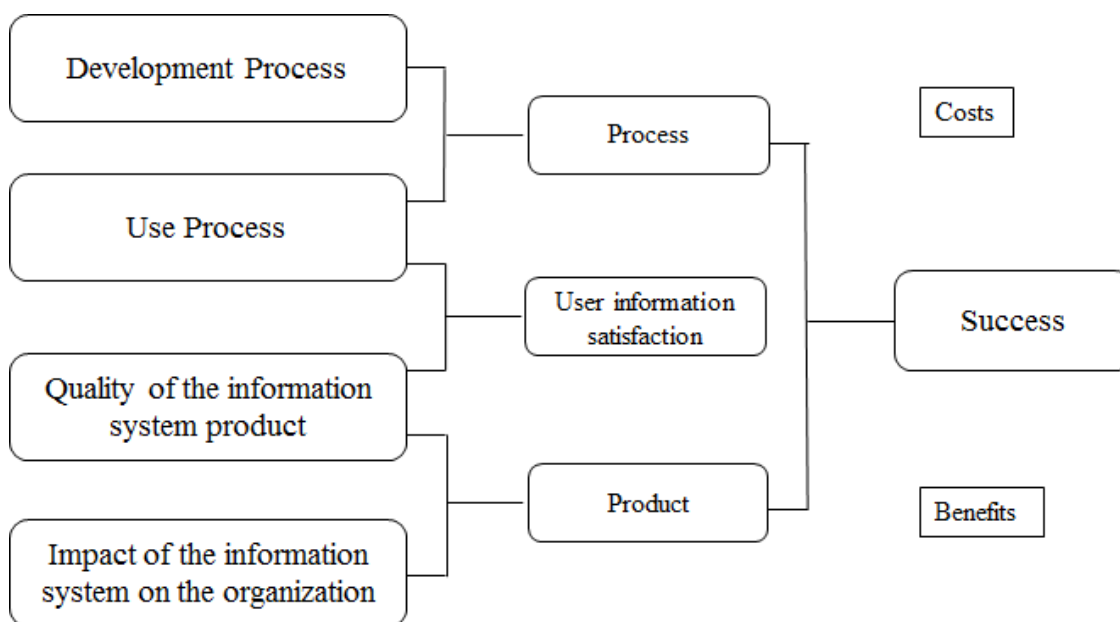


Figure 3 - Saarinen's Model of Information System Success (Body et al., 2005, p.135).

*Development* is the first step in the creation of an information system. Saarinen (1996) acknowledges that if development is not proper it can influence the next two steps in the progress of the system, the use process and the quality of the information system product. The success of the development stage can be analyzed by regarding the persons who create the information. It is important that the developers have the right amount of knowledge, and skills that are needed for the creation of the system and the information. It was also mentioned that this stage of the system includes the time program, and the compliance with the costs (Boddy, 2005). Saarinen (1996) argues that in order to have a successful development, the system solicits users and analysts who communicate constantly. In this way, the developers can be aware at all times of the expectations users have, making it easier to conform to their needs. The analysts should also be efficient in helping users with further information that they might need. In this stage the bases on which the information and the systems are formed can be analyzed and measured in order to get a proper understanding of how the development process functions and how it could be improved. Despite the present description, for the current research it is believed that more details about information development are needed. Thus, after the description of the Saarinen Model, a special section on this matter will be presented.

The second step in measuring information system effectiveness is the *use process*. This part includes the helpfulness of the service for the people who are making use of the system (Boddy, 2005). Furthermore, Saarinen (1996) specifies that the personnel that are responsible for creating information should possess competence for expressing the users' needs in a favorable and understandable manner. An approach for assessing the use of the information system can be accomplished by looking at the feedback received from the users groups regarding the outcomes of the system. One of the most important aspects is that the information producers and the target groups have the possibility and capability to communicate in an efficient way. It is easier for the persons who create information to meet the needs of the receivers if they are able to communicate and know what the users require. The first two parts of Saarinen's model compose the process success, and they are connected with the costs of the system.

According to Saarinen (1996) the *quality of both the system and the product* can be identified from the opinions of the users. A qualitative system should be easy to use, up to date, reliable, and should have the possibility for changes and improvements anytime. Qualitative information constitutes a type of information that is clear and understandable based on the necessity of the users. Together, the use process and quality of the information represent the user information satisfaction. User satisfaction can be expressed as the impressions of the groups concerning distinct factors of the system (Saarinen, 1996).

The last step of the model refers to the *impact of the system* on the organization and it includes the efficiency of the system in terms of raising productivity, lowering costs and bringing advantage in comparison to other companies (Boddy, 2005). Saunders (1996) states that the effect of the information system upon the organization is difficult to measure, but it can be done by the assessment of impressions of employees with high positions such as managers. One purpose of the information system is also to increase the internal and external communication. The quality of the information system product, and the impact of the information on the organization, build the triumph of the system viewed as a product and constitute the benefits feature (Boddy, 2005). All the four steps present in this model should lead to the success of the information system in terms of information and tool that is being

used. Success can be defined as the positive outcome that a system can achieve (Saarinen, 1996).

### *Information developers*

The development of information is the first step towards the evaluation of an information system. Boddy et al. (2005) states that independent of the complexity of the system, it requires people in order to operate in a proper way. When speaking about information creation, the key persons are the developers, the specialists who are responsible for producing and maintaining the data, which are also named information system specialists (O'Brien et al., 2007). In order to produce data, the developers have to hold solid domain knowledge. Roth (2003) discusses about the traditional way of knowledge sharing in companies, which he believes to be accomplished by incorporating the information to a number of people, who in turn are responsible for communicating it to the others. The acquired knowledge can be transformed into documentation which is shared throughout the organization. The author (Roth, 2003) further states that for an efficient transfer of information, the specialists have to utilize distinct means and frames depending on the information type, group, context, and expectations. One way in which the success of the transfer can be influenced by the receiver is if he does not have enough connected knowledge to understand the received information.

In addition to this, Andersen et al. (2004) state that great problems can arise, if the target groups, and the developers of the information do not communicate. Without communicating, the information producers cannot be aware of users' level of knowledge, experience, needs and expectations. Information that is clear to the specialist can be misinterpreted, or incomprehensible to the target group. The perfect transfer of knowledge and information is dependent of the features of the developers and users.

### *Proposed theoretical model*

Based on the models and theory presented in the "theoretical framework" segment of the current paper, the authors were able to build a model for the analysis of the results.

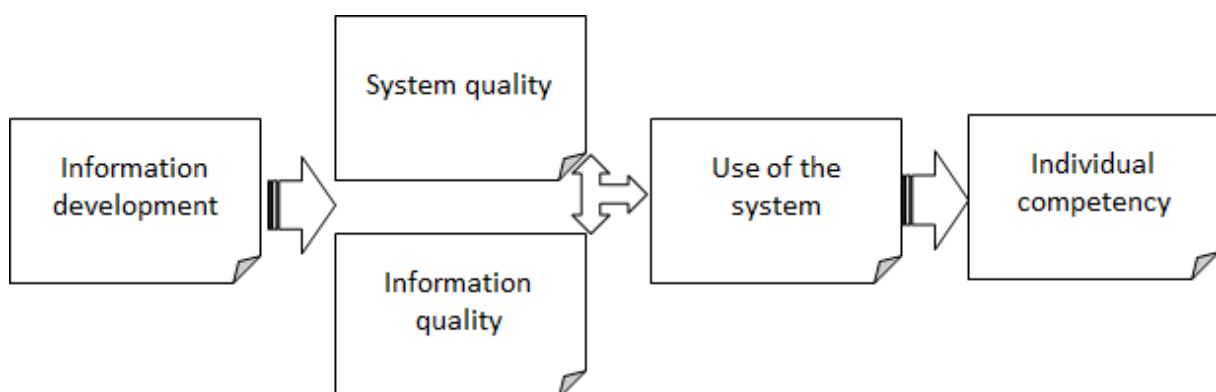


Figure 4 - Proposed theoretical model.

The illustrated model builds up the most important factors that influence employee competence building through information sharing. As mentioned previously in this chapter, the first step is creating information, which is done in the development part. Further on, the quality of the system through which information is transmitted and the quality of the actual

information influence the usage of the system. If all these factors are positive, they result in the fruitful creation of employee competence.



## 4. Results

### 4.1 Company profile: Ascom

Ascom was founded in Switzerland in 1987 when three companies, Autophon, Hasler and Zellweger decided to unite forces with the purpose of creating a bigger and more successful company. The mission of Ascom at that time was to provide customers with innovative communication solutions. The first step towards being an international company was in 1996, when the Ericsson Paging Systems was bought. Since 2003, the focus of the company changed from innovative communication solutions to solutions for mission critical communication.

Ascom is one of the leading organizations in its field of work, having over 1900 employees worldwide and offices in different regions such as Scandinavia, France, Finland, Benelux, the Netherlands, United Kingdom and United States. Constant improvement of products and technology is done with the mission of helping customers in increasing their competitiveness and quality of services.

The company has two divisions: Ascom Wireless Solutions and Ascom Network testing. The first one has a focus on solutions for hospitals, industry, hotels, elderly care, retail, and secure establishments, with the vision of becoming the leader in healthcare communication. The second division operates within the mobile networks industry and provides customers with solutions regarding drive testing, benchmarking, monitoring, and analyzing network performance. ([www.ascom.com](http://www.ascom.com))

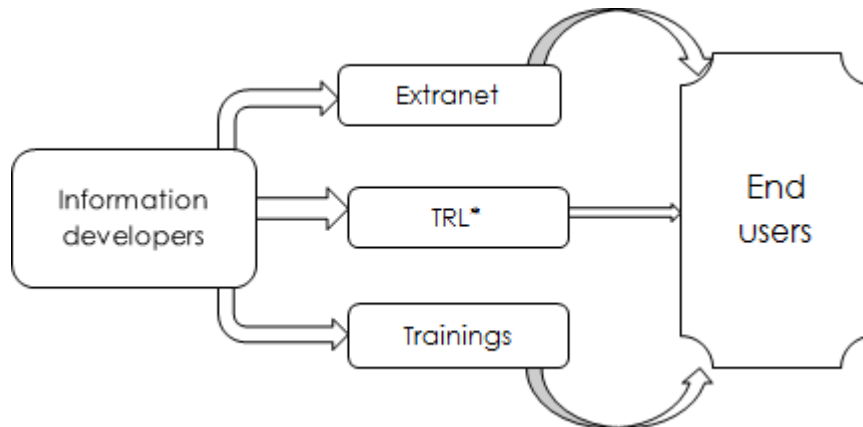
#### *Official Information sharing in Ascom Wireless Solutions*

Information in Ascom Wireless Solutions is shared by information producers with the internal target groups (sales and technicians) using the Extranet, TRL and Trainings. The developers are the R&D, Marketing and Training teams.

*The Extranet* is a computer network tool where various types of data are stored. The data and software published on the Extranet can be applicable to different groups such as technical or sales oriented groups. Material found in Extranet is used for distinct purposes and tasks. The Extranet is grouped in different sections where an option to search distinct types of information such as product, technical, training material, and software is provided.

*The TRL* is a software tool filled with the technical documentation used at Ascom Wireless Solutions. TRL has the options to browse documentation in separate sections or to pinpoint specific information using the search engine. Users (sales and technicians) have the possibility to download the software and use it offline, without an Internet connection. Documentation stored in the library is regarding Ascom company products (e.g: DECT, teleCARE). The technical reference library is mainly used by technicians, but other target groups such as the sales group can access it as well.

*Trainings* are another option for information sharing within Ascom Wireless solutions. Trainings are divided into three different types: e-learning, webinars, and classroom training. Information provided within e-learning, and webinars is online unlike classroom training where information is spread face-to-face by using a combination of theory and practice. The majority of the trainings focus on technicians.



\*Technical reference library

Figure 5 - Model of Ascom Wireless solutions information share.

