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Supply Management

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SUPPLY MANAGEMENT CAPABILITY

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ABSTRACT

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The objective of this thesis is to define supply management capability. The thesis study what factors consist of supply management capability, and which of those factors are critical to achieving competitive advantage. One objective is also to study how firms can measure their supply management capability. This study is a qualitative research. The thesis examines the literature regarding to supply management and the context of capability and there are used Delphi panel to examine the current and future insights of supply management professionals concerning of supply management skills and capability. The empirical data of the thesis was collected by interviews. The Delphi panel was used in data collection and analysis and for prioritization of the factors of supply management capability. The thesis includes lists of factors of supply management capability.

Main findings of the study were that there is no one clear, generally suitable set of supply management skills which bring competitive advantage for all firms and the most important factors of supply management capability, according to the experts, are total cost analysis, customer focus, general

business view, market knowledge and supplier relationships. In this study the supply management capability is defined as organization's overall capacity and ability to achieve a holistic understanding of purchasing needs, manage its suppliers and collaborative partners, and conduct its internal tasks, routines and responsibilities in a way that achieves desired results. The results of this thesis show also that Finnish firms need more right kind of supply management knowledge.

TIIVISTELMÄ

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Tämän tutkielman tavoitteena on määritellä hankintaosaaminen. Tutkielmassa tutkitaan, mitkä tekijät muodostavat hankintaosaamisen ja mitkä näistä tekijöistä ovat kriittisiä kilpailuedun saavuttamiselle. Yksi tavoite on myös tutkia, kuinka yritykset voivat mitata hankintaosaamistaan. Tutkielma on laadullinen tutkimus. Tutkielma tutkii hankintojen johtamisen ja osaamisen kirjallisuutta pitäen sisällään myös Delphi –paneelin, jossa on tutkittu hankinta-ammattilaisten näkökulmia nykyisistä ja tulevista hankintojen johtamisen taidoista ja osaamisesta. Empiirinen aineisto on kerätty haastattelujen kautta. Delphi –paneelia on käytetty aineiston keräämisessä ja analysoinnissa sekä hankintaosaamisen tekijöiden tärkeysjärjestykseen laittamisessa. Tutkielmassa on myös listoja, joihin on kerätty yhteen hankintaosaamisen eri tekijöitä.

Tärkeimpinä tuloksina voidaan mainita, että ei ole olemassa yhtä selkeää, yleistettävää hankintatoimen taitopakettia, joka toisi kilpailuetua kaikille

yriyksille. Voidaan myös todeta, että tärkeimmät hankintaosaamisen osatekijät, asiantuntijoiden mukaan, ovat kokonaiskustannusanalyysi, asiakaslähtöisyys, yleinen liiketoimintaosaaminen, markkinatuntemus ja toimittajasuhteet. Tässä tutkielmassa hankintaosaaminen on määritelty organisaation kokonaisvaltaiseksi kyvykkyydeksi saavuttaa yhtenäinen ymmärrys hankintatarpeista, johtaa toimittajia ja yhteistyökumppaneita sekä suorittaa tehtävät, rutiinit ja vastuut sillä tavalla, että saavutetaan haluttu lopputulos. Tämän tutkielman tulokset näyttävät myös, että suomalaiset yritykset tarvitsevat lisää oikeanlaista hankintaosaamista.

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1 INTRODUCTION

The global business environment is changing continuously. Increasing competition, changes in business practices and technological changes are some examples of that (Giunipero and Percy, 2000). In Finland one of the most important task of manufacturing industry is to maintain and increase its national competitiveness. This changing business environment makes the purchasing function an important factor to increase skills and value to the company (Van Weele and Rozemeijer, 1996). Therefore, it is essential to increase firm management's understanding of the value creative role of supply management and its economical impact on firm's profit.

This new strategic role of purchasing function has caused the need for new skills of purchasing professionals. This requires efficiency of supply and sourcing processes and remarkable increase of supply management capability. In today's highly competitive business environment differences in firm capabilities separate leaders from followers (Miller and Morris, 1999). Recently, several studies have emphasized the essence of capability in supply management (Kayakutlu and Büyüközkan, 2010; Paulo and Dahab, 2010). Moreover, firms aim to expand these capability requirements over their supplier network. Especially global firms aim to knowledge intensive supplier relationships, and therefore, have strong efforts to increase the competencies of local suppliers (Saliola and Zanfei, 2009). However, before it is possible to find out the profit impact of supply management capability, it is necessary to define what the supply management capability is and what areas it covers.

These environmental and internal changes impact to the purchasing function of the organizations and that is why a strategic reorientation of the purchasing function becomes more important. These changes and the desire to improve the efficiency and effectiveness of the purchasing function have forced firms

to become more sophisticated when recruiting personnel to fill purchasing positions in the organization.

The difficulty to define supply management capability has led to various lists of skills what supply management professionals need to maintaining competitive advantage of the firm. These lists of skills include mainly individual skills, general knowledge and routines referring to supply management (e.g. Carr and Smeltzer, 2000; Eisenhardt and Martin, 2000; Faes et al., 2001). Das and Narasimhan (2000) have made the first attempt to separate supply management skills and capability. The research trends from the field of strategic management have emphasized the organizational level capability as an influencing factor of firm's performance and competitiveness (Helfat and Peteraf, 2003; Kale et al., 2002; Makadok, 2001). Because the strategic role of supply management has been widely acknowledged (Carr and Smeltzer, 1997; Kocabasoglu and Suresh, 2006; Spekman et al., 1994) in the literature, it is essential to follow the research trends of strategic management and to examine supply management capability and its impact on firm's performance.

1.1. Research questions

This thesis examines the literature regarding supply management capability. Based on the literature and followed by the empirical study the main objective of this study is to define supply management capability. It is important to define supply management capability so firms can better respond different challenges in its environment, like increasing flow of information, complex business environment and new technologies.

Before it is possible to study how supply management capability influences the profit of the firm, it is necessary to define what supply management

capability is. Hence, increasing need for development of new capability and skills the main question of this research is:

- What is supply management capability?

To be able to define what supply management capability is, it is necessary to study supply management in wider context. It is important to find out what kind of elements form the supply management capability. When it is known what the crucial factors of supply management capability are, it is important to find out how firms can measure supply management capability. Organizations need different kind of indicators for developing supply management capability and to proving the existence of the connection between supply management capability and firm's performance. These things formed the sub-research questions of this thesis. The sub-questions are:

- What factors consist of supply management capability?
- Which supply management capability factors are critical to achieving competitive advantage to the firm?
- How firms can measure their supply management capability?

The purpose of the main question is to support to the main objective of this research; to find out what is supply management capability. The sub-questions aim to explain how companies can measure and approximate the stage of their purchasing function.

1.2. Research method and limitations

This study is a qualitative research. According to Eriksson and Kovalainen (2008), qualitative research approach aim at a holistic understanding of the studied issues. Miles and Huberman (1994) have listed richness, holism, flexibility and causality assessment in some of the advantages of the qualitative research. Because of the general difficulty to define latent phenomenon such as capability qualitative approach is appropriate. Qualitative research is a good method to research unstructured problems (Eriksson and Kovalainen, 2008) and therefore, it has been chosen research method in this thesis.

Moreover, the study combines the skills and components of supply management capability found from previous studies with the empirical findings from the data collected in the autumn 2010 in Finland. A Delphi method and interviews are used to examine the current and future insights of supply management professionals concerning supply management skills and capability.

There have been made some limitations to the research topic. The thesis focuses on supply management skills and the context of capability. The selected time span for the literature review is the last two decades. Data collection was made through the Delphi process where the topic was supply management capability.

1.3. Research framework and key concepts

This thesis is structured as follows: introduction, theory, methodology, empirical study and conclusions. Figure 1 presents the framework of the thesis.

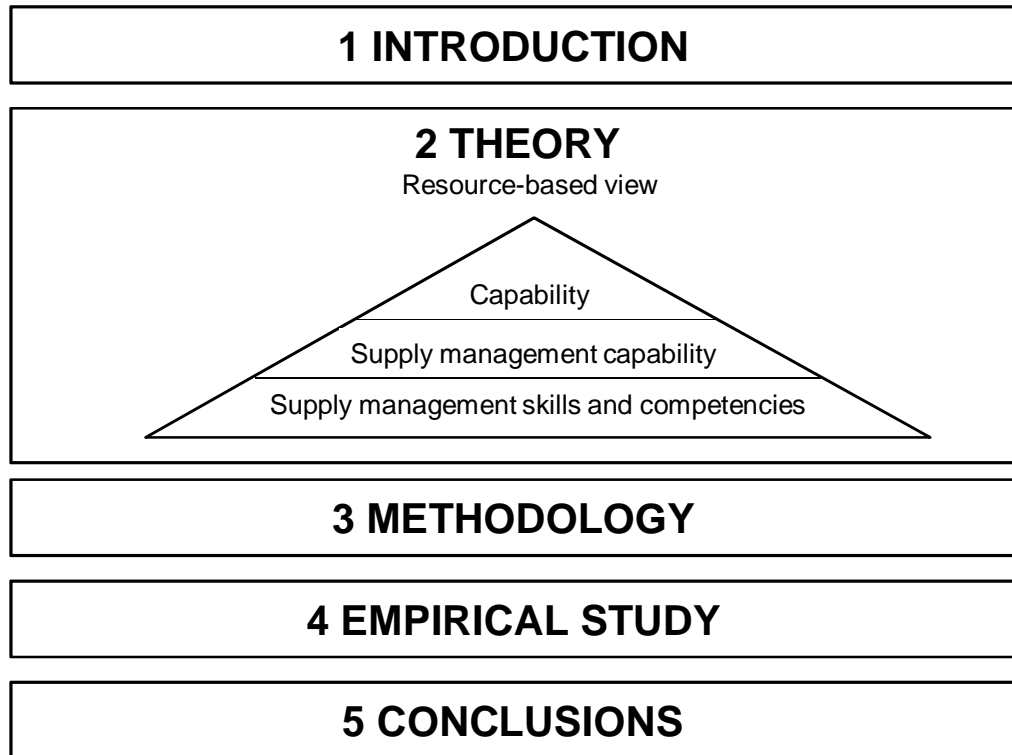


Figure 1. Research framework.

Chapter 1 presents the introduction, research questions and background of the study. The framework of this thesis based on the resources, supply management and the context of capability. The chapter 1 includes also definitions of key concepts: competencies, capability, dynamic capability, resources, skills and knowledge.

Chapter 2 presents theory which based on the literature review and previous theories. Chapter 3 presents research methodology and design, data collection and analysis methods. Chapter 4 describes empirical study, analysis and empirical findings of the study. It describes critical factors of supply management capability. Chapter 5 includes conclusions where the findings are discussed within the theoretical framework and previous studies. The chapter also answer the research questions and sums up the study. The chapter presents also suggestions of topics for future research.

1.3.1. Competencies

Capabilities, competencies, resources and skills are often used interchangeably in the literature. However, a clear distinction between the terms exists. The distinctions between these definitions are explained in the next.

Cheetman and Chivers (2005) refer competencies to be an effective performance in a specific area ranging from the basic level of proficiency to the highest levels of excellence. Teece et al. (1997) remind that competencies can provide sustained competitive advantage only if they are based on a collection of skills, routines and assets that are difficult to imitate. Competencies are usually cross-functional integration and co-ordination of capabilities (Hafeez et al., 2007; Javidan, 1998). It is also possible to say that competencies are experience-based and context-dependent knowledge (Bisogni, 2008; Gammelgaard and Larson, 2001). Individual's competencies are dependent with his or her ability to pursue defined activities at the quality level as expected, which is possible by certain sets of skills and knowledge (Axelsson et al., 2005; Javidan, 1998). Das and Narasimhan (2000) define purchasing competence as a capability to structure, develop and manage the supply base in alignment the business goals of the firm. In this research competencies are defined as ability to structure, develop and manage a specific business area in alignment the business goals of the firm.

1.3.2. Capability

Capability is commonly understood as organizational level competence (Amit and Schoemaker, 1993; Eisenhardt and Martin, 2000; Makadok, 2001). It is also referred to be the firm's ability to fulfil its assignments by deploying its resources (Amit and Schoemaker, 1993; Axelsson et al., 2005; Javidan, 1998). According to Makadok (2001) capability is itself a special type of

resource which purpose is to improve the productivity of the other resources possessed by the firm. Amit and Schoemaker (1993) describe capabilities as information-based, tangible or intangible processes which are developed over time through complex interactions among these other resources of the firm. Kale et al. (2002) says that capabilities are highly related to the accumulation and development of competencies through the path of learning and innovations. Das and Narasimhan (2000) describe capability as a latent phenomenon to structure, develop and manage the supply base in alignment with the firm's business priorities. Moreover, capabilities are developed through a process that involves organizational experience based on present and future actions and, thus, organizational capabilities are a result of recombining and integrating knowledge within the organization. Svahn and Westerlund (2007) describe capabilities as complex bundles of skills and collective learning. In this research capability is seen as organizational level competence which is comprised of skills and competencies of the firm.

1.3.3. Dynamic capability

Firms also may have specific dynamic capability, which is defined to be the firm's ability to integrate, build and reconfigure internal and external competencies to cope with rapidly changing environments (Teece et al., 1997). Eisenhardt and Martin (2000) describe dynamic capabilities as the antecedent organizational and strategic routines which help managers generate new value-creating strategies. In this research has been used the definition of Teece et al. (1997).

1.3.4. Resources

Resources and capabilities are often used interchangeably in the literature. One difference between resource and capability is that resources are passive and fragmented when capabilities are dynamic in nature (Hafeez et al., 2007).

Penrose (1959, 67) define resource as “the physical things a firm buys, leases, or produces for its own use, and the people hired on terms that make them effectively part of the firm”. Teece et al. (1997, 516) define resources as “firm-specific assets that are difficult if not impossible imitate” when Makadok (2001) says that the ownership of resources are easily transfer from one organization to another. Javidan (1998) describes resources as inputs of the organization’s value chain when Hafeez et al. (2007) describe resources as inputs of the capabilities. Resources are firm specific assets which can be used to implement value-creating strategies. These assets can be physical, financial, human capital or organizational. (Amit and Schoemaker, 1993; Eisenhardt and Martin, 2000) The value of firm resources came in two ways: resources provide the basic direction for a strategy of the firm and they are the primary source of profit for the firm (Hafeez et al., 2007). In this thesis the definition of Amit and Schoemaker in resource is used: “stocks of available factors that are owned and controlled by the firm” (1993, p. 35).

