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SOFTWARE PURCHASING PROFESSIONAL

Identifying Competences and Capabilities in Software Purchasing

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ABSTRACT

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This study explores the existing purchasing and supply management competence theories and seeks to understand if these theories are applicable in evaluating the competence requirements in the specific business category, software purchasing.

The aim of this study was to identify the meaning and content of individual competence and capability in the field of purchasing and supply chain management, and to take this information on the case organization level to identify the most important competences in software purchasing, and the current level of these competences in the case organization.

This research was carried out by using a case study method. Data for this case study was acquired by a questionnaire, observations in the case organization and from the company's internal documents.

Based on the results of this work, it can be stated that even if the emphasis and reasoning behind the required competences is a bit different due to the specialties of the software business and products, the overall purchasing and supply management competence and capability theories can be used as a framework in evaluating the level of the PSM competences in software purchasing organization. Case organization can use the results in their competence development, by filling in the identified gaps.

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1 INTRODUCTION

1.1 Background

The role and importance of purchasing and supply chain management has changed in recent years. In the past years it was not unusual that purchasing was considered only as a cost causing function inside the company, and the most important goal given was the cost reduction (Faes, Knight & Matthyssens 2001; Carr & Smeltzer 2000). Where the sales and marketing personnel was rewarded for their achievements with champagne, the role of purchasing was to support and act as invisibly as possible. Problems in purchasing and supply chain can be easily noticed, and therefore invisibility usually means smooth operations. It is of course evident that without the efforts made in marketing and sales, business can hardly be successful, but today purchasing and supply chain management are also seen as a strategic functions of a company and as an important part of the business success.

When companies are seeking and focusing on their core competencies, they are outsourcing some of their other activities. Outsourcing of such tasks and activities that are not seen as a company's core competences are becoming more popular. This gives more emphasis and significance for purchasing. Growing amount of products and services are sourced from outside and the effect of purchasing decisions on the company's financial results is growing. This trend seems to be continuing. An effective and efficient purchasing and supply function can make an important contribution to company's results (Van Weele 2005, p.4). Purchasing as part of the supply chain can be one of the company's strategic weapons and therefore it is seen and developed as a part of the value chain. When analyzing the evolution of purchasing orientation, Van Weele (2010, p.6) noted that a firm's ultimate goal is to integrate its supply chain in order to achieve customer satisfaction; this perspective embraces the effective dimension of purchasing. Hence, the goal of effective purchasing is to provide value for the supply chain's direct downstream customers.

During the last couple of decades the whole business environment has changed rapidly. Business and competition are more global, communication and information systems are constantly developing, openness and transparency has increased, customers are more and more demanding and production needs to be more flexible than ever.

This change have impacted also on purchasing; relative share of purchases has grown, complexity has increased, type of supplier relationships has changed and lead to the situation where traditional competitive bidding is any more not enough (Iloranta & Pajunen-Muhonen 2008, p.52). Coping with all these changes does require new organizational knowledge, skills and capabilities. The traditional role of purchasing is not enough, because the competitive strength of an organization depends on their ability to manage the critical external resources and organizational purchasing and supply chain capabilities (Peltola 2007). Effective purchasing and supply chain management adds value to customers and increases the profits and benefits to the owners. Business performance and success can be improved by constant development of purchasing and supply chain management capabilities and competences.

According to Iloranta & Pajunen-Muhonen (2008, p.119), effective purchasing and supply chain has a significant effect on company's results. The following three differences were identified between the best and the worst companies:

The best companies were able to recruit more competent people with the overall management experience from other functions, with analytical skills and special knowledge from the relevant products or services. In addition, employees were systematically and constantly trained. Best companies also set clear targets for the purchasing organization and had systematical and wide measurement systems to follow the results. They did not concentrate only on cost reductions, but on more holistic results of the business development. In best companies purchasing and supply chain worked in very close co-operation with other functions. (Iloranta & Pajunen-Muhonen 2008, p.120)

Today, when European and also the global economy are facing serious challenges and economic growth is again slowing down, the situation may bring the costs once again to the point of attention. Thus, this does not remove the fact that appropriate purchasing and supply chain skills, competencies and capabilities are the pre-requisites for the business growth and profits.

1.2 Development of purchasing

There are several different concepts and terms used in the field of purchasing and supply chain management, and for example the terms purchasing, procurement and sourc-

ing have often been used interchangeably. Thus, they are defined slightly differently depending on the source and time, and there is no common agreement about the definitions of these terms.

The greater interest in purchasing and its development have started in the mid 1800s, mostly in the area of textile industry and railroads. The first signals of organizing purchasing as a separate corporate function requiring specialized expertise are from the late 1800s. The gradual recognition of the importance of sound procurement to company operation developed during the World Wars. Obtaining the vital war material increased the interest in purchasing, but the awareness slightly decreased after the wars. It was thought that "purchases were simply an inescapable cost of doing business which no one could do much about" (Monczka 2010, p.17).

During the early years, purchasing was merely seen as a secondary and supportive service activity within the traditional value chain of the company (Leenders, Nollet & Ellram 1994). However, latter theoretical approaches have considered purchasing as a strategic function that adds value for the customers (Dumond 1994; Lindgreen & Wynstra 2005 and Rozemeijer 2008) and can create a sustainable competitive advantage for the firm (Mol 2003).

Axelsson, Rozemeijer & Wynstra (2005, p.3) have described the development of the role of the purchasing function as a process in which the responsibility has gone from buying, via procurement to supply management. These development steps have meant an increase in the scope and impact of purchasing activities within the organization.

In an early concept of buying, before the 1950's, purchasing had a rather narrow scope with a low degree of sophistication. It represented purchasing activities and responsibilities that deal with buying the goods and services needed, and making sure that the items bought are acquired at the most favorable conditions. Cost and price were seen as the most critical factors in such purchasing decisions. (Axelsson et al. 2005, p.3)

Conceptualization of procurement started in the 60s and was dominating in the 80s. Procurement deals with acquisitioning and optimizing the flow of materials. This widened scope means that not only the price but also volumes and time aspects are being taken into account (Axelsson et al. 2005, p.4). For example Lysons & Farrington

(2006, p.9) have stated that purchasing is buying materials of right quality, in the right quantity from the right source delivered to the right place at the right time at the right price. Procurement is a wider concept than buying and it refers to all activities that are required in order to get the product from the supplier to its final destination. It encompasses the purchasing function, stores, traffic and transportation, incoming inspection, quality control and assurance, and used when relating to purchasing based on the total cost of ownership, rather than pure price (Van Weele 2010, p.10).

The Global Era at the end of 20th century significantly increased the importance of purchasing due to major development and challenges in business. Worldwide competition, rapidly changing technology and customer expectations forced firms to take a more coordinated view of managing the flow of goods, services, funds, and information from suppliers through end customers (Monczka 2010, p.205). This was a beginning of a supply chain management.

"Purchasing as in 'supply management' increases the scope of purchasing several steps further and includes also the formation of supplier structures, the development of suppliers capabilities, improving administrative routines and so on. All this is done to reduce the total cost, not only the price of the products bought" (Axelsson et al., 2005 p.4). Supply management refers to a wider concept than buying, procurement and sourcing. According to van Weele (2010, p.18), supply chain management means the management of all activities, information, knowledge and financial resources associated with the flow and transformation of goods and services up from the raw materials suppliers, component suppliers and other suppliers in such a way that the expectations of the end users of the company are being met or surpassed. He defines (2010, p.8) purchasing in this kind of wider context: "Managing the company's external resources in such a way that the supply of all goods, services, capabilities and knowledge which are necessary for running, maintaining and managing the company's primary and support activities is secured at the most favorable conditions". Monczka et al. (2005, p.56) have noted the important aspect of supply management, which is the strategic context, and defined purchasing to include internal operations and external supplies to achieve advantages in cost management, product development, shorter lead times and quality issues.

Purchasing, as a function, is acquiring raw materials, components, goods and services for conversion, consumption or resale. Purchasing department is the organizational unit carrying out this function. Van Weele (2010, p.9) includes in purchasing function several closely interrelated activities, as defined in the Figure 1 below. Picture shows the whole procurement process including the supplier and the customer, and the process steps included into the purchasing function.

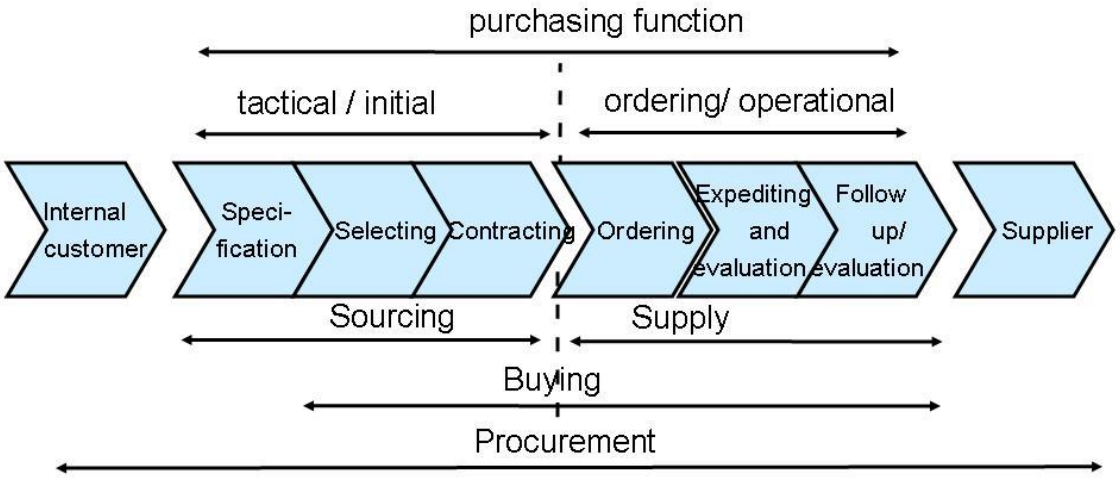


Figure 1. The purchasing process model (Van Weele, 2010).

Process steps are divided into tactical and operational activities, concept level sourcing and supply activities. Sourcing has started already before the operational purchasing can happen. It includes finding sources of supply, guaranteeing continuity in supply, ensuring alternative sources of supply and gathering knowledge of procurable resources (Van Weele 2010, p.10). Sourcing is a cross-functional process, aimed at managing, developing and integrating with supplier capabilities to achieve the competitive advantage (Axelsson et al. 2005, p.7). These sourcing or tactical level activities include the purchasing involvement in product specification process, supplier selection and supplier contracting. Operational level or supply encompasses all activities related to the ordering and expediting function. In addition to these two levels of ac-

tivities inside the purchasing function, procurement includes also the third dimension, the strategic level activities. These strategic activities cover such purchase decisions that influence the market position of the company in the long run, for example outsourcing decisions. These decisions are primarily under the responsibility of the top management.

In this study, the term purchasing is used in the modern strategic context of a supply chain management. However, this study also is consonant with Van Weele's (2010) purchasing process model including tactical and operational activities within the purchasing function. Purchasing covers both sourcing with the tactical activities, and the supply side with operational activities.

1.3 Finding the best competences and capabilities

Due to the fast changing global business environment new organizational knowledge, skills and capabilities are needed. Companies are seeking for the most competent and capable professionals to help in adding value to the end customer. The same concerns purchasing function as part of the company's value chain. Requirements from the global business environment are growing, and the knowledge and capabilities of the employees need to follow this change. Axelsson et al. (2005, p.136) have noted that increasing degree of professionalism in the field of purchasing is also reflected in the skills demanded from people. There seems to be a strong awareness of the need for adequate and matching competencies.

Finding the best competences is not always easy, and somewhat due to the historical reasons, especially not in the field of purchasing. Axelsson et al. (2005, p.25) raised three features that could explain these special and challenging conditions in purchasing. The first feature is the "Low-status" history of the purchasing function. In the era of 'buying', purchasing tasks were quite normally performed in isolation from other units and the image of this function overall was not so "cool". Even if the status of purchasing function and its role in the organization has improved due to the increased purchasing ratios and realized strategic importance, following comment from an IBM manager reflects the old situation: "In the past when you could do nothing else at IBM we made you a buyer. When you couldn't design anything, when you couldn't build anything, when you couldn't carry anything, when you couldn't deliver anything – we

put you into the purchasing organization" (Axelsson et al. 2005, p.25). The second feature is the "policeman" role of the buyer. The controlling role of purchasing comes from the fact that purchaser is seen to be in charge of the company wallet and therefore has a strong focus on possibilities to save company's money. Every good new idea is to be considered against the cost aspects and this has created a certain perceptions of the competences of purchasing professional as lagging behind other functions. The last feature is the difficulty in measuring and showing the results from purchasing. Prices and cost are easy to measure, but many other aspects, for example, the avoidance of problems thanks to well-performed processes and procedures and/or skilful choices of suppliers, are hard to measure. It is difficult to demonstrate the avoidance of costs, based on the avoidance or early elimination of upcoming problems. (Axelsson et al. 2005, p.26)

Cavinato (2006, p.1) has stated that developing today's competitive purchasing skills and talent is a challenge that is unmatched by any other period in the buying and purchasing field. The challenges and opportunities are evolving and moving faster than at any other time in a history of purchasing. This environment requires a focus on the purchasing competences and capabilities that will be needed in the future and building for them should be starting today.

According to the recent studies (Iloranta & Pajunen-Muhonen 2008, p.95), one of the key development trends in the area of purchasing and supply chain management today is the purchasing competence development. Companies have realized that to be able to use purchasing and supply chain function as their strategic weapon, competencies and capabilities of the personnel need to be developed constantly. Traditional knowledge once gained is not enough. There is a need to be proactive instead of reactive, and integrated instead of passive.

1.4 Software business

Software (SW) business is not like other businesses. The technology consists of a digital "soft" good – usually English-like programming commands eventually translated into zeros and ones – that provide instructions to computer. These instructions form products that companies can standardize for many users, customize for individual users or do something in between. Range of possible products and services is almost in-

finite (Cusumano, 2004). Software products can be either standardized volume products, or very large customized solutions.

Software industry is a sub-sector of the larger information and communication technology (ICT) sector. The importance and size of the ICT sector has increased rapidly accounting currently for approximately 5.4% of the GDP worldwide, and is estimated to account for 5% of total GDP growth. The role of software industry is considerable within the ICT sector. For example, according to the recent report of the European Commission, half of the total ICT employment in Europe was accounted by computer services and software subsector in 2007. Furthermore, this sub-sector produced 42% of the total ICT sector value-added. The growth of the IT industry is expected to continue in 2011. The software and software-based services market in EU area was about 231 billion Euros in 2009. In the year 2013, market value is expected to be 342 billion Euros, when yearly growth would be approximately 10%. (Rönkkö, Peltonen, Ylitalo, Koivisto, Mutanen & Valtakoski 2009)

SW industry is very dynamic and developing rapidly due to the fast changing environment for software and IT services. There are a lot of interdependencies between the technological, societal and economic development inside the industry as well as in the overall economy and society due to the multidisciplinary nature and function of software. Lot of technological changes is ongoing in the society currently and these changes have effect on people and businesses on several levels. Examples of such technological developments are cloud computing and mobile applications that are enabling totally new ways of using services in business world as well as for the individual customers. This brings changes to the software design and development models but also the way how software is distributed and sold. Supply chain is also facing new challenges; how software is productized, delivered to customers and what is the basis and trigger for the invoicing. The emphasis is going towards service-oriented markets and business, and internet as a delivery channel is emerging fast. (Rönkko, Peltonen & Pärnänen 2011)

Most of the software sales are so called business to business sales. Software companies are typically producing fairly expensive business critical applications and systems. Typical size of one transaction is between 1 000 and 100 000 Euros (Rönkkö et al. 2011), and in large organizations and large sales cases the buyer is more often a top

manager or a technical buyer while end users and middle managers buy software in smaller transactions and in smaller firms.

SW business is covering three overlapping business and product categories. These categories, which are shown in Figure 2, are software products, customer tailored software and embedded software (Hyvönen 2003, p.3). These all can include services, such as installation, training and maintenance services.

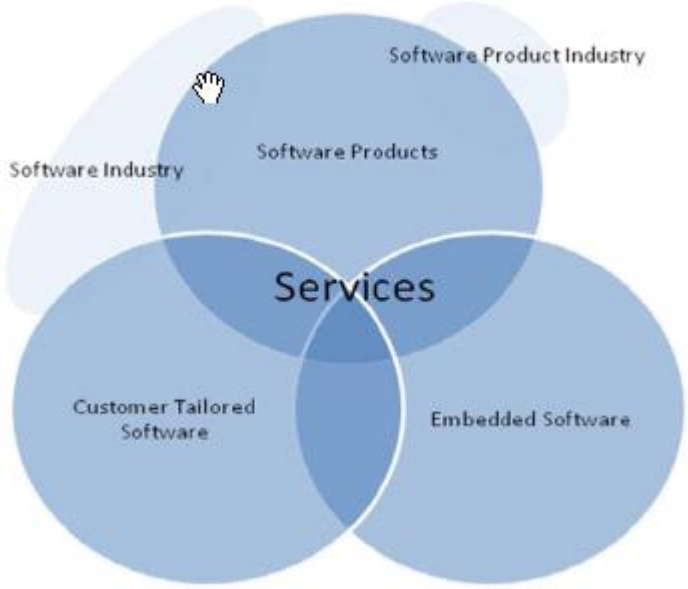


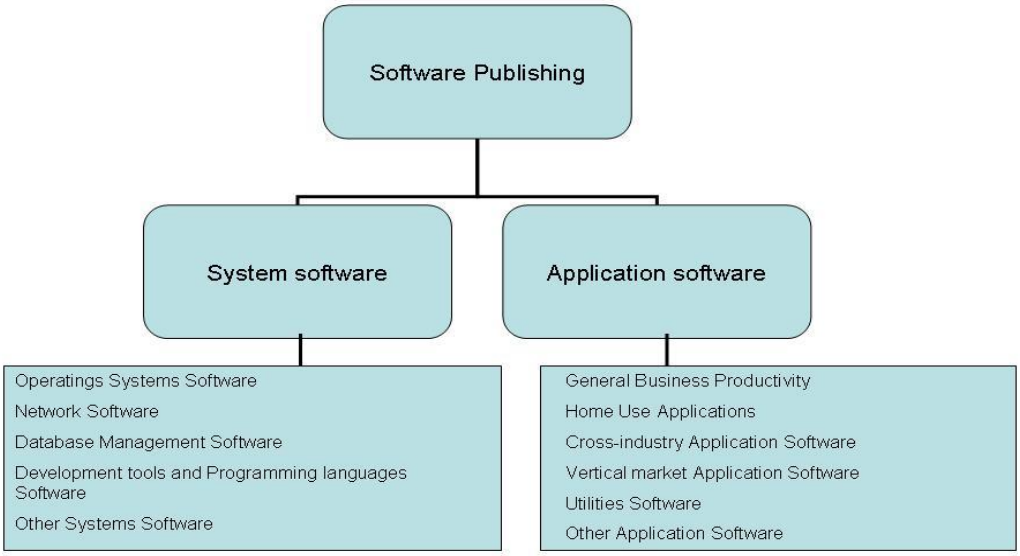
Figure 2. The SW business categories (Hyvönen, 2003)

Customer tailored SW is customized separately for each customer and it cannot be duplicated and used as such for other customers.

Software products are traded on their own, not as part of other products. Pure software products are highly productized and often referred to as packed, mass-market, or shrink-wrap software. These kinds of products are delivered to a large number of customers in exactly the same format - without any customer tailoring (Lohikoski 2010).

According to North American Product classification system (NAPCS), software products are divided in systems software and applications software. System software is the low-level software required to manage computer resources and support the production or execution of application programs. Application software is software program that

performs a specific function directly for the end user. Both of these two product classes include several sub levels.



Picture 3. SW product classification according to NAPCS, modified from Kuitunen (2008)

Embedded SW can be either customized SW or a common SW product, but it is not distributed as a standalone product, but as a part of a wider solution. It is a SW component in some other product, for example inside PC.

1.5 Motives and purpose of this study

There have been studies about the purchasing and supply management (PSM) competencies and capabilities that are required from purchasing organization to perform successfully and to be able to add value to the company and its customers. However, there is a need to get this information on case organization level and to identify the personnel's view on the needed competences and capabilities in a certain position. There is a need to know what competencies and capabilities that are needed in the specific organization according to the people performing these tasks, and what is the insight perception and view. Organization should be able to define such competencies and capabilities which are the most important for their purpose and goals. And the

best knowledge is with the personnel performing these tasks. This information needs to be used as a basis for organization specific competence and capability development. The process for building up the future's competences and capabilities begins with an assessment of the people and systems in a group or department to identify the gaps between today's performance and the requirements of tomorrow (Cavinato 2006, pp.30-32).