Ascom Wireless Solutions focuses on providing customers with competitive wireless communication solutions. Their communication systems professionals and customers are working in an advanced technology environment that is changing at a fast pace. Hence, it becomes more significant to ensure that different user categories have instant access to precise, well organized information that helps them to perform their tasks (e.g: selling, installing or configuring products) professionally and increases personal productivity. For this reason (increase of employee productivity), the company has different types of information that is applicable to distinct target groups. For example, information placed in Extranet, TRL and Trainings introduces Ascom products and system functionalities. Product information is inseparable from the daily work performances of the target groups (sales and technicians). Product information facilitates organizational productivity in terms of competence and employee competence development because information is renewed from time to time and it is shared to all user categories that have permanent access. (www.ascom.com)

Onwards, the authors will illustrate the findings of the research. The presentation of the research outcomes will start with the results of the information process development. This process concerns the criteria on which the R&D, Marketing and Training departments create documentation. The second part of the results regards the information channels that are used within the company and the discovered problems. The final part describes the way in which the two target groups (sales and technicians) build competence.

#### ***4.2 The process of information development***

The employees in R&D take into consideration the fact that target groups might have different knowledge levels, when creating a document. Concerning communication with the target groups, the R&D participants answered that they usually do not have any contact with the groups before creating information and they are not aware of the target groups' expectancies. It was also found the target groups are informed about the release of new documentation, but only by the team leaders or product managers.

*“The R&D team needs to analyze and understand the needs and expectations of the target groups. I do not think that we communicate with the users enough.”*  
(Interaction design engineer; R&D).

*“I have a sense of thinking of the target groups. The R&D team does not get so much contact from the target group because we do not travel and do not get the opportunity to pinpoint what users (technicians and sales) want.”(Technical documentation engineer, R&D)*

The marketing and training respondents answered that they do not take into consideration the different knowledge backgrounds and the difference in tasks in the countries when creating material. Apart from this, the training team interviewees state that they try to adapt the material to the students’ needs during the course.

*“During the training I try to give the basic knowledge of the products. However, if I see that students never use a feature I skip it or if they need more information I provide more information.”(International trainer, Training).*

Regarding the trainers communication with the target group before the class, none of the trainers have any means of addressing the target group and therefore it is not possible to become aware of the students' expectations. Despite this fact, most of the trainers can get feedback after the course is finished, by means of a course evaluation. Most of the trainers stated that the target groups are not informed about updates or new material.

*“The trainers group does not communicate with the students before class. However, after the training is completed the students are asked to provide their evaluation of the course. Trainers would like to have questionnaires before the course starts in order to know the group’s expectations.” (International trainer, Training).*

The marketing team gets feedback from the target groups, having constant communication during the creation of information. The marketing team does not receive any feedback after the documentation is released. The target groups (e.g: salespersons) of the marketing team are informed about the release of new information by launch news, intranet, extranet and automatic e-mails.

*“The marketing group sends documentation to the selected user group in order to get feedback. After the receiving feedback the material is modified until the target group approves it, and the documentation can be released.” (Product Marketing Manager, Marketing).*

Regarding the structure of the documents, the employees working in R&D have specific frameworks that need to be followed for each type of documentation. Examples of documentation are also provided in order to help create a qualitative document. When speaking about the complexity of the information, the R&D team tries to keep the document simple, without too many details. Only in the case of requirement specification are details included.

*“The R&D team has a framework, a template [...] with examples that we use and which we found were good. When writing new documents we use this template.”(Technical documentation engineer, R&D).*

*“The point of technical documentation is to have simple wording and details. I think if employees are in a hurry, [...] they should immediately get the point. The R&D team uses step lists, numbering and bulleting, extra headings. That is how we write*

*so the users understand the context easily.” (Technical documentation engineer, R&D).*

It was also found that the training team has the liberty to structure the information however it is more efficient in a course, even though there are frameworks that can be used. Most of the time, training material is arranged in the same order in which the process has to be performed. Moreover, all the respondents from training confessed that they try to have a simple material, without too many details in order to make it easier for the students to understand. The information in the marketing group is structured using a basic format, with the same pattern most of the time trying to keep the documents as simple as possible.

*“When creating document the trainers usually start with a storyboard, with the main modules, after filling with more and more information. Depending on the feedback I get from the classes I modify and improve the material. A trainer needs to have helicopter view of everything. How we create information is quite individual.” (International trainer, Training team).*

*“Training material should be easy to go through because employees can get more complexity from the technical documentation. If the students like the product they try the details by themselves in the exercises.” (International trainer, Training).*

The information coming from the R&D team is shared by Extranet and TRL, but also face-to-face and using e-mails. Regarding the influence of the product or target group when sharing information, it was found that most respondents use the same channel for sharing information. The interaction design engineer mentioned a difference between the way of sharing, this being influenced by the location of the target group.

*“The information which is shared depends mainly on the access of each target group. If that group is from another country so it better to reach them via email.” (Interaction design engineer, R&D).*

Most of the training team specified classroom training, along with e-learning, and webinars as sources for sharing information. A small part of the training developers post information on the Extranet. It is also possible, but very rare, that information can be transmitted by e-mail. Furthermore, the method chosen for sharing material can differ depending on the importance of the information. If the training group shares information about a new product, or makes an introduction, it is usually done through classroom training, whereas only webinars are employed in the case of updates. The target groups do not have any influence on channel choice for transmitting information, because the students are mostly technicians.

*“The first training is generally an e-learning, which contains an introduction to the system. If the students continue there will be a classroom training which brings them to a professional level. For updates students can attend webinars.” (International trainer, Training).*

Information produced by the marketing team is shared by e-mail, Extranet, internal magazine (Connect), and webinars. The sharing is not influenced by the target groups. A factor that is influential for the sharing is the importance of the product or release and the amount of communication required.

### 4.3 The channels used by sales and technicians for obtaining information

Respondents from the sales and technicians groups were asked to evaluate the channels' usefulness for obtaining information. In total there are 47 respondents, more exactly 20 salesmen and 27 technicians. As illustrated, the survey depicts that the most useful channels for the sales group, chosen by 15 respondents were Extranet, e-mail and informal communication. Moreover, 11 respondents chose technical training, 10 respondents chose TRL and product information meetings as useful, 8 participants evaluate the learning management system (LMS) as useful and 4 respondents chose social media. However, 7 salesmen believe other channels to be useful (Figure6). The presented figure illustrates more than 47 respondents due to the nature of the question. Each respondent had the possibility to evaluate only the channels used. As a result, part of the participants ranked only one source, while others ranked all of them.

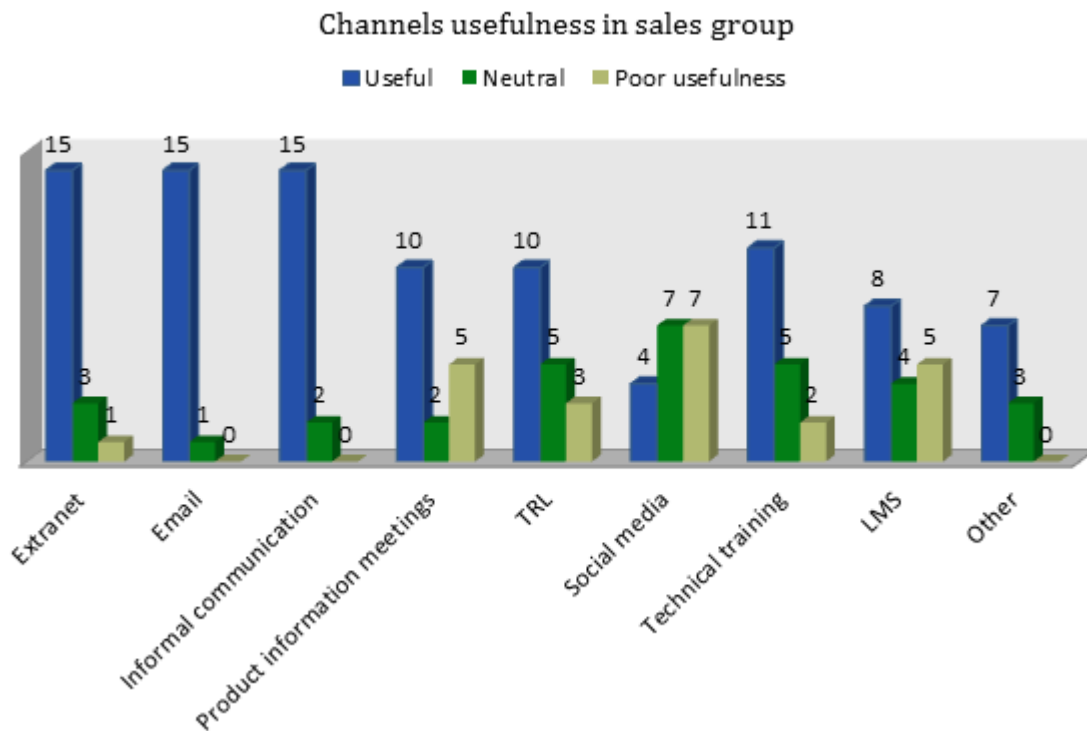


Figure 6 - Channels usefulness in sales group

Regarding the channels' usefulness for the technicians group, 23 respondents think that e-mail is useful, 22 technicians state that TRL and technical training are useful, 21 participants chose informal communication and 20 participants chose Extranet and product information meetings. The LMS was found useful by 14 technicians, social media by 6 employees and other channels by 4 participants (Figure7).

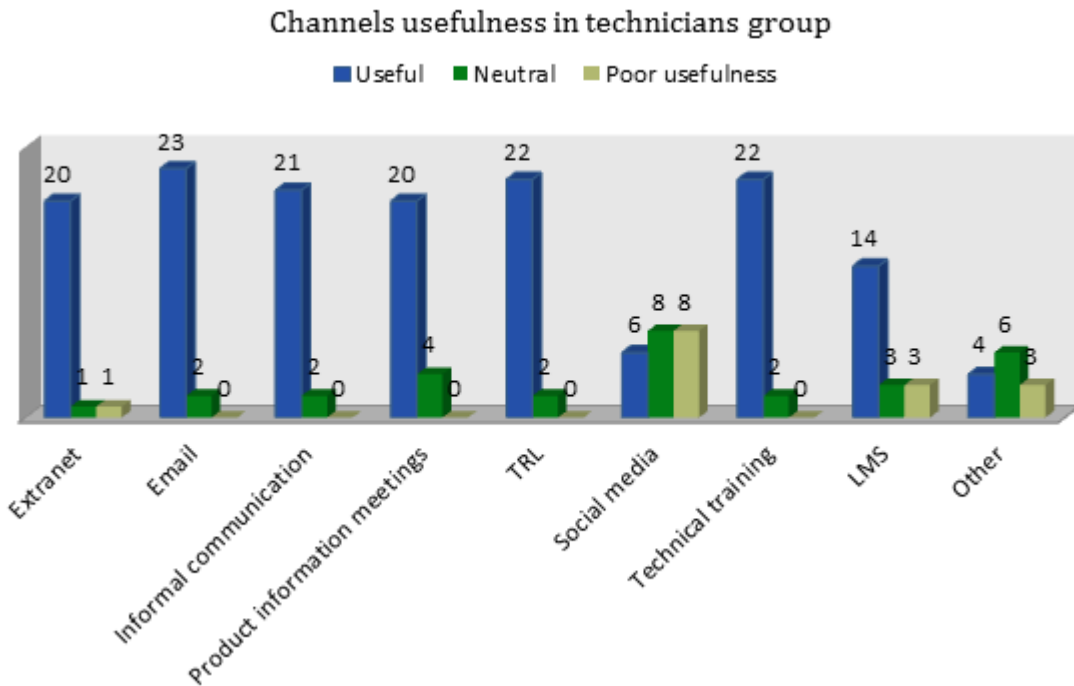


Figure 7 - Channels usefulness in technicians group

Interviewees were asked to identify channels that will be important in the future for receiving information. Salesmen state that e-mail and improved Extranet will be very relevant in this respect. Likewise face-to-face meetings were ranked as an important tool for the future with regard to gathering intensive amounts of information.