1.3.5. Skills

Cheetman and Chivers (2005) define skills an acquired proficiency within a discrete and relatively narrow area of psychomotor and/or mental activity. In supply management literature skills refer to general, context-independent knowledge (Bisogni, 2008; Gammelgaard and Larson, 2001). Das and Narasimhan (2000) describe practices and skills as internal observable activities which can be measured. Skills are also seen as ability to gained knowledge or practice (Carr and Smeltzer, 2000). In this research skills are seen as a general, context-independent knowledge.

1.3.6. Knowledge

When defining knowledge it is important to make a clear difference between data, information and knowledge. Data have been seen as simple facts. Data

can transfer as information when it is combined into meaningful structures (Weissenberger-Eibl and Schwenk, 2009). Information is description of question 'what' and it could be in a documented form that stands by itself (Miller and Morris, 1999). Information becomes knowledge when meaningful information is held by people, put into a context and when it can be used to make predictions and solve problems (Grant, 1996; Miller and Morris, 1999; Weissenberger-Eibl and Schwenk, 2009). Knowledge is more valuable, more complex and more elusive than information (Miller and Morris, 1999).

2 DEFINING SUPPLY MANAGEMENT CAPABILITY

Resource-based view (RBV) is widely used theory among the studies concerning supply management capability (e.g. Carr and Smeltzer, 2000; Gomes and Dahab, 2010; Guldbrandsen et al., 2009; Lintukangas et al., 2010). Because of this strong existing link between RBV and capability concept, the RBV is applied also in this thesis. There is a lot of literature about different skills and competencies of supply management but there are no good, clear summary about supply management capability. The difficulty to define supply management capability has led that major part of the supply management capability research focus on making lists of purchasing professional skills. However, it is found that skills and competencies constitute organizational capability (Kale et al., 2002) and therefore are essential part of this study. According to Hoskisson et al. (1999) routines, organizational learning and invisible assets like knowledge are also resources which can affect to sustainable competitive advantage. Theoretical framework of the study (see Figure 2) describes central concepts of the thesis and relationships between these concepts (Tuomi and Sarajärvi, 2009).

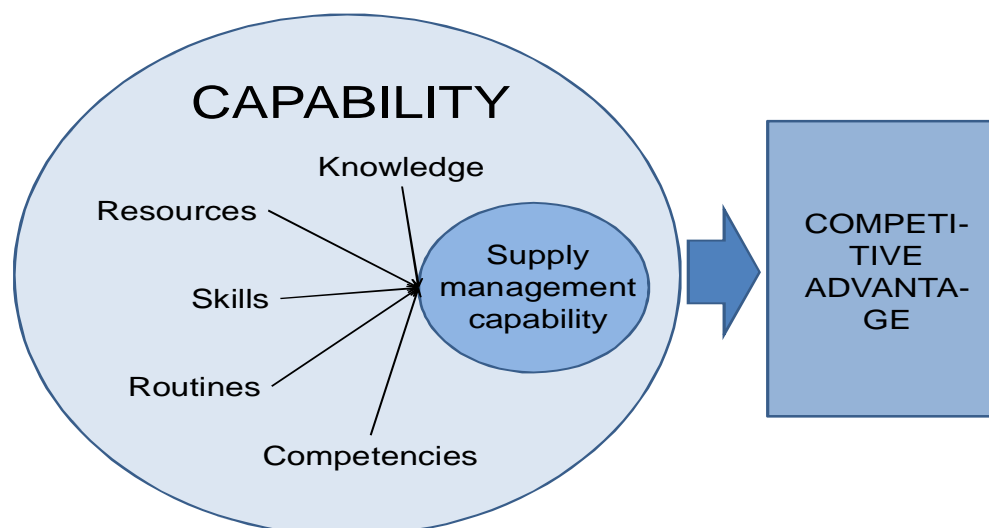


Figure 2. Theoretical framework of the thesis.

Literature of supply management and the context of capability shows that supply management capability consist of knowledge, resources, skills, routines and competencies (see Figure 2). The theoretical framework shows also that supply management capability is part of whole organizational capability. And in organizational capability are different capabilities which create competitive advantage to firms. In this thesis are focused to the supply management capability as a source of competitive advantage.

2.1. Resource-based view

The capability concept is strongly derived from the resource-based view (RBV) (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). According to Eltantawy et al. (2009, 926), “supply management scholars began using the resource-based view to draw theoretical foundations for understanding how skills and practices act as sources of competitive advantage”. So the theoretical approach in this thesis is structured around resource-based view. It aims to provide an explanation why firms are different and how firms can achieve a competitive advantage by utilizing its internal resources and capabilities. The stronger the role of these resources is as the basis for the success of the firm, the more the firm depends upon them. Only specific resources can create competitive advantage of the firm. The characteristics of the firm’s resources and capabilities, which may generate economic rents, form the strategic assets of the firm (Amit and Schoemaker, 1993). One part of the development of competitive advantage is to get the skills of employees to match future requirements of the firm. (Amit and Schoemaker, 1993; Carr & Smeltzer, 2000)

A resource-based view (RBV) of the firm attempts to describe and understand how firms can achieve a sustainable competitive advantage through firm’s resources and capabilities (Barney, 2007; Eisenhardt and Martin, 2000;

Javidan, 1998; Rungtusanatham et al., 2003; Wernerfelt, 1984). RBV focuses to a question of how two firms that own the same resources might have very different performance. These differences consist of different ways to organize, administer and plan the functioning of these resources and capabilities (Amit and Schoemaker, 1993; Penrose, 1959). Penrose (1959) was the first who suggests that firm resources not include only tangible resources (e.g. machinery) but also intangible resources, like knowledge and skills. Firms are heterogeneous because of their knowledge, resources and capabilities. Competitive advantage of the firm will most likely come from this heterogeneity of resources and skills (e.g. Amit and Schoemaker, 1993; Eisenhardt and Martin, 2000; Helfat and Peteraf, 2003; Lintukangas et al., 2010; Peteraf, 1993; Teece et al., 1997).

The heterogeneity and strategic value of the resources mean that resources are valuable, scarce, reasonably durable and difficult to imitate (e.g. Amit and Schoemaker, 1993; Barney, 1991, 2007; Carr and Smeltzer, 2000; Eisenhardt and Martin, 2000; Rungtusanatham et al., 2003). Some researchers call these resources as VRIN attributes (valuable, rare, inimitable and non-substitutable) (Barney, 1991; Jantunen, 2005). When the resource is valuable it can create new opportunities and it is able to neutralize the threats within the environment of the firm. Valuable resource also improves efficiency and / or effectiveness of the firm because value of some specific resources and capabilities are higher for certain firms. The resource must be rare so the firm can exploit the resource against its current and potential competitors. When the resource is not substitutable, competitors cannot use strategically equivalent resource in the same purpose. Perfectly imitable resources prevent competitors' to develop and use similar resources. According to the resource-based view a firm can achieve sustainable competitive advantage by managing its resources and implementing fresh value-creating strategies when the resources fill above mentioned requirements. (Amit and

Schoemaker, 1993; Barney, 1991; Carr and Smeltzer, 2000; Eisenhardt and Martin, 2000; Rungtusanatham et al., 2003)

Eisenhardt and Martin (2000) remind that despite the significance of resource-based view, this perspective has received a lot of criticism. In the strategic management literature RBV has been argued to be tautological and conceptually vague. According to Hoskisson et al. (1999), RBV has received criticism because it treats resources as singularly distinct factors. It has been claimed that RBV do not pay attention in the mechanism which resources contribute to the competitive advantage. It has been also criticized that it cannot explain why there should be more common codes within firms than in markets (Gulbrandsen et al., 2009). There are also a little of empirical research about RBV. The lack of empirical research has led assumptions that RBV cannot explain how and why certain firms can sustain competitive advantage in situations of rapid and unpredictable change (Teece et al., 1997). (Eisenhardt and Martin, 2000) Hafeez et al. (2007) have suggested that competencies should be identified from firm capabilities rather than resources. Because of these lacks of resource-based view many researchers have gone further in researching firm-specific capabilities and resources influence in firm performance.

2.1.1. Knowledge-based view

One basic source of competitive advantage is knowledge of employees when this knowledge is a firm-specific and intangible (Carr and Smeltzer, 2000; Conner and Prahalad, 1996). Like Gulbransen et al. (2009, 91) remind firms are “heterogeneous, knowledge-bearing entities”. This has led new knowledge-based view which is, according to Conner and Prahalad (1996), the essence of the resource-based view. According to this theory, individually and organizationally held knowledge is a basis for creating organizational capabilities which are the source of competitive advantage (Kale et al., 2002).

Knowledge, which can be learned only through personal experience, is valuable, rare and difficult to imitate and transfer. This issue of transferability is important (Grant, 1996). The question is that how firm can transfer knowledge across individuals, space and time in a way that it can find right people in the right time (Grant, 1996; Javidan, 1998), because cognitive limitations imply that no two person posses identical stocks of knowledge (Conner and Prahalad, 1996). One important shape of knowledge is common knowledge of the organization (Grant, 1996). Grant (1996) defines common knowledge as those elements of knowledge that are common to all organization members. Explicit knowledge is transmittable in formal, systematic language (Hoskisson et al., 1999). Instead, tacit knowledge is connected personal experience and context (Weissenberger-Eibl and Schwenk, 2009) and, thus, is difficult to formalize and communicate (Hoskisson et al., 1999). Therefore tacit knowledge can create new value and competitive advantage to the firm.

The creation and development of right resources is not easy. Firm have to constantly evaluate and develop its resources to sustain competitive advantage because firm needs balance between exploitation of existing resources and development of new ones (Carr and Smeltzer, 2000; Wernerfelt, 1984). Firm can achieve and maintain its competitive advantage in many ways, such as retraining its employees, buying new equipments, employing new technologies or hiring new employees with different skills (Carr and Smeltzer, 2000). According to Peteraf (1993) firm's resources are right only if their match appropriately to environmental opportunities of the firm. Teece et al. (1997) have developed a new view of sustaining competitive advantage, dynamic capabilities. Dynamic capabilities are the source of sustainable competitive advantage in rapid chancing markets (Teece et al., 1997). Helfat and Peteraf (2003) go further when they include all organizational capabilities in a dynamic resource-based view. More specific about dynamic capabilities have been written in chapter 2.2.2.

2.2. Capability

The concept of capability is complicate and difficult to define unambiguously. In general, capabilities are highly related to the accumulation and development of skills and knowledge through the path of learning and innovations (Kale et al., 2002; Lintukangas et al., 2010). Capabilities are organizational routines that enable a firm to deploy its resources (Javidan; 1998; Rungtusanatham et al., 2003). Moreover, capabilities are developed through a process that involves organizational experience based on present and future actions and, thus, organizational capabilities are a result of recombining and integrating knowledge within the organization (Teece et al., 1997). Gulbrandsen et al. (2009) describes capabilities in terms of appropriate knowledge, experience and skills when Amit and Schoemaker (1993) say that capabilities based on tacit knowledge. According to Miller and Morris (1999), capability consists of people, technology, tools, processes and practices (see Figure 3).

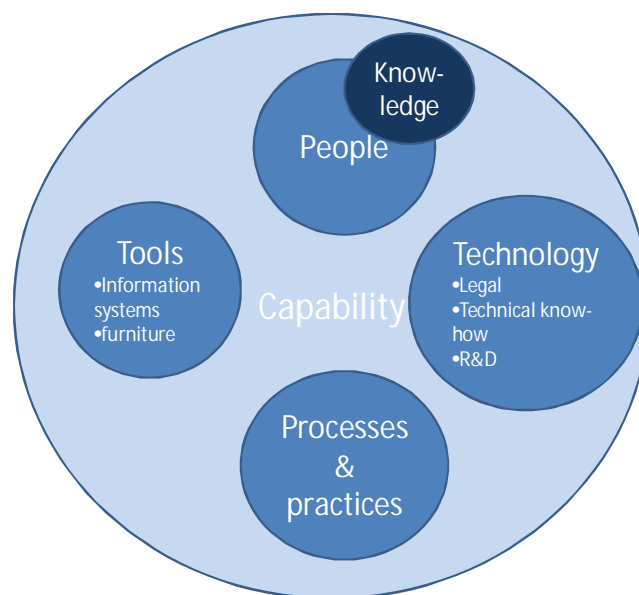


Figure 3. Capability: Applying explicit and tacit knowledge (Miller and Morris, 1999).

The capability includes both explicit and tacit knowledge (see Figure 3). According to Miller and Morris (1999), technology –component consist of, for example, legal, technical know-how and R&D when tools –component consist of information systems and furniture. People and processes and practices are firm-specific knowledge.

Because of the firm-specific nature of the capabilities they are embedded in the organization and its processes, while basic resources are not. That is why ownership of capabilities cannot easily be transferred from one organization to another (Makadok, 2001). It is also important to remember that before a capability can be a source of competitiveness, it has to be unique in the marketplace and collective in its nature (Hafeez et al., 2007).

Every capability has a lifecycle. According to Helfat and Peteraf (2003), the capability lifecycle includes following stages: founding stage, development stage and maturity stage. In founding stage the organization starts to create the basis for development of the capability. In development stage the organization builds and develops the capability. In some point, capability building ceases and the capability achieves the maturity stage. When the capability achieves maturity stage, there are many opportunities to the future evolution of the capability. The capability ends up some of the six additional stages of capability lifecycle: retirement (death), retrenchment, renewal, replication, redeployment or recombination. The capability may face one of these stages or them all in a variety of possible patterns over time. It is good to remember that death of firm or product does not necessarily mean the death of capability. Firm may move from one product-market another via capability recombination or redeployment. (Helfat and Peteraf, 2003)

There are many studies on capability in the literature on supply management. Table 1 lists these researches in the last two decades (modified by Koivisto-Pitkänen et al., 2011).

Table 1. Studies on capability in the literature on supply management (modified by Koivisto-Pitkänen et al., 2011).