Done (2011) has also emphasized that more careful analysis is needed of appropriate competences for specific business scenarios. Organizations might tailor contingent competence configurations to achieve those particular performance requirements for their own needs and priorities. Rather than replicating those practices that have been beneficial in other companies and areas of business, organizations should strive to assess the capabilities that such practices can generate and to check whether they fit in with their own business and purchasing competitive priorities. The same practices are not equally good for any company because the capabilities they generate are not equally necessary at any company and business. In this sense, organization should think in terms of purchasing capabilities required by the company and look for those practices that are able to provide such capabilities in the most efficient way. (Gonzales-Benito 2007)

Most of the studies and literature about PSM competencies and capabilities are made in the field of traditional purchasing including physical material for production purposes. There has not been much research about the PSM competence and capabilities needed in the software business, where some aspects and requirements differ from the traditional purchasing of physical components. Several authors have discussed the purchasing of services (Monczka 2010, p.71; van Weele 2010, pp.317-336), but even if services are intangible as the software products most often are, there are still many differences between these two business areas. Competence and capabilities needed for successful purchasing and supply chain management in software business is a special area and needs to be studied deeper.

2 RESEARCH DESIGN

2.1 Aim, objectives and research questions

The aim of this study is to understand and clarify the meaning and content of individual competence and capability in the field of purchasing and supply chain management. This aim also includes clarifying of the difference between the individual and organizational purchasing competence and capability. Another aim is to find out what kind of theories exist in the field of purchasing and supply management competence, and to understand how these theories could be used to evaluate the competence requirements in specific business and product categories.

This study tries to find out what competencies and individual capabilities are required from the software purchasing professional. The purpose is to discuss and investigate those individual competencies and capabilities that are essential for managing software purchasing tasks successfully. This study finds out what is required from the employee when dealing with the supply chain of digital products including money and bit flow around the world. This could be compressed in the following main research question of this work: *What are the most important individual competencies and capabilities for software purchasing professional?* This work should be able to find out if there are such individual competences and capabilities that are different or additional when purchasing digital goods instead of the physical material.

This study identifies and explores purchasing competences and individual capabilities in the context of the case organization in global telecommunications company. The purpose is to explore the existing literature and theories about the purchasing and supply chain competence and capability, and then compare these theories with the current situation in the case organization. The objective is to find out what competences and capabilities are valued in the case company, both from the official point of view as well as from the personnel's point of view, and to understand, what skills and competencies are the most important to be able to manage software purchasing tasks successfully in the case organization. The purpose is to find out what are the most important capabilities according to the personnel performing these tasks and therefore should be valued. Summarized in, the objective of this study is to evaluate the indi-

vidual purchasing competences and capabilities inside this one organization and in the context of one specific field of business, software business.

The Results of this study should also give answer to the following sub question: *What is the current status of the individual purchasing and supply management competence in the case organization?* Since the case organization is including two different buyer roles, the tactical and the operational role, the following sub question should also become answered: *Are there any differences between the tactical and operational software purchasing competencies and capabilities?*

2.2 Expected results

Like already mentioned in the aim and objectives section of this work, the purpose is to find some deeper knowledge of the competences and capabilities needed in software purchasing in the case organization. By identifying these most important competences and capabilities, this work aims to help the case organization and also the individual employees in their competence development. Results of this study should help the case organization to identify the expected and the current level of their purchasing competences and capabilities. By defining the possible gap between these two, this study helps the case organization to focus their competence development on the correct issues, and to identify if something important is missing from the current emphasis.

One of the expected results is to get some help for recruiting people in SW purchasing, by identifying what kind of persons are the most competent and capable for these kind of tasks. This study should be able to help in finding those capabilities which should be valued when recruiting people into the software purchasing organization. If the result of this work also shows that there is no big gaps between the tactical and operational competences and capabilities, it could be explored if there could be a possibility to establish some kind of a job rotation system between these two teams to update and transfer the existing competences.

Hope is also to help the purchasing organization to serve its internal and external customers better and thus, the whole company to perform more professionally towards customers and suppliers. With the competent people, SW purchasing can have the

positive effect on the whole supply chain and it could be seen as a value adding function inside the company, or even to give a competitive advantage. In addition, this study will at least add my own expertise in the field of purchasing and purchasing competence.

2.3 Research method

Research methods used for this kind of a research are qualitative and quantitative methods. Quantitative methods are the most useful when measuring variables and verifying or questioning existing theories or hypotheses. However, often collections of statistics and numbers are not the best or satisfactory in aiming to understand meanings, beliefs and experiences, which are better understood through the qualitative data. (Palgrave 2011)

The qualitative method investigates the why and how of decision making, not just what, where, when. Why some decisions should be made and based on what information. Qualitative research seeks to understand the given research problem or topic from the perspectives of the local population it involves (Mack, Woodsong, MacQueen, Guest & Namey 2005). This study is seeking to understand the meaning of a certain topic from the perspective and in the context of the specific organization, the local population involved, and therefore qualitative method is considered as appropriate for this purpose.

Thus, some scholars claim that the strict separation between quantitative and qualitative methods is an unfortunate result of power relations and time constraints in graduate training. This is not the most essential for graduates to be able to do their studies well. Good science is problem driven and not methodology driven, and methods should be employed for a given problem, to help in answering the research questions at hand in a best possible way. However, often a combination of qualitative and quantitative methods might be the best solution for this. (Flyvbjerg 2006)

2.3.1 Case study

Stake (1995, p.xi) have stated that the case study is a method of studying the particularity and complexity of a single case. It is useful when there is a need for a general

understanding of a particular case instead of wide generalization and the first emphasis is on understanding the case itself. In line with the nature of the case study, this research work is trying to draw conclusions about one group, software purchasing professionals, in one specific context of the case organization. There is no need to do such findings which could be generalized to other organizations and other fields of business. Thus, Flyvbjerg (2006) have stated that it is incorrect to conclude that one cannot generalize from a single case; it depends on the case and how it is chosen. According to him formal generalization is overvalued as a source of scientific development, whereas "the force of example" is underestimated. However, the target of this study is not to find any universal, generalizable truths, but instead, to generate own analysis of the question under consideration, and to develop own solutions, and to practically apply own knowledge of theory to these problems (Boyce 1993). The research objectives of this study are in line with the above mentioned characteristics of the case study, when the target is to create own analysis of the specific case, software purchasing and supply management competence and capabilities, by combining both earlier theories and own knowledge about the subject. This study starts with the discussion on purchasing and supply management competence and capability theories, and by creating own understanding about those theories. The study continues by linking and combining these theories together with author's own experience and knowledge about the subject, and then by generating conclusions and answers to the research questions based on this combination. The idea is to generate some practical knowledge to be used in the case organization. Therefore, the single case study method was chosen to be used in this work.

Thomas (2011, p.6) offers a definition according to which case studies are analysis of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more methods. So according to this view, case study is not a research method as it is traditionally understood, but is more like a research approach or a strategy which can consist of several methods. Case studies can be based on any mix of quantitative and qualitative evidence. Case study methods involve an in-depth, longitudinal examination of a single case, and they provide a systematic way of looking at events, collecting data, analyzing information, and reporting the results. Yin (2003, pp.1-16) mentions that case study is an empirical research, which by using a versatile data gathered in different ways, examines a specific present-day event or action in a limited environment. In a case study the objective is to

examine a narrow object by using a great numbers of variables. This study aims to use all possible ways to find a valid information and data for the case in question and to be able to answer to the research questions. Software purchasing competence is studied by finding information from the literature, from the internal documents, own experience and from the relevant people. In this work the object is software purchasing competence in one specific organization, and purpose is to use as many data sources as possible to have enough information from the object and to produce evidence that leads to understanding of the case and answers to the research questions (Soy 1997). The purpose of using the case study method for the specific questions in this study is to find some deeper knowledge about the case, software purchasing competence. This specific case was chosen due to researcher's in-depth local knowledge and interest on the subject. Case study method was seen as the most appropriate way of doing this kind of a research, where the target is to understand and find new information about something.

2.3.2 Data collection

Data for this case study was collected by a questionnaire, from internal documents and by observations. Interviews, observation and internal data analysis are the most common data collection methods used in qualitative research, and questionnaires are usual in quantitative research. Using quantitative and qualitative data collection methods together is quite a common approach and helps to 'triangulate' or to back up one set of findings from one method of data collection with another very different method (Palgrave 2011). Case studies can be based on any mix of quantitative and qualitative evidence but should not be confused with the qualitative methods as such. Triangulation is very typical when talking about case studies (Stake 1995, pp.107-116; Yin 2003, pp.97-99), and it is usually mentioned in accordance with the research validity. In this study triangulation comes from the data sources, when the software purchasing competence is researched from three viewpoints; researcher (experience, observation), software buyers (questionnaire) and the official information (internal documents).

Questionnaire

Initial data for the study was gathered via questionnaire. It was created based on the questionnaire used in the survey study made in the Lappeenranta University of Technology, Department of Supply Management on 2007. This "Current State of Supply Management – Survey study in Finland" was conducted by a team headed by Professor Virolainen and included a wide range of Finnish companies and several fields of interest areas inside the supply management. The aim of the project was to identify, what the current state of purchasing and supply management was in Finnish business sectors. Actually, this prior study and the corresponding questionnaire were one of the reasons for choosing the topic for this study; it was found interesting and raised a question if those same competences are valid also in software purchasing in the case organization.

For this study, the original questionnaire was shortened to include only a part consisting of purchasing competence information. It was modified to include both closed and open-ended questions. Most of the questions were closed multiple choice questions from which respondents could choose the statement which most nearly describes their response to a statement. Some of the questions were open-ended, where no options were provided for the respondent to answer the question, but instead they must think of their own response and describe it in their own words.

The questionnaire was printed traditionally on a paper and handed to most of the respondents personally. This was done due to a small number of respondents, their close physical location and the time pressure. Questionnaire was handed to the respondents with a brief explanation of the purpose of the questionnaire and directions for completing the questionnaire. Some of the questionnaires were collected personally and few of them were returned via postal mail. This approach was soon seen as an advantage, because response rate was nearly 100% and responses were received relatively fast. All respondents are working in a very fast business environment and most of the work is done with a PC. E-mails are the most common way of communication and therefore having a various sized e-mail backlogs is quite a normal situation. Sending an e-mail including a link to the web-based questionnaire would have been a modern way of conducting this kind of survey, but the response rate would most probably have been lower and more reminders would have been needed.

Selection of respondents

Respondents were selected to include the most relevant people in the case organization from the research questions point of view. Aim was to clarify the purchasing competences needed in software purchasing and therefore such persons were selected who are doing the software purchasing tasks. To review the differences between the operational and tactical purchasing competences, respondents were selected from two separate teams, other responsible for the operational purchasing and other responsible for the tactical procurement. Since the operational team is in total located in Finland and consisting of Finnish persons, also respondents from the tactical purchasing team were chosen to be its Finnish members. Among the operational team the response rate was 100% (8/8) and among tactical team it was 70% (7/10). According to Eskola & Suoranta (1998, 18), the quantity of respondents is not the most important question, but the quality of the data. These chosen respondents were seen as adequate to gather the needed data for this study both from the quantity and quality point of view.

The initial idea was to enhance the questionnaire results by interviews of key individuals so as to acquire information that might not have become available through the questionnaire. When analyzing the questionnaire results, it became obvious that information received through the questionnaire was already satisfactory for the purpose of this study. It also came evident that the long working experience inside the case organization has given the good opportunity for direct observations. During the data analysis it was found out, that the information that could have been acquired by the interviews, was already evident due to the long personal experience and observations inside the case organization. Cross checking the data from multiple sources can help in providing a multidimensional profile of composing activities in a particular setting (Stake 1995, p.114), and in this case questionnaire, whose own experience and observations with the internal documents was seen adequate.

Observations

Stake (1995, pp.85-105) has also mentioned that people's own capacity to learn from experience and the horizontal and vertical learning relationships in which they are involved, are the cornerstones of development. That is why the personal experience and observations through this experience are seen as one critical data source for this study.

Participants were observed during working in the case organization and in software purchasing tasks; I as the observer participated in the action or a case, as it can be said in this study. Seeing and listening are the key elements in observation, and observing the operations and procedures in a company may provide better information than relying on reports or key informants. Observations for this study were done in a covert way, meaning that people were aware of the observation. People often act differently when they know that they are being observed and therefore this covert observation provides a unique opportunity to learn how these people normally are and what they feel. Since the idea is not to disturb the ordinary activity of the case, but to get the reliable information, it is good to have a possibility to get the needed information by discrete observation or examination of records, without interviews. Since the generalization is not the most important goal in this study, but instead a purpose is to observe a certain case for a specific reason, it was seen as adequate to observe the participants in this one organization only. (Stake 1995, pp.60-64)

Internal documents

Information about company official competences and definitions is gathered from the company's internal documents. Most of these documents are classified as company confidential, so they cannot be attached into the work as such. The most important and all the relevant information, is quoted inside the text later in this work.

2.3.3 Data analysis

According to Eskola & Suoranta (1998, pp.19-20), the idea in a case study is to proceed with as little presumptions as possible and let the data 'lead the way'. In qualitative data analysis it is typical that generalizations, if any, and conclusions are done based on the findings from the source data. The leading idea in this study was first to collect the data and then study the data in depth and in detail to be able to categorize the findings according to the relevant themes. Case study data analysis can be seen as an iterative, spiraling or cyclical process that proceeds from more general to more specific observations. Data analysis may begin informally during the data acquisition and continue during the writing phase, when recurring themes, patterns and categories become evident. Analysis is often concurrent with the data collection phase rather than subsequent to it (TESOL 2012). This has happened also in this study; data analy-

sis started already during the data acquisition phase and continued through the research process, until the themes became evident in the conclusion phase. The data analysis in this study has been a spiraling process; from the first initial and quite generic observations and thoughts towards the more specific findings and conclusions during the process. The first initial analysis started based on the observations and the literature review, and then continued and sharpened during the data collection from the questionnaire and internal documents.

Descriptive statistical data analysis for the questionnaire results was performed with the SPSS program. The answers were uploaded into the system and the results were transferred into the excel tables.

After all the data was collected and available for the final analysis, findings were categorized and conclusions were made based on these found categories and themes. Findings were analyzed inside the theory framework of this work, including the individual PSM competence and capabilities inside the software purchasing organization. The aim was gain answers to the research questions. According to Yin (2003, p.109), data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence to address the initial propositions of a study. The researcher needs to rely on the experience and the literature to present the evidence in various ways, using various interpretations. In the final data analysis phase of this study, findings from the observations and experience were combined and reflected with the findings from the questionnaire results and internal documents. The use of multiple data sources permits triangulation during the data analysis. Although observations are often the most important component of the case study analysis, they must be confirmed by other evidence.

The final data analysis in this work includes some content analysis, while analyzing both the internal documents and communication inside the case organization and the answers to the open-ended questions in the questionnaire. As Yin (2003, p.139) has stated, case study analysis can be the most difficult phase of the research. There might be a need to rely on several techniques, and like in this case, the analysis is presented throughout the case study, by gradually building an argument that addresses the research questions. This may mean that there is a need to be somewhat creative with the methods of analysis. In this work the data analysis was proceeding by relying on the

theoretical propositions, which originally lead to the study of this particular case. If the PSM competence theories can be used to analyze competences also in software purchasing, and what was found from the source data in reflection with these earlier propositions. The purpose of the analysis anyway is to reflect in summarized and organized form what has been found. Moving from one form of evidence to another, reading, studying and thinking; multiple sources of evidence have been related to each other and alongside, so that chain of evidence comes to the own interpretation of it (TESOL 2012).

It has also been noted that research questions and objectives can be modified during the research, when the scope of work sharpens during the research. This is called as a progressive focusing (Stake 1995, p.22). This happened also during this research, when the scope of the work was slightly modified during the data collection and based on the findings both from initial literature review and data analysis.

2.4 Research process

The research process started with the several ideas from the area of purchasing and especially about software purchasing. Long personal experience from this area of expertise gave a lot of information about the subject and also enthusiasm to study it in more depth. The problem in the beginning was how to scope the subject and from which angle to start. The whole research process started with the overall confusion about the scope of the work. Area of study, on the level of purchasing and software business, was the only clear thing at that phase. At this point several prior studies from these fields were reviewed. The idea was to combine these two interests to be able to use my own experience as a background information and also to deepen the personal knowledge of these fields at some level. The scope was advancing towards my own motives and interests as a researcher; what was the most interesting topic from my point of view at this time. A lot of reading, many discussions with several persons and personal enthusiasm finally lead to the current subject. After the scope was defined, it was easy to continue and since the subject was selected as the most interesting from the many topics, it was also inspiring to start with and continue. Most of material and literature read so far supported the final topic somehow.

After the scope had limited to concern competences needed in software purchasing, the process continued by familiarization with the literature and earlier studies made in the field of purchasing and supply chain competence and capabilities. At this point, the study about the current state of supply management, made in the Lappeenranta University of Technology was found. It raised all the questions defined in earlier chapters about the validity of the competences and specialties of software purchasing. Another question was if these same competences are valued also in that context and inside the case organization. To find answers to these questions, more study was needed.

The process continued with the modification of questionnaire used in this earlier study. This questionnaire was then addressed to two teams inside the case company, both teams working with the software purchasing. Questions were about the personal characteristics and competencies in the field of purchasing. Answers were received with a quite fast schedule and then analyzed. The aim was to find out which characteristics and competencies are the most valued and seemed as the most important ones in the current position of the respondents, and to evaluate the answers with the earlier theories about the PSM competence. Another aim was also to find out the current level of those characteristics and competencies in the case organization, and compare it to the earlier study results from Lappeenranta.

Some findings in the middle on the process still gave some new interesting viewpoints and also changed the scope slightly. After the first analysis of the questionnaire results, some sharpening had to be made to the scope of the work. There were doubts whether to analyze the results against company's official competences, or only against earlier theories about PSM competences and capabilities. The decision was to include some kind of triangulation analysis between all of them. It was also considered if there would be enough differences to be analyzed between the operational and tactical teams' competences. The conclusion was that even if there is not much differences found, that can be considered as a finding itself. The research process of this study is shown in the figure 4.

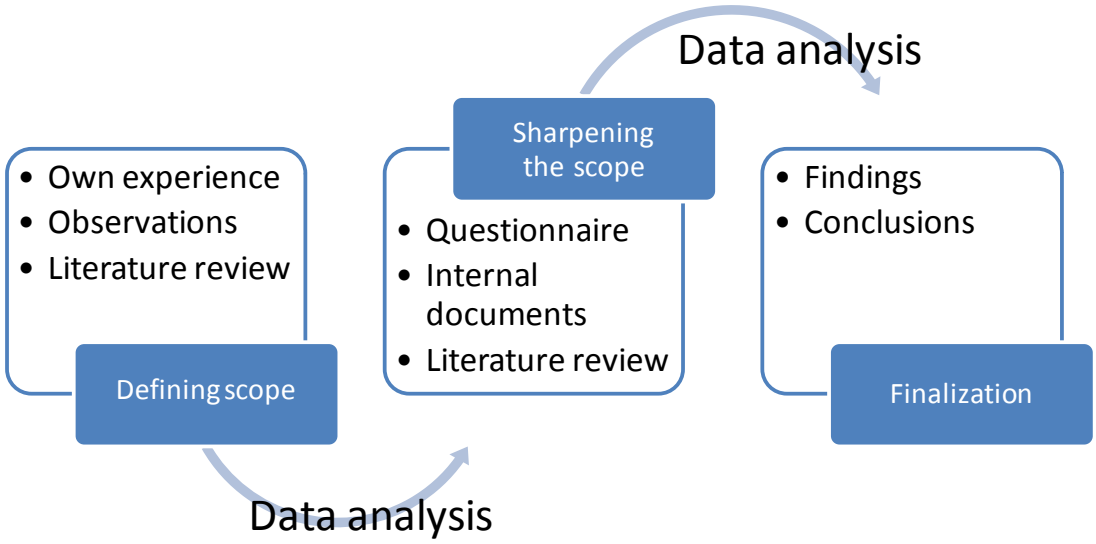


Figure 4. Research process

2.5 Theoretical framework

The theoretical framework of this study includes the theories about competences and capabilities on a common level and especially in purchasing and supply management context. Study explores what is meant by competence and capability overall and what theories there are about competence and capability in PSM framework. Differences between the individual and organizational capabilities have been studied but the final analysis is conducted only on the individual competence level. Organizational capabilities are not included in the final analysis. Purchasing and supply chain competence and capabilities are reviewed in the context of the case organization in Finland and related to the software business and products. Figure 5 below illustrates the scope and theoretical framework of this study. Limitations are explained in more detail in the following chapter.