*“Extranet is useful for the sales group for receiving data, but if it is huge amounts of information is preferable to have face to face meetings. We do once a year, for example when a new product is launched.” (Channel manager in sales, Norway).*

Technicians believe that the essential channels to receive information in the future are the improved TRL, Extranet and trainings. Similarly, technicians mention informal communication and an improved Ascom forum as preferable tools to get information in the future.

*“I prefer to receive information through face to face trainings; I think that is the most important part.[...]For my everyday work I would like to continue using the Extranet and the TRL in an improved version.” (Project support engineer, The Netherlands).*

Interviewees were asked to specify which channel they use in order to solve problems related to their tasks. Respondents disclosed that the majority of the problems are solved by using informal communication and Extranet. The TRL or Google were also mentioned as a tool for finding information solutions. Participants stated that when resolving problems they use their knowledge and experience.

*“When I face a problem I discuss with colleagues (engineers), in order to find out if they confronted with the same issue and if they have a solution. I also ask the help of AWiTAC (assistance team).” (Project manager, Sweden).*

## *Extranet*

The general structure of the Extranet was evaluated as not well organized. It was also found that documentation about same product or issues is stored in different sections. Consequently, information users are puzzled and confess that finding the right document is insuperable.

*“The Extranet is not very well structured. One of the places that I go most frequently is the launch packages with new products [...]. It is really bad because it is difficult to see what is new and what is not new [...].” (Portfolio manager; Denmark).*

*“The structure of the Extranet needs a lot of rework. It might have been good when it was originally created but I do not think it has been updated over the last years. It happens that the same document is stored in different sections, without any changes.” (Channel manager in sales, Norway).*

*“It is not always very clear where employees should look for information. The Extranet information is divided into different sections, which are not well organized.” (Project manager, Sweden).*

The respondents of the interview stated that the search engine in the Extranet is faulty. Information overload when searching for a particular document in the Extranet is one of the problems that interviewees stated. Moreover, employees note that detecting which document is novel or updated is also complicated.

*“The search quality of the Extranet is bad and broken. For example if an employee is searching documents in the news sections he can find ten years old documents that are no longer good. So the newest documents should be on the top of list.” (System design engineer, Norway).*

*“I have difficulties with the search tool in the Extranet. For example I can write a71, which is an Ascom product and it is used, but there is no results. If I write p71 I find it because it is written a/p71.” (Project manager, Sweden).*

The questionnaire results also show that the process of locating information in the Extranet is complicated. In total, this question was replied by 47 respondents. 13 respondents from the sales group and 21 technicians selected that the information search took some time, but found what they were looking for. 5 sales group representatives, as well as 1 technician, state that it was difficult to search in the Extranet and they did not find the information they were looking for. 2 employees from the sales group and 5 from the technicians group had no difficulties in locating information (Figure9).

Regarding accessibility to information about Ascom products and systems, from the total 47 respondents, 16 technicians and 9 salesmen can access information at all times. 3 sales group respondents have some restrictions to information, as well as 4 technicians. 4 salesmen and 6 technicians stated that they were not able to have access to the selected information at all times. Unfortunately, 4 salesmen and 1 technician do not have instant access to information at all (Figure10).

The questionnaire participants evaluated information quality in Extranet. Firstly, respondents were asked if the Extranet information is precise enough. In total, this question was replied by

47 respondents. 11 sales group respondents and 14 technicians answered that information is partly precise, some sections being specific enough but others needing more details. 5 salesmen and 4 technicians believe that the information was too vague. Furthermore, 9 additional technicians and 4 sales persons are fully satisfied with the information precision (Figure11).

With the statement that information was accurate and up to date agreed 11 sales employees, and 10 technicians. The results also show that 12 technicians and 6 sales employees found some errors in the documents, regardless of the fact that the information was up to date. Negatively, 3 sales, and 5 technicians think that information needed to be updated. In total, this question was answered by 47 respondents (Figure12).

Regarding the information relevance for contributing to target groups' task completion, 15 technicians and 7 sales employees think that information was useful. Moreover, although 13 additional technicians and 8 sales group members think that information was useful, they stated more details were required. The material was not relevant for 1 technician and 1 sales group member. 1 technician and 1 sales employee were able to complete their tasks with the knowledge that they already had, without using information provided by company. In total, this question was replied by 47 respondents (Figure13).

In connection to the relevance of the information, the interviewees state the text and details found in the documentation are not adapted to different target groups. Most of the documentation is technically oriented, the features needed for sales being overlooked.

*“Product and technical news are a bit complicated. Employees search for the product news and they only find mainly technical news. News that are related to sales would also be useful.” (Project manager, Norway).*

Interviewees responded that the text quality in Extranet is nearly satisfying, though documentation errors were detected. It was also noticed that the text quality depends on the document type and sometimes information is missing. Besides, there is no division between information that is newly updated and former information inside the documents. Therefore the users become confused and misapprehend text.

*“The information from the Extranet has a lot of errors. For example the launch packages contain price list and technical information but the data about the same product is not the same in different Extranet places. Sometimes one product in the document doesn't have any information, any price, and any article number.” (Portfolio manager, Denmark).*

#### *Technical reference library (TRL)*

Respondents are dissatisfied with the search engine of TRL. Users identified that when typing keywords in the search tool, most of the time they get various types of documents but not the one that they are searching for. Interviewees predicate that for the experienced TRL users it is easier to navigate through the documents, although for inexperienced ones this is a time consuming process. It was also discovered that the general TRL layout and design is old-fashioned and inconvenient. The findings displayed that software information and documentation is placed in too small frames, this inconvenience thus making processes (for example scrolling down) more tedious. Furthermore, the small text size was noticed.



*“The Search quality in the TRL is not good. The set up structure is good, but to find the right document it is hard. When users try to write a keyword it is hopeless to find what they are searching for.” (Project support engineer, The Netherlands).*

*“Today the TRL has a fixed resolution for outer screens. It is difficult to search for documents because the frame is too small. It cannot be hard to fix and optimize it for different screens.” (Project manager, Sweden)*

In addition, respondents have no ability to provide feedback about the documents, especially if some information is missing. The only option that respondents mention is to do nonconformity of the particular document.

*“Usually if errors appear in the TRL documentation it is possible to write a nonconformity. When information is missing employees cannot notify because it is not considered an error. Making one comment or writing few words is not enough; it is the whole setup and content part of the document that should be improved.” (Project support engineer, The Netherlands).*

*“The employees should give some input to the documentation on the common side because now we are calling and explaining what should be updated and this creates misunderstandings.” (Product manager, Norway).*

The information quality of the TRL documentation is considered nearly satisfying for a part of the interviewees, while others believe that it lacks quality. Interviewees that are displeased with TRL highlighted problems regarding the documentation. One example is the installation guide which is not adequate for the technicians' needs due to the high amounts of text. Occasionally, employees detect errors, when information or examples are missing, or they find incompatibility of the details. Furthermore, not all TRL documentation is updated. TRL information users observed that new document releases are commixed with older versions. The users also mentioned the need for a common Ascom solution for combining two or more features or products. Employees are not able to identify the result of the alliance, fact which affects the identification of the best solution for the customer. Users of the TRL stated that they are lacking hyperlinks in the documents, which can allow an easier navigation.

*“The information in the TRL is wrong, not updated, perhaps not indexed and there are no cross references between the documents. It is good that employees have the TRL, but it could be much better. It lacks details [...], a lot of documents are very old, and when new releases come out it is very important that the old and new information is separated. When users read the entire document they become completely confused.” (Portfolio manager, Denmark).*

*“What the technicians miss in the TRL is some smaller installation guides. There are huge documents which are very technical [...] and sometimes we need documentation to send out to a typical installer. The only thing we can do is to send this complete big manual.” (Technician, Norway).*

## *Trainings*

Interviewees stated that the best type of training is classroom training. Factors that are influential for this choice are face-to-face interaction, practical workshops, expanded and deeper product information and immediate feedback. Beside those factors, better concentration during classroom trainings was noted. However, interviewees stated that live trainings are more expensive in comparison with other types of trainings, and sometimes put constraints on understanding or asking questions because of the lack of language proficiency.

*“A technician needs the hands on experience to be able to fully understand and figure out how the product works. That is why it is better to have classroom trainings where students can ask questions, discuss with colleagues and test the product.”* (System design engineer, Norway).

*“If the employee is not good in English, he is reluctant to ask questions during face to face trainings and he does not get the whole benefits from the session.”* (Portfolio manager, Denmark).

Interview participants declare that webinars (online training) are good for information updates and to save the costs of the participants. It was also stated that the usefulness and quality of webinars depends on their subject and on who is representing this type of training.

*“For the more experienced users of the products it is efficient to attend webinars because they only need to know the changes that were made. It is easier to attend online courses and you do not need to use much time.”* (Project manager, Sweden).

The e-learning usefulness is perceived as a decent start before classroom training so trainees are more aware of the upcoming issue. E-learning is not as effective as classroom training because the majority of groups require hands-on experience and face-to-face theory presentation.

*“I think e-learning is very good if you want to give some basic training and also sales training. If it is more technical training, it should be in the classroom because it works like a workshop where students can have discussions with colleagues.”* (Product and quality manager, Norway).

With the concern of the content quality in trainings, the participants answered that they are completely satisfied. However, it was remarked that more updated presentations with the latest sales trends presentations are required.

*“It is good to have more sales oriented trainings for obtaining updated information and the latest trends. I know we have done it in the Nordics, where people could share ideas and hear about the market in other countries. That is helpful, at least for sales, where the employees need to know what is going on in different markets.”* (Channel manager in sales, Norway).

## **4.4 Competence building methods for sales and technicians**

Firstly, respondents were asked to answer if they have enough segment knowledge to identify customer needs. Of the 47 respondents, 12 sales group members, and 10 technicians

confessed that they have enough segment knowledge. The other 16 technicians and 9 sales employees have segment knowledge, but not enough (Figure14).

Secondly, sales and technician groups were asked to reveal how much of their working time they use for building their competence. In total, this question was replied by 47 respondents. 12 technicians and 11 sales employees stated that they use 0-5% of their working time for building their competence. Furthermore, using 6-10% of the working time to increase competence was selected by 9 technicians, and 5 salesmen. 5 technicians and 1 salesman spend 11-15% of their working time on competence enlargement. One technician exploits 16-20% of his working time for competence growth and 2 sales group representatives spend more than 20% of their time on competence development (Figure15).

Thirdly, questionnaire participants were asked if the time they already use is enough for competence building. In total this question was answered by 47 respondents. 17 sales respondents and 20 technicians believe that they need to spend more time to increase their competence. However, there were 7 technicians, and 3 sales representatives that assume they have enough competence (Figure16).

Respondents were also requested to indicate their main tasks. In total, this question was replied by 47 respondents. The most frequently selected tasks in the sales group are: “analyze customers’ needs, keep contact with customers and try to influence existing, and potentially new customers and create pricing tactics.” The most selected tasks within the technicians group are: “evaluate alternative solutions corresponding to the customers’ needs and create block schemes, installation and configuration.”

Additionally, respondents were asked to reveal the most important competencies required to perform these tasks through open questions. In total this question was answered by 47 respondents. Below there is a brief extraction of the competencies they exposed.

The most mentioned competencies of the *sales* group are:

- Understanding customer needs.
- Communication skills.
- Product and technical knowledge.
- Sophistication in sales trends.
- Segment knowledge.

The most mentioned competencies between *technicians* are:

- Technical knowledge.
- Product knowledge.
- Analytic skills.
- Segment knowledge.
- Project management knowledge.