Reference	Study context	Research methodology
Bryntse (1996)	Service purchasing competences	Case study
Croom et al. (1997)	Capabilities in supply chains and networks	Longitudinal interpretive study
Knight (1999)	Competences and strategy in networks	Conceptual study
Arnold (2000)	Core competences in outsourcing	Survey/questionnaire
Das et al. (2000)	Separate practices and competences	Survey/questionnaire
Bowen et al. (2001)	Supply management capabilities	Survey/questionnaire
Croom (2001)	Dyadic capabilities	Case study
Wagner et al. (2002)	Supplier management capabilities	Conceptual study
Möller et al. (2003a)	Capabilities in strategic networks	Conceptual study
Möller et al. (2003b)	Value creation capabilities	Conceptual study
Rungtusanatham et al. (2003)	Supply chain linkages as a capability	Conceptual study
Chen et al. (2004)	Supply management capabilities	Survey/questionnaire
Large (2005)	Communication capability of purchasers	Survey/questionnaire
Mota et al. (2005)	Relationship-portfolio capabilities	Case study
Kim (2006a)	Supply chain management and competition capability	Survey/questionnaire
Kim (2006b)	Supply chain operational capability	Survey/questionnaire
Sarkar et al. (2006)	Supplier capability and performance	Literature review/ model development
Merminod et al.(2007)	Integration of capability with other functions of the firm	Case study
Svahn et al. (2007)	Capabilities in supply net management	Conceptual study
Guldbrandsen et al. (2009)	Capabilities in make-or-buy decisions	Survey/questionnaire
Handfield et al. (2009)	Supply management capability	Survey/questionnaire
Pressey et al. (2009)	Supplier capabilities	Survey/questionnaire
Ziggers et al. (2009)	Collaborative capabilities in networks	Survey/questionnaire
Gold et al. (2010)	Supply management capabilities	Content analysis and contingency analysis
Gomes et al. (2010)	Coordination capability	Case study
Kayakutlu et al. (2010)	Competence in supply chain	Analytical network process (ANP)
Lintukangas et al. (2010)	Supply management capabilities	Survey/questionnaire
Reuter et al. (2010)	Capabilities as a source of competitive advantage	Case study

There have been studied many different capabilities in the literature of supply management, for example organizational, competition, supply chain, dynamic and supply management capabilities. Most of those studies are surveys / questionnaires. Also case and conceptual studies are generally used in the studies of supply management.

2.2.1. Organizational capability

Capabilities are a capacity of the firm to deploy its' resources and use organizational processes, to achieving a desired end (Amit and Schoemaker, 1993; Helfat and Peteraf, 2003; Ziggers and Henseler, 2009). Organizational level capability is a higher order capability which is consisted of skills and competencies at individuals such as design, supply management, manufacturing, finance and marketing skills and competencies (Hafeez et al., 2007; Javidan, 1998). Grant (1996) defines organizational capability as the outcome of knowledge integration. The knowledge always resides in individuals so surviving in rapidly changing environment requires employees to acquire new knowledge continuously (Miller and Morris, 1999). Organizational level capability enable firm to acquire, develop, and deploy its resources and capabilities, so these can transform into sustainable competencies (Chen et al., 2004).

According to Chen et al. (2004) different organizational capabilities can achieve sustainable competitive advantage in the following cases: they are not tradable in strategic factor markets; they take a long time to develop and are historically based and path dependent; and they entail socially complex relationships with other organizational resources. But organizational capabilities have to also consider in light of the relative improvement of the firm versus its competitors (Axelsson et al., 2005). If the competitors of organization improve their routines and resources faster than the focal

organization, the relative capabilities of that organization would be lowered (Axelsson et al., 2005). According to Miller and Morris (1999), the ability to develop the right new organizational capabilities will be the source of sustainable competitive advantage in the future. This development is possible to make happen through the learning (Miller and Morris, 1999). When organizational capabilities can to seize opportunities or neutralize threats from turbulent environments, they can greatly enhance the firm's competitive opportunities (Chen et al., 2004).

As mentioned earlier one source of organizational capability is the explicit and tacit knowledge of firm's employees (Grant, 1996; Miller and Morris, 1999). Employees have common knowledge and specialist skills which help the firm to sustain competitive advantage (Grant, 1996). The increase of human resource competence does not automatically increase capabilities on the organizational level (Axelsson et al., 2005). Axelsson et al. (2005) give an example: if a purchasing professional educate herself or himself and she or he have to still do same, very routine-based job, which she or he is no longer motivated to do, this new level of knowledge of individual would be negative to the organizational capability. Also organizational capabilities can over time lead to competitive disadvantage because of shifts in environmental conditions or organizational complacence (Chen et al., 2004). So in a fast changing environment capabilities of a firm have to be dynamic in nature (Weissenberger-Eibl and Schwenk, 2009). That is why it is important to research also dynamic capabilities which motivate firms to develop their capabilities.

2.2.2. Dynamic capabilities

Dynamic capabilities are defined to be the firm ability to integrate, build and reconfigure other firm's resources and capabilities to cope with rapidly changing environments (Helfat and Peteraf, 2003; Makadok, 2001; Teece et

al., 1997; Ziggers and Henseler, 2009). According to Axelsson et al. (2005), dynamic capabilities are firm ability to face challenges of tomorrow in appropriate way when other capabilities focus to run today's business. Many researchers have been described dynamic capabilities as 'routines to learn routines', but this has been criticized as being tautological and nonoperational (Eisenhardt and Martin, 2000). Every changing environment means that many developed knowledge, competencies and capabilities will never be utilized or exploited. But still the greater danger is that the firm is unable to reorient its knowledge, competencies and capabilities when needed (Axelsson et al., 2005). Dynamic capabilities approach tries to provide a coherent framework which helps to exploit of existing capabilities and develop new ones (Teece et al., 1997).

In rapidly changing markets dynamic capabilities are the source of sustained competitive advantage if there are possibility to achieve sustained competitive advantage (Eisenhardt and Martin, 2000). In high-velocity markets dynamic capabilities have to be different than in stable industry markets. In dynamic environments capabilities have to be simple, experiential, unstable processes that rely on quickly created new knowledge and iterative execution to produce adaptive (Eisenhardt and Martin, 2000). Simple routines help managers focused on broadly important issues without locking to use past knowledge that may be inappropriate in particular situation. So the threat to lose competitive advantage comes both inside and outside the firm. Eisenhardt and Martin (2000, 1107) define that dynamic capabilities are "the drivers behind the creation, evolution and recombination of other resources into new sources of competitive advantage".

Eisenhardt and Martin (2000) remind that dynamic capabilities are not themselves sources of sustained competitive advantage. To achieving long-term competitive advantage, the firm have to use dynamic capabilities sooner, more astutely or more fortuitously than the competitors. This way firm can

create resource configurations that have the competitive advantage. (Eisenhardt and Martin, 2000). When discussed this concept of dynamic capabilities it is important to remember Helfat's and Peteraf's (2003) argument that all capabilities have the potential to adapt changes not only dynamic capabilities.

2.2.3. Supply management capability

Individual skills and knowledge in the context of supply management have been widely researched. Supply management capability has been arises as important resource and knowledge-acquisition capability of firm that can achieve competitive advantage (Rungtusanatham et al., 2003). However, the research of supply management capability as an organizational level asset is still vague. Many studies have suggested that supply management capability is one factor that affects the importance and strategic status of purchasing and supply management in the firm (e.g. Carr and Smeltzer, 1997; Lintukangas et al., 2010). Supply management is possible to define building and managing buyer – supplier relationships (Chen et al., 2004). Lintukangas et al. (2010, 187) define supply management capability as “intra-organizational firm-specific knowledge and skills of supply management human resources”. Supply management capability, like other capabilities, is the result of resources, routines, skills and knowledge. One important factor of development of supply management capability and firm performance is effective communication (Chen et al., 2004). The interesting feature of routines is their ability to support complex patterns of interactions between individuals in the absence of rules, directives or even significant verbal communication (Grant, 1996).

Supply management capability consists of capacity of a firm to deploy its purchasing and supply resources (Lintukangas et al., 2010). In this way supply management capability can engender sustainable competitive

advantage by enabling a firm to build and leverage beneficial intra- and inter-organizational relationships (Chen et al., 2004; Kim, 2006b). Merminod et al. (2007) have stated that the development of supply management capability and linking supply management with other departments are crucial acts in complex global supply networks in order to preserve competitiveness.

According to Wu et al. (2006), supply chain capability includes four different dimensions: information exchange, coordination, inter-firm activity integration and supply chain responsiveness. These dimensions highlight the dynamic nature of supply chain capabilities (Wu et al., 2006). Supply management capability affects competitive advantage also because they can impact in their actions the firm's key competition dimensions such as costs, customer service, capacity planning, communication and product availability (Kim, 2006a; Tracey et al., 2005). Different supply management skills and routines are maybe most important capabilities in the hierarchy of organizational capabilities when speak about knowledge integration intra- and inter-organizational relationships (Wu et al., 2006). So this competitive advantage can achieve, it is important to link these competition dimensions to the organizational capability (Kim, 2006a).

Chen et al. (2004) remind that discrete practices of supply management are observable and transferable from one organizational context to another and they may be easily duplicated, and thus, may not generate a sustainable competitive advantage for the firm. Hafeez et al. (2007) research supports this statement. They map organizational level capabilities trying to find out which capabilities create competences of the company. In this evaluation purchasing did not achieve important role in creating competence of company because case firm did not perceive purchasing enough rareness, inimitability or non-substitutability. (Hafeez et al., 2007) But like Chen et al. (2004) remind it is not just the practices, it is the unique combination of these practices as

well as other firm-specific resources and capabilities that may sustain competitive advantage of the firm.

Supply management skills

The skills of individuals form the basis of organizational capability (Eisenhardt and Martin, 2000). Because of the strategic role of supply management, skill development is recognized important also for purchasing professionals. Before supply management function can achieve its strategic role, purchasing professionals have to possess necessary skills and knowledge (Carr and Smeltzer, 2000). The difficulty in defining supply management capability on the organizational level has led researchers to examine specific skills that supply management professionals require (see Table 2). Without this identifying a required set of skills, firm cannot achieve professionalism, growth and influence within the organization (Giunipero and Percy, 2000). In the 1990s and 2000s these skills have been studied extensively. Kolchin and Giunipero (1993) posited that the specific skills required by purchasers would be similar in both decades, but that there would be changes in their relative importance. Moreover, there is no overall skill set that fits in every firm: finding the right skill set requires careful environment analysis and knowledge of what specific skills are needed to preserve competitive advantage of the firm (Giunipero, 2000; Giunipero and Percy, 2000).

Several studies in the 1990s consider the skills what supply management professionals would need and what are the top trends in the next decade (e.g., Kolchin and Giunipero, 1993; Van Weele and Rozemeijer, 1996). For example, they forecast that the number of registered suppliers would decrease, and that the focus would turn towards final-customer satisfaction. They also forecast greater emphasis on supply management, supplier relationships management, information society and global sourcing (Kolchin and Giunipero, 1993; Van Weele and Rozemeijer, 1996). In Kolchin and

Giunipero (1993) research they have also made a list where they listed skills which are required purchasing professionals in the year 2000. They have ranked these skills scale from 1 to 5 (1 = not important, 5 = most important). Top 10 of this list were interpersonal communication (importance: 4,70), customer focus (4,63), decision-making (4,59), negotiation (4,43), analytical (4,42), change management (4,42), conflict resolution (4,40), problem solving (4,39), influencing and persuasion (4,38) and computer literacy (4,37). It is evident today that many of these forecasts have been realized. Furthermore, the connection between skills and the strategic role of supply management is frequently highlighted (e.g., Carr and Smeltzer, 1997; Cruz and Murphy, 1996; Eltantawy et al., 2009; Feisel et al., 2010). Empirical studies have reported a positive relationship between supply management skills and firm performance: the level of skills may predict the level of performance (Carr and Smeltzer, 2000). However, even though supply management is becoming more and more important and strategic, this change may not be acknowledged internally in a firm. The lack of necessary financial and managerial resources affects the effectiveness and performance of supply management (Kim, 2006a; Tassabehji and Moorhouse, 2008).

Supply management skills have been viewed as personal traits (e.g., Faes et al., 2001; Giunipero and Percy, 2000), technical knowledge (Carr and Smeltzer, 2000) and supplier network management skills (Knight et al., 2005; Narasimhan et al., 2001). In the 1990s many researchers (e.g. Van Weele and Rozemeijer, 1996) forecasts changes that would happen in the business environment in the next decade. Kolchin and Giunipero (1993) forecast the most important skills of purchasing professionals for the 2000s. They highlight for example customer focus, decision-making, change management and negotiation as important skills in the future. Ability to communicate was also important future skill in the 1990s literature (Carr and Smeltzer, 1997; Cruz and Murphy, 1996; Kolchin and Giunipero, 1993; Van Weele and Rozemeijer, 1996). According to Van Weele and Rozemeijer (1996), in 2000s purchasing

professional is young, highly educated person with great teamwork and communication skills. Professionals would need a wide general business view and the willingness to take risks. Also Cruz and Murphy (1996) speak the importance of the education, when Faes et al. (2001) specify that commercial education is more important than technical. According to Cruz and Murphy (1996), in the 2000s new skill requirements are supply chain management, supply base optimization and computerization.

Recent studies emphasize the impact of the competitive society on supply management. Globalization, information technology and e-business tools are shaping the daily work of professionals (Mulder et al., 2005). Like many researchers forecast, teamwork skills and effective communication are becoming increasingly important (Giunipero et al., 2006; Mulder et al., 2005), as is a general understanding of business and strategic thinking (Eltantawy et al., 2009). In nowadays, purchasing professional have to manage new product development and launch, customer service, and post-sales support (Aquino and O'Marah, 2009). Because of the more strategic role of supply management, top managers have higher expectations of supply management in terms of skills, responsibilities and professional efficiency (Feisel et al., 2010). More recently the focus and developments in the field have strongly turned towards value creation, and especially value co-creation within the supplier network (Möller and Rajala, 2007). However, the concept of value chain has been more often used as a purely conceptual tool than a real operation plan for execution (Aquino and O'Marah, 2009).

In the literature are many different variation categorizations of supply management skills. For example Tassabehji and Moorhouse (2008) categorize supply management skills as technical, interpersonal, internal enterprise, external enterprise and strategic business skills. Kolchin and Giunipero (1993) have used next categorization: technical, management, interpersonal / group and individual skills. There are also categorizations

between strategic and nonstrategic functions where the latter includes task-oriented skills and the former includes strategic skills which help to make decisions (Carr and Smeltzer, 2000). Strategic supply management skills are valuable for improving supply management performance because these skills help the supply management function to keep good relationships with their suppliers, are rare assets and can carry out valuable information about industries and supply trends through the firm (Eltantawy et al., 2009).

In this study the skills of supply management are categorized to professional and personal skills. In professional skills learning, experience and education have strong influence and to personal skills and traits depend on the characteristics of the personality. The variety of the found skills is extensive. It seems that supply management professionals need to have wide experience, general understanding of business and various management skills to be able to be effective. Table 2 lists the supply management skills which are mentioned in the relevant literature during the last two decades.

Table 2a. Review on skills of supply management professionals during the two last decades.