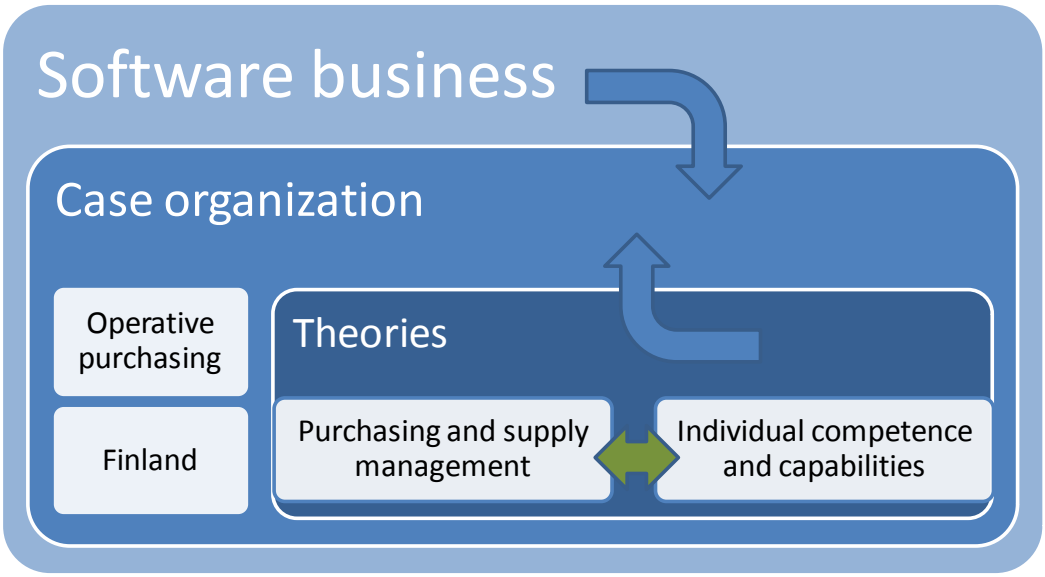


Figure 5. Theoretical framework

2.6 Limitations

This work cannot be generalized to concern all the software purchasing, since there is only one organization in the scope of this study. Therefore this study is very organization-specific. The aim of this study is not to question the organizational structure or the effectiveness of the case company, nor the processes and tasks, or how they are divided and organized. the purpose, instead, is to study the importance and level of competence in the current organizational settings.

All the respondents have been chosen from Finland, and cultural differences are out of the scope. This means that cultural differences or specialties have not been included nor investigated, and answers can be analyzed only in one cultural context.

As already mentioned in the framework chapter, also organizational competences are out of the scope of this study and evaluating the software purchasing competence is done only on individual level.

Since the respondents were chosen from the teams which are mostly responsible for the operational and tactical level tasks, level of the strategic purchasing tasks nor competences cannot be evaluated on the same level. Strategic tasks and importance has been included, but those tasks are evaluated only from the operational and tactical level personnel's' point of view and to the extent that these tasks and responsibilities

concern them. The importance of these tasks and level of competence would most probably have been higher if persons with the strategic responsibilities have also been studied.

External relationship management, towards both customers and suppliers, is not in the primary scope of this study. Thus, this study does not in any way deny the importance of relationship management capabilities in software purchasing and in the whole PSM competence context, but the opposite. Both areas, customer relationship management (CRM) and especially the supplier relationship management (SRM) are so wide areas of study, that deep insight and analysis would be already a subject for another study. For example SRM relates in many ways to strategic capabilities, economic capabilities as well as operative capabilities (Peltola, 2008). This study sees CRM and SRM mostly in the context of organizational capabilities, when this work concentrates in the individual PSM capabilities.

3 LITERATURE REVIEW

3.1 Competences and capabilities

There has been a lot of discussion and studies about the meaning and construction of competence and capability during the years. There is a variety of interpretations depending on the context and author. Since most of the definitions agree that knowledge and skills somehow and for some extent form the basis of the competence and capability, there is a need to understand those first.

Already Albert Einstein has said that knowledge without experience is merely information. This explains the essence of knowledge which is not only information or data. Knowledge is created when external data is connected with someone's own information, experience and attitude. Knowledge is dynamic and context-specific. It is created in interaction among individuals and organizations, and depending on a particular time and space. Knowledge cannot be created without human action, which makes it also humanistic. When information is given a sense and used in executing a task, knowledge is created (Axelsson et al. 2006, p.137). It can be said that knowledge interconnects information, experience, skills and attitude. Skills are often referred to as

the knowledge of and ability to combine one or more tasks into the accomplishment of an activity or creation of an output (Cavinato & Kauffman 1999, p.307).

Two different levels or forms of knowledge have been identified. One form of information is explicit information, which is formal, systematic and usually easy to communicate. Then there is implicit information, which in the other hand is very context specific and hard to formalize or communicate. This implicit information is also called as ‘tacit’ or ‘quiet’ information.

Competence has been defined (Parry 1996) as a cluster of related knowledge, skills and attitudes that affect a major part of one’s job (role or responsibilities), that can be measured against some sort of occupational standards and can be improved by training and development. Competence is the ability to perform a specific task, action or function successfully. According to Chartered Society of Physiotherapists (2005), competence is a range of applied abilities and skills that relate to capability. Competencies reflect skills and knowledge, and they can be measured. Competencies are the basis for capability and competence is an essential ingredient of being capable (Hase, Cairns & Malloch 1998).

Capability, instead, is an integration of knowledge, skills and personal qualities used effectively and appropriately in response to varied, familiar and unfamiliar circumstances (Stephenson & Weil 1992). Capability, in addition to knowledge, values, skills and self-esteem, includes the capacity for autonomous development and learning. Capable people and organizations are those that can operate effectively in unknown contexts and with new problems. It is clear that learning is indispensable element of capability. A key element of the capability concept is that becoming capable requires different learning experiences from learning competencies (Hase, Cairns & Malloch 1998). According to Chartered Society of Physiotherapists (2005), capability describes an individual’s potential to develop and is to do with future competence.

So capable people are more than competent. They are creative, know how to learn, have a high level of self-efficacy, can use competencies in novel as well as in familiar situations and work well in teams. In comparison to competency, which involves the acquisition of knowledge and skills, capability is a holistic attribute. (Stephenson & Weil 1992).

Above capabilities and competencies is a talent. Talent is the capability to quickly identify or capture the organization's needed imperatives and develop the needed competencies and supporting skills to bring about successful performance. Talent is less defined than competencies and skills, because it is largely situational and not known until a person is tested and performs. While talent means high performance in a current area, it is also the ability to develop for new, unexpected, and yet to be defined demands and opportunities. Organizational development researchers agree that persons with talent possess strong track records of accomplishments. They also develop new tools and approaches for new challenges and opportunities, and are able to transfer their skills and capabilities as they move from one area, discipline, or industry to others. (Cavinato 2006, pp.70-78)

This study agrees with this expansive approach from the knowledge and skills to the competence and capabilities. Both terms, competence and capability, are used later in this study, capability having the more comprehensive meaning including the aspects of autonomous learning and future competency.

3.1.1 Individual competences and capabilities

Individual competence can be assessed in several contexts. Individual competency is needed in different tasks and jobs, but also in a workplace and in life in general. As already defined in the previous chapter, skills and knowledge in combination with the motivation provide a basis for the individual's competence (Axelsson et al. 2006, p.138). The individual is competent in relation to a certain task if she or he is able to carry out the necessary activities to fulfill the task at the quality level expected. This is made possible with a certain sets of skills and knowledge. Individual competence includes the ability to combine skills, systems and knowledge together to produce a distinct competitive advantage. Thus, competency is having the judgmental ability to combine many distinct resources and capabilities to produce an intended competitive effect (Cavinato & Kauffman 1999, p.308). It should also be noted that different competencies predict outstanding performance in different roles, and there are not many such competencies that predict outstanding performance in any given job or role. Competency in one job or task might not guarantee outstanding performance in a different role. Therefore it is impossible to list the individual competences in general, thus they are dependent on the role, task and other circumstances.

Dreyfus and Dreyfus (1980) have introduced a nomenclature for the levels of the individual competence. Their five levels of competence were:

1. Novice: Rule-based behavior, strongly limited and inflexible
2. Experienced Beginner: Incorporates aspects of the situation
3. Practitioner: Acting consciously from long-term goals and plans
4. Knowledgeable practitioner: Sees the situation as a whole and acts from personal conviction
5. Expert: Has an intuitive understanding of the situation and zooms in on the central aspects

Dreyfus and Dreyfus (1980) have also defined four general areas of competency, which are:

1. Meaning Competency: The person assessed must be able to identify with the purpose of the organization or community and act from the preferred future in accordance with the values of the organization or community.
2. Relation Competency: The ability to create and nurture connections to the stakeholders of the primary tasks must be shown.
3. Learning Competency: The person assessed must be able to create and look for situations that make it possible to experiment with the set of solutions that make it possible to complete the primary tasks and reflect on the experience.
4. Change Competency: The person assessed must be able to act in new ways when it will promote the purpose of the organization or community and make the preferred future come to life.

Individuals also need a wide range of competencies in order to face the complex challenges of today's world. Through the DeSeCo Project (Definition and Selection of Competencies), the OECD has collaborated with a wide range of scholars, experts and institutions to identify such competencies. The DeSeCo Project's conceptual framework classifies these competencies in three broad categories. According to their findings, people need to be able to use wide range of different tools, both physical ones as IT-tools and socio-cultural ones as the use of language. These tools are needed for interacting effectively with the environment. In addition, people need to be able to inter-

act with heterogeneous groups of people with different backgrounds. Also, people need to be able to take responsibility of managing their own lives and act autonomously. Any given situation or goal may demand a constellation of competencies, configured differently for each particular case. (OECD DeSeCo 2005)

According to the social and behavioral sciences, personal capabilities describe the ways in which people manage themselves and their relationships with others in the workplace. They include attitudes, behavior and so called 'softer skills' needed in all kind of social situations. One such definition can be found from the Continuous Learning Framework developed by Scottish Social Services Council. They have defined thirteen personal capabilities, five relating to how people manage their relationships with others in the workplace and eight relating to how they manage themselves (Scottish Social Services Council 2005).

Managing relationships:

- a focus on people who use services and their careers
- working in partnership
- motivating and leading others
- empathy
- dealing with conflict

Managing self:

- professional autonomy
- lifelong learning
- flexibility
- confidence
- resilience
- accurate self-assessment
- awareness of impact on others
- organizational awareness.

This study does not make a distinction between the task related individual competences and kind of more general personal capabilities. When referring to individual capabilities or competences, it is covering all of the above mentioned dimensions.

3.1.2 Organizational competences and capabilities

Axelsson et al. (2005, p.139) see that capabilities refer most often to the abilities of a firm or an organization to fulfill its assignments. They are combination of human resources, technologies, production equipment and organization as well as processes and procedures applied. Individual competences and organizational capability are not automatically connected.

Makadok (2001) defines capabilities as "a special type of resource, specifically an organizationally embedded non-transferable firm-specific resource whose purpose is to improve the productivity of the other resources possessed by the firm". "Resources are stocks of available factors that are owned or controlled by the organization, and capabilities are an organization's capacity to deploy resources". Organizational capabilities can become a source of competitive advantage.

Chen, Paulraj & Lado have found out in their study (2004) that organizational capabilities enable firms to acquire, develop, and deploy resources, convert these resources into value-enhancing products, and transform resources into distinctive competencies. They argue that organizational capabilities can engender sustainable competitive advantage if they: "(1) are not tradable in strategic factor markets; (2) take a long time to develop and are historically based and path dependent; and (3) entail socially complex relationships with other organizational resources". Organizational capabilities can enable a firm to seize opportunities or neutralize threats from turbulent environment, and thus they can greatly enhance the firm's competitiveness.

Dynamic capability is defined as the "firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece, Pisano & Shuen 1997). Dynamic capabilities are needed in order to meet the new challenges. According to Wu & Wang (2007), dynamic capabilities combine the four capabilities, which are resource integration, resource reconfiguration, learning capabilities and ability to respond to the rapidly changing environment.

According to the Continuous learning portal of the Scottish Social Services Council (2005), organizational capabilities describe the culture and conditions in the workplace. They have defined six organizational capabilities to be:

- creating a learning and performance culture
- planning for learning, development and improved practice
- promoting access to learning and development opportunities
- promoting access to feedback
- treating people with dignity and respect
- focusing on health and wellbeing.

This study agrees that the individual competences and capabilities and not automatically connected with the organizational capabilities. Individual capabilities are needed in the development of organizational capabilities, but they do not lead to such automatically. Thus, organizational capabilities are needed to fully exploit the individual capabilities.

3.2 PSM competences and capabilities

Purchasing and supply management (PSM) competence and capabilities have been defined and classified in several ways. Thus, two major approaches can be noted. Firstly, as in the discussion about overall competences and capabilities, with PSM competence it's often referred to individual knowledge and skills, and with PSM capability to the organization's or company's ability to fulfill its assignments (Axelsson et al. 2005, pp.136-139). Individuals need some specific skills and knowledge to be able to manage in their purchasing tasks. Organizations need some specific capabilities to be able to fulfill their duties and help company to succeed with the most efficient PSM. What are meant by these individual and organizational PSM competences and capabilities, will be discussed in more detail in separate chapters later.

Secondly, purchasing capabilities are often classified into different categories, such as strategic, operative, financial and technical capabilities. Peltola (2008) for example, have classified PSM capabilities into three categories; strategic, operative and economic PSM capabilities. According to her view, strategic capabilities include (1) Value networks & customer relationship management; (2) Business strategy; (3) Purchas-

ing strategy and (4) Supplier relations management and supply market. Operative capabilities consist from (1) Purchasing policy; (2) Purchasing process & tools, and (3) Supplier selection process & tools. Economic capabilities are (1) Cost management & tools of PSM; financial planning & reporting, and (2) Economic role of PSM & performance measurement.

Strategic PSM capabilities refer to the strategic nature of PSM, which includes such aspects as cost focus (e.g. cost and supply base reduction and increasing purchasing profile), differentiation (e.g. supply tiers and outsourcing strategies), strategic collaboration (e.g. customer requirements, joint new product development and sharing basic technologies), operational collaboration (e.g. share operations planning information, joint capacity and order management systems) and relationship development outcome (e.g. risk and rewards sharing, integration of business processes and transparency of partner's business). (Cousins 2005; Peltola 2008.)

Operative PSM capabilities refer to daily operational decisions and routine activities such as management of supplier transactions, purchasing appropriate items, generating and speeding up material flows, providing feedback on supplier performance and using e-systems to obtain standard or indirect items through catalogues (Monczka, Trent & Handfield 2005, p.87).

Financial PSM capabilities refer to both the operative and strategic cost aspects; cost accounting information, payments, outsourcing decisions, capital equipment acquisitions and financial tools such as total cost analysis and accounting data integration via IT systems (Peltola 2008). This includes also the impact of purchasing function on company level financial performance.

Increased role of IT has required the development of corresponding organizational and employee IT skills based competence (Done 2011). There are a number of now common purchasing practices where such IT competence is needed: ensuring company-wide spend and order tracking visibility, obtaining best prices through e-auctions, facilitating the buying of complex commodities, streamlining the invoice to payment process and enabling real-time buyer-supplier knowledge transfer.

Narasimhan, Jayaram & Carter (2001) developed and validated a purchasing competence construct consisting of five underlying dimensions, based on the earlier literature and studies. These five dimensions are empowerment, employee competence, interaction effectiveness – tactical, interaction effectiveness – new product development and buyer-seller relationship management. These underlying five dimensions are defined in terms of 15 purchasing practices. Empowerment is operationalized in terms of involvement in job-related and operational decisions, autonomy, and job security, which encourages risk taking and trying out new ideas and practices to solve tactical and operational problems. Employee competence is defined in terms of training for purchasing employees and suppliers in strategic initiatives such as quality improvement and customer satisfaction, and performance evaluation of purchasing employees that are tied to quality improvement goals. Interaction frequency-tactical is captured by purchasing's interaction frequency with production and quality control. Interaction effectiveness-NPD is measured in terms of interaction between purchasing and R&D and interaction between purchasing and engineering. Finally buyer-seller relationship management is captured in terms of four variables: involvement of purchasing in risk sharing for capital investment with suppliers, sharing of purchasing of technical information with suppliers, joint production planning with suppliers, and sharing of cost savings with suppliers.

Axelsson et al. (2006, p.161) do not believe there is just one way of classifying purchasing knowledge and competencies, but that does not mean that it should not be done. They see that this should be done per organization and see what is important for this organization. Based on earlier research, they have defined six purchasing knowledge domains, which are: organization, profession, supply market, supplier, customer and product.

3.2.1 Individual

Individual PSM capability starts from the personal characteristics, basic knowledge and skills, and leads to the specific purchasing and supply management skills, knowledge and competence. According to Axelsson et al. (2006, p.138), individual competencies, how they can be motivated and how they can be made to collaborate, are the genuine key factors in realizing the full potential of purchasing. They have defined individual PSM capabilities as the specific knowledge and skills and personal

capabilities to complete the needed tasks. Some authors have made listings of the skills and competencies needed in today's competitive field of supply management. Below two examples, from Cavinato (2006, p.313) and Iloranta & Muhonen (2008, p.180) including some similarities but also several different attributes. Cavinato's list includes mainly the general skills:

- Communication skills (both written and oral, and listening)
- Project management skills (benchmarking, implementation)
- Risk taking skills (creativity, problem solving, best way to learn is through experience)
- Decision-making skills
- Computer skills
- Analytical problem solving (comfortable with numbers)
- Technical skills
- Negotiation skills

And also some competence requirements for direct supply:

- Technical expertise in category
- Quantitative analysis
- Deductive reasoning based on quantitative facts
- Traditional procurement techniques and expertise
- Insights into the value-adding options and alternative by understanding inputs and the outputs of the manufacturing process
- Cross-regional market expertise
- Cross-regional supply market understanding
- Understanding of financial and trade regulations

Iloranta and Muhonen (2008, p.180) go a bit deeper to the PSM related competences and have listed the following:

- Overall understanding of the strategic supply network management
- Cost management knowledge (Total cost of ownership, cost accounting models and tools)

- Understanding the importance of demand planning and visibility
- Quality process management
- Understanding and knowledge of Enterprise Resource Planning (ERP) concepts, methods and systems
- Understanding of procurement criteria in different business situations
- Systematic approach to supply processes and routines
- Supplier evaluation and risk management capabilities
- Supplier relationship management methods and tools, different supplier roles
- Follow-up and measurement processes and tools
- Knowledge and usage of different purchasing databases and IT tools
- Trade and contract law, international law
- Negotiations skills (language skills)
- Team working skills, leadership skills, social skills, cultural understanding

Similar skills, competences and capabilities are repeated in the PSM literature. Some competences have slightly different emphasis depending on the source, but the main points are quite similar. Purchasing specialist should have some interpersonal skills, such as communication skills, team working skills, social skills and ability to think analytically. He or she should be able to solve problems, negotiate using different languages and be able to interact in the multicultural environment. In addition, purchasing specialist should be able to understand the affecting laws and regulations, and also have adequate IT skills. He or she should know the supply chain management and related processes, and be able to understand the financial pre-requisites and effects on purchasing. This study argues that individual PSM capabilities are a unique set of knowledge, skills, abilities and attitude of an individual to be able to perform the required purchasing tasks. Individual PSM capabilities are dependent on the organization and the field of business, and this study tries to identify these capabilities in one organization and one specific field of business.

Iloranta and Muhonen (2008, pp.61-65) also emphasize the transformation from passive to active, and from reactive to proactive purchasing. Active purchasing professional seeks for the added valuea, new suppliers and new business possibilities. Active purchasing professional also markets the company and its requirements, evaluates the

markets and suppliers, and proactively develops new solutions. He or she also interacts with the internal and external stakeholders.

3.2.2 Organizational

Company's purchasing competence is described by purchasing function's ability to act in alignment with company's strategy and execute its capabilities and practices accordingly (Das & Narasimhan 2000; Gonzalez-Benito 2007). Organization should be able to structure, develop and manage the supply base in alignment with the business priorities of the firm. Gonzales-Benito (2007) breaks purchasing competence into two major components. The first is the fit between purchasing organization's strategic objectives and purchasing capabilities, and is called as purchasing efficacy. The second component is the fit between the business strategy and purchasing strategic objectives, and called as strategic alignment. The connection of purchasing performance to company performance corresponds to the degree of its purchasing competence.

Zhang, Vonderembse & Lim (2003) have distinguished organizational PSM competence and capabilities, and argued that "competence emphasizes technological and production expertise at specific points along the value chain while capabilities are broadly based and encompass the entire value chain." They also see that capabilities can be visible to the customers, whereas competencies are internal and support these capabilities. Supply chain agility is given as an example of the organizational PSM capability which is enabled with a set of internal supply chain competencies, such as technological, production, and management expertise (Ngai, Chau & Chan 2011).

Peltola (2008) has summarized the organizational PSM capabilities as "the unique integration of human resources, technologies, equipment, organizational structure, routines and processes that are commonly acknowledged within the organization." Also communication, limited number of suppliers, and long-term relationship orientation are seen as supply management capabilities (Chen et al. 2004).

This study also sees the organizational PSM capability in the wide context including all the organization's assets and resources to manage and fulfill its assignments in alignment with the business priorities of a company. Individual PSM capabilities are one component of organizational PSM capabilities. Though, this study does not in-

clude evaluation of the organizational PSM competences in the case company, but instead concentrates on the individual competences.