Interviewees brought to light that the manner in which they build their competence varies firmly. Technicians disclosed that in order to increase their competence, trainings are the best source. TRL and Extranet are highly appreciated as well as informal communication with an experienced co-worker or the Google software. Another manner through which the technicians can build competence are the problems faced when working and meeting customers or by testing the products and equipment individually. Sales employees, on the other hand, use the Extranet, Intranet and informal communication.

*“The most common way by which technicians learn and build competence is by solving problems that appear at the customer site. In this way we learn new things.” (Project support engineer, The Netherlands).*

Furthermore, one employee marked that in order to expand knowledge and skills; he uses blogs, LinkedIn, attends free seminars or gathers a lot of information provided by other sources that are not found in the company.

*“I had technical training and also technical workshops [...]. I participated in some different courses such as negotiation, basic project management courses [...], and I try to be onside when technicians work with problems.” (Project manager, Norway).*

The target groups mentioned several proposals concerning the manner in which employees would prefer to build their competence in the future.

In order to have better task performance, the *sales* group would desire:

- *Webinars with competitor solutions, future trends in sales, unique selling points of the products, positioning of the products, pricing defense.*
- *More personalized news feed based on subscriptions, and more news for information changes and releases.*
- *Informal communication with colleagues.*

*“It is more efficient to do webinars for sales. Online training can be done when the employee has the available time and can stay updated with the latest information.” (Channel manager, Norway).*

The *technicians* believe that in the future, competence building can be increased by:

- *Attending more classroom trainings in order to have hands on experience of the products.*
- *Informal communication with colleagues.*
- *Using improved information from the TRL.*

*“I like classroom trainings. The period of time of the training does not matter so much because technicians have better possibilities of hands on experience. This is the best way to build competence.” (Project manager, Sweden)*

## 5. Discussion

In this chapter, the authors will discuss the findings of the research in relation to the presented theory. The presentation is based on the steps of the model proposed in the theoretical framework (Figure4).

As an outcome of the research conducted, table3 summarizes the main aspects of the results obtained.

	Sales	Technicians
Main tasks	<ul style="list-style-type: none"> <li>Analyze customer needs</li> <li>Keep contact with and try to influence existing and potentially new customers</li> <li>Create pricing tactics</li> <li>Evaluate alternative solutions corresponding to the customers' needs and create block schemes</li> <li>Design tenders</li> </ul>	<ul style="list-style-type: none"> <li>Configuration</li> <li>Installation</li> <li>Evaluate alternative solutions corresponding to the customers' needs</li> <li>Troubleshooting</li> <li>Analyze customer needs</li> </ul>
Main competencies necessary for performing tasks	<ul style="list-style-type: none"> <li>Understanding and analyzing customer needs</li> <li>Communication skills</li> <li>Product and technical knowledge</li> <li>Sophistication in sales trends</li> <li>Segment knowledge</li> </ul>	<ul style="list-style-type: none"> <li>Technical knowledge</li> <li>Product knowledge</li> <li>Analytic skills</li> <li>Segment knowledge</li> <li>Project management knowledge</li> </ul>
Competence building sources	<ul style="list-style-type: none"> <li>Informal communication</li> <li>Extranet</li> <li>Training</li> <li>LinkedIn</li> </ul>	<ul style="list-style-type: none"> <li>Visit customers</li> <li>TRL</li> <li>Informal communication</li> <li>Training</li> <li>Self-study with product</li> <li>Seminars and courses outside Ascom</li> </ul>

<p style="text-align: center;">Main information sources</p>	<ul style="list-style-type: none"> <li>• Extranet</li> <li>• E-mail</li> <li>• Informal communication</li> </ul>	<ul style="list-style-type: none"> <li>• E-mail</li> <li>• Technical training</li> <li>• TRL</li> <li>• Informal communication</li> </ul>
<p style="text-align: center;">Main problems with the information tools provided by Ascom</p>	<ul style="list-style-type: none"> <li>• The Extranet documentation is not well arranged within the system</li> <li>• The information in the Extranet is not adapted to different target groups needs</li> <li>• The Extranet and the TRL lack a division between old and new documents</li> <li>• The Extranet and the TRL hold a weak search software</li> <li>• The TRL layout does not have the ability to adapt to different screen sizes</li> <li>• The TRL does not give the possibility of providing instant feedback on documentation</li> <li>• The information in the TRL does not provide a common Ascom solution and it has a poor manner of searching within the document</li> <li>• The trainings illustrate small impediments due to the English language</li> <li>• The trainings are mostly technical oriented, the sales group are being neglected</li> </ul>	

Table 3 - Information sharing and competence building matrix.

*The process of information development*

According to theoretical part of this paper (the proposed model), the development of information is the first step towards building employee competence. However, building and sharing of information is not always an easy process, and often it can happen that the developers do not take into consideration important factors that can affect the success of information.

One of the most important factors is the level of details that is included in the documents. From the results it can be seen that the R&D, marketing and training teams usually keep the documents simple, and easy to understand. Apart from the simple documentation style, the marketing and R&D groups use certain templates for structuring documentation while the training instructors build presentation in the manner believed to be more effective.

Looking at the results, an interesting issue is that the information producers (except R&D) do not consider the level of knowledge of the users when writing documentation. Moreover, the users cannot recognize which document can be applicable to their work and which cannot. According to Roth (2003), in order to have efficient information it has to be created depending on the group to which it is addressed. An example could be that if the same documentation is produced for sales employees and technicians, the technical knowledge of

the sales representative might not be so high as to understand the content in a good way. On the other hand, the document may contain sales details that can be useless for the technician, thus losing time with unnecessary issues. In this manner, none of the users can build competence and increase their productivity. Furthermore, the results illustrate that information sharing is not influenced by the target groups. The training team was found to adapt the sharing to the target groups. If the group needs to learn a product from the beginning, classroom trainings are organized, but if the groups already have knowledge of the product, webinars or e-learning are used.

When speaking about the effectiveness of information for building competence, it is essential that the employees who create and design the documentation can communicate with the target groups. By having a lack of communication, developers cannot be aware of the expectations and needs that different groups have (Saarinen, 1996). This can result in loss of time, both from the developer's side, who can write unnecessary information that no one is using, and from the receivers' side, which may not acquire the needed knowledge while reading documentation. In the current case, only the marketing team interacts with the target groups while composing documentation, getting constant feedback and performing modifications. In short, it can be said that effective communication and user group involvement should be a requirement for productive information creation and share.

#### *Channels used for obtaining information*

Concerning the main sources for acquiring information, nowadays the target groups (sales and technicians) still rely on the official Ascom tools (Extranet, TRL and trainings). These are believed to be essential for the everyday work of employees. Even though the Extranet, TRL and trainings are appreciated, both sales and technicians believe e-mails and informal communication to be a valuable source for receiving answers. Users consider informal communication a fast and easy solution to the questions and problems that they face. When discussing with other colleagues, employees can have the advantage of communicating in the local language, which can diminish the chance of misunderstandings. An informal discussion gives employees the possibility of sharing ideas. In this manner users are able to discover and apply productive solutions, with a lower risk of errors.

#### *Extranet*

Extranet is one of the main tools that Ascom is using for storing and sharing information internally. Seeing that the company relies on this software, it should be able to satisfy the users' needs when searching for documentation. For a system to have a good quality, it should be reliable, up to date, easy to use and convenient (Dwivedi et al., 2012).

Features of the Extranet illustrate that the tool does not increase the timely productivity of the different user groups. It can be said that Extranet is not easy to use due to the way it is structured. Users mentioned that documentation regarding the same product is scattered in different parts of the page, and there is no possibility of knowing where the information is located. The unsuitable division of the Extranet documentation creates difficulties when locating specific information, leading to time loss and possibly project delays. If the division of the documentation were arranged differently, target groups could build competence more efficiently. Another problem when using the Extranet is the search tool, which provides a large number of findings. Occasionally, it can happen that employees do not find the sought information. This is one of the reasons for which users choose to appeal to informal

communication instead of using the available tool. The use and search for information is time consuming and it can prolong the completion of tasks. Due to technological advancements, people are pressured by deadlines and therefore employees find themselves prioritizing work assignments. With the improvement of structure and search in the Extranet, the completion and quality of tasks will also improve. One of the positive features of the Extranet is represented by its accessibility. Users can access the information presented at all times and locations, which helps with solving the problems faced on the field.

Information quality refers to accuracy, completeness, and relevance in relation to the users' needs (DeLone et al., 1992). The information from the Extranet was found to achieve most of these aspects. Users believe that the information is good, but it should be more detailed. One interesting remark is that while the users required detailed documentation, the information producers believe that the documents should be as simple as possible. It can be said that there is a lack of communication between users and developers of information, which affects the document quality. Furthermore, both salespersons, and technicians mentioned that errors were encountered in the utilized files. A negative feature is that old information is not separated from new one and users do not have the means for differentiating documents. Due to this aspect, the selection of information is burdened, generating complications for the users.

#### *Technical reference library (TRL)*

The TRL represents the main documentation storage tool for technicians, and it was found to have similar problems as the Extranet. One of the main issues of the TRL is the search tool, which is not flexible and mostly does not provide the expected results. The search engine, together with the small layout of the page, creates a difficult process for searching information. The fact that the page does not fit onto the screen, leads to a longer search time, which users might not have. This is one of the reasons for choosing informal communication. Technicians avoid searching documents in the TRL for their work because the system is not qualitative, but inconvenient. However, it represents the only source for technical documentation provided by Ascom that is available at all times. With a proper restructure it can become a reliable tool for building competence and getting information. Furthermore, the TRL does not possess the interactivity feature. The user groups do not have the possibility to deliver their opinions and specify if information is missing. This approach impedes documentation correction, and improvement. If employees could discuss and state the issues they identify, the documentation would be more accurate, relevant and misunderstandings could be diminished. As opposed to the documentation from the Extranet, the TRL information gained mostly negative impressions. The accuracy of the documents is low, many errors are often encountered, and the data is not updated. This could represent a high risk for new employees of using the wrong information, because of their lack of specific organizational and product knowledge. Consequently, this can generate an incorrect task performance and reduce employee competence. In general, the TRL information was found not to be reliable, even though employees use it because it represents their only source of getting technical information.

#### *Trainings*

Trainings are an essential part of competence building. Classroom trainings possess the major features of a qualitative system. They have the flexibility and interactivity with the users, as well the information being explained, thus making it easier to understand. The possibility for asking questions and testing the product displays a higher opportunity for efficient



competence building. Due to the tasks that technicians have, such as installing, configuring or maintaining a product, they need hands-on experience, which can only be given through classroom training, especially if the product is new. On the other hand, the sales group prefers webinars due to the practicality of the system. This group does not need to interact with the product, so it does not require face to face trainings. Attending webinars is a time and cost saving solution. It can be said that due to their features, trainings are one of the most reliable sources for competence building that Ascom provides at the moment.

Training information ranked as the best type of information among users and as the most reliable for building competence. Target groups can acquire all the answers needed through classroom trainings, and at the same time they are guaranteed to get up to date information. The accuracy of the information is vital for improving and maintaining a good task performance.

### *Competence building methods of the target groups*

The information tools provided by organizations should have the purpose to keep employees updated by supplying them with necessary information for their work. The results illustrate that even though Ascom offers various possibilities of finding information (eg: Extranet, trainings), there are employees that choose to use external parties as a source for raising competence. These sources are represented by Google, external workshops, networking websites or informal communication. The problem could be that either the information needed is not received internally within the company, or that it does not have the desired format and it is difficult to interpret. The group that gathers information outside Ascom is mostly sales, but a small part of technicians resort to this practice too. From the sources provided by Ascom for receiving information, trainings are considered one of the best competence building tools. Trainings allow the participants to become familiar with the products, thus building product knowledge, which is one of the necessary competencies for the target groups. The proper knowledge of products helps employees make faster and more effective decisions when confronted with problems.