Source	Kolchin et al. (1993)	Van Weele et al. (1996)	Cruz et al. (1996)	Carr et al. (1997)	Carr et al. (2000)	Giunipero (2000)	Giunipero et al. (2000)	Faes et al. (2001)	Gammelgaard et al. (2001)	Mulder et al. (2005)	Tassabehji et al. (2008)	Aquino et al. (2009)	Eltantawy et al. (2009)
Professional skills													
Change management	X					X	X		X			X	
Contract writing					X	X			X		X		
Cross-functional awareness						X			X				
Cultural knowledge								X			X		
Customer focus	X	X				X	X						
Decision making	X					X	X		X				
Differentiation										X			
Ethics						X		X		X			
Finance					X	X							
General business view	X	X				X	X		X		X		X
Globalization			X			X				X	X		
Knowledge of IT and electric tools	X		X		X	X	X	X		X	X	X	
Leadership / management	X			X		X	X	X	X		X		
Logistics						X							
Market knowledge						X					X		
Materials mgt. / Inventories					X	X					X		
Measurement												X	
Negotiation skills	X		X		X	X	X						
Organizational skills	X				X						X		
Process management					X	X							
Product knowledge											X		
Production systems					X								
Project management					X	X							X
Quality management					X						X		
Risk management	X	X				X	X				X		
Salesmanship	X						X						
Strategic thinking			X			X	X			X	X	X	X
Supplier relationships			X			X	X				X		X
Supply chain management			X			X			X	X			
Technical knowledge	X				X	X	X	X			X		
Total cost analysis			X		X	X						X	
Value deliver						X					X		

Table 2b. Review on skills of supply management professionals during the two last decades.

Source	Kolchin et al. (1993)	Van Weele et al. (1996)	Cruz et al. (1996)	Carr et al. (1997)	Carr et al. (2000)	Giunipero (2000)	Giunipero et al. (2000)	Faes et al. (2001)	Gammelgaard et al. (2001)	Mulder et al. (2005)	Tassabehji et al. (2008)	Aquino et al. (2009)	Eltantawy et al. (2009)
Personal skills													
Analytical	X			X	X	X	X		X		X	X	X
Communication	X	X	X	X	X	X	X		X		X		
Conflict management	X					X	X				X		
Creative thinking	X					X	X	X					
Education		X	X			X		X					
Motivation						X			X				
Personal traits	X	X			X		X	X	X		X		
Planning	X				X								X
Problem solving	X				X	X	X		X		X		
Stress management					X					X			
Teamwork		X			X	X	X		X	X			
Time management	X				X	X	X		X				

Many of the supply management skills have been remain the same in the last two decades. Strategic thinking, general business view and decision making are important skills also in the 2000s. Many personal skills are also seen important in the last two decades, for example communication, creative thinking, teamwork and problem solving. Value deliver, cross-functional awareness, differentiation and measurement are skills that have become to the list in 2000s. In the 2000s literature have not focus so much on support activities of supply management, like finance, sales, production and logistics. There is assumption that general business view includes all these activities.

Routines

In the literature, routines are defined as stable and predictable patterns of behavior (Kale et al., 2002). According to Helfat and Peteraf (2003),

capabilities always include two sorts of routines: those to perform individual tasks and those that coordinate individual tasks. To achieving competitive advantage, firm needs continuous development of organizational processes and firm's systematic methods in monitoring and adapting its operating routines (Ziggers and Henseler, 2009). Operational capability consists of collection of routines. To help by routines firm can execute and coordinate the variety of tasks required to perform the activity (Helfat and Peteraf, 2003). Routines two main dimensions are support individual's performance of their particular tasks and permit highly varied sequences of interaction (Grant, 1996). According to Grant (1996), organizations' efficiency is associated with maximize used of rules, routines and other integration mechanism that make better on communication and knowledge transfer.

Above is present the extensive literature review in supply management and the context of capability. The literature review shows that in 2000s the concept of capability has been started to get more attention in supply management literature. This is important because supply management capability is an organizational level asset that can have impact on firms' competitiveness and performance. It can be concluded that supply management capability is consisted of accumulation of professional and personal skills. In previous decades research in supply management topic has been focused more on these individual skills and resources. Defining supply management capability requires clear understanding of the differences of the concepts of skill and capability.

Resource-based view, which creates the base on the theory of this thesis, is a little too narrow theory when discusses the topic of capability. That is why many researchers have been gone further in researching components which create sustainable competitive advantage. According to Jantunen (2005), there is for example a capability-based view where the firm is a repository of unconventional capabilities, which are considered its main source of

competitive advantage. But the basic idea of RBV works also when discusses the context of capability: if firm wants that resources create sustaining competitive advantage, these resources must be valuable, rare, inimitable and non-substitutable. The capability which creates competitive advantage to the firm has to also consist of skills, resources and knowledge which meet the requirements of VRIN attributes.

When discussed the concept of capability, Miller and Morris (1999) have been drawn a good picture of the concept (see Figure 3). Even the picture describes the whole concept of capability it fits also in term of supply management capability. It is possible to research these knowledge, tools, technology, processes and practices also in the context of supply management capability. It is important to research what kind of knowledge purchasing professionals' need, which tools help most supply management, in which level purchasing professionals have to know technology of purchased products and what are the right processes and practices which make the purchasing effective. In order to advance the theoretical basis of supply management discipline clear understanding of how skills and practices affect competitive advantage need to be solved. See more analysis on the topic in Chapters 4 and 5.

3 METHODOLOGY

After this extensive literature review, which gave a good pre-understanding of the research topic (Kähkönen, 2011; Stuart et al., 2002), it was evident that research on the concept of supply management capability is in its early stages and that it is not a well-established area. This motivated the selection of a conceptual and explorative design for the empirical study, the aim of which was to study the feasibility of the current literature by exploring the opinions of expert. The research design followed the principles of the Delphi method, which was originally developed for collecting and structuring future-related information (e.g., Fowles, 1978). In this research have been used also in-depth interviews which are a modern application of Delphi panel (Gordon, 1994).

3.1. Research design

This thesis is a qualitative research. The qualitative research is a good method for studying unstructured problems because it is flexible and exploratory method (Eriksson and Kovalainen, 2008). An academic qualitative research uses interviews, surveys, observation and document information for data collection methods (Lee and Lings, 2008; Tuomi and Sarajärvi, 2009). In these, the interview is probably the most popular data collection technique (Lee and Lings, 2008). One possible way to collect qualitative data is the Delphi method. It is a systematic procedure to research experts' opinions about the future (Azani and Khorramshahgol, 1990). The data collection in Delphi process is possible to execute through questionnaires and interviews (Gordon, 1994).

3.1.1. Delphi method

A Delphi method is a very useful approach to the analysis of complex, multidimensional problems (Gibson and Miller, 1990). It is also a widely used forecasting tool (Azani and Khorramshahgol, 1990). The typical Delphi process consist more than two round of expert panel where the experts identify the driving forces and variables which affect the future (Gordon, 1994). In each round the experts answer questions either throughout questionnaire or interview. After each round, the researcher analyzes answers, summarizes them and reported them back to the panel members in the form of new questionnaire (Gibson and Miller, 1990; Gordon, 1994).

There are many critical stages in Delphi process which need attention of the researcher. The selection of participants is the first and most important stage of the Delphi process (Gordon, 1994). According to Gordon (1994), the objective in using expert informants is to gather together a small group of knowledgeable individuals and facilitate dialogue among them. Another critical stage in the process is the design of questionnaires and given the feedback to the panel members (Azani and Khorramshahgol, 1990; Gordon, 1994). The anonymity of the respondents assures honest answers and a greater freedom of expression to the experts (Gibson and Miller, 1990; Gordon, 1994).

The strengths of the Delphi method are its ability to explore issues that require judgment, develop solutions of complex problems and the members of the panel can learn new things in the responses of the other panel members (Gibson and Miller, 1990; Gordon, 1994). The weaknesses of the method are its ability to answer only a certain type of questions, the time that an appropriate execution of the panel takes and the small number of respondents. Because of this small number of respondents, the Delphi

method does not produce statistically significant results. The results represent only the opinion of the panel members. (Gordon, 1994)

3.1.2. Semi-structured interview

An interview is very common method in qualitative business research and it can also be a part of Delphi process (Gordon, 1994; Lee and Lings, 2008; Ruusuvuori et al., 2010; Tuomi and Sarajärvi, 2009). In Delphi process interviews could be an alternative to questionnaires (Gordon, 1994), because it is a highly efficient way to gather rich, empirical data (Eisenhardt and Graebner, 2007). According to Tuomi and Sarajärvi (2009), flexibility, careful selection of respondents and possibility to be sure of the answers of the interviewees are the advantages of interview method. Eriksson and Kovalainen (2008) describe the data of interviews in systematic and comprehensive when the interview situation still remains fairly informal and conversational. The weakness of the interview as a research method compared in survey is the time and the money what it need (Tuomi and Sarajärvi, 2009).

An interview is a face-to-face appointment, where interviewer asks questions and writes down interviewee's answers (Tuomi and Sarajärvi, 2009). The flexibility of interview means that interviewer can repeat the questions, clarify the meaning of the questions and converse with the respondent (Tuomi and Sarajärvi, 2009). In semi-structured interviews the interviewer has a pre-prepared outline of topics or themes. But it enables the interviewer to ask questions in that form and order which fit best in the situation and the interviewee. (Eriksson and Kovalainen, 2008; Ruusuvuori et al., 2010; Ruusuvuori and Tiittula, 2005; Tuomi and Sarajärvi, 2009)

3.1.3. Description of the Delphi panel members

In the beginning of the study a careful selection of the participants of the Delphi process was made. All experts were selected based on their national-level expert status on the topic. The first stage of the panel comprised 9 experts on purchasing and supply management representing both industry and service sector. They were selected in the different industries and service sectors to make sure that all different views of supply management capability will come up. After first round two experts have not be able to participate further this study. So in the last three stages there were the same 7 participants in the Delphi process. In Table 3 are presented the summary of the interviewees.

Table 3. Summary of the interviewees.

Interviewee	Title	Industry	Category	Sector
A	Supply management director	Construction	Purchasing company	Private sector
B	Purchasing manager	Food industry	Purchasing company	Private sector
C	Supply management director	Environmental management	Purchasing company	Private sector
D	Chief executive officer (CEO)	Education services	Purchasing company	Public sector
E	CEO	Supply management services	Supply management service company	Private sector
F	CEO	Purchasing platform service	Supply management service company	Private sector
G	Senior consultant	Supply management services	Supply management service company	Private sector

Except for one informant, all experts were managerial stage in their organizations: 3 purchasing directors, 3 chief executive officers (CEO) and 1 senior consultant. The interviewees were very different kind of organizations. They were both the industrial and the service sector, and public and private sector. Firms were very different amount of employees (ten to nine thousand employees in Finland) and turnovers were from one million to 800 million. The

purpose of this thesis was to research extensively the topic of supply management capability, and the choice of experts supported this objective.

Interviewee A is supply management director in a large construction company. Interviewee B is working a food industry company as a purchasing manager. Interviewee C is a supply management director in a corporation which focuses on environmental management. Interviewee D is a CEO in the organization of the public sector. Interviewee E is a CEO in the company which offer purchasing and supply management services to firms. Interviewee F is a CEO in the firm which has developed a platform for helping firms to perform their supply management. Interviewee G is a senior consultant who works with purchasing and supply management.

As can see, the interviewees came from very different kind of firms. That makes firms categorizing pretty difficult. In this thesis these firms has been split in two categories: purchasing companies and supply management service companies. Purchasing companies are firms that purchase themselves a lot of different things like raw materials, services and real properties. Interviewees A, B, C and D work firms like that. They answered the point of view of their own organizations. Supply management service companies produce services which help other firms to perform their purchasing and supply management. Interviewees E, F and G work this kind of firms. These interviewees (E, F, G) answered based on their opinion and knowledge on the supply management. This categorization helps later when is meant to analyze the answers of the interviewees.

3.2. Data collection

Data collection executed through the Delphi panel. During this study three round of questionnaire and one round of interviews were made. The task of the panel was to identify the critical skills and competences comprising supply management capability and to prioritize them, and further to name the main forces of change that would influence capability requirements in the future.

The first round of the panel was conducted by used web-based system. In this stage the panelists were asked what components of supply management capability are critical for the organization in achieving sustainable competitive advantage. After analyzing and categorizing these results, the interviews were organized. The themes of the interviews formulated based on these first round results.

The second-round of the panel executed throughout interviews. Seven experts from the original panel were able to participate in the interviews. The interview data includes data from 7 semi-structured interviews. All interviews were conducted in winter 2010-2011. There were one interviewee and one to three interviewers in the situations. Durations of the interviews were approximately one hour and twenty minutes and the interviews were audio-recorded. The recordings were transcribed literally to helping the analysis. This transcription was made word-by-word. The transcriptions produced 226 pages of data. All interviews followed same themes (see Appendix I) but questions were adjusted according to industry of the company and interviewee's position in the company. Analysis of the interview data was done by using color-coding and categorizing data in different themes.

After careful analysis of the interviews, a group working session was organized. All the seven interviewees were able to participate in this third-

round of the panel. Computer-assisted group decision software was used to facilitate the session. This enabled the anonymity of the respondents. The preliminary list of capability factors was sent back to the experts, who gave feedback and commented on it through computer software. Non-relevant items were removed, and the list was revised accordingly and validated.

The fourth-round took place on the same workshop occasion. Group decision software was again used to prioritize the identified components. The importance of each one, in the opinion of the experts, was rated on a scale ranging from one to seven. Figure 4 summarizes these four stages of data collection.

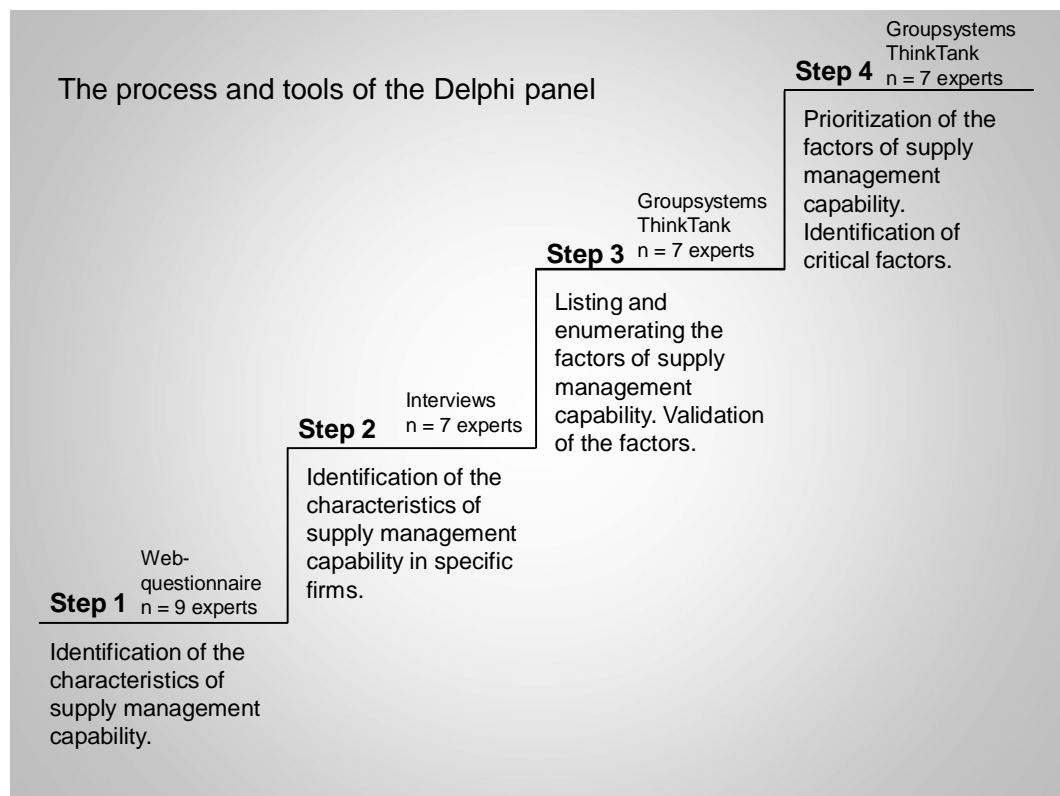


Figure 4. The stages of the Delphi process.