3.2.3 SW purchasing

Like already stated earlier, there are few references to software purchasing in purchasing literature or in the earlier studies. Cavinato and Kauffman (1999, pp.855-865) do mention software in their Purchasing handbook and they underline that, "successful acquisition of software and other technology requires knowledge of various types of legal principles. These principles are drawn from a number of areas of the law, including the law of contracts, employment and intellectual property." The owner of a copyright, trade secret or a patent in certain software may assign, transfer or sell all rights in the software program. In the other case, the owner of the software may license a specific, limited rights to one or more licensees. Most computer software contracts today are made so that buyer is given a ''license'' to use the software, instead of transferring the total ownership through the purchase. This means that a purchased item is not software itself but rights to use, to sublicense or to distribute this software.

This study agrees with this view, and argues that special knowledge is needed when purchasing software user rights and licenses. Breaching of contracts or law, even done by an accident, may become very expensive for the company. In software purchasing probability for agreement violations is higher than in other product categories. It requires specific knowledge to be able to agree all the needed details in a contract, but also later in the maintenance and maintenance renewal phase. Software can be used only in a way defined in the agreement with the supplier, and this is valid for the whole contract period. If software licenses are again sublicensed to a third party, this makes the control even more vulnerable.

Also current changes in technology, such as virtualization and cloud computing, bring more challenges for software purchasing. Commercial and legal terms are lacking behind the technology changes, and traditional licensing models are not anymore applicable. New licensing models are complicated to productize and price, and therefore harmonized license prices do not currently exist. This gives new challenges for purchasing.

4 COMPANY PRESENTATION

4.1 Organization

The company where this study was carried out is a multinational corporation operating in 150 countries, and having its headquarters in Finland. The company is one of the largest telecommunications hardware, software and professional service providers in the world. Amount of personnel is currently ca. 74 000.

Due to the global business environment and big size of the company, there is lot of different kinds of purchasing and procurement activities performed inside the company. Depending on the nature of the product, business and other needs, purchasing is either globally centralized or performed locally. Most of the purchasing, as well as other processes, are globally designed and followed company wide, but there are also exceptions accepted according to local requirements. Centralized procurement organization coordinates the global operations and information is shared in cross-functional sourcing teams. This study concentrates only on direct[1] software purchasing, and the following describes how this part of the purchasing is organized.

Both of the teams included in this study are part of the company's Operations - organization, which is the organization responsible for the manufacturing and supply chain management of all products.

[1] Direct purchasing refers to production-related procurement and includes items that are part of the finished products that are sold to the end-customers. Indirect purchasing refers to non-production-related procurement where company purchases something e.g. office supplies to enable its own operations.

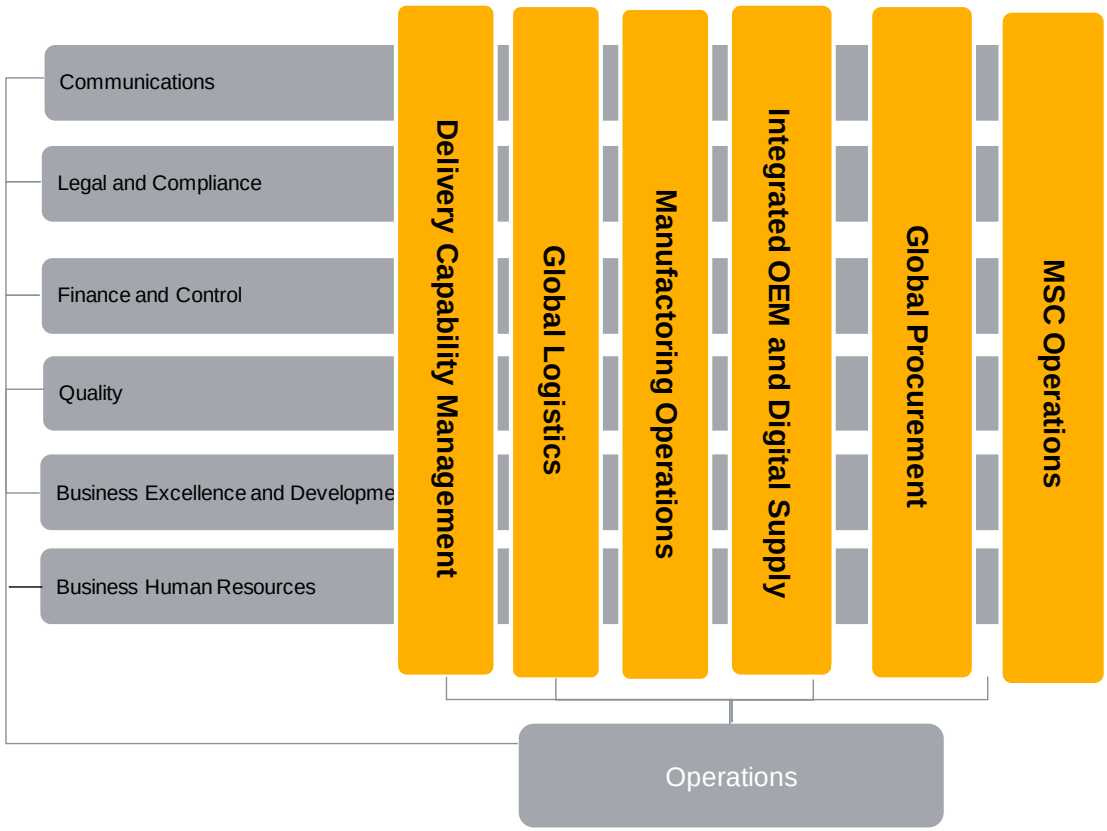


Figure 6. Operations -organization

First of the teams studied is Digital execution (DEX) team, which is responsible for enabling accurate digital deliveries by purchasing 3rd party digital products to the end customers and fulfilling SW agreements' obligations towards suppliers. This team is part of the company's Operations, included in the Integrated OEM[2] and Digital Supply organization, and inside the Material Execution (MEX).

[2] Original Equipment Manufacturer (OEM) manufactures products or components that are purchased by a company and retailed under that purchasing company's brand name.

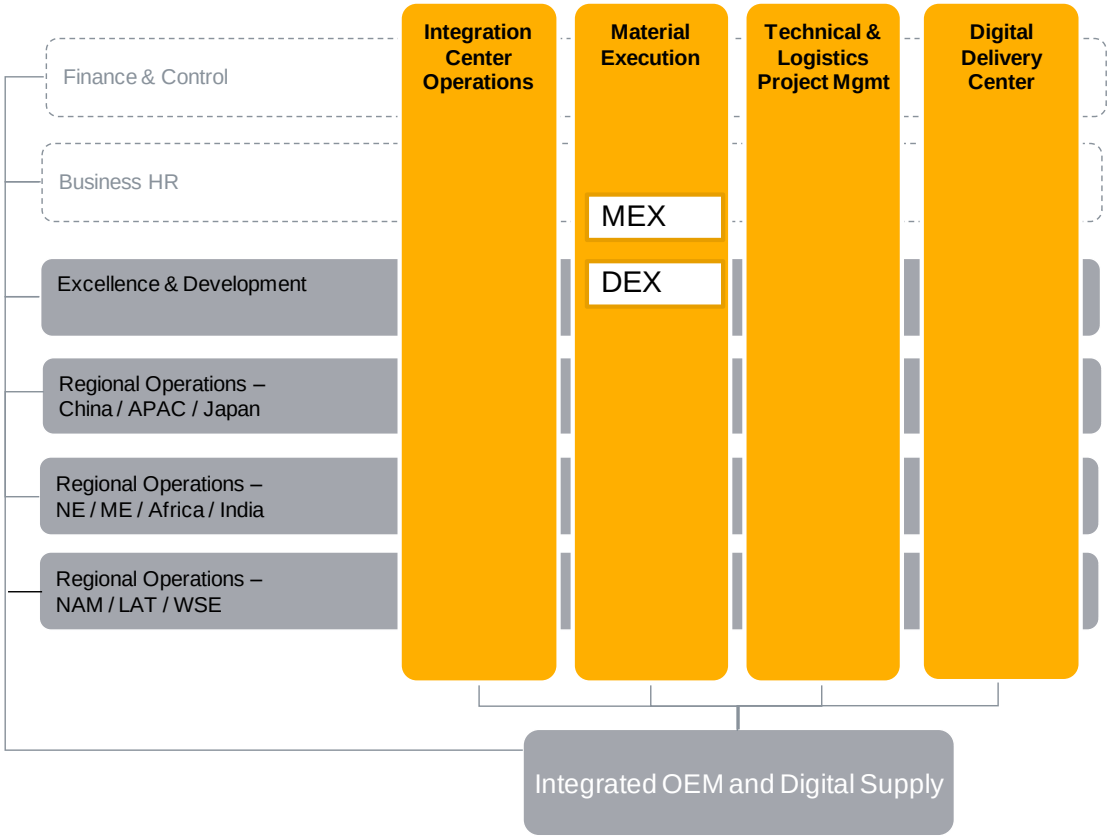


Figure 7. DEX team in the organization

The digital execution team is responsible for the operational purchasing tasks and company policy currently is that all the direct software is purchased through this centralized team. The team is located in Finland and it is consisting of one manager and six team members. This team was included in this study as a whole, and in addition one person working very closely with Digital execution team as a software purchasing process support.

The other team included in this study is responsible for the SW procurement as part of the Global Procurement -organization. Global Procurement (GPR) selects, manages and develops the company's supply base in order to ensure competitiveness by pursuing sustainable total cost reduction and ensuring required availability, quality, service and innovation. This SW procurement team is responsible for the software sourcing globally. Requirements and needs come from the business units, and SW procurement ensures that all the SW suppliers and supplier agreements meet company's requirements in terms of cost, price and compliance. This team is responsible mostly for the tactical purchasing tasks, and also for some strategic level tasks. SW procurement is responsible also for sourcing all the internally used software, but those activities, per-

sons and their viewpoints are out scoped from this study. SW procurement consists of one manager (Head of SW procurement), three middle managers and 26 Category Managers as team members. Physically this team is located in Germany, Belgium, USA, India and Finland, and those who are located in Finland, were taken part in this study.

When talking about software purchasing and software purchasing personnel later in this work, both of the teams are included. Most of the direct observations are made inside the operational purchasing, meaning the DEX team and therefore the viewpoint is merely operative. For example the organization's official competences presented in the chapter 4.4 are taken from this level. Questionnaire results are presented first as a whole including the view of both of the teams (software purchasing) and then also compared between these two teams and two levels of tasks, operational and tactical.

4.2 Case company's definition of terms

According to a management glossary used inside the case company, competence is an "observable and defined mix of behavior, functional skills, knowledge and understanding of a person". A competence is not a description of activities, tasks or responsibilities of a person or organization unit, but instead it encompasses a cohesive collection of knowledge, skills and behavior, where each element is related to the others. Defining the meaning of a competence, it is stated that competences can be reviewed also on aggregate levels in identifying, assessing and developing the competences that for example a certain organization, function, job or role needs to fulfill its responsibilities. (Company Intranet 1 2011)

There are two levels of competences; strategic and operational ones. As strategic competences are classified such competencies which are required top-down in the enterprise to implement the business strategies and to fulfill the future business requirements. Operational competences are role and job specific, and targeting to conduct business in a certain fashion to accomplish specific objectives. Competences are also categorized as business competences, technical competences and company value based competences.

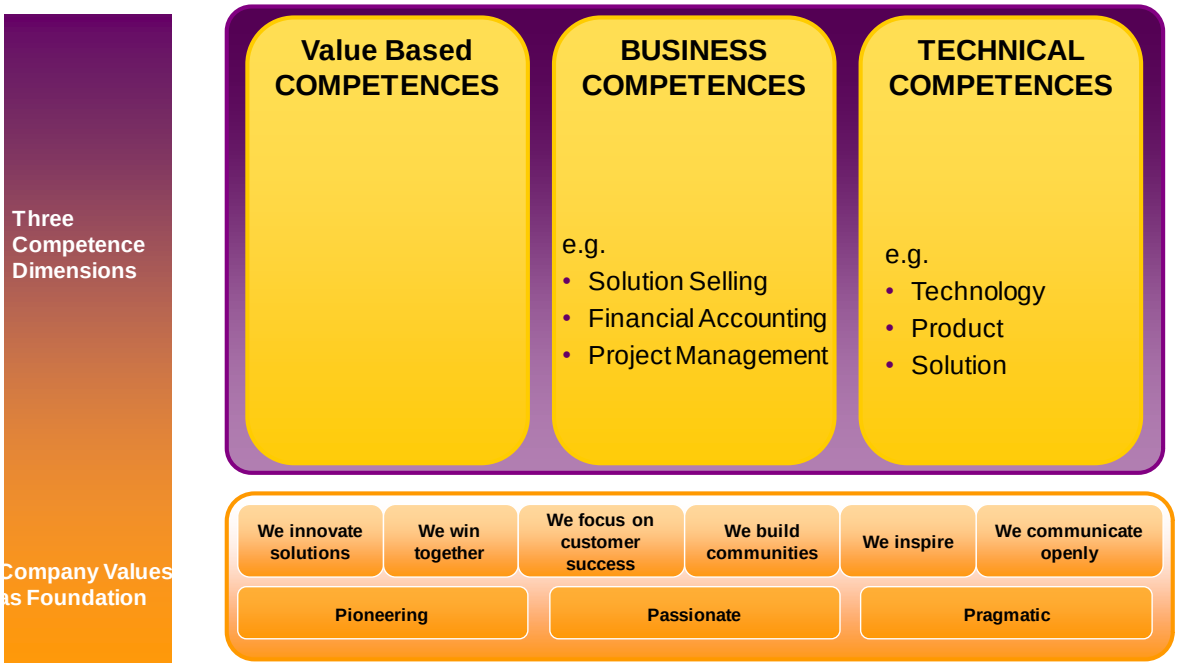


Figure 8. The Competence Model is the structure of competences required, focused on the strategic and operational needs.

Company value based competences are such a behavioral competences which are required by the company from all of its employees. This dimension also includes the leadership competences.

Business Competences are such a competences which are required by one (or many) role(s) (e.g. a buyer) to perform a set of tasks.

Technical Competences are competences required by an organization from an employee to perform in a specific position.

Skill is defined as the learned capability to carry out pre-determined results. Skill is a distinctive part of competence contributing to the effective performance of job tasks. It is explained that skill usually requires a certain environmental stimuli and situation to assess the level of skill being shown and used. Skill is the ability to successfully conduct a specific activity, meeting the quality and productivity expectations. Skills can be obtained through training, experience, coaching, and self-education. In contrast to skill, talent is an innate ability existing in a person or animal from birth. Knowledge is defined as the information and understanding that someone must have to perform a task successfully. According to this explanation, knowledge provides the basis for performing a skill.

According to the official glossary in the case company, capability is the ability to do things effectively and skillfully, and to achieve results. Capabilities are seen as organizational in nature, providing focus for the organization on what is the most important today and in the future. The interaction of individual competencies, process and tools, organization and resources determines the capability. So this view mostly agrees with the common idea of competence being individual in nature, whereas capability is more or less an organizational asset.

Capabilities are categorized by their dimension into strategic and business capabilities. Strategic capabilities are targeting to the fulfillment of future business requirements to e.g. become number one in the industry. Strategic capability is a feature of the company's strategy. Business capabilities targets to conduct business in a certain fashion to accomplish specific objectives. A business capability is a feature of the company's operating model and it is the ability to fulfill a requirement derived from the business model. Business capabilities are needed to conduct the business. (Company Intranet 1 2011)

4.3 Competence development

Each organization and job role inside the company has its own competences and competence levels defined. What are such competences which are needed to work successfully in a certain organization and job role, and on what level competences are needed. Competences for each organization and job role are defined according to the competence development process.

Business environment, strategy, competence resource planning and short term planning are the main sources of information for the competence development. Other sources include customer satisfaction survey, employee surveys and financial reporting. Stakeholders for defining the business requirements are the strategic and business leaders. They categorize and prioritize the business requirements so that these can later be translated into position and job specific requirements. At this stage it should already be clear what skills and knowledge are needed by the employees working in the identified positions in the future so that the organization can achieve its business goals. The 70-20-10 competence development principle distinguishes between on the job learning (70), learning from others (20) and formal learning (10) including instruc-

tor lead and web based training. Competence development framework is visible in the picture 11 below. (Company Intranet 3 2011)

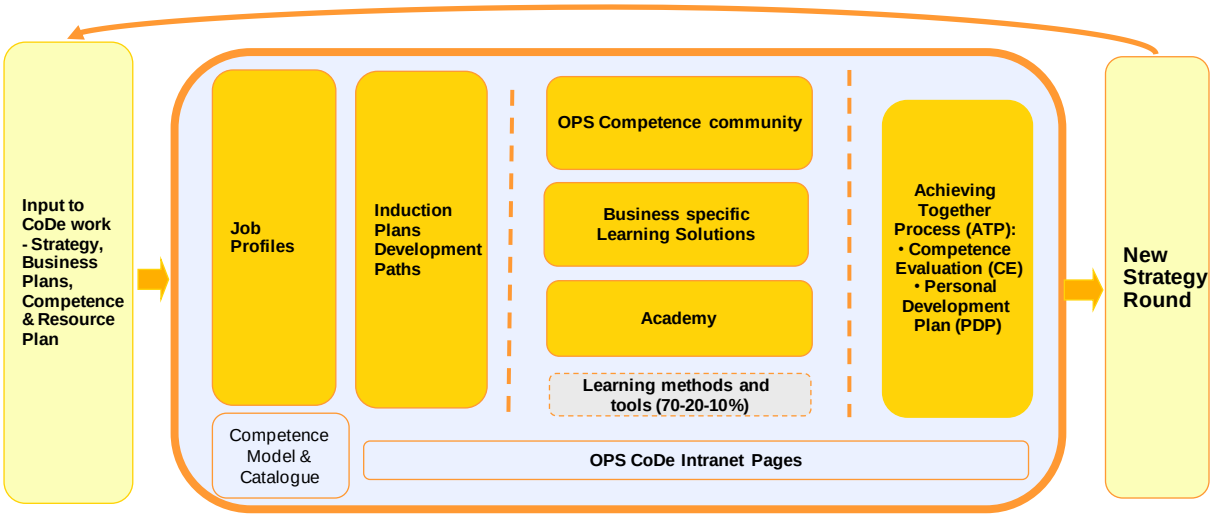


Figure 9. Competence development framework.

4.4 Official competences for digital execution

For digital execution team level there are no separate competences and competence levels defined, but they are on material execution (MEX) level. So these competences are common for all the operational buyers in the company. Competences have been recently updated and they are the following:

Operative competences

E2E Supply Chain

This competence includes understanding the changes in supply chain coming from new customer requirements, new business models and company's transformation towards service and solution company. It also involves understanding the roles and responsibilities, and learning to work efficiently in a process wise organized true end to end supply chain without any organizational borders or silos. It also includes understanding the cost and performance drivers in supply chain and being able to balance between them to provide customers the industry leading flexibility and delivery performance with sustainable cost level.

Material Execution

This competence includes having good operational procurement skills to optimize inventory levels, and developing suppliers' daily performance. It also involves understanding and driving inbound logistics management and operational procurement performance.

Cost analysis & management

Competence in cost analysis and management includes being cost conscious and understanding how profitability is created within own area. Being capable for analyzing fact based cost structures and target cost for purchase items is also included. This competence involves understanding total cost of ownership (TCO) concept and taking the needed actions to reduce costs, as well as taking personal responsibility to contribute to the overall profitability when dealing with internal and supplier resources.

Strategic competences

Leading for the Company

The first strategic competence includes understanding, supporting and developing colleagues, as well as being available and visible in the company's internal community. It also involves leading others according to company values, as well as motivating others and encouraging empowerment through inspiring colleagues.

Cultural understanding

This competence includes understanding cultural characteristics, values, beliefs and behaviors, and being able to work in cross cultural teams taking into account the differences of other people.

Lean

Competence in lean includes having theoretical knowledge on Lean methods & tools, and identifying the specific Lean methods and tools that are important in the own organization and role. (Company Intranet 2 2011)

4.5 Job profile level competences

Each position and a job profile has its own competences and competence levels defined. They have been identified according to the competence development process presented in the earlier chapter. A competence profile of a person is then created during the competence evaluation dialogue. It defines how well the person meets the competence requirements of the position. A personal development plan is prepared together with the person and his or her manager to develop the competences required for the position and the competences required for the future desired or targeted position(s).

Competence evaluation is executed:

- to get transparency of existing competences
- to identify strengths and to analyze development needs
- to ensure development is focused on business requirements.
- to get transparency about competence requirements
- to enforce focus on key competences
- to get clear feedback – outside view on competences
- to get input on personal development
- to get employee know the competence requirements
- to get competence profile for each employee, and knowledge of their strengths and weaknesses
- to have input on competence development

Job profile level competences and required competence levels for the DEX (operational) buyer are listed in the table 1 below.

Table 1. Buyer's job profile competencies.

Living by Our Ethics	3 - Intermediate
Working Across Boundaries	2 - Basic

E2e Demand Supply Network optimization	2 - Basic
Supplier Contracting	2 - Basic
Seeking and Sharing Knowledge	3 - Intermediate
Process Management	2 - Basic
Cost Analysis & Management	2 - Basic
Driving Commercial Results	2 - Basic
Logistics Execution	3 - Intermediate
Material Execution	3 - Intermediate
Understanding Quality Management Framework	2 - Basic

Job profile level competences and the required competence levels for GPR Category manager (tactical) has been listed in the below table 2.