The participants mentioned segment knowledge, together with product knowledge as competencies required in order to perform tasks in a productive manner. Seeing as the employees have to be in contact with the customers, they need to have segment knowledge in order to identify customer needs. The employees' competence to detect the customers' desires is highly influential for the company's relation with the client. If Ascom employees can recognize the expectancies of the customer, it can result in long term collaboration between the two companies. The users from sales believe that they have good knowledge of the segments they are working with, but technicians consider that more information is necessary. Currently, most of the employees spend a small percentage (0-5%) of their time on building competence, but both technicians and sales confessed that more time should be addressed to this issue.

### ***5.1 Suggestions for future improvements***

Based on the issues identified in the discussion part (Table3), and having the support of the target groups (sales and technicians), the authors identified several suggestions for future improvements of Ascom Wireless Solutions tools for transmitting information. The suggestions are presented with respect to the main three channels for sharing information (Extranet, TRL and Trainings) in Figure8.

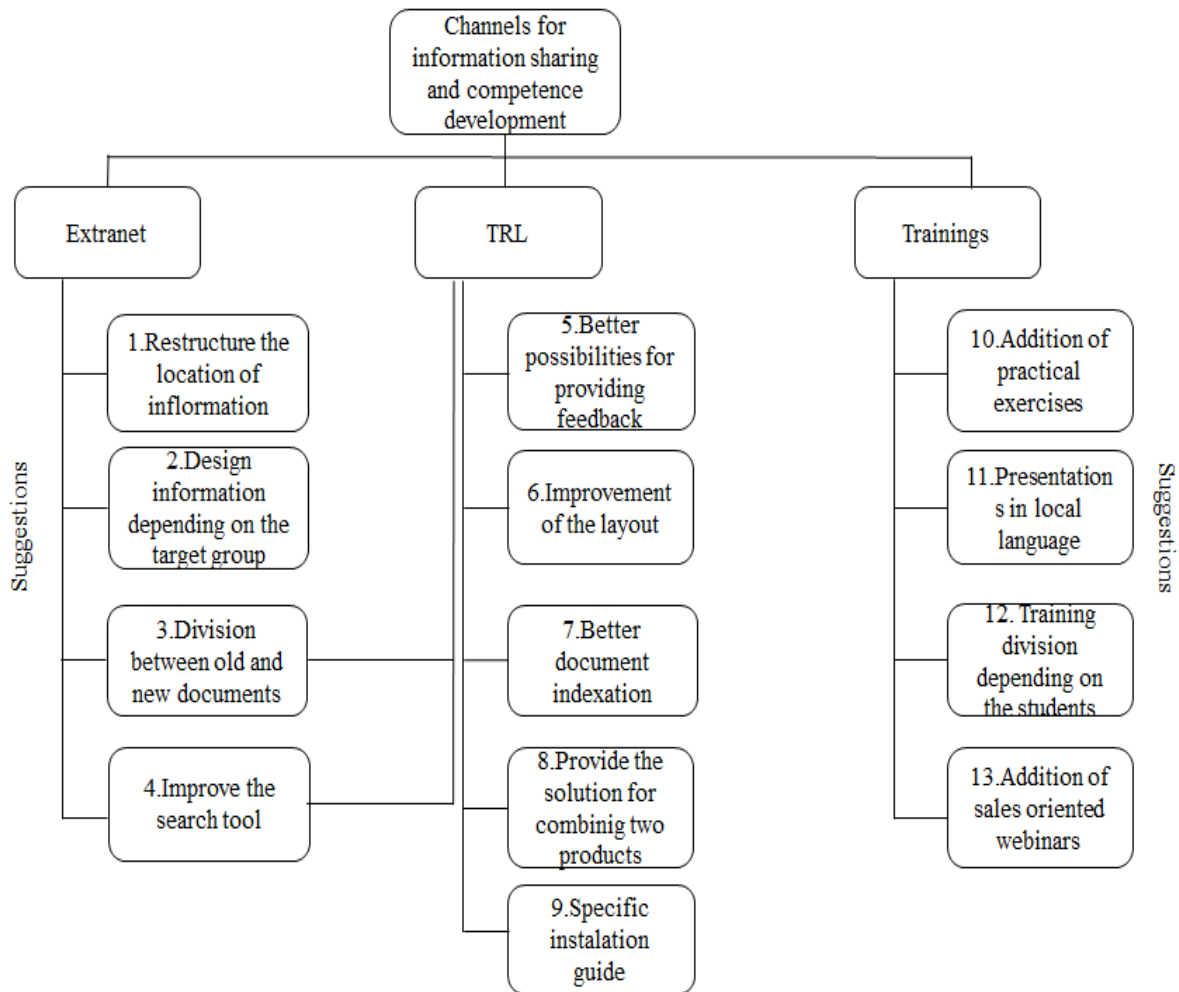


Figure 8 - Suggestions for improvements of the tools used to transmit information

1. Restructure the location of the Extranet information: the main issue of the Extranet is represented by the structure of the page. Users have difficulties in locating information for their everyday work due to the bad division of the documentation. Data about the same product is separated in different sections and often users do not know where to search for specific information. In order to easily locate documents in the Extranet, *all information regarding the same product should be under the same section*. The Internet page should be created with specific links which can lead the user to the location of the information they are searching for. Nevertheless, users would still be able to go to the TRL for strictly technical documentation, but they would be provided with all the links to the documentation about the same product in one list.

*“It would be helpful to have the information in the Extranet about the same product in one place. The employees can click on the type of information they need and the link would take them to the relevant information.” (Channel manager, Norway).*

2. Design information depending on the target group: another solution that would improve the sales employees’ task completion would be to have a division between the documents needed for sales and for technicians. During the customer process, the salespersons have to provide technical aspects of the product, which the client is interested in. These features can be found in the TRL, where documentation contains highly technical details. The majority of details are

not needed, or not understandable for the sales group. The news is mainly dedicated to technical issues as well. A suggestion would be to *have the most important technical aspects required for sales in separate documents*. In this way, users would not have to waste time searching and trying to understand information designed for a person with technical background.

*“It would be good to have different approaches in the Extranet. For example some documents should be more technical oriented and other more sales oriented.”*  
(Portfolio manager, Denmark).

3. Division between old and new documents: on the Extranet page, as well as the on the TRL, employees should be able to identify which information is updated, and which is the old version. At the moment, numerous items of documentation that are no longer used can be found in the TRL. The problem is that users might not be aware that documentation is not correct. Currently, target groups can only see the creation date of the documentation, but they do not have any way of knowing if other version of the file was released. The authors suggest that *the old information should be in separate folders, in order to avoid further confusion*. Regarding new documentation, another suggestion would be to *inform employees when documentation is updated*. This should be presented either in the news feed on the main page of the Extranet, or through newsletters depending on the employees' subscriptions. An example that can illustrate the origins of this proposal is that: when a technician is using a paper that was published several months ago, if improvements or changes were made recently, the employee is not informed. Consequently, the employee will be using the same faulty or old document for his further work.

*“I subscribe to the newsletter, but if a new version of the document is released employees should be informed in an e-mail, so they can know which document to search for in the future.”* (Channel manager, Norway).

4. Improve the search tool: the search tools in the Extranet and TRL were found to be unsatisfactory for the target groups, due to the inappropriate and high number of results. The *search software could be updated, in order to be faster and provide findings based on key words*. The search instrument is considered as the easiest way to locate information in a short time, thus its improvement would be highly advantageous for employees.

*“The search functionality should be improved because every time users of the Extranet/TRL try to find documentation, too many results appear.”* (Technician, Norway).

5. Better possibilities for providing feedback: employees believe that there should be more interaction with the developers of the documentation. The TRL lacks a feature which would allow users to comment on different errors, or on missing documentation. Nowadays, the target groups can report only errors through official documents called “nonconformities”. *An easier method to have updated and accurate information would be if users could mention their comments when reading the document*. The TRL should allow users to send feedback for each file, which can be done by having a text box, or link, which sends the feedback to the owner of the document directly.

*“Typically the employees give feedback on documentation to the local product manager. In the future it could be just a link where the users can write a comment and send it to the owner of the document.” (Channel manager, Norway)*

6. Improvement of the layout: the layout of the TRL creates problems when users are seeking documentation. The system does not have the possibility to adapt to different output screens. The resolution is the same independent of the size of the used computer screen. *Creating an adaptable resolution, which can be suitable for the measures of each monitor, would represent an easier way to locate information on the page.* On the positive side, the text would also be more understandable in terms of size and readability.

*“It would be very good if the TRL had a better screen layout. The window is so small that the users cannot find the documents they need to download.” (Project support engineer, The Netherlands).*

7. Better document indexation: regarding the documents that can be found in the TRL, several improvements can be mentioned. In order to have easily searchable information within a document, one of the suggestions would be to create a better indexation. *The contents of documents should include hyperlinks, which provide the possibility to go directly to the section of interest, without having to scroll down.* Cross references between documentation should also be supplied, allowing the user to easily arrive the location where more details are provided, independent of the file.

*“A good digital system should be searchable, where users could jump with hyperlinks to the information that they need. The TRL documentations should contain these features as well.” (Project manager, Sweden).*

8. Provide a solution for combining two products: users consider that the current TRL lacks information about the final solution that is achieved by combining two products. That means that employees have information about the features and results of installing a product, but they have no information of what will result from the compound of two or more products. This represents a common solution, which makes it possible to gain customer satisfaction. *Both technicians and sales employees should have the possibility to recognize the consequences of combining features of different products, as well as the advantages of this.*

*“Ascom employees always sell teleCARE IP and IP-DECT in one solution, and for the customer this is a solution, but in the documentation there is no recommendation of how the combination should be configured. This is an improvement that technicians would like to see in the TRL in the future.” (Technician, Norway).*

9. Specific installation guide: an improvement necessary for the technicians would also be to have a specific manual for installation in the TRL. *The installation guide should be shorter, mainly composed of images.* In this manner, the installation would be performed and understood at a faster pace. The manual should not contain black and white pictures as it is today. They can be replaced by images with colors which help the technicians easily identify the features of the products.

*“The TRL should contain smaller installation guides. There should be more concrete examples of installation because today there are a lot of black and white drawings that are not clear.” (Project manager, Norway).*

10. Addition of practical exercises during the trainings: the technicians believe that the most valuable source for competence building is hands-on experience. This can be gained by attending classroom trainings where they have the possibility to test products and to get acquainted with their features. As a solution, *the number of practical exercises during trainings can be increased.*

*“It would be good to have more practice in trainings because practical exercises are the one part where students can learn the most.” (Project support engineer, The Netherlands).*

11. Presentation of trainings in the local language: an issue identified among the technicians is that all trainings are in English. This could be problematic for the non-native English speakers. Students could be discouraged to ask questions or they might not understand the presentations in the best way. A solution for this can be to have *different trainers from the Ascom headquarters that can be responsible for providing training to representatives from each country. In turn, the international employees trained at the headquarters can deliver courses in their country, in the native language of the students.* Even though this solution can be time and resource consuming, on the long term it can be beneficial due to the better understanding of courses.

*“Before employees had the Ascom Academy, where one person from each country went to the Academy and when they came back to their countries they did trainings locally. It could be rearranged because it is good to have local trainings which keep employees active. Missing trainings is costly and if competence is not renewed employees cannot move forward.” (System design engineer, Norway).*

12. Training division depending on the students: trainings could also be improved by focusing more on the students' knowledge and field of work. *Trainings should be more focused on the needs of the student and what type of information the student requires for performing work related tasks.* An example could be to create different trainings for system engineers, project managers and field technicians.

*“There should not be only one training for a product, it should be adjusted to tasks or groups. For example more divided into technical persons, system designers or project managers. It is different to commission and install a system and to project manage the same system.” (Project manager, Sweden).*

13. Addition of sales-oriented webinars or face to face trainings: *salespersons should also be provided with online trainings specific for their field of work.* In this manner, the sales groups can be updated with the trends in different countries, selling points of products, positioning, and integration of systems, creating an easier process for identifying customer needs.