In summary, the data collection process comprised the following four stages: 1) identifying the characteristics of supply management capability that are critical in terms of future competitive advantage, 2) interviews 3) validating the characteristics and 4) prioritizing them accordingly.

This data on expert panels and interviews comprised the primary data of the study. The database information comprised mostly the secondary data.

3.3. Data analysis

After the data collection and interviews transcription, a careful reading and analyzing of the data started. The interview data was read several times. After that pre-coding and categorizing of different themes were done. The careful reading helped to familiarize the researcher with the transcriptions. The final colour-coding based on the interview themes because it seemed to be systematic and logical. After careful analyzed of the transcriptions, total of 6 themes were identified. Table 4 shows the used themes and colour-codes.

Table 4. The interview themes and used colour-codes in analysis.

Theme	Colour-code
Organization	Yellow
Supplier relations	Orange
Business knowledge	Pink
Control	Green
Operations	Lime
Supply management capability	Red

The data of questionnaires (panel rounds 1, 3 and 4) were analyzed with careful reading and categorizing. The results and analysis are presented in chapter 4.

3.4. Validity and reliability of the study

In qualitative research is challenging to assure the readers about scientific nature of the research (Eriksson and Kovalainen, 2008; Gibson and Miller, 1990). It is important to remember that a research which have executed in Delphi method, cannot be considered a quantitatively rigorous procedure (Gibson and Miller, 1990). The evaluation of the validity and reliability of the study is one of the most important part in academic research (Eriksson and Kovalainen, 2008; Kähkönen, 2011; Tuomi and Sarajärvi, 2009). The reliability of this kind of research comes from systematic analysis where the researcher writes down all choices, limitations and analysis which have been made through the research (Ruusuvuori et al., 2010). This make possible to some other researcher to repeat the study (Eriksson and Kovalainen, 2008). The validation of the research comes from evaluating all collected data and interpretations which have been made in that data (Ruusuvuori et al., 2010). Validity describes the degree how well a study reflects the specific concept that the researcher was attempting to measure (Eriksson and Kovalainen, 2008). One important part of qualitative research is documented chain of evidence. It means that all steps of the research are well documented, and all original evidences are available. The chain of evidence strengthened also the construct validity and reliability of the research (Kähkönen, 2011; Yin, 2003).

4 EMPIRICAL STUDY

4.1. Identification of the components of supply management capability

In the first stage of the Delphi process, which comprised a web-based questionnaire, the panel members answered in four questions. These questions were following: 1) Why is supply management capability important? 2) What are the components of supply management capability? 3) What are the five most important components in terms of competitiveness? 4) What external forces influence the future of supply management capability? In this stage of study was important to find out what supply management skills and competencies the panel members considered critical for firms in order to achieve sustainable competitive advantage. The results of this stage formulated the basis of the themes for interviews.

The answer to the first question, “Why is supply management capability important?”, was clear: all the respondents mentioned supply management’s high cost-impact and positive financial effect on turnover. According to the respondents, supply management capability can contribute competitiveness of a firm by affecting purchase costs, managing information and making process of the firm more effective. They attributed that supply management affect the firm’s profit more than sales. Hence, supply management capability is a top driver, at least when improving financial performance is concerned.

In the second question, the respondents answered which components consist of supply management capability. These components are gathered, both in the literature and the Delphi panel, in Table 5.

Table 5. Results of the 1st round of the Delphi panel.

Summary of literature review and the first-round of Delphi panel	Literature review	Results of 1st round		Literature review	Results of 1st round
Professional skills			Personal skills		
Change management	X		Analytical	X	X
Contract writing	X	X	Communication	X	X
Cross-functional awareness	X	X	Conflict management	X	
Cultural knowledge	X	X	Creative thinking	X	
Customer focus	X	X	Education	X	X
Decision making	X		Language skills		X
Differentiation	X		Motivation	X	X
Ethics	X	X	Personal traits	X	X
Finance	X		Planning	X	
General business view	X	X	Problem solving	X	
Globalization	X		Social skills		X
Knowledge of IT and electric tools	X	X	Stress management	X	X
Leadership / management	X	X	Target set up		X
Logistics	X	X	Teamwork	X	
Market knowledge	X	X	Time management	X	
Materials mgt. inv. JIT	X				
Measurement	X				
Negotiation skills	X	X			
Organizational skills	X	X			
Process management	X	X			
Product knowledge	X	X			
Production systems	X				
Project management	X	X			
Quality management	X	X			
Risk management	X				
Salesmanship	X	X			
Strategic thinking	X	X			
Supplier relationships	X	X			
Supply chain management	X				
Technical knowledge	X	X			
Total cost analysis	X	X			
Value deliver	X				

Both sources, literature and the Delphi panel, consider skills related to cross-functional awareness, total cost analysis, communication and strategic thinking crucial for purchasing professionals. They also should have a general business view, cultural knowledge and an analytical grip on their work. Buyers have to handle supplier relations, maintain a customer focus and ensure sustainable purchasing and process management. Other requirements include having the know-how to take advantage of the variety of electronic tools on offer, having the motivation to produce better results, knowing the markets in which they operate, and being able to manage all the different areas in the supply chain.

Even though the Delphi panel were extensive, there were some areas identified in the literature review that the panel did not mention. These included decision making, change management, conflict resolution and supply chain management. Globalization did not come up in this point of the questionnaire, but the respondents mentioned it when they listed future change forces in the question four. In terms of personal skills, the panel members did not mentioned creative thinking, team working, planning or time management as the components of supply management capability. Surprisingly, differentiation, finance, risk management and value delivery, all of which feature in the 21st-century literature, were not mentioned in the panel either. On the other hand, the respondents emphasized knowledge of languages, target set up and social skills which did not included in the literature. All in all, the fact that on both, the literature review and the Delphi panel, came up almost same skills and components indicates that the literature review largely covered the discussion on supply management skills.

When the respondents listed the five most important components of supply management capability, knowledge of IT and electric tools of supply management, total cost analysis and negotiation skills came up. Also supplier relations and market knowledge were important in terms of competitiveness. Knowledge of individuals was also seen as a source of competitive advantage.

In the last question was searched which external forces influence the future of supply management capability. According to the panel this kind of factors are for example globalization, availability of supply management education and the increasing need to create specialization and differentiation strategies. The newest articles have been pointed out that handling globalization and differentiation are important skills of purchasing professionals. Constantly increasing firm's growth and profit demands, shortage of raw materials and changes of competition and supply markets affect also supply management ability to achieve competitive advantage to the firm. In the future it is important to research how inter-firm networks and changes in the supplier field affecting purchasing function and its role in the firm. In summary, the experts stressed the change from operative management skills towards general knowledge and a global understanding of the business.

4.2. Interviews

The interviews were conducted in those seven 1st round experts who were able to participate in the interviews. The experts of this research were selected and interviewed on the basis of their national-level expert status on the field of purchasing and supply management. They all work with purchasing and supply management and they have an extensive view on this topic. All of the interviewees did not answer all the questions because they, or they customers, do not have that type of purchasing or because respondent

do not have the knowledge of some issues. Framework of the interviews is presented in Table 6.

Table 6. The framework of the interviews.

Theme	Sub questions
Organization	<ul style="list-style-type: none"> • Responsibilities • Centralized / decentralized • Cross-functional teams • Internal reporting
Supplier relationships	<ul style="list-style-type: none"> • Collaboration • Trust • Information sharing
General business knowledge	<ul style="list-style-type: none"> • Experience • Management's knowledge • Understanding of customer needs
Control and measurement	<ul style="list-style-type: none"> • Controlling • Measurement • Bonus system • Total costs of supply management
Operations and routines	<ul style="list-style-type: none"> • Information systems • Order processes • Daily routines • Quality control • Reporting
Supply management capability	<ul style="list-style-type: none"> • What is supply management capability?

The themes and sub-questions were same in the all interviews but the questions form and order were changed in the way which fits best in the situation and the interviewee. Example questions are presented more closely in Appendix I.

4.2.1. Organization

The first theme in the interviews was 'organization'. This theme was designed to identify the status of supply management in the organizations.

One interviewee responds the firm purchases in national-level in the Finland. The interviewee reports to abroad in chief and in Finland to the executive group of the Finnish business unit. One interviewee responds all direct purchases in the firm. The interviewee reports to the director of logistics who reports to the executive group of the firm. One interviewee is responsible for strategic supply management in the concern-level. The interviewee reports to the director of financial who reports to the executive group. One interviewee is the CEO so he is responsible for all activities of the organization. But in their organization the supply manager reports to the director of financial who reports to the CEO. Because of the small size of this organization, they try to minimize the bureaucracy in the organization. Three firms are supply management service companies and they answers based on their opinions so their organization charts are not so significant. In short, purchasers in one firm are in Asia where they service firm's Finnish customers. One interviewee sells the platform to their customers and one interviewee helps their customers to develop their supply management.

None of purchasing companies were purchasing and supply manager in executive group. Only one supply management director reports direct to the executive group of Finnish business unit. Other purchasing companies supply management belongs under the logistic or financial department. The interviewees felt that this is a bad thing, because usually directors of logistic or financial do not understand what supply management really is. This lack of understanding can lead wrong actions in the field of supply management. There also may be problems to get executive group to listen the needs of supply management. In supply management service companies supply management has already reached more attention due to their business plan and strategy.

When discussed centralization and decentralization of purchasing and supply management, the interviewee G summed it best saying: "centrally managed,

decentralized treated". This seems to be the main trend in big companies at the moment. All interviewees in purchasing companies execute this mantra in their supply management. "Centrally managed" means that the strategic purchasing and supply management has been executed through centralization. This means that for example contract writing and supplier management are centralized in the supply management unit of the organization. "Decentralized treated" means that operative purchasing has been decentralized through the organization. This model works so well because a totally centralized model might be too bureaucracy and inefficient, when a totally decentralized model might be hard to control and in that way inefficient.

Cross-functional teams were seen as a good idea but hard to execute efficiently. Only one firm uses them successfully. This firm uses a process operational model where all processes have their own teams. All teams include experts in that specific team area as well as other processes and teams. They exploit these cross-functional teams in information sharing. They have for example supplier relationships, logistics and marketing processes in their organization. Arguments against the cross-functional teams consist of problems with the implementation. Also unclear roles of teams and the commands of own chief of team members can complicate the teamwork. Leadership skills of team members arise very important at this point. Table 7 summarizes the main point of the theme "organization".

Table 7. Summary of the theme “organization”.

Organization	
Responsibilities	<ul style="list-style-type: none"> • No purchasing managers in the executive groups • Half of the experts were not satisfy supply management position in the organizations
Centralized/decentralized	<ul style="list-style-type: none"> • "Centrally managed, decentralized treated"
Cross-functional teams	<ul style="list-style-type: none"> • Good idea but hard to execute efficiently
Internal reporting	<ul style="list-style-type: none"> • Only one purchasing company's supply management director reports direct to the executive group • In all other organizations the message of supply management go through other people

Generally interviewees did not be pleased the status of supply management in organizations. The biggest reason for this unpleasant was that supply management did not be part of the executive group. In this kind of situation supply management cannot influence decisions what executive group makes. In those organizations where interviewees feel that managers understand the supply management, they were more pleased the status of the supply management.

4.2.2. Supplier relationships

The next theme was 'supplier relations'. Like interviewee C said: "Supply management capability is good supplier relationship management". So supplier relationships are one major part of supply management capability and that is why it is one interview theme in this thesis.

Expectations and needs for the supplier relationships was the first question in this theme. It came out that these needs are product- and firm-specifics. All interviewees have very high expectations about their supplier relationships. Firm have to categorize its suppliers so it can define these needs and expectations differently in every category. For example next things came up:

suppliers have to be able to support firm's strategy and they have to handle R&D. Suppliers have to also fill law requirements and end-customers expectations. Suppliers have to handle daily routines and be willing to start long-term collaboration with the company. It also came out that many firms want to decrease the amount of their suppliers. This means that remaining suppliers have to be better and more reliable than former suppliers.

The willingness to achieve long-term collaboration with suppliers came up in many interviews. Purchasing companies have started to invest on their supplier relationships. For example, one interviewee thought that development of the collaboration within present suppliers is more efficient than searching new suppliers all the time. Companies have understood that efficient collaboration needs specific processes and investments to taking care of the effectiveness of this collaboration. But in the interviews came out that in many times these processes have been planned too difficult to implement when the process fails. The supply management service companies remind that the partnering cannot be the intrinsic value of the business. Collaboration has to always base on mutual commercial benefits. One interviewee reminds that partnership do not have to last forever. The collaboration consists of specific actions, operations and routines in the course of time, not only the willingness of the collaboration.

All interviewees answered that they have collaboration with their suppliers in some level. But the level of collaborations varies between firms. Usually the collaboration is development co-operation. This means that firms try to develop new products and more efficient process together with each other.

The differences between firms make interviewees' answers very comprehensive. When discussed about challenges in their supplier relationships there came up a lot of different things. In one industry large amount of suppliers and hardness to get information about new innovations

came up as challenges. Quality of distributed products came up in many interviews. Especially in one industry the quality of raw materials is the most critical thing and a big challenge. In public sector a law of purchasing influences also the supplier relationships of the firm. The law forces companies tender their supplier in regularly. This prohibits formation of long-term collaboration. One challenge was also subcontracting services because quality control is there very difficult. Encouraging suppliers to develop their operations and new innovations is also very challenging. Like is to stimulate the right suppliers to respond invitation for tenders.

Not only, that it is challenging to get the supplier to supply right products in right time, but there are also challenges in the measurement. The interviewees thought how firm can measure that there are delivered right products, in right time, at right quality. The interviewees remind that firms need to constantly measure the collaboration so they know do they achieve the goals and benefits which have been set. This is very challenging, especially at the service sector. In service sector is very difficult to define and measure what really are ordered and how execution has worked.