Table 2. Job profile competences for category manager.

Living by Our Ethics	3 - Intermediate
Working Across Boundaries	2 – Basic
E2e Demand Supply Network optimization	3 - Intermediate
Supplier contracting	3 - Intermediate

Influencing others	3 - Intermediate
Product and Technology Knowledge and Internet Business Understanding	2 - Basic
Strategic Thinking	2 - Basic
Supplier Base Management	3 - Intermediate
Decision making	2 - Basic
Supplier market knowledge and management	3 - Intermediate
Supplier quality management	2 - Basic
Cost analysis & management	2 - Basic

Table 3 below explains the meaning of different competence levels, from 1 – initial to 5 – World-Class competence. All of the required competences from both operational and tactical buyers are on basic (2) or intermediate (3) level. (Company Intranet 2, 2011)

Table 3. Competence level definitions and explanations

Competence Level	Activity	Knowledge / Learning	Autonomy	Problem Solving	Consulting / Training
	With regard to the respective competence the person …				
5 World-Class	Is capable of reinventing the way how the related activities are conducted in new, innovative, revolutionary ways	Is a source of complex knowledge for other / has high level of understanding of learning process and is direct autonomously self-learning	Demonstrates leadership, innovation and autonomy in even unfamiliar and complex contexts	Can develop strategies for solving of problems, can review and improve existing solutions	Can train and develop training for others, teams and organizations
4 Advanced	Can perform the activities in complex and unfamiliar contexts, is capable of developing the way how the related activities are conducted	Combines practical knowledge, theoretical concepts and abstract thinking and generates new knowledge / consistently evaluates own knowledge and identifies and organizes own learning efforts	Works independently, shows strong initiative and creativity	Can recognize core elements of problems, can solve both concrete and abstract problems by integrating complex knowledge sources	Can train others and teams by transferring practical and theoretical knowledge
3 Intermediate	Can perform the activities in non-routine contexts, makes suggestions for improvements	Has field-specific practical and theoretical knowledge / evaluates own learning and identifies learning needs	Demonstrates some independence and shows initiative	Can solve problems by integrating information from expert sources	Can pass own acquired knowledge and skills to others
2 Basic	Can perform the activities in a limited range of contexts	Has factual knowledge / can access and use learning resources	Can act mainly under direction	Can solve well-described problems using well-known information sources	Cannot train others
1 Initial	Has no or limited ability to perform the activities	Has none or limited knowledge / needs clear indication for learning	Cannot work autonomously at all, needs permanent supervision	Has very limited ability to solve problems	Cannot train others
Competence Evaluation	A competence level can be reached even if not all categories do apply In case ratings differ or are not observable, the competence level should correspond to the average rating				

5 QUESTIONNAIRE RESULTS

The questionnaire about the purchasing skills and capabilities, which was carried out in the case organization, included seven sections. In the first two sections (A-B) respondents were asked to evaluate the importance of certain skills and capabilities in their current position. Questions dealt with the areas of education and training, work experience, business skills, personal characteristics and international trade expertise. In the third section (C) they were asked to evaluate their current level in those same skills and capabilities.

In the fourth (D) sector respondents were presented some claims about the purchasing skills and capabilities and asked to evaluate those from the perspective of their current position. In the following two sections (E-F) respondents were presented strategic and operative purchasing tasks and they were asked to evaluate the importance of those tasks in their current position. In the last section (G), respondents were requested to evaluate their current level of competence in these same strategic and operative tasks.

Even if the two teams of respondents are working with the different tasks, DEX mostly on the operational level and GPR mostly in tactical and at some extent on strategic

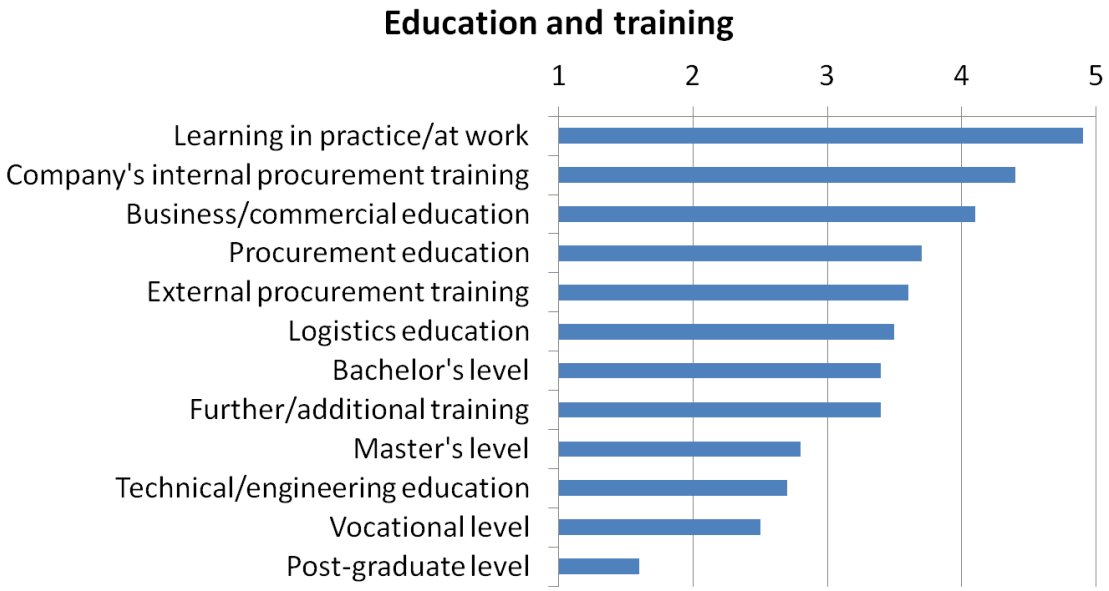
level, their answers are first analyzed as a total. This is because the original idea of this study is to find unifying competences and capabilities for software purchasing as a whole. Thus, one of the sub questions was also to identify if there are any differences between the operational and tactical level competences, and therefore answers are also compared between these two teams, where significant differences can be noted.

5.1 Education and training

Importance

Learning in practice/at work (4.9) was considered as the most important and necessary training for software purchasing tasks. Thus, this value cannot be compared with the earlier survey results, since this question point was added for this current questionnaire only. As the next most important was seen the company's internal procurement training (4.4), which in the previous study was also seen as the most important point in educational background (4.2). Importance of the overall procurement training (3.7) was in the fourth place in this study, whereas in the previous survey it was considered the most important (4.2) in parallel with the internal procurement training. In this study business and commercial education (4.1) was considered far more important than technical education (2.7), which in the previous survey were rather close to each other, with the scores for business/commercial (3.9) and technical (3.7) . The bachelor's level of education (3.4) was considered to be adequate instead of higher and lower levels of education, and this result is rather similar as in the previous study. These results are show in the figure 10 below.

Figure 10. Importance of education and training

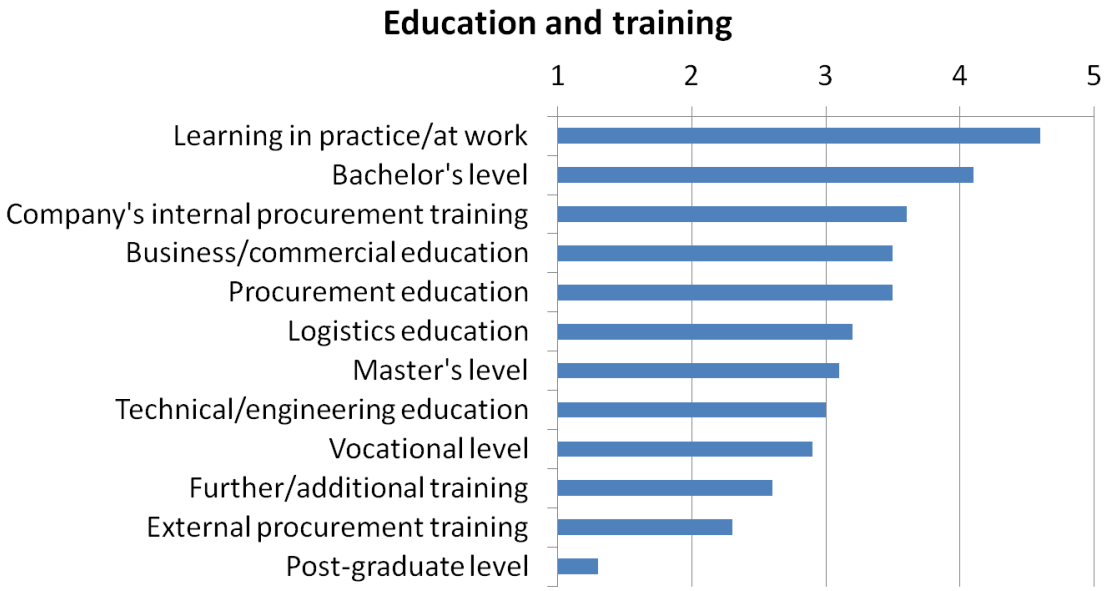


Current level

The current level of education and training, shown in the figure 11, was rather good compared with the level which was seen important in software purchasing. The biggest gaps were in company's internal procurement training, where the required level was 4.4 and current level 3.6, and in external procurement training where the required level was 3.6 compared with the current level of 2.3. Gaps could also be identified between the current and required levels in business/commercial education (4.1/3.5) as well as in learning in practice/at work (4.9/4.6).

The Difference between the earlier survey and this study was that in software purchasing at the case company there is lower levels in technical education (3.0/3.6) and in external procurement training (2.3/3.3). On the contrary, bachelor-level education has been increased (4.1/3.5).

Figure 11. Current level of education and training



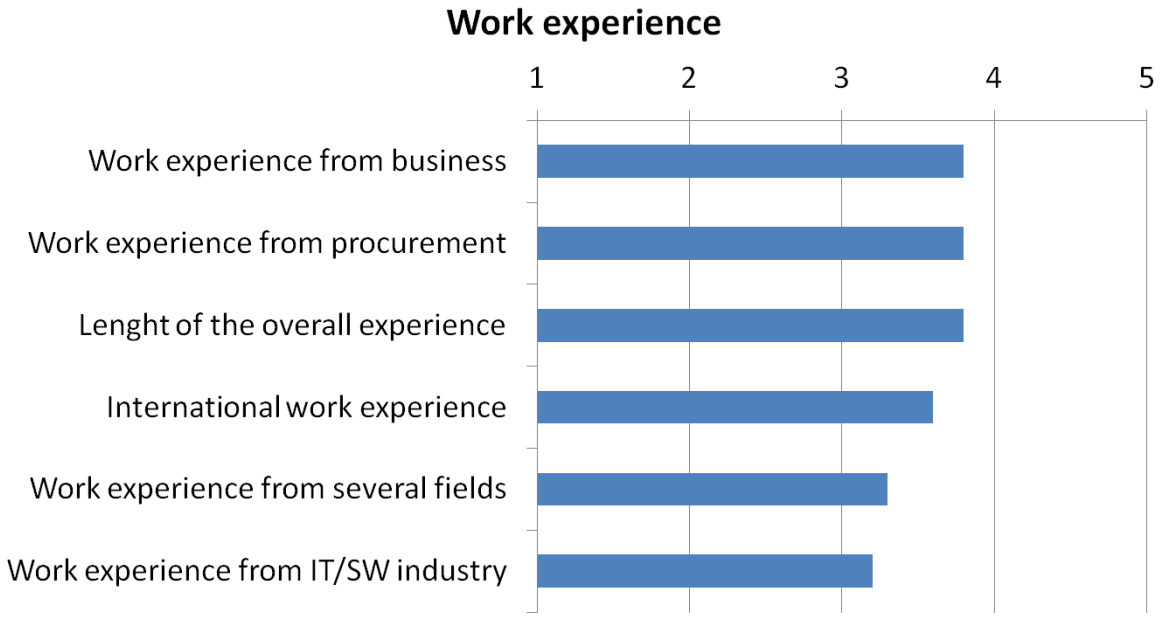
Level of technical education was slightly higher in GPR than in DEX, even if business education was seen more important also in those tasks.

5.2 Work experience

Importance

Work experience was seen equally important, whether it is from business (3.8) or from procurement (3.8). Also length of the overall experience (3.8) was seen as important. In the previous survey business work experience (3.3) was not seen as important as the experience from the same area of industry/products (3.6). IT/SW industry experience (3.2) was considered to be less important in software purchasing than overall work experience. Importance of work experience is shown in the figure 12.

Figure 12. Importance of work experience



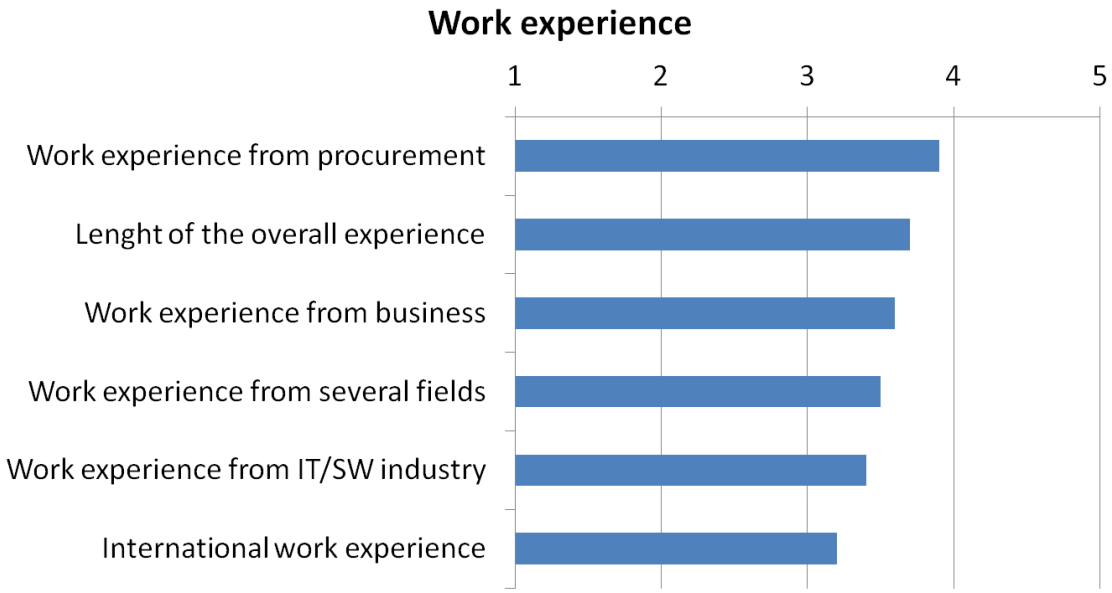
In GPR the overall work experience was seen as the most important, whereas in operative tasks the work experience from the field of procurement was considered to be more important.

Current level

The current level of work experience, shown in figure 13, was seen quite similar with the level which was seen important in these tasks. Only slight gaps can be noted in business experience (3.8/3.6) and in international experience (3.6/3.2).

Compared with the earlier survey, length of the overall experience was now lower (3.7/4.1) but instead, international work experience was higher (3.2/2.6).

Figure 13. Current level of work experience



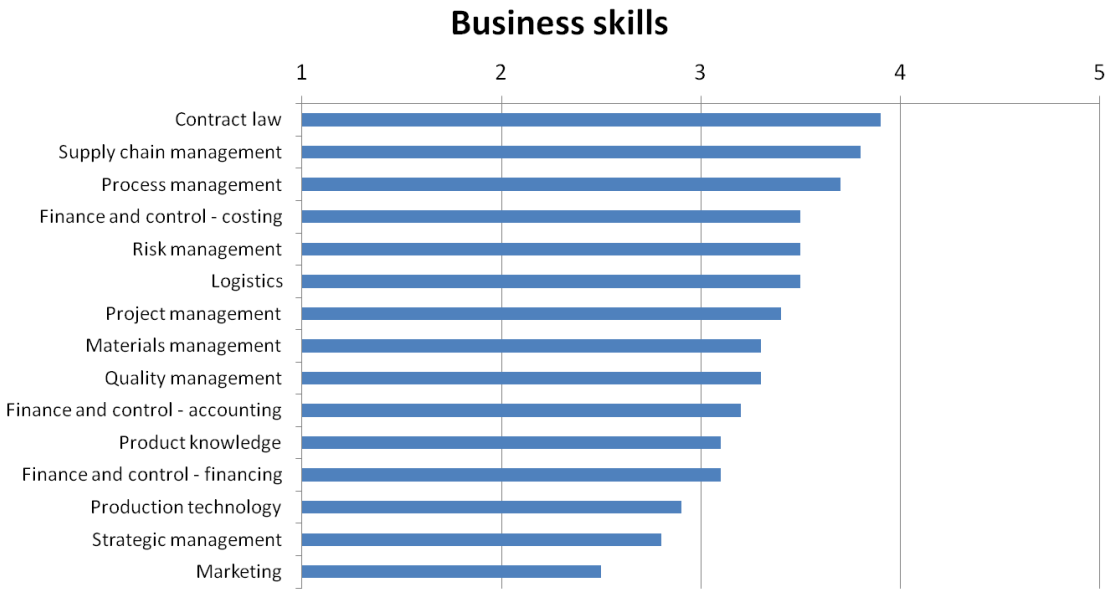
5.3 Business skills

Importance

According to respondents, the most important business skills in software purchasing are contract law (3.9), supply chain management (3.8) and process management (3.7). As less important skills were considered to be marketing (2.5), strategic management (2.8) and production technology (2.9).

Comparing with the earlier survey, it can be noticed that the same skills were also seen as the most important; contract law (4.0), supply chain management (4.0) and the process management (3.9). But in addition to these, also logistics (4.0), materials management (4.0), quality control (4.0), risk management (3.9), product knowledge (3.9) and strategic management (3.9) were seen as much important. The biggest gap is in the strategic management, which was considered as one of the less important in software purchasing. These results can be seen in figure 14.

Figure 14. Importance of business skills



In GPR the contract law was the most important and risk management as the second important. In DEX the process management, supply chain management and logistics were seen as the most important. Contract law, supply chain management and process management were highly scored in both teams which lead to the top positions in the overall scores.

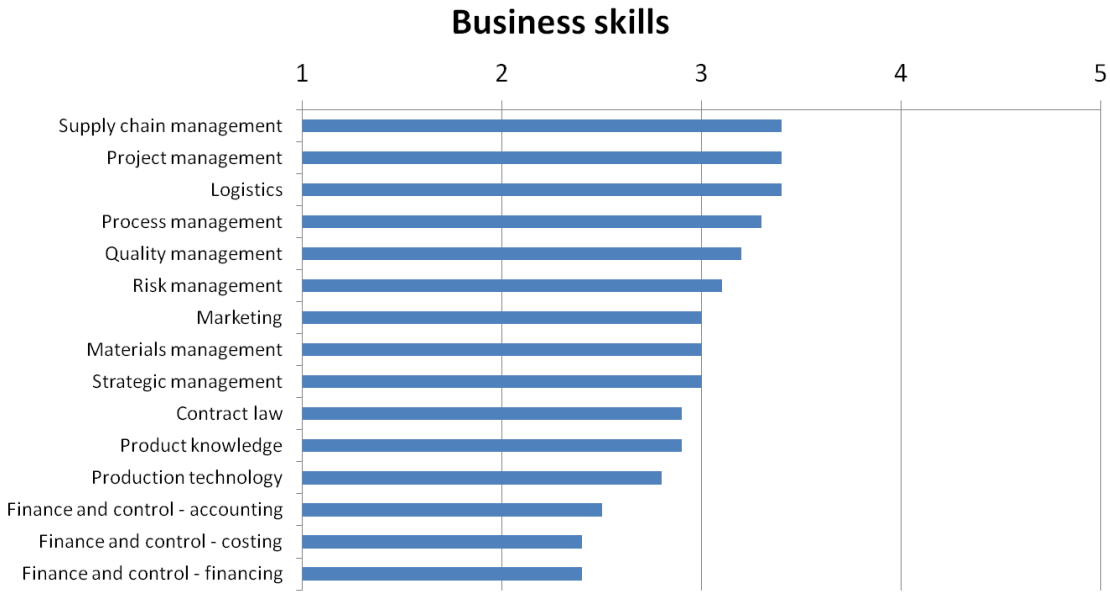
Current level

Current level of business skills, visible in figure 15, is in general lower compared with the considered importance of these skills. The biggest gaps between the required and current levels are in contract law (2.9/3.9), which was seen as the most important skill, and in finance & control. All finance and control skill levels are behind their importance; costing (2.4/3.5), accounting (2.5/3.2) and financing (2.4/3.1). Although supply chain management (3.4), process management (3.3) and risk management skills (3.1) are in rather fair level compared with the other skills, gap with the required levels is quite significant (0.4-0.5 in each).

When comparing with the current level of business skills in the previous survey, a similar situation can be noticed. The current level in almost every skill was lower than

the required level. Product knowledge had the best skill level of 3.7, whereas in software purchasing the mean was only 2.9.