*“I would like to see more sales oriented trainings. Today I have seen all the technical details; the trainings are very much technical oriented. What the sales group needs is the unique selling points, how to position products and how to integrate with other systems.” (Channel manager in sales, Norway).*

### ***Future user involvement***

When speaking about the usefulness of documentation for a particular group, it is difficult to foresee what type of information the group requires or expects. Without having knowledge of the expectations the users have, it is tough to create suitable data. In order to produce information that satisfies the target group's needs, the users' opinions should be considered. An example could be that a document is emphasized on certain titles which are not essential for the users' tasks. Conversely, the file can lack details in other parts, which hold more value for the users. Therefore, user involvement in the development of information should always be present.

The authors propose that the organization selects a group of users from both target groups (sales and technicians). *This group can be composed of 4-5 people, with field experience, which can provide their input on documents before they are released.* By having this procedure, the respective users can have ownership over the document; identify information that is missing, or that can be shortened, as well as possible mistakes. The sessions for providing feedback could be done as workshops, or webinars. A sample of the document can be delivered to the selected participants before the meeting, thus allowing the group to read the documentation thoroughly and ensure fruitful feedback.

The authors believe that the quality and features of the information would highly be improved, and there would be less time spent on resolving reported errors, if the users are more involved in the development of documentation.

## 6. Conclusion

The core purpose of the present paper was to investigate how to build the competence of different target groups in an organization with the help of information and information tools. The authors conducted the research at Ascom Wireless Solutions by having interviews with different employees, as well as with the support of an online questionnaire. In order to obtain a favorable result, an extended literature search was done. The outcome provided the possibility to identify important aspects (eg: information quality) for the investigation which lead to the construction of the proposed model (Figure4). The motives behind the choice for this model is that the previous models presented (DeLone and McLean, Saarinen) identify several factors which were tested and implemented in different investigations and companies. These factors proved to be needed for the success of transferring information. The authors chose the most suitable parts to be implemented in the current study. The final model was constructed of five elements: information development, quality of the system and quality of the information, use of the system, and individual competence. These elements were utilized for analyzing the issues discovered during the study.

Information was found to be an essential factor for competence building within the organization. In order to have employee productivity and to obtain the necessary competence for given assignments, the target groups have to be supplied with information concerning the tasks they have to complete. The employees' main tasks regard segment and product knowledge which are gained through information provided by Ascom. In order to acquire information for daily work, the target groups (sales and technicians) rely on official channels delivered by the company. These channels are the Extranet, TRL, and trainings. Other sources mentioned, were informal communication with more experienced colleagues, or external sources such as Google and seminars. The authors found that having access to internal tools for sharing information (Extranet, TRL, Training) is not sufficient for building competence. A requirement for success is that the channels and the information transmitted to the target groups are qualitative. Having this in mind, the result of this research identified several flows for each tool used to transmit information within Ascom Wireless Solutions. The organization of the Extranet information as well as the search tool were considered inconvenient for locating information. The TRL presented problems with the search tool, and the accuracy of information. Moreover, it lacked the ability of providing feedback on documentation. The users admitted to being satisfied with the trainings, even though the classes were mostly technically oriented. Based on the difficulties detected during the research, several suggestions for improvements were proposed. First of all, in order to have qualitative information, communication between information developers and users should be increased. Regarding the Extranet, the suggestions concern the structure of the webpage, and the ideas that would aid the users to find information in an easy manner. The TRL suggestions are mostly concerned with the structure of the documentation and its contents. Other improvements for the TRL are regarding the interactivity feature of the software and its layout. The suggestions for the Trainings are considered highly important due to the necessity of the channel for building competence. The addition of sales oriented webinars and more practical exercises in technical classroom trainings were part of the presented solutions.

Finally, it can be concluded that it is possible for the target groups (sales, and technicians) to achieve the right competence for task completion with the help of the current internal channels for receiving information. Even though there are many flaws found within the three main channels (Extranet, TRL, Trainings), with the proper improvements they can become reliable sources for building competence.

## ***6.1 Future research***

The current research can contribute to the field of competence development through information sharing in organizations. The authors believe research gaps might be found which can be addressed by future research. Organizations face many problems that are related to information system processes, competence maintenance, and communication. Hence, future researchers can explore organizations from different angles. Therefore, the authors of the current study propose several future research questions:

- Social media contribution to the competence development process.
- Competence development: analysis of one specific channel ( e.g.: trainings).
- All organization's employees' expectations and perception about competence development in the organization.
- Personality and cultural background influence on competence development in multinational organizations.
- The importance of communication on competence development and the organizational processes.



## References:

Andersen, K.V., Vendelo M.T. (2004) *The past and the future of information systems*, 1st edition, Butterworth-Heinemann information systems series, p. 43-44.

Ascom Wireless Solutions information was retrieved from:

<http://www.ascom.com/en/index/>

Barua A., Ravindran S., Whinston B. A. (2007) Enabling information sharing within organizations, *Information Technology Management*, Springer Science Business Media, p. 31-45.

Benbasat I., Goldstein K. D., Mead M. (1987) The Case Research Strategy in Studies of Information Systems, *MIS Quarterly*, Vol. 11, No. 3, Management Information Systems Research Center, University of Minnesota, p. 370,373.

Bethlehem J., Biffignandi S. (2012) *Handbook of web surveys*, John Wiley & Sons Inc., p. 37-38, 45.

Boddy D., Boonstra A., Kennedy G. (2005) *Managing information systems: An organizational perspective*, 2nd edition, Pearson Education Limited, p. 5,14,134,135.

Brannen S. B. (2012) *Qualitative Research Methods for Media Studies*, Routledge: Taylor and Francis group, p. 3-4.

Chen Q. D., Mocker M., Preston S. D. (2010) Information system strategy: reconceptualization, measurement, and implications, *MIS Quarterly*, Vol. 34, No. 2, p. 234-235.

Choo H.T.G., Hooper V. (2006) Working with information: information management and culture in a professional services organization, *Journal of Information Science*, Sage publications, 32 (6), p.495.

DeLone H. W., McLean R. E. (2003) The DeLone and McLean Model of Information Systems Success: A Ten-Year Update, *Journal of management information systems*, M.E. Sharpe Int., p. 10-18, 21, 23.

DeLone H. W., McLean R. E. (1992) Information Systems Success: The Quest for the Dependent Variable, *The Institute of management sciences*, p. 84-85.

Drury D.H., Farhoomand A. (1998) A Hierarchical structural model of information systems success, Vol. 36, No. 1/2, p.28.

Dwivedi K.Y., Wade R. M., Schneberger L.S. (2012) *Information systems theory*, Springer Science&Business Media, p. 4-5.

Eppler J.M. (2003) *Managing information quality: increasing the value of information in knowledge-intensive products and processes*, Springer, p. 17, 27,294.

Feldman S. M., March G. J. (1981) Information in Organizations as Signal and Symbol, *Administrative Science Quarterly*, Vol. 26, No. 2, Sage publications, p. 171.

Garrity J.E., Sanders G.L. (1998) *Information systems success measurement*, Idea group publishing, p.14, 106.

Gorla N., Somers M. T., Wong B. (2010) Organizational impact of system quality, information quality, and service quality, *Journal of Strategic Information Systems* 19, Elsevier B.V, p. 211-213.

Guallino G., Prevot F. (2008) Competence- building through organizational recognition of frequency of use: case study of the Lafarge group's development of competence in managing post-merger cultural integration, *Advances in Applied Business Strategy*, Vol.11, Elsevier Ltd. p.65, 70.

Harris E.T. (2002) *Applied Organizational Communication- Principles and Pragmatics for Future Practice*, 2nd edition, Lawrence Erlbaum Associates Publishers, p. 200, 308, 310-311, 412.

Herling R.W., Provo J. (2000) Knowledge, competence, and expertise in organizations. *Advances in Developing Human Resources*, 2(1), p.1-7.

Joshi K., Rai A. (2000) Impact of the quality of information products on information system users' job satisfaction: an empirical investigation, *Information Systems Journal*, Blackwell Science Ltd, p. 328.

Kirk J., Miller L.M. (1987) *Reliability and validity in qualitative research*, Qualitative research methods, Vol.1, Sage Publications, p. 19.

Lindlof R. T. (1995) *Qualitative communication research methods*, Sage Publications, p. 88, 163-167.

Merali Y., Papadopoulos T., Nadkarni T. (2012) Information systems strategy: Past, present, future?, *Journal of Strategic Information Systems* 21, Elsevier B.V, p.127.

Morgan A. G., Gliner A. J., Harmon J. R. (2000) Internal validity, Vol.39, Elsevier Ltd., p.529.

O'Brien A.J., Marakas M.G. (2007) *Enterprise Information Systems*, 13th edition, The McGraw-Hill/Irwin, p. 30,60, 511.

Petri J.C. (2001) *Organizational information provision: managing mandatory and discretionary utilization of information technology*, Linköping studies in science and technology, Dissertations: 720, p. 32-33, 73.

Roe E. B., Rust J. D. (2009) Internal and External validity in economics research: tradeoff between experiments, field experiments, natural experiments and field data, Agricultural and Applied Economics Association, p. 1266.

- Roth J. (2003) Enabling knowledge creation: Learning from an R&D organization, *Journal of knowledge management*, MCB UP Limited, p.33, 35.
- Saarinen T. (1996) An expanded instrument for evaluating information system success, *Information & Management* 31, Elsevier Science B.V., p.104-107.
- Saunders M., Lewis P., Thornhill A. (2003) *Research methods for business students*, 3rd edition, London Prentice Hall, p. 85-89, 91, 102,129,188, 280, 292-295, 378.
- Savanevičienė A., Stukaitė D., Šilingienė V. (2008) Development of Strategic Individual Competences, *Engineering Economics*, No. 3 (58), p.81.
- Spencer M. L. (1993) *Competence at work: Models for a superior performance*, John Wiley & Sons. Available from:  
<http://library.books24x7.com.proxy.lib.chalmers.se/assetviewer.aspx?bookid=8111&chunkid=720132808&rowid=29> [Accessed April 15, 2013].
- Seddon B. P. (1997) A respecification and extension of the DeLone and McLean Model of Information System Success, Institute for Operations Research and the Management Sciences, p. 246.
- Swanson B.E. (1987) Information channel disposition and use, *Decision sciences: information systems, operations & supply chain management*, Vol.18, p. 131.
- Thomas R.D. (2006) A General Inductive Approach for Analyzing Qualitative Evaluation Data, *American Journal of Evaluation*, Sage Publications, p. 238.
- Treadwell D. (2011) *Introducing communication research. Paths of inquiry*, Westfield State College, Thousand Oaks, California, p. 16, 25, 128,165.
- Ward J., Peppard J. (2006) *Strategic Planning for Information Systems*, 3rd edition, John Wiley & Sons, p. 47-48,118-119,468.
- Whittemore R., Chase K.S., Mandle C.L. (2001) Validity in Qualitative Research, Sage Publications, p. 523.
- Woodside A. (2010) *Case Study Research : Theory, Methods and Practice*, Emerald Group Publishing Limited, p. 1, 11-12, 264.
- Yin K. R. (1981) The Case Study as a Serious Research Strategy, *Knowledge Creation, Diffusion, Utilization*, Vol. 3, Sage Publications, p. 99.