Firms are managing their supplier relationships in many ways. Audits, conversations and transparency between the partners, development co-operation and e-auctions are some of these management operations. The most important thing in managing supplier relationships arose continuously conversation between buyer and supplier. In these conversations partners can discuss both sides' needs and demands. E-auctions are used to getting the best price and maintaining price competitiveness of the firm. Enabling the development co-operation, one interviewee wrote into contracts how often partners met. In meetings they talk through quality cases, targets and development targets. This way they can control their suppliers and their development.

Many interviewees said that if they find a good supplier, they want to keep it and develop that co-operation. One interviewee keeps the good supplier with them to canalizing more volumes in that supplier when another interviewee commits partners to them by integrating process with supplier. This way they achieve benefits which relieve both sides' actions. Interviewees highlight that supplier relationships management are much easier if this management have been described as a clear process which they follow in the organization. This way supply management can show to the organization the benefits which they achieve by supplier relations management. These benefits could be for example time saving, better products and easier business processes.

The question about trust between buyer and supplier split the interviewees' opinions. Half of the respondents felt that they have trust in their supplier relations. And other half felt that they do not have trust in their supplier relations or the trust is very rare. This might be business bounded thing. Those who work with domestic suppliers trusted more their suppliers. Reasons for that was possibility to supervise suppliers and similar business culture with suppliers. Those one interviewee works with foreign suppliers but they need trust between them and suppliers so they can make business. Those respondents, who did not trust their suppliers, work with business where are no long-term supplier relations because of project purchasing and the law of purchase.

Even there are no high trust between buyer and supplier, all interviewees try to share information with their suppliers. The nature and number of this information sharing change from one company to another. Only one interviewee says that they have open-book system with few special, raw material suppliers. Demand estimates and market report are usually the information what firms share with their suppliers. Firms are very careful what information they share. They suggested that firms have to share information

in R&D stage, not financial numbers. Table 8 presents the main point of the theme “supplier relationships”.

Table 8. Summary of the theme “supplier relationships”.

Supplier relationships	
Collaboration	<ul style="list-style-type: none"> • All interviewees have collaboration with their suppliers in some level • The interviewees were willing to invest more on their supplier relationships
Trust	<ul style="list-style-type: none"> • Those interviewees who work with domestic suppliers trusted their suppliers more than those interviewees who work with foreign suppliers
Information sharing	<ul style="list-style-type: none"> • The nature and number of information sharing change from one company to another • The interviewee G suggested that firms have to share information in R&D stage, not financial numbers

In summary can be said that all the interviewees have collaboration with their suppliers but the levels of trust and information sharing change from company to another.

4.2.3. General business knowledge

“General business knowledge” was the next theme in these interviews. All interviewees said that in supply management employees have to also know other business areas, like marketing and finance. Like interviewee A said: “Supply management has to know everything about everything”.

When speaking specific skills, supply management professional has to know for example economic situation, law, offer calculation, supplier evaluation, customer needs, production, finance and industry expertise. So this phrase “everything about everything” fits well in supply management. In many organizations all “extraordinary cases” fall to supply management. Supply

management has to understand large complexes. Supply management professional has to know how she or he does affect other functions in the organization. They also have to understand how supply management can affect firm's profit and success.

Next discussed thing was how interviewees assure this general business knowledge in their organizations. Solutions were education and cross-functional co-operation. Many purchasing companies arrange personnel training in their employees. But mostly interviewees expect that employees' earlier education and work experience assure necessary general business knowledge.

All interviewees thought that work experience is a good thing. For example, the organization which makes a lot of project purchasing can hire only persons who have earlier experience in project purchase. That is because there is no project purchasing education in Finland. That means in some supply management positions you need a good education and deep understanding about supply management before it is possible to work these positions. One interviewee said that in their organization purchasing professionals need a lot of experience before they can achieve the trust of other functions. Many service concepts based entirely on the experience of their employees. One interviewee keeps the work experience only way to achieve industry knowledge, which is important part of supplier relationships. But interviewees also highlighted that a person who has a right kind of education and personality is able to learn the necessary skills. They also remind that earlier work experience might make employee inefficient if those earlier works influence too much of his or her work today.

When spoken with interviewees the corporate managers' knowledge about supply management, there came up a completely knockout. According to interviewees, most of corporate managers do not have any supply

management knowledge. This influences the work of supply management in many ways. For example there are lacks of trust, respect and mandates. Because lack of knowledge, corporate management might also represent requirements which supply management cannot responds. Still, interviewees have been noticed a heightened interest in supply management at the board level of organizations. The reason behind this is the recent global economical situation. Increased interest is a good thing, but still there are no purchasing professionals in the board.

One important question, which affects actions of supply management, is: "How you make sure that supply management professionals understand customers need?". It came out that the most important way to find out these customer needs are discussions and communication between parties. There are many parties who have to be involved in these conversations. Discussions in cross-functional teams and with customers help supply management to understand customers' needs. And then supply management has to discuss with suppliers to make sure that the information about customer needs go through the whole supply chain. To make sure that all parties of supply chain know the needs of customers these needs have to be well documented. Whole chain has to also go continuously discuss with each other so everybody in the chain understand these needs in the same way. Sometimes the customer itself does not know what it wants or the customer has made a bad solution. Then the supply management has to be able to sell the right kind of solution to the customer. According to the interviewees, finding out the long-term needs of customer is very difficult. They are trying to develop some sort of mechanism of anticipation so they can develop their services in the right direction.

All purchasing companies follow the trends of change. The impacts of trend changes are very industry specific. For example, changes in economical situations impact immediately in construction industry. From food industry,

different economical and other trends come much slower. The observation period of education service companies is almost ten years because the people training are slow. Table 9 includes summarize to the main point of the theme “general business knowledge”.

Table 9. Summary of the theme “general business knowledge”.

General business knowledge	
Experience	<ul style="list-style-type: none"> • All the interviewees thought that it is a good thing but in some situations it might make employee inefficient • Mostly the interviewees expected that employees' earlier education and experience assure the necessary business knowledge
Managements' knowledge	<ul style="list-style-type: none"> • Most of corporate managers do not have any supply management knowledge or understand
Understanding of customer needs	<ul style="list-style-type: none"> • Discussion and communication between cross-functional teams, external customers and suppliers

In general the interviewees said that supply management professional has to know everything about everything. The raised specific skills and other demands depend on an industry and the opinions of the experts.

4.2.4. Control and measurement

The next theme was “control and measurement”. In this phase the researcher tried to found out how organizations control their supply management and how they measure it and supply management capability. It came out that the control and measurement of supply management are very challenging and still in its early stages.

All interviewees told that corporate management control supply management in many ways. The biggest reason for this control was a huge amount of money which supply management responds. And the most common way to control supply management was monetary control. Companies measure the

spend what supply management use. This monetary control is important but in many firms have been noticed that they need also another indicators. Firms followed for example rate of centralization of supply management, contract loyalty and the implementation of operative purchasing. The rate of centralization of supply management means that firms followed how much purchases go through the supply management and how much other functions purchase by themselves. Firms followed the contract loyalty so they know how well employees followed instructions. This way they also get feedback about how good current contracts are. If other functions follow these contracts, they thought that the contracts are good. Many companies follow the phrase “centrally managed, decentralized treated” when the operational purchase happening somewhere else than in supply management function. Control of these operational purchases is very important because there moves large sums of money. There are also internal control in public sector- and limited companies. In internal control accountants make sure that the firm complies with the law.

One part of controlling supply management is measurement of supply management. In the interviews were found out that there are many different indicators in the organizations but most of those based still on the number of euro. In addition firms measuring for example amount of tenders, abilities to keep the schedules and e-invoices increasing. But only few companies can or try to measure the total costs of supply management. When supply management function use measurements which measure the actions of suppliers, it is important that supply management remember to discuss also with suppliers in those indicators.

According to the interviewees, supply management performance measuring is one of the challenging part of measuring in the organizations. For example it is very challenging to show the impact of supply management in firm's profit. They remind that there is no sense to measure something just because

everyone else measured it. According to the interviewees, there have to be some benefits about measuring and measurement results have to always lead actions. In the measuring the most important thing is not the indicators but what organization wants to measure. After that is time to figure out which indicators measure the right thing. The interviewees also remind that there is no sense to measure things that cannot be measured. Things that could be measured are always in some sort of numbers. In measuring is also important to compare measure results in right things. This makes sure that the results are objective. One interviewee said that this judgment of the objectiveness in measurements should be giving in some other function than supply management themselves. This is only way to create trust with these supply management indicators.

All interviewees felt that measuring supply management is very important but no one was pleased current indicators in their organizations. They said that current indicators did not measure the right things. They do not get all that information what they need in those indicators. Reasons for that were for example the lack of information systems, different kind of critical issues in companies and product categories and the difficulty to measure supply management.

When spoken measuring supply management capability, all interviewees thought that objective measuring of supply management capability is very challenging, unless impossible. Supply management capability is very difficult to define. And without a good definition it is impossible to measure it. The difficulties to define supply management capability came from that supply management capability consist of many different things. And these things importance to the firm varies from company to company. Work experience, education and personal traits influence supply management capability. And different firms need different supply management skills.

The interviewees told that companies have been made knowledge mapping about supply management skills. These knowledge mappings help the employer training personnel in the right direction. Firms use also development conversations in this same purpose: mapping the knowledge of the employees. These knowledge maps can help the managers in recruiting process when they try to find out the level of supply management capability of the job applicant.

One indicator of supply management capability was mentioned price of the purchased product. The price of the product capacity to measure supply management capability objectively is arguable. It is possible to think that the more knowledge of supply management is, the lower prices it can achieve. This is a logical thought but it has to be treated with caution. It has to be remember that the price of product consist of many different things not only the skills of supply management professional. Usually, if you want lower price you have to be prepared of be elastic of requirements of quality and time of delivery.

In the interviews there arise a lot of different components which, according to interviewees, are parts of supply management capability. Managing people and things are one important component of supply management capability. Nowadays the focus is too much in theoretical knowledge of things instead of management of things. Other components of supply management capability which arises in this point of interviews were negotiation skills, knowledge of laws, language skills, globalization and strategy process.

Supply management performance is that how well supply management can satisfy organization's needs in economically reasonable way. Supply management has a serving role. The most important task of supply management is not saving money. It is much more important to keep the machinery running by purchasing the right products, in the right time than

make some cost savings. It is supply management's task to make sure that production has right amount of raw materials in the right quality. It is only a little amount of money what supply management can save getting lower price to the supplier, compared those losses of profit which might happen if production stops because of delivery problems or organization lose its' customers because of bad quality.

The hardness to measure supply management capability leads to a question: "Do you have a bonus system in your organization?". This was interesting question because it relate into control and measuring. Half of the interviewees told that they have bonus systems in supply management. One interviewee said that they have bonus systems in their organization but not in supply management function because they do not have good indicators to measuring realization of personal targets. And one interviewee told that they are wrote down in strategy the development of bonus systems but they do not have them yet.

All interviewees felt challenge to develop a good scorecard on the basis of the bonus system. If they measure wrong things in scorecards it gives the false message to the employees and it leads in wrong results. For example, in one company many project's bonus systems based on decreasing the target price. This is unfair and challenge indicator because achieving the target price depends mostly on global economical situation, not necessary the skills of purchasing professional. This might lead in situation where employees only try to find the lowest price and do not care delivery times or quality of the products. This does not take account of needs of internal customers and the competitiveness of the whole process may suffer.

If company measure wrong things it put its' employees in difficult situation. If employee does its' work like the company measure it, the company may suffer that, for example in the situation where the price is only indicator. And if

the employee make like it is best to the company, employee's own wallet suffers, for example in the situation where employee purchases something in higher price but much shorter delivery time. Interpretation of indicators is always attached to the interpreter opinions. That is why employees might feel that they are interpreting in wrong way. According to the interviewees, the amounts of money which paid through bonus systems are pretty small. One interviewee suggested that maybe it is possible that the bonus is that employees see how they are part of company and how they can affect company's profit and innovations. Table 10 presents the summary of results of the theme "control and measurement".

Table 10. Summary of the theme "control and measurement".

Control and measurement	
Controlling	<ul style="list-style-type: none"> • The most common way to control supply management was monetary control • But in many firms have already noticed that they need also other indicators to measuring supply management
Measurement	<ul style="list-style-type: none"> • Supply management performance measuring is one of the challenging part of measuring in the organizations • Measuring is important, but no one were pleased their current indicators because the indicators does not measure the right things
Bonus system	<ul style="list-style-type: none"> • All interviewees felt challenge to develop a good scorecard on the basis of the bonus system • If they measure wrong things in scorecards it gives false message to the employees and it leads in wrong results
Total costs of supply management	<ul style="list-style-type: none"> • Only few firms can or try to measure the total costs of supply management

In summary, all firms control their supply management but the indicators of it do not serve the purpose of the measuring. Measuring supply management is one of the challenging parts of measurement in the organizations.

4.2.5. Operations and routines

The last theme in the interviews was “operations and routines”. The purpose of this theme was to find out how companies execute effective purchasing process. There were a lot of differences in effective implementation of purchasing process but the interviews showed that effective purchase process has been often executed through different, customized electronic systems.

These electronic systems were for example Intranet, SharePoint and ERP (enterprise resource planning systems). In the all firms the interviewees in strategic purchasing functions have been drawn clear purchasing process which they inform their internal customers. The effectiveness of purchasing process consists of strict compliance of this process. At least partially centralized supply management was experienced more effectiveness than completely decentralized purchasing. Category management was also one way to enhance the effectiveness of purchasing process.

In all purchasing companies the operative purchasing is manage from decentralized. That is why the importance of strategic purchasing to creating effective purchasing process was highlighted in many interviews. The strategic purchasing take care of contract writing with suppliers, all negotiations about prices, delivery times and quality, e-auctions, purchasing process descriptions which tells who do and what in each stages of the process and informing internal customers about how purchasing has to be done via training and Intranet.

The biggest companies already have carefully planned firm specific supply management systems. All purchasing process documents are in these systems. These systems help handling the process and provide the necessary reports. The smaller companies try to handle supply management

actions with simple systems and specific processes. About these systems interviewees were mentioned e-mail, Intranet and SharePoint. Those smaller companies who did not have yet specific supply management system told, that they are right now developing or they are planned to develop the system. The Intranet was used as information channel and in one company there was even direct links to the suppliers ordering websites. One company has also feedback system where customers can send feedback and comments.