Figure 15. Current level of business skills



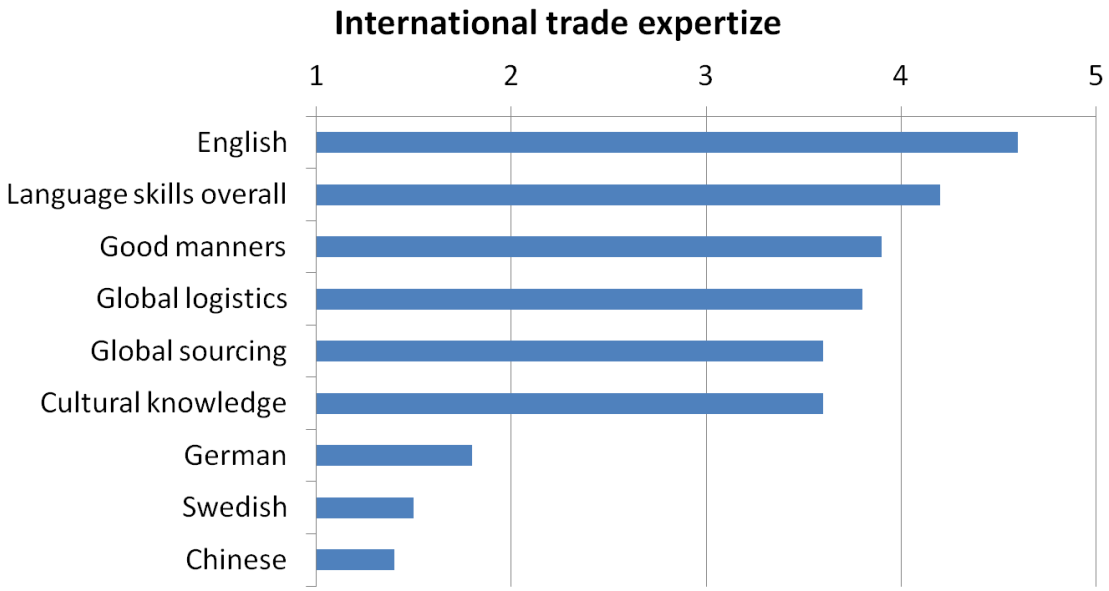
Product knowledge, strategic management, risk management and especially the contract law are on higher level in GPR, and instead, logistics, supply chain management and especially materials management received higher scores in DEX. Biggest gap in GPR is in F&C costing (2.8/3.7) and in contract law (3.7/4.6). In DEX there were also big gaps in all F&C skills, especially in costing (2.1/3.3) and then in contract law (2.4/3.4).

5.4 International trade expertise

Importance

In software purchasing the most important skills in the area of international trade were considered to be English (4.6) and overall language skills (4.2). Language skills such as Chinese and Swedish were seen not so important as such. The results, which are shown in figure 16, were quite similar also in the previous survey.

Figure 16. Importance of international trade expertise



Current level

The current level of competence in international trade meets the importance and requirements in these skills, as shown in figure 17 below. There are no big gaps in these skills. Compared with the earlier study, there is significantly higher level of competence in cultural knowledge (3.9/2.9) in software purchasing.

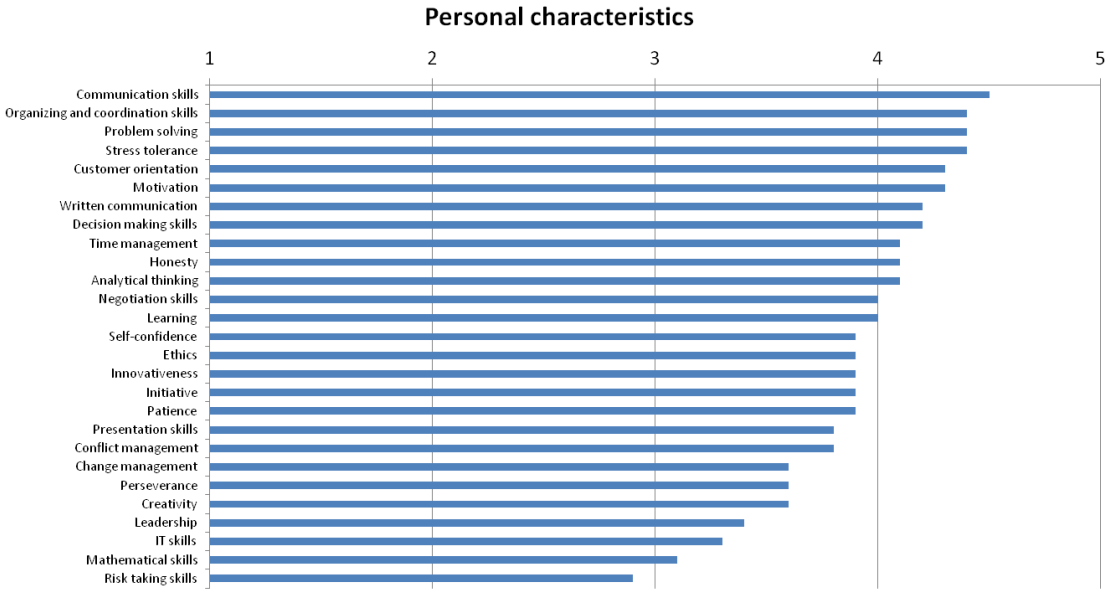
Figure 17. Current level of international trade expertise

5.5 Personal characteristics

Importance

When evaluating the importance of the personal characteristics in software purchasing, respondents found communication skills (4.5), organizing and coordination skills (4.4), problem solving (4.4) and stress tolerance (4.4) as the most important, as visible in figure 18. Mathematical skills (3.1) and risk taking skills (2.9) were seen as less important from the personal characteristics These less important characteristics are the same as in the previous survey, but the most important characteristics were slight different. In the previous survey the most important personal characteristics were negotiating skills (4.6), honesty (4.5) and decision making skills.

Figure 18. Importance of personal characteristics



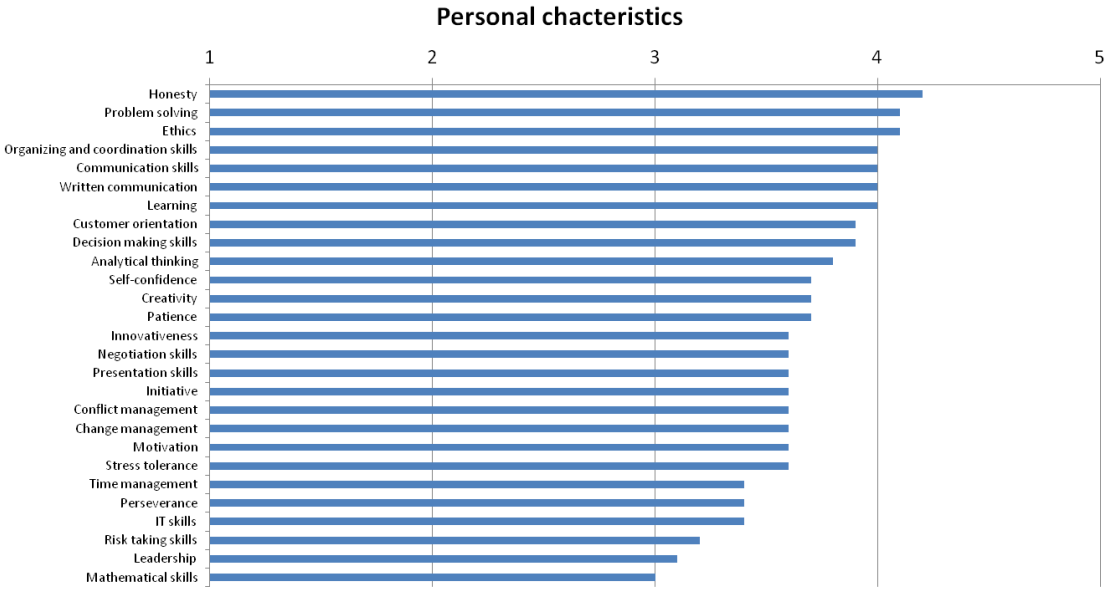
Negotiation skills (4.6/3.5) and ethics (4.4/3.1) were seen more important in GPR than in DEX. Time management (4.6/3.7) and IT skills (4.0/2.7) got more importance in DEX than in GPR.

Current level

When evaluating the current level of the personal characteristics, respondents from software purchasing considered honesty (4.2), problem solving (4.1) and ethics (4.1)

as their strongest characteristics. Weakest skills were in mathematics (3.0) and in leadership (3.1). Biggest gap between the required and the actual characteristics is can be found in stress tolerance (3.6/4.4) and in motivation (3.6/4.3). Results are shown in figure 19. There are no big differences compared with the results from the earlier survey.

Figure 19. Current level of personal characteristics

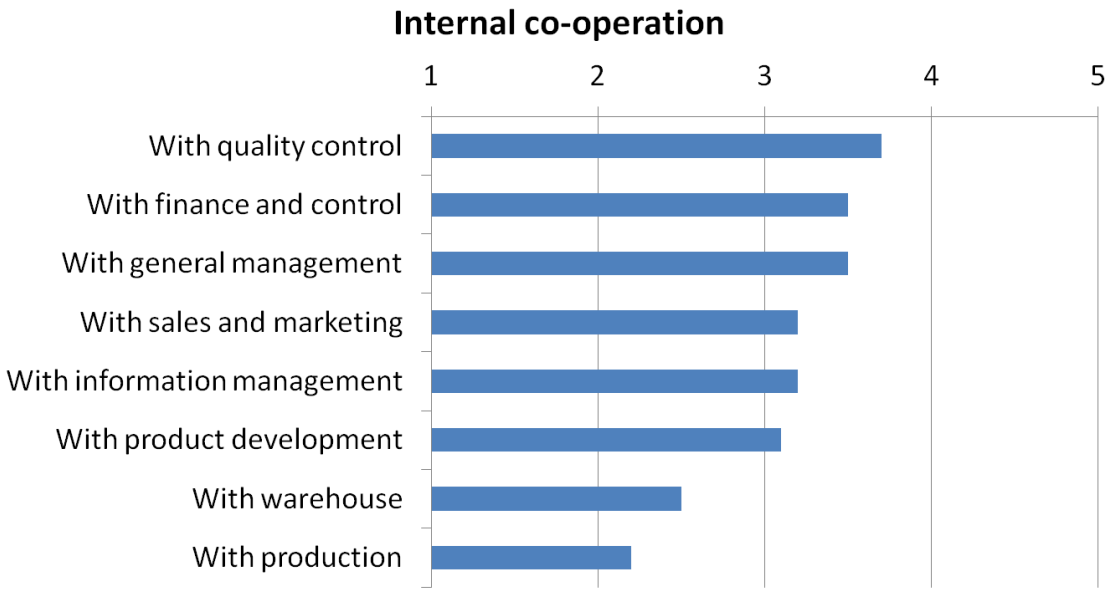


5.6 Internal co-operation

Importance

When evaluating the importance of the internal co-operation, shown in figure 20, software purchasing personnel considered co-operation with the quality control (3.7) as the most important. Also co-operation with the finance and control (3.5) as well as with the general management (3.5) were seen important. Co-operation with the production was the less important (2.2), which was instead the most important (4.3) in the previous survey together with the co-operation with the general management (4.3).

Figure 20. Importance of internal co-operation

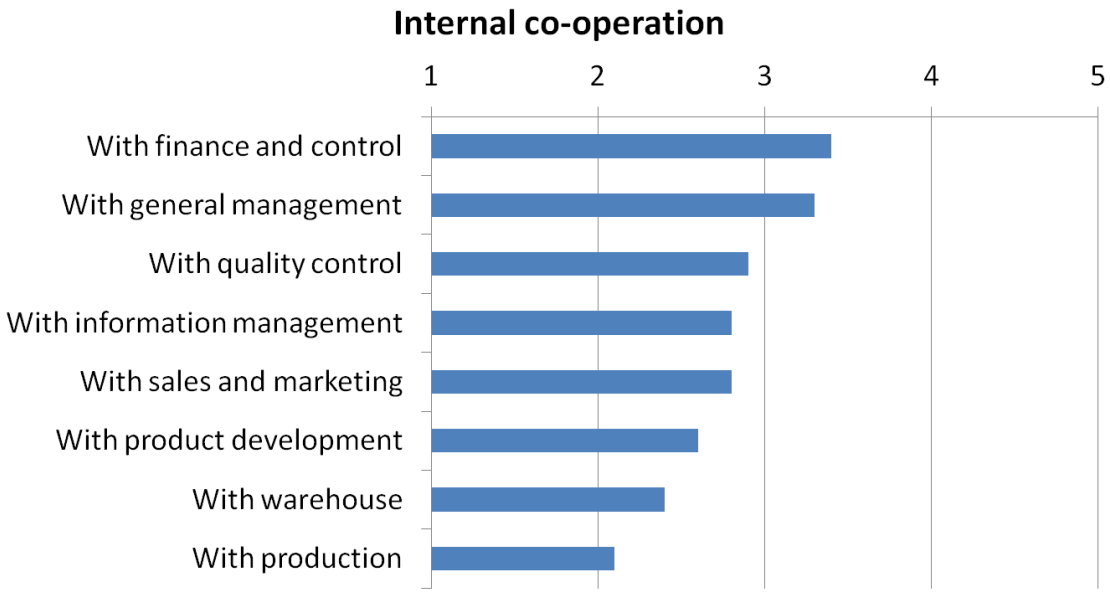


In GPR, co-operation with sales and marketing (3.7/2.5) as well as with product development (3.9/2.4) were seen more important than in DEX. Instead, DEX felt good co-operation with information management as the most important (3.8/2.4).

Current level

Even if the co-operation with the quality management was seen as the most important, the current level (2.9) of this communication and co-operation is not on required level. Even if there wasn't any big gaps in internal co-operation, there is a slight improvement need with almost each of the party. Co-operation with the finance and control is currently at the best level (3.4) and the lowest level of co-operation is with the production (2.1). These results are shown in figure 21. Still, in the previous survey, the best level of co-operation was with the production (3.8).

Figure 21. Current level of internal co-operation

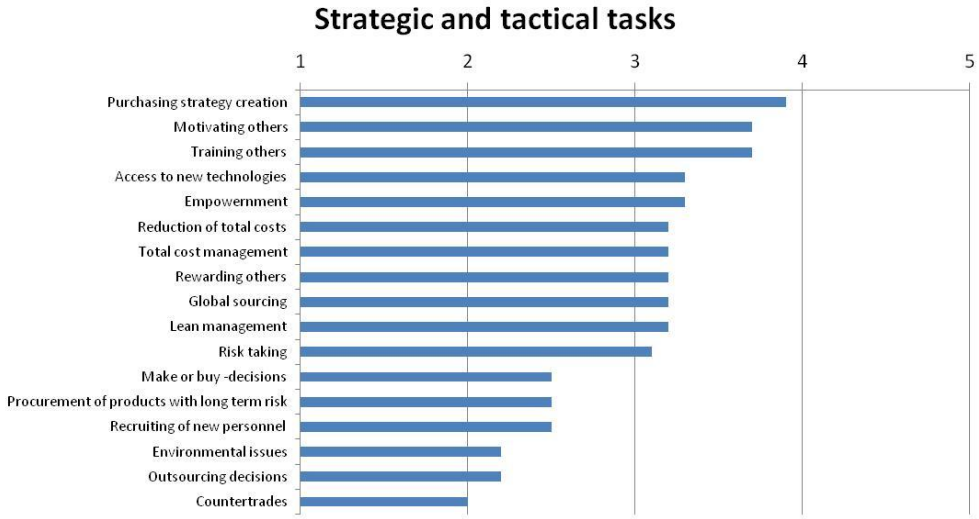


5.7 Strategic and tactical tasks

Importance

Respondents in software purchasing find purchasing strategy creation (3.9) as the most important from the strategic and tactical purchasing tasks, as can be seen from the figure 22. Tasks or roles in motivating others (3.7) and training others (3.7) were considered as the next important, and countertrades was seen as the less important (2.0). In the earlier survey respondents saw total cost management (4.5) as the most important task, followed by risk management (4.1) and purchasing strategy creation (4.1) as the second important. The less important task was countertrades (2.1) as in this study.

Figure 22. Importance of strategic and tactical tasks



In this section it is obvious that in GPR the importance of the most strategic and tactical competences is overall seen higher that in DEX; for example, make-or-buy (3.1/2) and outsourcing decisions (2.9/1.4), as well as procurement with long term risk products (2.9/2). Cost reductions (3.7/2.4) and access to new technologies (3.7/2.7) were seen as the most important tasks in GPR, but not so important in DEX. From strategic tasks, purchasing strategy creation was seen as important in DEX as in GPR (3.7). Training (3.8) and especially motivating others (4.1) was also seen important in DEX. Lean management was considered more important in DEX than in GPR (3.5/2.6).

Current level

When evaluating the current competence level in the strategic and tactical tasks, shown also in figure 23, respondents saw that training and motivating others are in the best level currently. The current level of competence in purchasing strategy creation was only 3.2 even if it was seen as the most important from the strategic and tactical tasks (3.9), so the biggest gap can be found there. A slight gap can also be seen in the reduction of total costs (2.8/3.2). The lowest level of competence was in outsourcing decisions (2.9) and countertrades (3.1), but those were as well seen as the less important in respondents' current tasks. In the earlier survey, the best level of competence was in the total cost management (3.6) and the less competence in countertrades (1.9).

Figure 23. Current level of competence in strategic and tactical tasks

In this section it is as well obvious that in GPR the overall level of competence in is higher than in DEX. Cost aspect competences were seen to be on better level on GPR than in DEX, as for example total cost management was in GPR 3.3, and in DEX only 2.5. Access to new technologies also got higher scores in GPR (3.3) than in DEX (2.6), as well as in the importance of these competences. When comparing the importance and the current level of competence in GPR, a slight gap can be noticed in both of these competences (3.7/3.3 for both).

Lean management was seen more important in DEX and also the level competence (3.6) is higher than in GPR (2.6). Global sourcing competence is higher in GPR (3.4) than in DEX (2.9).

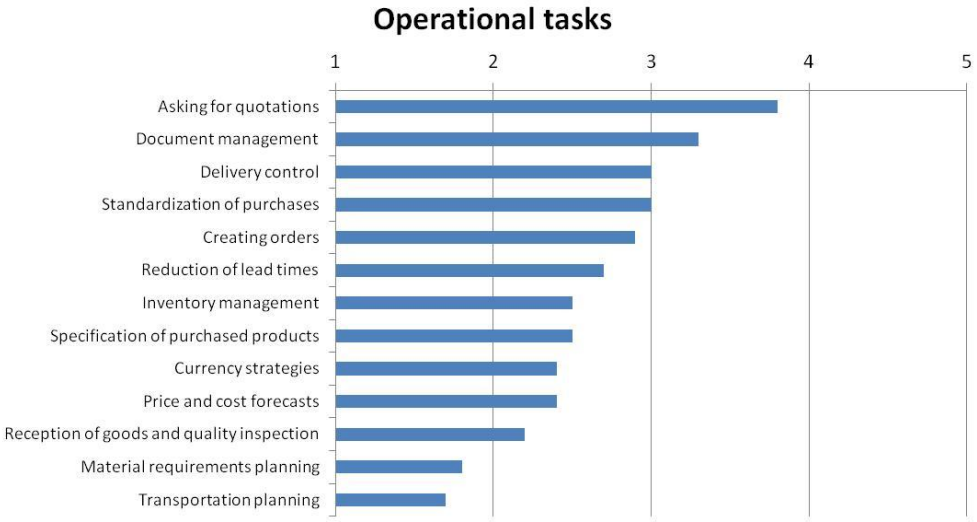
5.8 Operational tasks

Importance

When evaluating the importance of operative tasks, shown in figure 24, respondents rated the asking for quotations (3.8) and document management (3.2) to be the most important competences is software purchasing. Material requirements planning (1.8) and transportation planning (1.7) were the less important ones. In the previous survey, the most important competences were delivery control (4.0) and asking for quotations

(4.0). The less important were the transportation planning (3.5) and currency strategies (2.8).