**Appendix:**

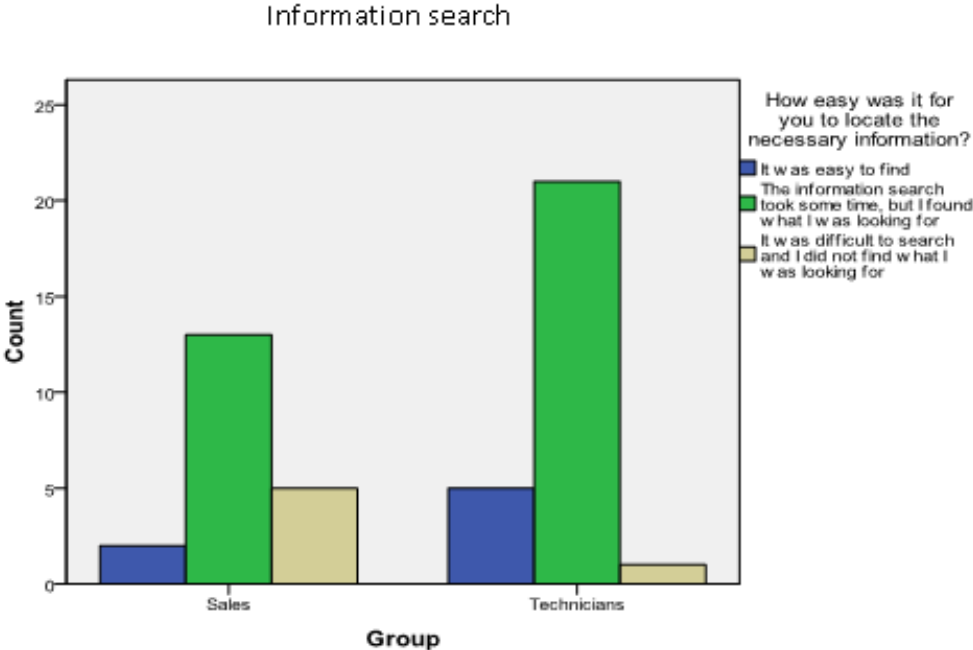


Figure 9 - Extranet structure concerning documentation

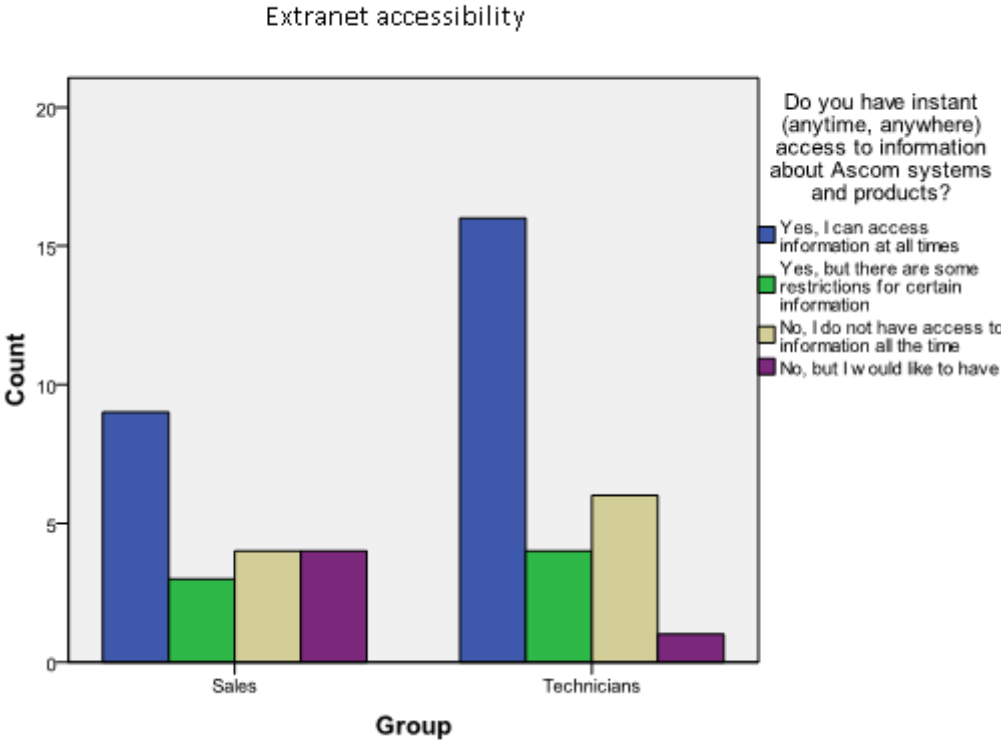


Figure 10 - Extranet accessibility

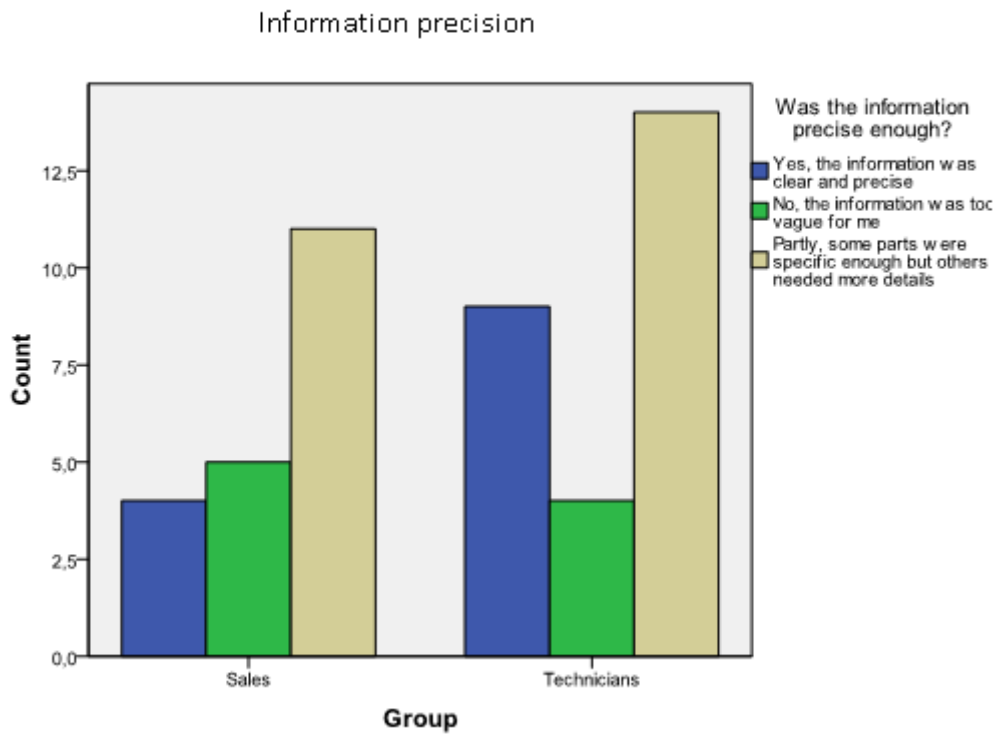


Figure 11 - Extranet information precision

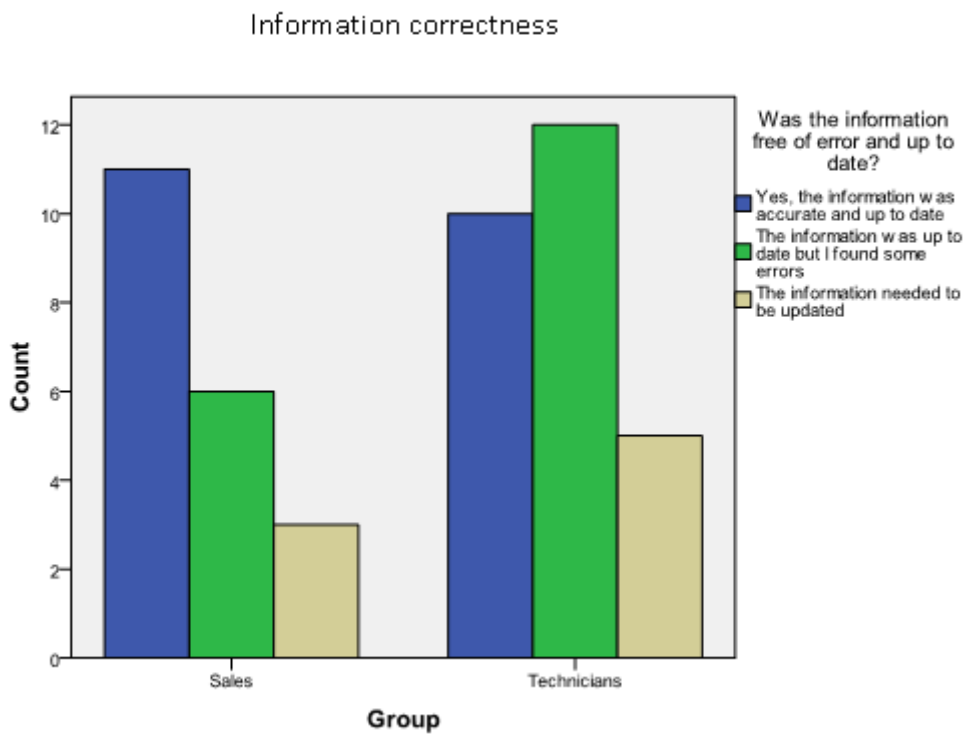


Figure 12 - Extranet information correctness

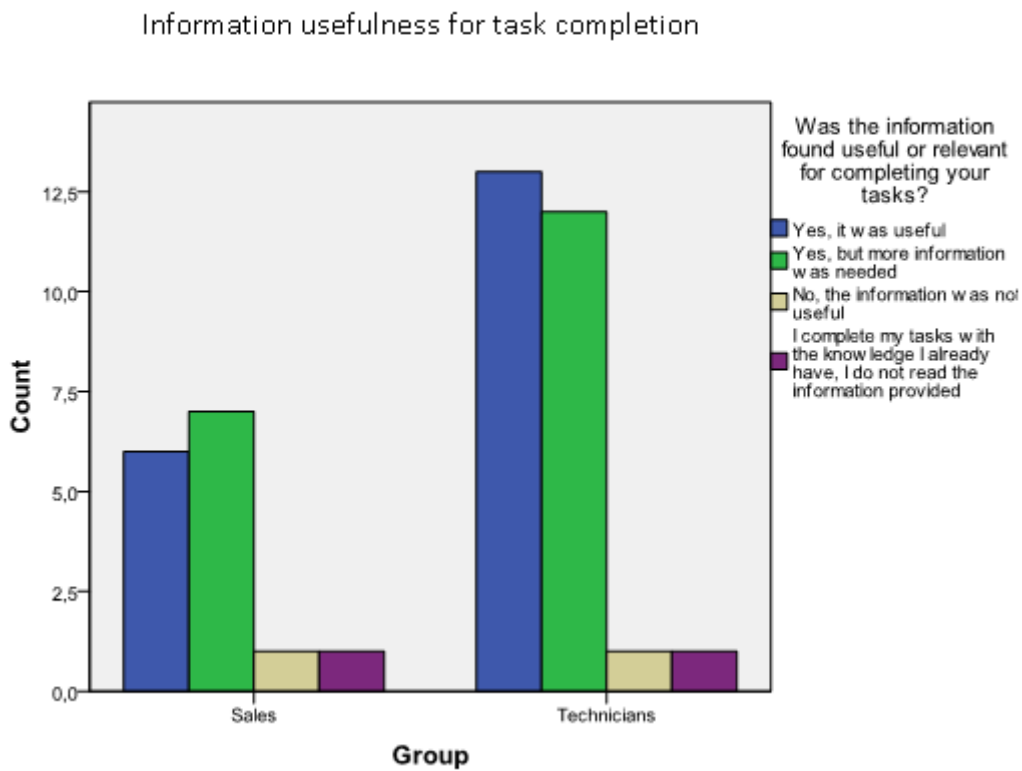


Figure 13 - Information usefulness and relevance for task completion

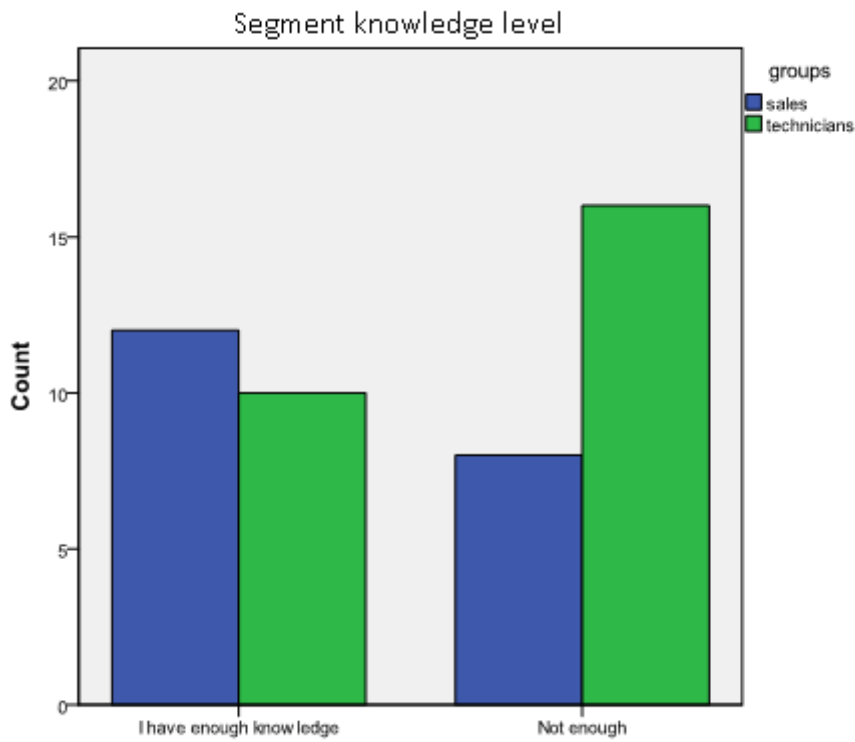


Figure 14 - Segment knowledge level

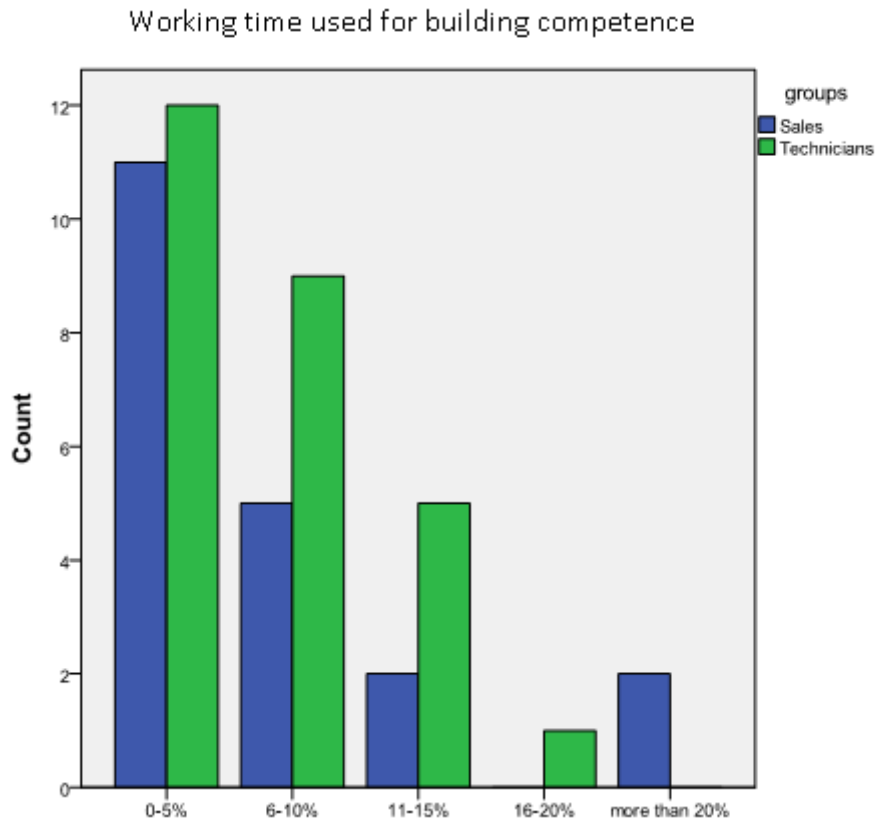


Figure 15 - Working time spent for building competence

Is this time enough for you to build your competence?

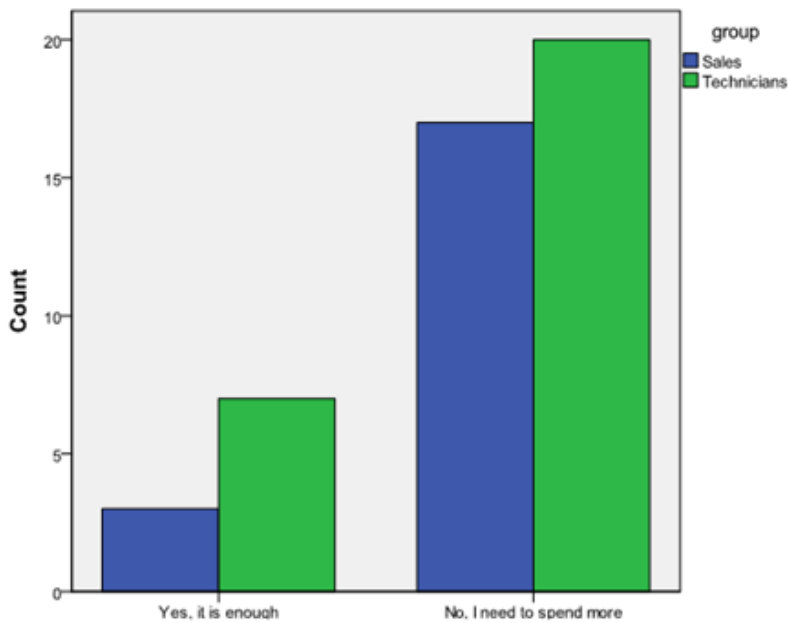


Figure 16 - Is the time spent on building competence enough?

## **Interview 1**

1. What type of information do you produce?
2. What is your target group?
3. Why is it relevant to produce this type of information?
4. Is this information applicable to all the groups?
5. To what extent does it help the intended users to perform their tasks?
6. Do you consider the fact that people might have different knowledge when creating the information?
7. Do you consider the fact that people might have different needs for information when creating it?
8. On which criteria do you structure the information?
9. When creating a document, do you usually try to include as many details as possible or keep it simple and easy to go through?
10. Would you say that it is easy or rather difficult to identify the important aspects of the produced information?
11. Did you face any problems with the understanding of your produced information?
12. When you get a complaint, is it regarding the way documentation is structured or regarding the way it is shared?
13. Do you communicate with the target groups in order to know their needs and expectations and to get feedback on the information received?
14. How do you usually share the information you produce?
15. What are the advantages and disadvantages of this channel?
16. How does the sharing depend on the product?
17. How does the sharing depend on the target group?
18. Are there any other situations when you send the information by other channel?
19. Do you usually inform users about the release of new information?
20. How much time does it take for you to gain proper knowledge about products in order to produce the documents?

## **Interview 2**

1. What is your job title?
2. Which is the most important segment for your work?
3. How would you like to improve your segment knowledge in the future?
4. Can you please specify your main 3 tasks?
5. What are the most important competences in order to perform these tasks?
6. In which way do you build your competence?
7. How would you like to build competence in the future in order to increase your productivity?
8. What are the most common problems that you face during your work day?
9. Can you please describe how you deal with these problems and which information you use?
10. Where do you look for this information?
11. Depending on your location, can it be difficult to access information?



12. Do you always find the information you are looking for?
13. Does it take a long time to find the information you need?
14. Is there a problem with the structure, content?
15. Can you explain what would you do if the information was not available?
16. Do you use the Extranet/Partner Web to solve the problems?
17. What is your opinion about the search quality, structure, text quality?
18. What would you change in the current Extranet Page in order to help you increase your competence?
19. Do you use the Technical Reference Library?
20. What is your opinion about the search quality, structure, text quality?
21. What would you change in the current TRL in order to help you increase your competence?
22. Are there often situations in which you want to give comments to documentation that you receive/read about Ascom?
23. Which types of trainings helped you build your competence? How would you like to improve trainings in order to build competence in a better way?
24. Which channels do you think will be important in the future?
25. Do you believe that information would be more useful if the target groups were involved in the development process?
26. How would you prefer to receive and search for information about Ascom products and systems in the future?

### Online questionnaire

1. In which country are you working? \*

Please select one option

2. What is your job title? \*

Please write your answer in the box below

3. With which of the following segments are you working? \*

You can choose more than one answer

- Hospitals
- Elderly care
- Industry
- Retail
- Hotels

- Secure establishments
- None of the above

4. Please rank the importance of the following segments for your business.  