Challenges that hinder the implementation of effective purchasing process vary from company to company. In one industry projects love to purchase themselves and do not necessary follow the right purchasing process. This causes a lot of challenges to effective implementation of purchasing. In another company the problems consist of challenging supplier selection process and the lacks of information systems. In that industry supply selection must do with special caution. They try to make this easier by using category management. The lack of needed information systems increased manual purchasing which is less effective than purchasing via electronic systems. These companies who do not have necessary electronic purchasing systems are trying to develop manual operative purchasing as efficient as possible. In some industries purchasing needs might come very fast when they need to purchase the product in the same day. In this case the employees have to go purchase the product to the supplier by themselves. This is not efficient way to do purchasing. In global business also distances between buyer and supplier cause challenges. According to one interviewee, many firms do not even know the current situation of their purchasing which causes many challenges about future plans of supply management.

The last question of this theme was quality control. All respondents have some kind of quality control. This controlling targeted in suppliers and companies own operations. Usually quality control of supply management function actions bases on customers' reclamations and feedbacks. All

companies follow these carefully. Some interviewees told that before ordering they define specific quality criteria for ordered products and services. This way they have some set of criteria which help to check is the purchased products and services in the right quality. It is also important to inform the suppliers about these quality criteria. Table 11 summarizes the main points of the theme “operations and routines”.

Table 11. Summary of the theme “operations and routines”.

Operations and routines	
Information systems	<ul style="list-style-type: none"> • Different, firm customized electronic systems (Intranet, SharePoint, ERP)
Order processes	<ul style="list-style-type: none"> • Clear, drawn purchasing process which they inform their internal customers • The effectiveness of purchasing process consist of strict compliance of this process
Daily routines	<ul style="list-style-type: none"> • The biggest problem to implementation of effective purchasing process is that other functions love to purchase by themselves and do not necessary follow the right purchasing process
Quality control	<ul style="list-style-type: none"> • All respondents were some kind of quality control about their suppliers and internal operations
Reporting	<ul style="list-style-type: none"> • Easier in those companies who have the firm specific information systems which provide the necessary reports

The target of all firms was to create effective purchasing and supply process. They used information systems and daily routines to supporting this target. They also drawn these processes down and inform their internal customers about these processes.

4.2.6. The interviewees definitions of supply management capability

The last question in the interviews was “what is supply management capability”. All interviewees felt that this is very difficult question. It found out

that there are no one definition which fits in every industry and company. The interviewees listed skills what supply management professional needs in their own industries. These lists might help companies to recruiting right persons in supply management function but these lists do not give specific and clear definition about supply management capability. But there were some things that came out in many interviews.

In common, the interviewees said that supply management capability is ability to see and understand the whole picture of the business. This means that supply management professional has to understand something about every business function of the company. Ability to understand how supply management function can influence firm's profit is part of supply management capability. Also know-how about total costs of purchasing is one part of supply management capability. It was said that supply management capability is a holistic understanding of company's purchasing needs which are strongly related to strategy of the company. Interviewees remind that purchasing is more commercial than technical function in companies, so purchasing professionals need commercial, not technical, education.

Besides this general business view, supply management capability includes also control of supplier relationships. Through these supplier relationships and collaboration with suppliers, company can develop its efficiency. Interviewees said that education and theoretical knowledge are good but experience is only way to achieve good control of supplier relations and knowledge of markets. So supply management capability consists of many different skills and competencies.

4.2.7. Summary of the interviews

All the interviewees emphasized the importance and status of supply management in the interviewed firms. The interview results support the

results of the literature review: because of the globalization all over the world purchasing professionals need the same supply management skills. Only “innovation” was new component of supply management capability which came up in the interviews. Finance, globalization, measurement, value deliver and teamwork were skills which did not come up on 1st round of the Delphi panel but they came out in these interviews. Table 12 presents the summary of the literature review and the Delphi panel in the level of individual skills.

Table 12. Summary of the literature review and the Delphi panel.

Summary of literature review and the Delphi panel	Literature review	Results of 1st round	Interviews				Literature review	Results of 1st round	Interviews
Professional skills				Personal skills					
Change management	X			Analytical	X	X	X		
Contract writing	X	X	X	Communication	X	X	X		
Cross-functional awareness	X	X	X	Conflict management	X				
Cultural knowledge	X	X		Creative thinking	X				
Customer focus	X	X	X	Education	X	X	X		
Decision making	X			Language skills		X	X		
Differentiation	X			Motivation	X	X			
Ethics	X	X	X	Personal traits	X	X	X		
Finance	X		X	Planning	X				
General business view	X	X	X	Problem solving	X				
Globalization	X		X	Social skills		X	X		
Innovation			X	Stress management	X	X			
Knowledge of IT and electric tools	X	X	X	Target set up		X			
Leadership / management	X	X	X	Teamwork	X		X		
Logistics	X	X		Time management	X				
Market knowledge	X	X	X						
Materials mgt. inv. JIT	X								
Measurement	X		X						
Negotiation skills	X	X	X						
Organizational skills	X	X							
Process management	X	X							
Product knowledge	X	X	X						
Production systems	X		X						
Project management	X	X	X						
Quality management	X	X	X						
Risk management	X								
Salesmanship	X	X	X						
Strategic thinking	X	X	X						
Supplier relationships	X	X	X						
Supply chain management	X								
Technical knowledge	X	X	X						
Total cost analysis	X	X	X						
Value deliver	X		X						

The interviews showed that all industries need the same kind of supply management skills. But the challenges and demands in these skills varied from one industry to another. The interviewees also spoke their concerns about the status of supply management and the level of supply management capability. However, the experts were pleased to their personnel today. These concerns touch the general level of supply management capability in Finland and future recruits' knowledge of supply management.

In the interviews were discussed extensively the themes which were planned. At the end of the interviews the experts were asked if they have something to add in these themes but they all thought that the themes were fully discussed.

4.3. Validation and prioritization of the factors of supply management capability

After careful analysis of the questionnaire and the interviews results, a group working session was organized. This session purpose was to validate and prioritize the factors of supply management capability. The experts also evaluated the level of these factors and skills in Finland. A preliminary component list and categorization were generated from the questionnaire and the interviews responses.

In the group working session the experts identify, prioritize and evaluate the level of the individual skills. Mostly this identifying was made already in the questionnaire and the interviews. In this stage was only made comparison between the literature and the opinions of the experts about individual factors. Comparison with the literature revealed that "service buying" was not mentioned, and that was added to the list. Moreover, "materials mgmt. inv. JIT" and "production systems" were removed because the experts considered them irrelevant. The second step in this session was for the expert group to

rank the skills in order of importance. And in third step the experts evaluated the level of these skills in Finland. The scale for this prioritization was from 1 to 7, where 1 was 'not important at all' and 7 were 'extremely important'. And in evaluation number 1 was 'no knowledge at all' and 7 meant 'perfect knowledge'. The gaps between the importance and the current level of knowledge are defined by using gap analysis. In gap analysis are compared the average scores of both current level and importance of each individual factor. If the gap value is negative the current level of knowledge is lower than the importance. Vice versa, if the gap value is positive the current level of knowledge is higher than the importance of the factor. Table 13 presents the results of the panel outcomes.

Table 13. The Delphi panel evaluation of the importance of critical components of supply management capability.

Professional skills listed based on the literature	Importance		Level		Gap
	Mean	St. Dev.	Mean	St. Dev.	
Total cost analysis	6,25	0,89	2,25	0,71	-4,00
Customer focus	6,13	0,83	3,88	0,83	-2,25
General business view	6,13	0,64	3,38	0,92	-2,75
Market knowledge	6,13	0,83	3,50	1,07	-2,63
Supplier relationships, networks	6,13	0,64	3,38	1,06	-2,75
Change management	5,88	1,25	3,50	0,76	-2,38
Leadership, management	5,88	0,99	2,75	1,49	-3,13
Measurement	5,88	0,83	2,75	1,16	-3,13
Negotiation	5,88	0,83	3,50	1,31	-2,38
Process management	5,88	1,25	3,38	1,41	-2,50
Service buying*	5,75	0,71	2,12	0,83	-3,63
Cross-functional awareness	5,71	1,11	2,50	0,93	-3,21
Salesmanship	5,63	0,74	2,12	0,83	-3,51
Quality Management	5,50	1,51	3,50	1,60	-2,00
Risk management	5,50	1,07	2,88	1,13	-2,62
Strategic thinking	5,50	0,76	2,38	0,74	-3,12
Computers, electronic tools	5,38	0,52	3,38	1,51	-2,00
Contract writing	5,38	1,06	4,12	0,99	-1,26
Decision making	5,38	1,30	5,00	0,76	-0,38
Finance	5,38	0,74	3,75	0,89	-1,63
Globalization	5,25	0,71	3,62	1,41	-1,63
Logistics	5,25	0,89	4,38	0,92	-0,87
Supply chain management	5,25	0,89	3,00	0,93	-2,25
Differentiation	5,13	1,13	3,25	1,04	-1,88
Value delivery	5,13	1,13	2,12	0,83	-3,01
Project management	5,00	0,76	3,88	1,46	-1,12
Technical	5,00	0,93	5,00	1,31	0
Ethics	4,88	1,46	5,00	1,20	0,12
Cultural knowledge	4,75	1,16	3,75	1,16	-1,00
Materials mgmt.inv.JIT**					
Production systems**					

Likert scale:
 In importance: 1 = not important at all, 7 = extremely important
 In level evaluation: 1 = no knowledge at all, 7 = perfect knowledge
 *Skills added based on experts opinions
 **Skills removed during the validation

The most important skills listed were related to total cost analysis, supplier relationships, market knowledge, general business knowledge and customer focus. These top skills were came up already in 1st round of the Delphi panel when the experts evaluated the five most important skills of supply management capability. In this stage of the Delphi process they also put these skills in order of importance. Figure 5 presents the Table 13 results through figures (listed alphabetically).

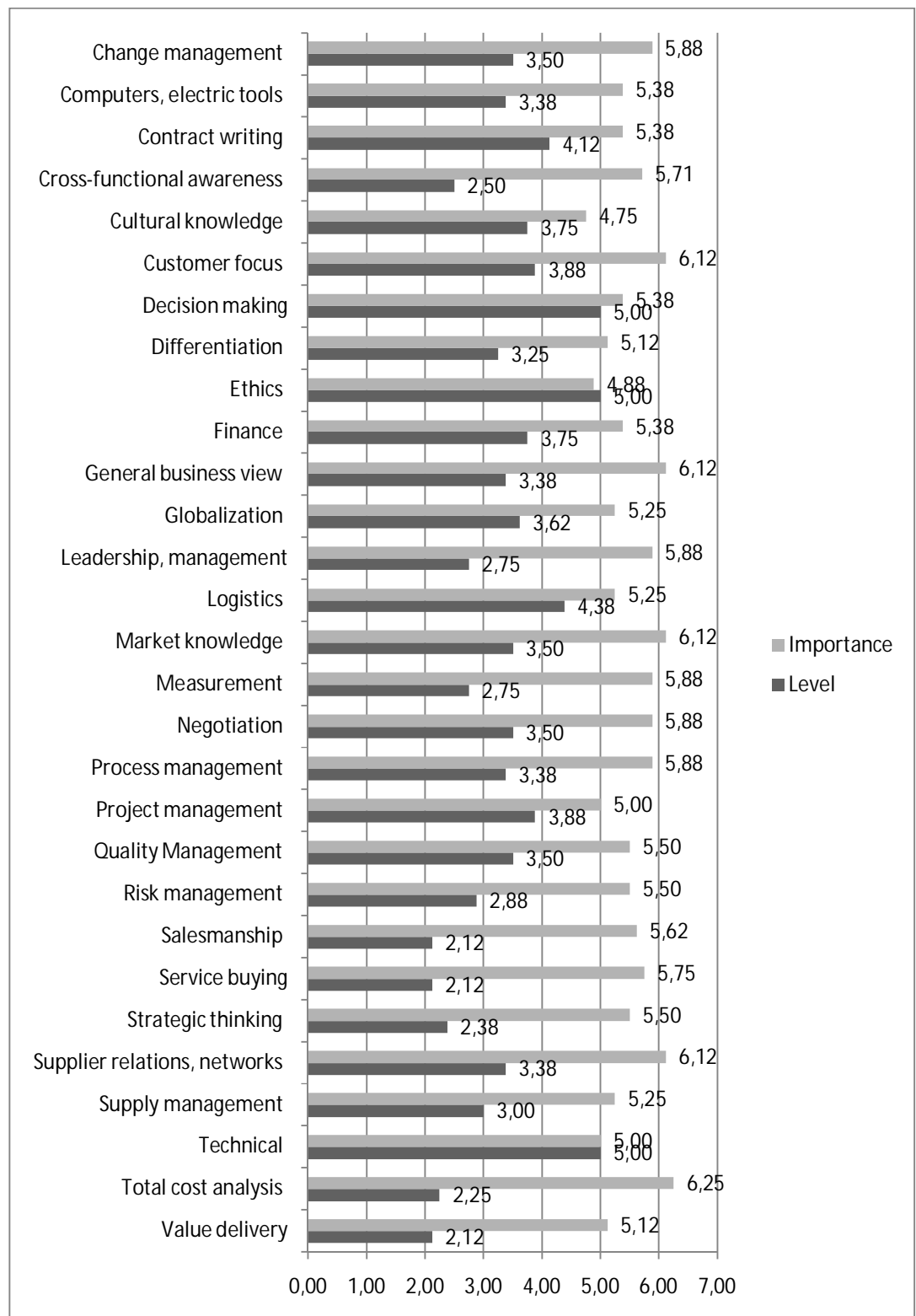


Figure 5. The findings of the Delphi panel.

All listed factors of supply management capability were experienced important. The means which describe the importance of the skills were all above five except of two skills, ethics and cultural knowledge. Evaluation about the level of knowledge of these skills revealed that only five skills were evaluated above 4 'good knowledge'. And all of these skills were belong to the lowest 12 skills when considering the importance of the skills.

The biggest gap between the importance and knowledge level was in 'total cost analysis' (importance: 6,25; level: 2,25). This was described the most important skill of the supply management capability, but the knowledge level was evaluated almost the lowest. Total cost analysis skills also came up in the interviews. It was described very challenging factor, so the gap between the importance and the knowledge level is not a big surprise. The next largest gap between the importance and knowledge level was in 'service buying' factor (importance: 5,75; level: 2,12). It was ranked place 11 in importance and the lowest place in the level of knowledge with salesmanship and value deliver factors. In this changing business environment firms use more and more money in services, so the service buying achieves more strategic role in firms all the time. 'Salesmanship' was ranked at 13th important factor (importance: 5,62; level: 2,12). However, the level of knowledge is one of the lowest. In the interviews interviewees said that purchasing professionals need salesmanship skills because they have to sell their purchase ideas to the internal and external customers. The gap between the importance and the knowledge level was large also in 'cross-functional awareness' factor (importance: 5,71; level: 2,50). In the interviews the experts said that cross-functional teams are important, but implementation of these teams is difficult. 'Leadership, management' and 'measurement' were factors which got the same gap between the importance and the knowledge level (importance: 5,88; level: 2,75). These both factors were among the ten most important factors and these came up in the interviews. The interviewees said that measuring supply management capability is very challenging and that

purchasing professionals have to learn manage also people and networks, not only products. There were large gap between the importance and the level of knowledge also in factors 'strategic thinking' (importance: 5,50; level: 2,38) and 'value delivery' (importance: 5,13; level: 2,12). These factors are the end of the importance ranking list. But they are still ranked above 5 'important'. So these are also important skills which purchasing professionals do not yet know.