Figure 24. Importance of operational tasks

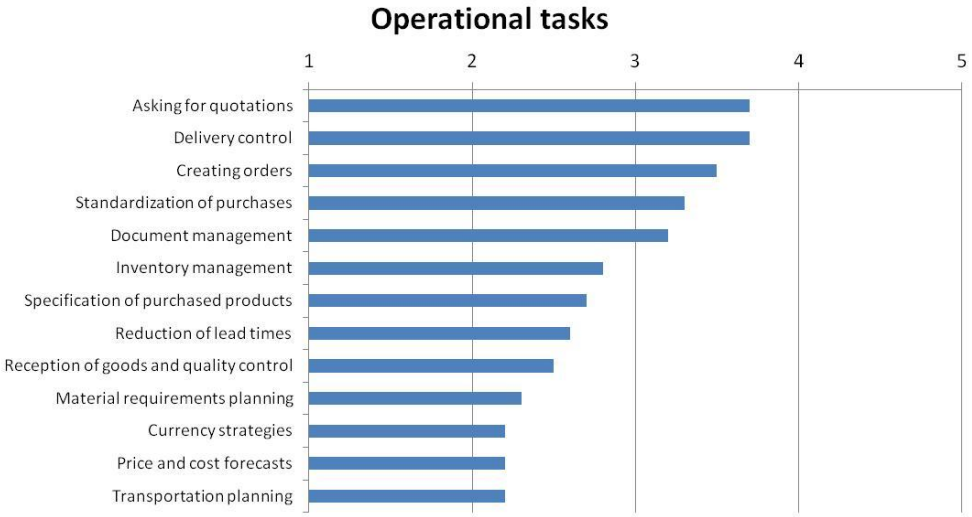


Asking for quotations was only one of the operative tasks, which was seen rather important in both GPR (3.6) and DEX (3.4). Creating orders (4.0/1.7) and delivery control (4.3/2.0) were in top three in DEX, but not so important in GPR . Big difference was also in warehouse management in DEX (3.6) and in GPR (1.3). This is obvious due to the difference between the levels of tasks in these two teams.

Current level

Asking for quotations (3.7) and delivery control (3.7) were at the best level of competence in software purchasing. Competence level in price and cost forecasts (2.2) as well as in transportation planning was seen as the lowest according to the respondents of this questionnaire. In the previous survey, the best level of competence in operative tasks was in order creation (3.8). These results are shown in figure 25.

Figure 25. Current level of competence in operational tasks



Again it was noted here that DEX experience in the operative tasks gave them naturally the higher scores in the current competence level of operative tasks.

6 FINDINGS AND CONCLUSIONS

Findings from the analysis of the questionnaire results as well as from my own experience and observations will be presented in this chapter. Since there is no commonly agreed way to categorize the individual PSM capabilities, findings are presented under the following themes, which were indentified during the literature review and data analysis; learning, personal characteristics, strategic, operative and economic competences. Some of the findings, for example the importance of communication, are such a general in nature and overlapping all these themes and categories, and therefore mentioned in several contexts.

Findings are evaluated based on the PSM competence literature and theories. Then organization's current competences are reviewed to find linkages to these findings.

6.1 Learning

It can be clearly noted from the results that learning in practice is the most important source of training in software purchasing. Learning at work or on-the-job learning means the learning that takes place in the workplace and/or the tasks. It is a question

of knowledge transmitted in dialogue from one employee to another (Boyd & Garrick 1999). Even if the business and procurement training is also seen beneficial in these tasks, learning in practice and at work is seen as the most important. It is also considered as the most important source of training when evaluating the current level of education. It was already noted in the literature review section, that purchasing and supply management literature does not include much information about software purchasing, nor competences needed in this field of business. This also leads to the situation where in education and other training courses, purchasing and supply chain management lectures are mostly concentrating on the supply of physical material. Specialties of software purchasing are not taught at schools. This is also supported by the result, by which company's internal procurement training is considered to be more important and beneficial in these tasks than other external trainings. Because software purchasing skills and competences cannot be learned in schools, the importance of training others has been noticed. This is visible in both the importance and current level of strategic tasks, where training and motivating others is seen as one of the most important competences.

It has been recognized that experience is the best way to learn, and this concerns also the purchasing competence (Cavinato & Kauffman 1999, p.277). "Information can be obtained overnight, single things can be learned in a minute, but gaining the extensive know-how and competence takes time" (Iloranta & Pajunen-Muhonen 2008, p.21). Experience and interaction with others is needed in developing this competence even further. Interaction with colleagues, information sharing and communication can be seen as an integral part of the learning in practice.

In the case organization's official competences, experience sharing and learning from others has been included, at least at some extent, in the strategic competence named as Leading for the company. This competence includes understanding, supporting and developing colleagues. This competence encourages people for being available, as well as to motivate and inspire others in the company's internal community. Even though the company values are the important element of this competence, and leading others here means expressly leading according to the company values, it can be interpreted to include also the experience and information sharing about the skills, knowledge and competences needed in the daily tasks. Company values are including such as Win together and Communicate openly, which are also encouraging the inter-

pretation that experience and information sharing overall is appreciated. Even though, the value of the experience as such is not mentioned.

In a buyer's job level competences seeking and sharing knowledge is mentioned as one of the mostly needed competences, and the required level in this competence is 3-intermediate. This again highlights the importance of communication and information sharing.

Another point noticed under the theme of learning and education, is the change from technical expertise to commercial knowhow. Even if purchasing has earlier been considered more or less as a job requiring technical expertise and product knowledge, the change towards the commercial knowhow can be noticed also from the results of this questionnaire. Technical education was seen almost as the less important from the educational backgrounds in software purchasing. This same trend has been mentioned also in purchasing literature (Iloranta & Pajunen-Muhonen 2008, pp.88-89). Business or commercial training is considered as the most important field of education for the software purchasing tasks.

6.2 Personal characteristics and skills

Personal skills, characteristics and attitude create a basis of the purchasing competence and individual purchasing capabilities. Some of the skills and characteristics are quite universal in nature and required to be able to perform the purchasing tasks successfully. Some of the needed skills and characteristics are then more or less unique and dependant on the company, organization and the specialties of the business and the products in question. Couple of attributes rose above the others in the case organization of this study.

Communication skills

Communication skills are probably one of the most valued skill in almost all organizations and businesses. As stated already earlier, purchasing both as a function and organization, is not anymore working separately and independently in its own silo, but it has become more and more important part of the company's value chain. Decisions and actions made in purchasing raise interest and have an effect on the other decisions

in the company. To be able to make the best decision according to company's strategy and goals, communication with other departments is needed. Internal communication with the production has been seen as the most important in purchasing tasks, but due to the nature of the products, in SW purchasing other internal communication partners has been seen more important. Software is rarely an integral part of the production and is not needed as a component during the production process. It is not taken from a warehouse shelve to be integrated into the product during the manufacturing process and therefore does not delay the process if missing in this phase. Modern technology enables software to be downloaded into the product in several different phases of the supply process and can be done for example in the customer premises remotely. This does not anyhow decrease the importance of the communication, since it is needed for example internally between the finance and control, IT department, quality and company's general management, as well as externally with the suppliers.

The nature of the software products increases the need for collaboration and relationship management with suppliers. It is usual that there is only one supplier for a certain SW, the developer of the product, and therefore it is not possible to change the supplier if conditions or services are not appropriate. To be able to manage and update the supplier relationships successfully, there is a need for different kind of communication skills, as well as risk and quality management skills.

In buyer profile level competences communication skills are referred in competences, such as Seeking and sharing knowledge and Working across boundaries. These both competences underline the importance of the communication, both internally and across the organization and company level boundaries.

Organizing and coordination skills

Important part of the software purchasing tasks is coordinating and organizing things. Contracts, purchases and deliveries need to be done on time and according to the correct schedules. Since the supply chain of these sometimes very nonstandard and customized software products can be very case specific, good problem solving and decision making skills are required. There is a need to be flexible and capable for solving these complicated situations without a delay and hesitation. There is not always a readymade and agreed process to follow, and in such a situation there is a need to ana-

lytically think and decide what is the most beneficial for all the parties. Speed of the business environment is also constantly accelerating and customers are waiting to be served without any delays. In addition to customer orientation, this hectic pace of work requires skills, such as time management and stress tolerance.

Good manners

Good manners are also one of the most universal skill required in almost every environment. The reason why they are mentioned here, is that even if operating in the international environment, overall good manners are seen more important than cultural knowledge. Good manners are the skills required from everyone and concerning everyone, despite of the cultural or other background. In a modern multicultural environment, as is also the case organization, it is often impossible to know all the cultural differences and specialties to be able to take them into account when dealing with people with different backgrounds. It could also be interpreted, that Finnish respondents count on the overall good manners, already taught them at school, to be satisfactory in treating all the people with the respect.

Both of these aspects are taken into account in case organization's official competences, Cultural understanding and Leading for the company in the strategic competences. Leading for the company includes understanding and being available for colleagues according to company values, such as Win together. Also a competence in buyer level competences, called Living by our ethics, can be understood to drive the good manners. Ethical behavior anyhow includes respecting others and common values.

Sourcing director from Fazer bakeries division (Iloranta & Muhonen-Pajunen 2008, p.178) have compressed the importance of personal characteristics and motivation: "There is still such a conception, that almost anyone having some substance expertise from the relevant field of business can be capable for the purchasing tasks. But in practice it has been noticed, that an inevitable pre-requisite for becoming a purchasing professional is a clear innate interest in such a tasks. And this concerns purchasing as well as selling." With the several years of experience from the field, this can be agreed without a doubt.

6.3 Strategic competences

Changes in the business environment in terms of outsourcing, sustainable development objectives, increased longer term alliances and business to business relationships has impacted on the role of purchasing, on the design of purchasing processes, and on the role of the buyer. These changes enhance the transformation of purchasing function from clerical to strategic, and purchasing roles and responsibilities are becoming less operational and more strategic. Increase of the strategic importance of purchasing increases the importance of strategic competences (Zheng et al. 2007). Impacts, such as increasing importance of stakeholder involvement and deepening relationships with suppliers, require purchasing professionals to develop a richer, deeper set of skills to engage more fully with other organizations (Cavinato 2006, pp.70-78).

The most important goal of every business is to create value for the end customer. "Value is always part of every decision made by the individual and, thus, it is complex and varies depending on the individual, time, place and context" (Peltola, 2008). Purchasing, as a function as well as an organization, is part of the value chain aiming to value creation for the customer. This means that purchasing and supply persons can no longer act in a silo role under the own organization, but within a more and more collaborative environment with other departments. Buyers are required to not only know the suppliers and be able to negotiate for the favorable contracts and cost, but to manage and actively participate in cross-functional teams as part of the value chains (Cavinato 2006, p.172). Accordingly in software purchasing, the buyer alone cannot play a very significant role when talking about company's strategic goals. Cross-functional and cross-enterprise teams make the joint decisions on purchasing and supply, based on the common strategy. Cross-functional category teams share the information and experience about the suppliers and product requirements inside the category in question. These teams are benefitting from the expertise of its members; one as a purchasing professional, someone from project management, others dealing with stakeholders and considering the through-life costs. There is lot more emphasis on teamwork skills for purchasing professionals and the lone commodity buyer will be less of a feature of purchasing in the future (Zheng et al. 2007). Importance of the common purchasing strategy was highlighted also in the questionnaire results, as well as internal co-operation and communication. Software purchasing's role as a part of

the value chain, adding value to the end customer, was acknowledged with the importance of the customer orientation in personal characteristics.

In addition to the importance of internal co-operation, the nature of the software products also emphasizes the collaboration and supplier relationship management. It is usual that there is only one supplier for a certain software, the developer of the product, and due to this it is not possible to change the supplier in a short order if conditions or services are not appropriate. Acknowledgement of risk management and quality management skills can be derived from this fact. Risk of inadequate quality and close collaboration in case of single supplier strategy need to be managed. This also increases the importance of the collaboration and the communication skills needed in supplier relationship management. The trend towards the increasing outsourcing makes the communication about the product and quality requirements crucial, when more and more products are sourced from external suppliers.

Narasimhan et al. (2001) have studied the key dimensions of purchasing competence when aiming to improve the firm-level strategic performance. His study points to buyer-seller relationship management and empowerment as the key dimensions. Buyer-seller relationships include here sharing of cost savings with suppliers, providing technical assistance, and sharing risks associated with capital investment. These, as strategic level decisions and as a whole, are such a wide area that it is not evaluated here from the individual PSM competence point of view. But it needs to be mentioned, that operational and tactical level buyers have an important role in co-operation and communication, and the key point is that they should be aware of the importance of SRM overall. An emphasis on empowerment considers practices such as autonomy in jobs, involvement in decision-making, and actions that promote job security thus allowing freedom to try new ideas and practices. According to this study, all of these aspects are valued also in software purchasing. To be motivated in giving their best for the company, people need to be involved in decision-making. Freedom and autonomy is required to be innovative for the improvements and new ideas.

As the importance of the purchasing strategy is acknowledged in software purchasing, buyers need to be involved, if not to the strategy creation itself, but for the contribution through the proper communication. Purchasing as well as the business strategy should be properly communicated to the purchasing professionals; training and incen-

tive schemes in the purchasing function should be oriented to the achievement of the overall business objectives, and purchasing should be encouraged to formalize its own long-term plan to develop and support business strategy. On the other hand, top managers should provide the necessary human and technical resources to achieve these objectives. It is not possible to pursue such a high level objectives or even familiarize oneself with the strategic plans if all the available resources has to be used in coping with the daily running mandatory tasks. As the importance of training is acknowledged in software purchasing, company should give the appropriate resources for enabling it. (Gonzales-Benito 2007)

Importance of the cross-functional co-operation has been noticed in case organization level strategic competences, as it is included in Leading for the company competence. As mentioned already in previous chapters, this competence encourages buyers to be visible and available in company's internal networks and communities. Also a buyer level competence called Working across boundaries can be interpreted to drive this same goal. Competences for the tactical level GPR team also include Supplier base management, Supplier market knowledge and management as well as Strategic thinking. These can be seen as more important in their tasks than for the operational level buyers in DEX. GPR is responsible for the supplier selection and contract negotiations, and to be able to choose the best suppliers and agree the most favorable condition according to the company's strategy, these competences are mandatory.

6.4 Operative competences

Operative purchasing capabilities refer to the ability to manage routine, simple or day-to-day tasks such as routine ordering and follow-up of basic operational supplies; in other words, operational activities that are managing supplier transactions, purchasing appropriate items, generating and speeding up material flows, providing feedback on supplier performance and using e-systems to obtain standard or indirect items through catalogues (Monczka et al. 2005, p.46).

The purchasing process is defined by several authors (van Weele 2005, pp.46-63; Monczka et al. 2005, p.43) as a process which starts with the functional, technical, logistics and maintenance specifications of the purchased items; what is needed. In software purchasing this is usually done with the several experts for example from the

product management and sales teams, due to complexity of the products. After this first step, the process continues with the supplier selection based on the evaluation of all potential suppliers; in software purchasing there might be only one potential supplier for each product. A quotation can be asked from one or more suppliers based on the situation. The specific feature in software purchasing is that products and sellable solutions are often very customer-specific and require customization according to customer requirements. Due to this unique nature of the products, they are not purchased to warehouse in advance waiting for the customer order. Quotations from suppliers are often asked for a single customer and for each case separately. This can be noted also from the questionnaire results, as the competence in Asking for quotations was seen highly important. Products are not as standard than in traditional commodity purchasing. Purchase process continues with the contract negotiations about the prices and other terms and clauses. In software purchasing the contract has often been negotiated as a frame agreement before the actual operational purchasing starts. Frame agreement includes a range of items and products, from which the needed item can be chosen and do the purchase with the agreed terms. Other options are to sign the contract after the quotation, or agree only about prices based on the quotation and other issues has been agreed in the frame agreement. Contract negotiations, if they had been an option in the questionnaire, probably could have been rated as one of the most important operative competences. In software purchasing, the risk for breaching the contract is significantly high, and the economic consequences of breach can be enormous. As seen from the high valuation of contract law in business skills, there is an absolute need to have knowledge of applicable laws to avoid any contract violations. Due to this, individuals in software purchasing need to be punctual, analytical and systematic to avoid any potential violations of law. Purchasing process steps described so far can be considered as the tactical purchasing tasks, as defined by Van Weele (2010, p.9).

Next steps of the purchasing process are the actual ordering and delivery arrangements followed by the invoice payment, which are all considered as the operative purchasing. Competences in order execution and delivery control tasks were rated as the most important in operational software purchasing. Last step of the process is evaluation, follow-up and storing the documents. This step includes the storing of purchasing documents and in software purchasing also the follow-up of so called ‘installed base’ information. With the installed base information in software purchasing is meant information about the licenses which have been ordered from suppliers and delivered to

the end customers. It is important that all the end customer licenses and maintenance rights are valid. With the maintenance rights customers are entitled to software upgrades, updates and corrections. Maintenance validity is agreed in the contract and usually renewals are needed periodically. Software purchasing personnel is responsible for following the maintenance situation, so that maintenance rights are valid when needed. Document management overall is important, but this specific nature of software purchasing confirms the questionnaire results, according to which this competence is amongst the most important competences in software purchasing.

To be able to perform all the operative tasks successfully, buyer need to have proper tools in place and skills to use them. This includes tools for contract management, as well as for ordering and document management. Important tool in software purchasing is the tool for managing and updating the 'installed base' information. Buyer needs to have proper skills and competence in place to use these tools effectively.

Despite of the daily and routine nature, operational tasks should always be aligned and linked with the purchasing strategy and the business strategy of the company. "Operative role of purchasing provides guidance to the daily implementation of the purchasing strategy in the purchasing function" (Peltola 2008). It is important to understand the role of the different tasks inside the process, as well as the role of purchasing in a supply chain. There are not just separate purchasing tasks, but important steps of a purchasing process, and all of those steps have to be aligned with other steps, and process with another processes. In software purchasing the importance of knowledge in process management and supply chain management is understood, and those are rated as the most important business skills.

MEX operative level competence, named as e2e supply chain, confirms the importance of process understanding in the case organization. This competence includes buyer's understanding about his or her own role in the end to end process, starting from the customer requirements, and learning to work as a part of the supply chain without any organizational borders or silos. Material execution –competence requires buyer to have good operational procurement skills, and understand and drive operational procurement performance. In job profile level requirements there are several competences concerning these operative level skills and tasks; such as Supplier contracting, Process management, Logistics execution and Material execution. But none

of the required competences does not include tool competence, which is crucial in purchasing today and in the future.

6.5 Economic competences

Economic capabilities of PSM can be evaluated from the operative aspect as well as from the strategic aspect. Operative aspect is understood here as the financial skills of buyers to be able to perform their daily tasks in purchasing. The strategic aspect includes the understanding of the economic role and impact of purchasing into the company result and total costs.

Software buyers feel that they should have the financial knowledge and competences, for example in costing and accounting. This is clearly visible in the business skills section of the questionnaire results. These skills are needed to understand the financial effects of the daily transactions, to be able to negotiate the reasonable prices for example. Buyers also see that it is important to have competences in total cost management and cost reductions. Requirements for cost savings are derived from the strategic decisions and they have become more and more important. This same trend and its affects are concerning all the fields of purchasing, and thus, this cannot be considered as a pure software specific competence.

The importance of cost factors and the aim in continuous cost reductions are clearly visible from the case organization's official competences. One of the MEX operative competences is cost management, and also another competence e2e supply chain includes 'understanding the cost and performance drivers in supply chain and being able to balance between them to provide customers the industry leading flexibility and delivery performance with sustainable cost level'. So buyer of today should be able to give the superior service to the customers but at the same time keep the costs as low as possible. Also buyer's job level competence list includes the same kind of contents in competences such as cost analysis & management, and driving commercial results.

6.6 Current situation

There are some gaps noticed between the importance and current level of certain competences in the case organization. Starting from the training and education, re-

spondents felt that it is important to receive some company internal procurement training, but the current level of such training was not very high. Training offerings are not very comprehensive inside this area and most of the needed information is gathered informally and unstructured from the colleagues. Colleagues with the experience from the longer period of time or from the different area of expertise are certainly important source of information, but structured training sessions for several people at the same time would save time and effort in many cases. Managers should be responsible for gathering the training needs from their subordinates and coordinate the needed trainings. It seems that, at least in the case organization, informative e-mails are considered to cover the need of information sharing and official trainings are in many cases not even offered.

Clear gap can also be noticed in skills and competences in contract law, both in operative and tactical purchasing. Both need some expertise in the area, even to conclude the contracts successfully or to be able to read and interpret them properly. Here is found the self-evident need for training about the contracting process and all the affecting factors; how a contract is created and what are the most important issues to be covered. There is a need to understand what information contracts and license agreements should cover and why. This is also important to be able to avoid any situations where contract violations may happen.

Another area where a clear gap can be noticed between the required and the current situation, are the financial skills and competences. Software buyers do understand that their actions have an influence on company's cost level and results, and thus, there is a need to understand it deeper. What financial implications their actions do have and how they could influence on those. At some level it might be that current ERP (Enterprise Resource Planning) -systems hide at least some of these financial implications, because financial transactions in most cases happen in the background and therefore buyer cannot see all the financial effects. This does not, however, remove the fact that they should be aware of the things happening in the background to understand how they could act the most beneficial way from company's point of view. This leads to the other gap, which is the importance of purchasing strategy creation. There was a gap between how important buyers see this competence and what the current level of competence was. It can be again interpreted that buyers in software purchasing understand that their actions do have an effect on company's results and therefore they

should act according to the common goals and strategy. However, they are unaware of what has been agreed and why. There is a clear need for more communication about the strategies. Strategy is cascaded into organization level in short term plans and actions agreed for each organization accordingly, but in a way, it might lose the link between the higher level strategic goals and actions behind. It should be understood, for what strategic level decision these actions affect and how. Especially the purchasing strategy communication has not been on satisfactory level, for example on what has been agreed on the purchasing strategy about the software products and how this has been derived from the business strategy. People should be aware of the affects the purchasing strategy has on the operative buyers' tasks and actions. So at least the purchasing strategy communication should be increased.