Please rank only the segments that your customers are operating in

	Very important	Important	Neutral	Of little importance	Not important at all
Hospitals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Elderly care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Retail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hotels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Secure establishments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Do you have enough segment knowledge to identify customer needs? \*

Please choose one answer

- Yes, I have enough knowledge
- Yes, but not enough
- No, I do not have knowledge of these segments

6. What are your main tasks? \*

You have the possibility to choose more than one option

- Analyze customer needs
- Produce selling prognosis and report to sales manager
- Keep contact with and try to influence existing and potentially new customers
- Create pricing tactics
- Design tenders (proposals)
- Evaluate alternative solution and judge which one suites the customer best
- Describe system functionality and solutions corresponding to the customers' needs and create block schemes
- Judge whether a solution is basic, advanced or complex
- Installation
- Configuration

- Commissioning
- Trouble shooting
- Maintenance
- Other:

7. What are the most important competences required to perform these tasks? \*  
Please express your opinion in the box below

8. How much of your working time do you use for building your competence? \*  
Please choose one answer

- 0-5%
- 6-10%
- 11-15%
- 16-20%
- More than 20%

9. Is this time enough for you to build your competence? \*  
Please choose one answer

- Yes, it is enough
- No, I need to spend more

10. Please rank the following information channels depending on their level of usefulness for your work.

You can choose the degree to which each channel was useful for completing your tasks

	Very useful	Useful	Neither useful or useless	Poor usefulness	Completly useless
Extranet/Partner Web	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-mail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Informal communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Product information meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very useful	Useful	Neither useful or useless	Poor usefulness	Completely useless
Technical documentation (TRL)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning management system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. If you chose the option "Other" in the previous question please exemplify which are the other channels.

Please write your answer in the box bellow

12. Which of the following Ascom training types did you attend? \*

You can choose more than one option

- E-learning
- Webinar
- Classroom training
- I did not attend any training

13. Please rank the following training types.

Rank only the types of trainings you attended

	Very useful	Useful	Neither useful or useless	Poor usefulness	Completely useless
E-learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Webinar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Classroom training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Questions from 14 to 20 are regarding the Extranet/Partner Web

14. How easy was it for you to locate the necessary information? \*

Please choose one answer

- It was easy to find
- The information search took some time, but I found what I was looking for
- It was difficult to search and I did not find what I was looking for

15. Do you have instant (anytime, anywhere) access to information about Ascom systems and products? \*

Please choose one answer

- Yes, I can access information at all times
- Yes, but there are some restrictions for certain information
- No, I do not have access to information all the time
- No, but I would like to have

16. Was the information precise enough? \*

Please choose one answer

- Yes, the information was clear and precise
- No, the information was too vague for me
- Partly, some parts were specific enough but others needed more details

17. Was the technical level in the documents too high or too low? \*

Please choose one answer

- It was too high
- It was too low
- It was just enough to understand the description in a good way

18. Was the information free of error and up to date? \*

Please choose one answer

- Yes, the information was accurate and up to date
- The information was up to date but I found some errors
- The information needed to be updated

19. Was the information found useful or relevant for completing your tasks? \*

Please choose one answer

- Yes, it was useful
- Yes, but more information was needed
- No, the information was not useful

I complete my tasks with the knowledge I already have, I do not read the information provided

20. Please add any comments that you might have related to Ascom information about products and systems in the text box bellow.