'Ethics' was only factor where the level of knowledge was ranked higher than its importance (importance: 4,88; level: 5,00). 'Technical' was factor where importance and knowledge level was ranked the same (importance: 5,00; level: 5,00). Finnish manufacturing has been a pioneer in many technologies so this ranking of technical factor is not a big surprise. Finnish companies have been also paid attention various things that related to ethics, like sustainability, green supply and recycling. It must be pleasure to Finnish firms to see that they are achieved the right level of knowledge in this skill.

Competitiveness of the firm it is worrying that there are so large gaps between the importance and the level of knowledge factors. These rankings support the message by the interviews that many buyers do not have the right kind of knowledge to operate supply management in effective way. This result supports the fact that in 10 most important factors the levels of knowledge were over 2 ranks lower than the importance of the factors. Based on this ranking and the discussions with the experts, firms have to focus developing total cost analysis, general business view, supplier relationships, customer focus and measurement.

In the group working session the analysis of supply management capability was taken a one step further by asking the experts in which way firms can improve the knowledge of supply management in their organizations. In this analysis was included those five factors which need the most developing,

according to the experts. The experts said that in total cost analysis firms need to focus decreasing transaction costs and part-optimization. Firms also have to include the analysis for example finance, R&D and after sales costs. According to the experts, developing general business view education, company's size and work-projects cycling are in important role. In caring supplier relationships purchasing professionals have to know how to create supplier strategies and categorize the suppliers. Also carefully designed processes are in important role when firm are developing supplier relationship skills. Developing customer focus of supply management function the experts said that social media and highlighting this customer focus on R&D function are critical. According to the experts, the level of knowledge about customers depend a lot of the size of the company. The gap between the importance and the level of knowledge in measurement factor aroused most discussion. The experts said that there are no general models to measuring supply management capability. They remind that it is important to measure also other things than only monetary spend. In useful indicators they suggested percentage of used e-tools, contract loyalty and the degree of centralization in the firm.

This kind of gap analysis is also possible to use measuring current and future individual skills profiles. The gap analysis can form the basis for employees' personnel development and recruitment. Such gap analysis could also be extended to comparing buyer profiles with profiles of their financing or marketing counterparts, and measure adopted to maximize the alignment. (Faes et al., 2001)

It was possible from these ranking results to pool the specific skills as categories and thus identify the critical components of supply management capability. Through a creative group working session the categories for the individual skills were created (see Table 14). The focus of the analysis in this evaluation was on national-level competitiveness, although own business

areas of the experts and specific industry knowledge may have had an effect. The fifteen most important components of this evaluation, are listed in Table 14. The top five components ranked by the panel were: 1) top-management commitment to the supply strategy, 2) knowledge and control of suppliers, 3) tools and methods for supply management, 4) defining organizational responsibilities and roles, and 5) market knowledge.

Table 14. The critical components of supply management capability (1 = very low importance, 7 = very high importance; n=7)

Components of supply management capability	Mean	St. Dev
Top-management commitment to the supply strategy	6.57	0.79
Knowledge and control of suppliers'	6.29	0.49
Tools and methods for supply management	6.17	0.98
Defining the organizational responsibilities and roles	6.14	0.69
Supply market knowledge	6.14	1.46
Top-management involvement in supply management	6.00	1.00
Early supplier involvement	6.00	1.29
Cooperation within an organization	5.86	0.90
Continuous competence development	5.86	0.90
Linkage of corporate strategy with supply management	5.86	0.90
Supplier evaluation	5.86	0.90
Negotiation skills	5.86	0.90
Commitment to the performance goals	5.86	1.07
Responsible supply management	5.86	1.07
Measurement capability	5.86	1.07

The most critical component of supply management capability arise 'top-management commitment to the supply strategy'. According to the experts, effective supply management require top-management involvement and commitment in supply management and supply strategy. Like the experts already said in the interviews, controlling and developing supplier relationships are important components of supply management capability so there are many components in Table 14 which are related to suppliers. Tools and methods of supply management are important part of supply management capability. Firms demand continuous improvement of effectiveness in its' all functions. In supply management different kind of tools and methods ensure this effectiveness of supply management function. The

experts want that firms define clearly their organizational roles and responsibilities. In many firms the role of supply management is still unclear. There may be purchasing without supply management function approval or supply management function has to be solve problems which not belong to them. Supply management function can achieve competitive advantage to the firm only if it has the trust of top-management. The fifth most critical factor of supply management capability was 'market knowledge'. It is important that supply management function know the environment where firm works. In summary, it is possible to say that the most critical factors of supply management capability relate to the supplier relationships, organization internal relationships and responsibilities, and in effective implementation of supply management.

5 CONCLUSIONS

This thesis presented an extensive review of the literature on supply management and the concept of capability. The time span of the literature review was the past two decades and the literature was examined in a chronological order. After the review of literature the empirical part of the study was conducted through the Delphi panel. This chapter sums up the findings of the literature review and the empirical study. The objective of the study was to define supply management capability and the critical components which influence on it.

In the following the answer to the main research question of “What is supply management capability” will be given. To receive a better understanding of supply management capability and the critical factors related to it the three sub-research questions will be answered as well.

5.1. The main results of the study

Answer to the main research question “what is supply management capability” was found out by seeking the answers to sub-research questions first. Before it was possible to define supply management capability, it was necessary to know the factors of supply management capability. In this helps the first sub-research question:

- What factors consist of supply management capability?

In this thesis has been gathered together 48 skills which according to literature and the experts are part of supply management capability (see Tables 2, 5 and 12). However, the interviews showed that there is no one clear, generally suitable set of supply management skills which bring

competitive advantage for all firms. This is also basic argument of the resource-based view (RBV). Firms' resources and capabilities have to be different, without these differences all firms are equally good and no unique advantages based on resources does not exist. Like Hafeez et al. (2007) remind that before a capability can be a source of competitiveness, it has to be unique in the marketplace and collective in its nature. Because firms are different they have to, by their own, decide what components of supply management capability bring competitive advantage to them. This is the critical area where firms need the knowledge of supply management to can put together right unique set of skills and competencies which can guarantee the right level of supply management capability.

Even there is no possibility to define one set of skills to the every firm, some guidelines can be give based on the evaluation of the importance of supply management factors (see more careful Table 13). This is a part of discussion around the second sub-research question:

- Which supply management capability factors are critical to achieving competitive advantage to the firm?

The most important factors, according to the experts, are total cost analysis, customer focus, general business view, market knowledge and supplier relationships. In the 1990s literature Kolchin and Giunipero (1993) and Van Weele and Rozemeijer (1996) forecast, that the number of registered suppliers would decrease and that the focus would turn towards final-customer satisfaction. They also forecast greater emphasis on supply management, information society and global sourcing. Based on the Delphi panel results can be concluded that these forecasts are realized. For example according to the experts and Kolchin and Giunipero (1993), customer focus is on the second stage in the importance ranking of both decades. Moreover, according to the experts and Kolchin and Giunipero (1993) firms aim to

decrease the number of suppliers. The respondents highlighted also the status of supply management. Other functions have started to appreciate the work of supply management. Kolchin and Giunipero (1993) mention also for example change management (importance: 4,42; 6th place in ranking) and negotiation (importance: 4,43; 4th place in ranking) as top skills of the future. In the importance ranking of the Delphi panel these skills were in the shared sixth place. These forecasts have been made almost two decades ago. The information society and global sourcing are very important in today's business life, as the researchers forecast, but there were not achieved a high ranking in the importance list of the experts. The cause of this might be that today information society and globalization are components of everyday's business life and not anymore critical skills of purchasing professionals. But the globalization was still mentioned as an important external force which influences the future of supply management capability.

Even it is not possible to define one overall skill set of supply management, all firms can make by themselves an evaluation based on the lists of skills which are presented in this study. In this evaluation firm has to first think which skills are critical in their industry and after that make the evaluation of their current level of knowledge. This way firms may found out what skills they have to develop. Based on this kind of analysis firms can make a plan what training and education their employees need in the future.

It is challenging to define the critical supply management factors of the firm. And what make it even more challenging are difficulties in measuring supply management capabilities. It is almost impossible to say what the critical components are if you cannot measure their impact on firm's profit or the efficiency of supply management function. That is why the third sub-research question was:

- How firms can measure they supply management capability?

During the literature review and the Delphi process it came out that measuring of supply management capability is very challenging and still in its early stages. Supply management capability is a latent variable, and thus, difficult to measure. There are only very limited amount of literature about measuring supply management capability. Especially objective, quantitative measuring is very challenging, unless impossible, in the topic of supply management capability. The experts did not have very many indicators to present in this measuring problem. Without a good definition of supply management capability it is not possible to measure it. Price of the purchased product, number of suppliers and knowledge mapping were some mentioned indicators but the experts highlighted that these are not indicators to the objective measuring.

One way of trying to find out these necessary indicators is to think measuring of supply management capability through the factors which it is consisted of. For example, the experts ranked the total cost analysis to be the most important factor of supply management capability. So firms have to try to define their total costs. This is not easy task but it is possible because total costs are numbers. But there are many factors in supply management capability which are not easy to transfer to numbers like customer focus or market knowledge. Firms have to think how they can measure these factors. For example through customer-satisfaction questionnaires firms can get some information from performance of their supply management. Amount of new market areas might measure in some way the market knowledge of supply management but these indicators are not objective and generalized. The process and function of supply management is consisted also of routines and practices which performance is even harder to measure. This means that firms need to increase supply management knowledge for their employees. Therefore, supply management capability is one of the important areas of supply management research in the future.

Through these sub-research questions is possible to find answer to the main research question which was:

- What is supply management capability?

In the literature of supply management there are many definitions to the concept of capability but only few definitions of the concept of supply management capability. Lintukangas et al. (2010) define supply management capability as intra-organizational firm-specific knowledge and skills of purchasing professionals. The results of the Delphi panel followed Miller and Morris (1999) definition of capability which says that capability consist of people, technology, tools, processes and practices. It is possible to categorize all components of supply management capability under these topics. Guldbrandsen et al. (2009) describes capabilities as appropriate knowledge, experience and skills. The word “appropriate” reminds that every firm has to develop its own set of knowledge, experience and skills.

Hence, following the views based on RBV, the definitions of capability and the results of the Delphi panel, in this study the supply management capability is defined as organization’s overall capacity and ability to achieve a holistic understanding of purchasing needs, manage its suppliers and collaborative partners, and conduct its internal tasks, routines and responsibilities in a way that achieves desired results.

The results of this study show that Finnish firms need much more right kind of supply management knowledge. Future skills requirements should likely focus less on operative management and more on general knowledge and an understanding of globalization in business. Before this objective can realized, it is important to increase the role and status of supply management in the organizations.

5.2. Limitations and suggestions for future research

The limitation of the study is that there were only seven experts, one expert in one industry. The study has been executed through qualitative research methods. So presented results are not qualified in quantitative methods and there are no possibilities to make a direct generalization on this basis.

This thesis focused to define supply management capability. There are only limited amount of researching in the topic of supply management capability's impact on firm's profit.

Based on the results of this thesis it is possible to say that supply managers should develop new practices and adopt new perspectives in handling the interface between buyer and supplier. It is therefore essential to identify the relevant skills of specific firm and increase the supply management capability of managers to control supplier relationships to make positive impact on the firm's competitiveness. After the identifying of the relevant skills managers can exploit the list of supply management skills in their recruiting processes and in knowledge level evaluations of their current employees. However, there are still open topics which need for future research.

The capabilities identified in the literature and the empirical study could be investigated and confirmed by a larger survey. This would increase the generalizability of the findings which was the limitation in this study. The larger survey could be useful when studying the differences between industries. This information helps firms to focus for developing skills which are critical in their industry.

This thesis has focused to find out what is the current and required level of supply management knowledge in Finland. In the future this scope of the

topic is not sufficient. It is also important to research how this required level of knowledge can be achieved. It is important to research areas of education which need to develop, create real benchmarking between firms and find out which are the best practices in specific supply management areas.

This defining of supply management capability is a part of larger objective to find out the supply management capability's actual impact on firm's profit. Managers need some concrete numbers of this impact to be able to make development decisions. And when researching the supply management capability impact on firm's profit it is also important to find out how and why supply management capability increase the competitiveness of the firm. This way firms can make the right development decisions.

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APPENDIX

Appendix 1: Example of the interview questions

SHORT INTRODUCTION OF INTERVIEWEE

- the role in company
- work history

ORGANIZATION

- Describe the structure of your organization
 - What is the status of supply management function? Are you pleased for that?
- What kind of needs you have your organization structure?
- What challenges you confront because of your organization structure?
- How responsibilities are shared in your organization?
- Your supply management is it centralizes or decentralizes function?
- Do you have cross-functional teams in your organization?
- How and who supply management report?

SUPPLIER RELATIONSHIP

- What kind of needs / expectations you have from your suppliers?
- What are the challenges in your supplier relationships?
- How you take care of your supplier relationships?
- How challenging is to create trust in your supplier relationships?
- Do you have collaboration with your suppliers?
- Do you share openly information with your suppliers?

GENERAL BUSINESS KNOWLEDGE

- What kind of general business knowledge your purchasing professionals need?
- What are the challenges in supply management related to general business knowledge?
- How you ensure your employees general business knowledge?

- How you ensure understanding of customers need in supply management function?
- How important is work experience of your employees?
- How supply management knowledge of your managers influences your work?
- How you observe change trends?

CONTROL AND MEASUREMENT

- What needs your organization is to supervise supply management?
- What challenges supply management control influence in your work?
- How you supervise supply management in organization level?
- How you measure supply management performance?
 - How you measure supply management capability in your organization?
 - Do you measure total costs of supply management?
- Do you have a bonus system?

OPERATIONS AND ROUTINES

- How you implement effective supply management?
 - What operations and routines it includes?
- What challenges you face with your daily operations / routines?
- How you have solved the problems in your daily routines?
- What kind of information systems you have?
- Which are the components in your supply process?
- How you report to managers?
- Do you have quality control in supply management (department and organizational level)?

SUPPLY MANAGEMENT CAPABILITY

- How you define supply management capability?