From the personal characteristics, stress tolerance and motivation skills were lacking behind. This can be a result from the current situation in the world economy where the situation is very unstable and has an effect on the companies' financial position. There is no certainty about the future and continuation of each task inside the organization. This uncertainly causes stress and lack of motivation. Current human resource structures and processes may not offer proper tools to increase the stress tolerance skills. It might seem that company's only goals are the cost reductions and profits for the stakeholders, forgetting the social responsibility for the employees.

Importance of the communication and co-operation has been acknowledged, also in official competences as well as in the responses for the questionnaire. The biggest gap in the internal co-operation can be noticed with the quality control. There is a need to have more information about the quality requirements, systems and processes affecting purchasing tasks and function.

Technical skills, including the competence and ability to use such IT tools successfully which are needed in daily operative purchasing tasks, is not mentioned in organization's official competences. Done (2011) have emphasized the increased role of IT in purchasing, and considers competence in this areas as one of the needed PSM competences. As well in software purchasing, contracts are managed and updated in certain tool, orders and deliveries are created and followed in another tool, as well as invoice payments. Follow up of licensing and maintenance status is handled in one tool, and another tools are used for reporting for several purposes. Some tools are used for stor-

ing and sharing the information needed in purchasing, as well as for the company level information sharing. To be able to use all these tools in daily tasks is undoubtedly one of the most important tasks in software purchasing. Without the information created, updated and shared with these tools, it is not possible to manage the needed purchasing tasks, and it should be visible also in the competences required.

6.7 Differences between the operational and tactical buyers

Sourcing manager from Fazer bakeries Division, who was quoted already earlier in this study, has noted that:"Person who has made a career in operational purchasing tasks, usually do not want, but does not necessarily even be suitable for more strategic purchasing role. This has been noticed in many organizations lately, due to the cost-efficiency efforts which have lead to difficulties with external recruitments" (Iloranta & Pajunen-Muhonen 2008, p.179).

The same observation can be made also in the case organization, where transfers between the operational and tactical purchasing teams have beenfew. In software purchasing it is as well very unusual that a person from operational team seeks for more tactical or strategic purchasing role and vice versa. Thus, from the results of this study, it was not possible to find a reason for this observation. Differences between the respondents from these two teams are quite obvious and in line with the different levels of tasks. In DEX operative competences are seen more important than in GPR, and vice versa. In personal characteristics there were no such differences which could be used to explain the fact, that people do not change tasks between these two functions. The same sourcing manager from Fazer has explained this observation by some kind of innate personal treat and interest in such a tasks (Iloranta & Pajunen-Muhonen 2008, p.179). This can be agreed as otherwise cannot be argued based on this study. Thus, it can be stated that exchange between these two teams would without a doubt help to communicate and to update the knowledge between them. Work rotation for example could be a very efficient way to achieve this kind of competence development and transfer (Boyd & Garrick 1999).

6.8 Summary of findings

Based on the findings presented in the previous chapters, it can be noted that there are some specialties when purchasing software, immaterial zeros and ones, instead of physical material, and this requires also some specific competence from the individuals performing these tasks. When coming back to the research questions of this study; the main research question was *What are the most important individual competencies and capabilities of software purchasing professional?* First of all, it has to be noted that since most of the software purchasing skills, knowledge and competences cannot be learned at school, the importance of on-the-job learning by experience becomes extremely important. For this reason, individual need to have good competences and individual capabilities in learning and also in teaching others. Secondly, there is an absolute need to have knowledge of applicable laws, since the risk for breaching the contract is significantly high, and the economic consequences can be enormous. Due to this, individuals in software purchasing need to be punctual, analytical and systematic to avoid any potential violations of law. As a third, since the supply chain of these sometimes very nonstandard and customized software products can be very case specific, good problem solving and decision making skills are required. There is a need to be flexible and capable for solving these complicated situations without a delay and hesitation. Also the nature of the software products, limiting possibilities to switch between suppliers, increases the need for long-term collaboration and relationship management capabilities with suppliers.

In general, the same purchasing and supply management capability theories can be used as a framework in evaluating the level of the PSM competences in software purchasing organization. Even if the emphasis of the required competences can be different, and reasons behind the needed capabilities might vary depending on the specialties of business and products in question, the overall PSM competence and capability theories are valid also in software purchasing. The importance of the competence development in software purchasing cannot be denied as well.

The first sub-question was *What is the current status of the individual purchasing and supply management competence in the case organization?* Some gaps between the importance and current level of certain skills and competences were found. There are gaps for example in company internal procurement training, in contract law

knowledge, as well as in financial competences and purchasing strategy creation. There was also a need for a closer communication between the quality management. This question has been answered and explained in more detail in chapter 6.6.

The last sub-question was A*re there any differences between the tactical and operational software purchasing competencies and capabilities?* Thus, as it was explained in the chapter 6.7. there are some differences between these operational and tactical purchasing competence, but it is mostly explained by the different emphasis of tasks according to the purchasing level. Thus, it can be noted also in software purchasing, that people don't easily switch between these two tasks, but there were no such differences noticed from the results of this study which could be used to explain this fact.

7 DISCUSSION AND FUTURE

Companies operating in the same market, following similar functional strategies, can have significantly different performance levels due to differences in functional level competencies (Narasimhan et al. 2001). Some companies manage the development of these competencies over time better than others do. Software purchasing and supply management is an ever-evolving field, and without the doubt, the speed of this continuous change and transformation will accelerate in the future. Having talented and flexible people to develop tools and approaches needed for this undefined future is critical for competitive organizations. When business is becoming increasingly competitive, the importance of purchasing and supply chain management as a key business driver has increasingly been recognized by the managers. It appears repeatedly that competent and talented purchasing professionals can significantly contribute not only to company's bottom line but also to its top line (Van Weele 2010, p.3).

7.1 Implications

Knowledge and competences are important sources of strategic change, and this cannot be ignored in software purchasing. Major improvements should be made possible by developing the skills and capabilities of the individual as well as improving the organizational systems for learning and knowledge management. With the development from operational towards tactical and strategic profession, decision making has become more and more knowledge and competence driven (Axelsson et al. 2006, p.136).

If not managed well, the knowledge that is owned by the employee will leave the organization. It is time and cost consuming to develop and acquire this knowledge again. This is especially true in the special areas on business. It's a question of matching individual capabilities with organizational need.

Axelsson et al. (2006, pp.147-152) have defined five the most important enablers for managing purchasing knowledge. First of all, the strategy should give the purchasing department the means to be a necessary link of the whole organization. It should make employees aware of the fact that purchasing and supply function is not an operative function, but that purchasing and supply departments serve as the knowledge and competence center for the entire organization. Software purchasing department can use this definition of its knowledge gap and consequently develop its knowledge strategy and goals. This is a prerequisite also for an employee motivation. Purchasing department overall should be organized around the knowledge and competencies of purchasers and should install several structures in which purchasers meet to get acquainted and share knowledge to solve the problems or benefit of synergetic opportunities. For enable these structures, common work methods and language are essential. Purchasing departments also need a culture in which knowledge is easily created, shared and used. The importance of the on-the-job learning or learning in practice underline the importance of this kind of an open communication culture. It is also essential that purchasers feel they are recognized and rewarded, and they need to have and demonstrate respect for their colleagues. The last but not the least is to have well-managed up-to-date systems with the commitment and priority of the users to facilitate the processes and to gather and share the information. This includes IT systems for both managing the operative purchasing activities as well as for the document management. Not to forget the face-to-face interaction. The last but not the least enabler is competent staff as buyers, who are eager to learn and share their knowledge.

Competences and learning can result as such intangible benefits which either cannot be converted to monetary values or would take too much time or other resources to do so. These intangible benefits include increased job satisfaction, fewer complaints and grievances, reduced absenteeism, reduced employee turnover, increased innovation and improved communication. The pursuit of monetary contributions that can be directly measured leads to the lack of interest in the multi-dimensionality of PSM's contribution to corporate strategy. And as a result, purchasing competence may find lim-

ited applicability in practice due to the measurement, employee appraisal and corporate communication deficiencies. Somehow, these non-financial effects of purchasing competence should be made more visible to achieve more emphasize from the management. (Pohl & Förstl 2011)

Identification of required competences and current competence level in software purchasing organization of the case company has been acknowledged by the management. Results were seen interesting and valuable, and there is a wish to use them in further competence development. To develop the current situation in the case organization, the idea is to create an action plan based on the found gaps inside the case organization's current level of competences, presented in chapter 6.6 of this study. This action plan should define the actions needed to be able to remove the competence gaps and improve the individual capabilities and competences required in software purchasing. Actions should be approved and supported by the management. Results of these actions need to be monitored, measured and followed-up properly.

7.2 Future research

Since this special area of purchasing is not trained at schools nor in purchasing handbooks, tacit knowledge inside the purchasing organization must have a big importance. This tacit knowledge is transferred from employee to another during the daily work situations and communication. Study results have suggested that the situations, where the members of a team can interact face-to-face with each other, reinforce tacit knowledge sharing (Koskinen 2003). It would be interesting to know what is the role of tacit knowledge in software purchasing organization and whether the geographical decentralization of purchasing tasks have an impact in sharing this knowledge, and if there exists some kind of knowledge gap due to the geographical dispersal of tasks and functions. Like it was mentioned already earlier, "Information can be obtained overnight, single things can be learned in a minute, but gaining the extensive know-how and competence takes time" (Iloranta & Pajunen-Muhonen 2008, p.21). Competence development requires experience which develops in interaction with the colleagues.

Another interesting field of study is arising from this same theme of tacit knowledge and decentralization. Since the transfer of tasks into low cost countries is currently

happening, more study would be needed about the impacts of this trend on knowledge and competence. There have been studies about disadvantages and advantages of centralization and decentralization, and common understanding is that centralization adds proficiency as well as develops expertise and talent (e.g. Cavinato 2006, p.49).

Cloud computing and virtualization is currently the area inside the software purchasing, which is growing faster than processes for the supply chain can be developed. This needs more research. The overall design of this new business model is under construction, and due to this, also purchasing and delivery processes have not been clarified. There are neither common rules for the business nor supply chains for this kind of products and solutions, nor the competences required to perform successfully

Another theme for the future research would be to analyze if the common purchasing performance measurements support purchasing strategy and the choice of purchasing practices in special product and purchasing categories, such as software. Is it adequate to use the same measurements for different kind of businesses, or are there some specialties which should be taken into account. (Pohl & Förstl 2011)

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BASIC INFORMATION

1 Name of your organization? **GPR** **DEX**

PURCHASING SKILLS AND CAPABILITIES

A. Evaluate the <u>importance</u> of the following skills and capabilities in your current position

1 Education

Educational background	(1 = Not at all important, 5 = Very important)				
Business/commercial education	1	2	3	4	5
Technical/engineering education	1	2	3	4	5
Procurement education	1	2	3	4	5
Logistics education	1	2	3	4	5
Vocational level	1	2	3	4	5
Bachelor's level	1	2	3	4	5
Master's level	1	2	3	4	5
Post-graduate level (licentiate, doctoral)	1	2	3	4	5
Something else, what?_____	1	2	3	4	5
Training at work					
Company's internal procurement training	1	2	3	4	5
External procurement training	1	2	3	4	5
Further/additional training	1	2	3	4	5
Learning in practice/at work	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

2 Work experience

Length of the overall work experience	1	2	3	4	5
Work experience from procurement	1	2	3	4	5
Work experience from business	1	2	3	4	5
Work experience from IT/SW industry	1	2	3	4	5
Work experience from several fields	1	2	3	4	5
International work experience	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

3 Business skills

Strategic management	1	2	3	4	5
Marketing	1	2	3	4	5
Finance and Control					
- costing	1	2	3	4	5
- accounting	1	2	3	4	5
- financing	1	2	3	4	5
Contract law	1	2	3	4	5
Process management	1	2	3	4	5
Production technology	1	2	3	4	5
Product knowledge	1	2	3	4	5

Logistics	1	2	3	4	5
Project management	1	2	3	4	5
Supply chain management	1	2	3	4	5
Risk management	1	2	3	4	5
Quality management	1	2	3	4	5
Materials management	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

4 Personal characteristics

Analytical thinking	1	2	3	4	5
Mathematical skills	1	2	3	4	5
Written communication	1	2	3	4	5
Communication skills	1	2	3	4	5
Presentation skills	1	2	3	4	5
Negotiation skills	1	2	3	4	5
Problem solving	1	2	3	4	5
Innovativeness	1	2	3	4	5
Organizing and coordination skills	1	2	3	4	5
Time management	1	2	3	4	5
IT skills	1	2	3	4	5
Ethics	1	2	3	4	5
Stress tolerance	1	2	3	4	5
Patience	1	2	3	4	5
Motivation	1	2	3	4	5
Leadership	1	2	3	4	5
Decision making skills	1	2	3	4	5
Conflict management	1	2	3	4	5
Change management	1	2	3	4	5
Customer orientation	1	2	3	4	5
Creativity	1	2	3	4	5
Risk taking skills	1	2	3	4	5
Learning	1	2	3	4	5
Honesty	1	2	3	4	5
Self-confidence	1	2	3	4	5
Initiative	1	2	3	4	5
Perseverance	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

5 International trade expertise

Language skills overall	1	2	3	4	5
English	1	2	3	4	5
Swedish	1	2	3	4	5
German	1	2	3	4	5
Chinese	1	2	3	4	5
Other language, what?_____	1	2	3	4	5
Cultural knowledge	1	2	3	4	5
Good manners	1	2	3	4	5
Global logistics	1	2	3	4	5
Global sourcing	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

B. Choose five (5) most important points under the section A and put them in order based on their importance in your current position

1 _____
2_____
3_____
4_____
5_____

C. Evaluate <u>your current level</u> of the following skills and capabilities

1 Education

Educational background	(1 = No competence at all, 5 = Very good competence)				
Business/commercial education	1	2	3	4	5
Technical/engineering education	1	2	3	4	5
Procurement education	1	2	3	4	5
Logistics education	1	2	3	4	5
Vocational level	1	2	3	4	5
Bachelor's level	1	2	3	4	5
Master's level	1	2	3	4	5
Post-graduate level (licentiate, doctoral)	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

Training at work

Company's internal procurement training	1	2	3	4	5
External procurement training	1	2	3	4	5
Further/additional training	1	2	3	4	5
Learning in practice/at work	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

2 Work experience

Length of the overall work experience	1	2	3	4	5
Work experience from procurement	1	2	3	4	5
Work experience from business	1	2	3	4	5
Work experience from IT/SW industry	1	2	3	4	5
Work experience from several fields	1	2	3	4	5
International work experience	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

3 Business skills

Strategic management	1	2	3	4	5
Marketing	1	2	3	4	5
F&C					
- costing	1	2	3	4	5
- accounting	1	2	3	4	5
- financing	1	2	3	4	5
Contract law	1	2	3	4	5
Process management	1	2	3	4	5
Production technology	1	2	3	4	5
Product knowledge	1	2	3	4	5
Logistics	1	2	3	4	5

Project management	1	2	3	4	5
Supply chain management	1	2	3	4	5
Risk management	1	2	3	4	5
Quality management	1	2	3	4	5
Materials management	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

4 Personal characteristics

Analytical thinking	1	2	3	4	5
Mathematical skills	1	2	3	4	5
Written communication	1	2	3	4	5
Communication skills	1	2	3	4	5
Presentation skills	1	2	3	4	5
Negotiation skills	1	2	3	4	5
Problem solving	1	2	3	4	5
Innovativeness	1	2	3	4	5
Organizing and coordination skills	1	2	3	4	5
Time management	1	2	3	4	5
IT skills	1	2	3	4	5
Ethics	1	2	3	4	5
Stress tolerance	1	2	3	4	5
Patience	1	2	3	4	5
Motivation	1	2	3	4	5
Leadership	1	2	3	4	5
Decision making skills	1	2	3	4	5
Conflict management	1	2	3	4	5
Change management	1	2	3	4	5
Customer orientation	1	2	3	4	5
Creativity	1	2	3	4	5
Risk taking skills	1	2	3	4	5
Learning	1	2	3	4	5
Honesty	1	2	3	4	5
Self-confidence	1	2	3	4	5
Initiative	1	2	3	4	5
Perseverance	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

5 International trade expertise

Language skills overall	1	2	3	4	5
English	1	2	3	4	5
Swedish	1	2	3	4	5
German	1	2	3	4	5
Chinese	1	2	3	4	5
Other language, what? _____	1	2	3	4	5
Cultural knowledge	1	2	3	4	5
Good manners	1	2	3	4	5
Global logistics	1	2	3	4	5
Global sourcing	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

D. Evaluate the following claims about purchasing skills and capabilities in your current position

(1 = Fully disagree, 5 = Fully agree)

Purchasing professional should have some procurement education.	1	2	3	4	5
Purchasing professionals should be continually trained.	1	2	3	4	5
Long work experience from procurement is important.	1	2	3	4	5
Work experience is more important than education.	1	2	3	4	5
Business skills are more important than personal characteristics.	1	2	3	4	5
Purchasing professional should have the basic skills in international trade.	1	2	3	4	5
Purchasing competence is easily replaceable.	1	2	3	4	5
Purchasing competence is lost if purchasing specialist leaves the organization.	1	2	3	4	5

E. Evaluate the <u>importance</u> of the following purchasing tasks and capabilities in your current position

(1 = Not at all important, 5 = Very important)

Co-operation with					
- Sales and marketing	1	2	3	4	5
- Finance and control	1	2	3	4	5
- Product development	1	2	3	4	5
- Production	1	2	3	4	5
- Quality control	1	2	3	4	5
- Warehouse	1	2	3	4	5
- Information management	1	2	3	4	5
- General management	1	2	3	4	5
Purchasing strategy creation	1	2	3	4	5
Total cost management	1	2	3	4	5
Reduction of the total costs	1	2	3	4	5
Price and cost forecasts	1	2	3	4	5
Access to the new technologies	1	2	3	4	5
Reduction of lead times	1	2	3	4	5
Make-or-buy –decisions	1	2	3	4	5
Outsourcing decisions	1	2	3	4	5
Lean -management	1	2	3	4	5
Environmental issues	1	2	3	4	5
Global sourcing	1	2	3	4	5
Countertrades	1	2	3	4	5
Currency strategies	1	2	3	4	5
Recruiting of new personnel	1	2	3	4	5
Training others	1	2	3	4	5
Motivating others	1	2	3	4	5
Rewarding others	1	2	3	4	5
Empowerment	1	2	3	4	5
Risk taking	1	2	3	4	5
Procurement of products with long-term risk	1	2	3	4	5
Material requirements planning	1	2	3	4	5
Specification of purchased products	1	2	3	4	5
Standardization of purchases	1	2	3	4	5
Asking for quotations	1	2	3	4	5
Creating orders	1	2	3	4	5
Delivery control	1	2	3	4	5
Reception of goods and quality inspection	1	2	3	4	5
Inventory management	1	2	3	4	5
Transportation planning	1	2	3	4	5
Document management	1	2	3	4	5
Something else, what?_____	1	2	3	4	5

F. Choose five (5) most important tasks and capabilities under the section E in your current position and put them in order based on their importance

1_____
2_____
3_____
4_____
5_____

G. Evaluate <u>your current level</u> of the following purchasing tasks and capabilities

(1 = No competence at all, 5 = Very good competence)

Co-operation with					
- Sales and marketing	1	2	3	4	5
- Finance and control	1	2	3	4	5
- Product development	1	2	3	4	5
- Production	1	2	3	4	5
- Quality control	1	2	3	4	5
- Warehouse	1	2	3	4	5
- Information management	1	2	3	4	5
- General management	1	2	3	4	5
Purchasing strategy creation	1	2	3	4	5
Total cost management	1	2	3	4	5
Reduction of the total costs	1	2	3	4	5
Price and cost forecasts	1	2	3	4	5
Access to the new technologies	1	2	3	4	5
Reduction of lead times	1	2	3	4	5
Make-or-buy –decisions	1	2	3	4	5
Outsourcing decisions	1	2	3	4	5
Lean -management	1	2	3	4	5
Environmental issues	1	2	3	4	5
Global sourcing	1	2	3	4	5
Countertrades	1	2	3	4	5
Currency strategies	1	2	3	4	5
Recruiting of new personnel	1	2	3	4	5
Training others	1	2	3	4	5
Motivating others	1	2	3	4	5
Rewarding others	1	2	3	4	5
Empowerment	1	2	3	4	5
Risk taking	1	2	3	4	5
Procurement of products with long-term risk	1	2	3	4	5
Material requirements planning	1	2	3	4	5
Specification of purchased products	1	2	3	4	5
Standardization of purchases	1	2	3	4	5
Asking for quotations	1	2	3	4	5
Creating orders	1	2	3	4	5
Delivery control	1	2	3	4	5
Reception of goods and quality inspection	1	2	3	4	5
Inventory management	1	2	3	4	5
Transportation planning	1	2	3	4	5
Document management	1	2	3	4	5
Something else, what?_____	1	2	3	4	5