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**DEVELOPMENT OF CATEGORY PLANNING PROCESS IN CONSTRUCTION  
BUSINESS**

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## ABSTRACT

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The aim of this thesis was to develop the category planning process in the case company operating in construction industry. As the interest in the field of research has just recently started to emerge towards the benefits of category management and planning, the theoretical background was derived from literature of subjects with a relation to category planning i.e. procurement strategy, purchasing portfolio model, information flow management and cost analysis. The background for the development of category planning process was derived from retail industry, to where the category planning is more researched. The empirical study was executed with mixed method approach: quantitative data of the categories was analyzed and qualitative data was gathered through semi-structured interview and discussions within the case company. As a result, the category planning process was critically analyzed and development proposals addressed for improving the process description. Additionally a tool was developed based on the empirical study to support the category planning process of the case company.

## TIIVISTELMÄ

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Tämän työn tarkoituksena oli kehittää kategoriasuunnitteluprosessia rakennusalalla toimivassa case yrityksessä. Koska kiinnostus kategoriasuunnittelua ja sen hyötyjä kohtaan on vasta kehittymässä tutkimuksen alalla, teoreettinen tausta tutkimukselle johdettiin kategoriasuunnitteluun yhdistettävästä kirjallisuudesta, toisin sanoen hankintastrategiasta, hankinta portfolio mallista, informaatio virran hallinnasta sekä kustannusanalyysistä. Tausta kategoriasuunnitteluprosessin kehittämiseen johdettiin vähittäiskaupan alalta, jossa kategoriasuunnittelua on laajemmin tutkittu. Empiirinen tutkimus toteutettiin yhdistämällä useita metodeja: kategorioiden kvantitatiivista dataa käytettiin analyysiin ja kvalitatiivinen data kerättiin puolistrukturoidun haastattelun sekä case yrityksessä käytyjen keskusteluiden kautta. Tutkimuksen tuloksena kategoriasuunnitteluprosessi analysoitiin kriittisesti ja kehitysehdotukset asetettiin prosessikuvauksen parantamiseksi. Empiirisen tutkimuksen perusteella case yritykselle luotiin työkalu tukemaan kategoriasuunnitteluprosessia.

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## 1. INTRODUCTION

The understanding of importance of effective procurement management and its effects to company's success has increased during the recent years. The importance of procurement management can and should be identified especially in companies that operate in construction industry. When taking a closer look to the cost structure of these companies, the procurement is playing a huge role: procurement covers typically at least 60-80 % of the total costs of the construction projects (Junnonen and Kankainen, 2012). This emphasizes the importance of effective procurement management.

It is notable that also the role of the procurement has changed during the last decades. According to Iloranta and Muhonen-Pajunen (2012) especially the changes in organizations' business environment have affected to the changing role of procurement. The key factors to the changes are constantly increasing relevance of international business, development of information technology, increased transparency in business, increasing understanding of the significance of competencies, changes in demands of the consumers and increased risks. In addition it can be stated that the relative share of procurement has increased at the same time as its complexity. The relationship with suppliers has changed from traditional arm's length relationship leading to a situation where traditional bidding does not anymore serve the business sufficient enough. These new challenges create a need for new operational models for companies to maintaining profitable and competitive. (Iloranta and Muhonen-Pajunen, 2012)

These changes have created new challenges also to construction industry, which is constantly highly influenced by existing market situation. The market situation in construction industry is continuously changing because of its sensitiveness to economic fluctuations. It is obvious that today's market situation creates pressure for construction companies to maintain competitiveness and profitability. For example, residential building is very challenging at the moment. The housing market is in

difficult phase: new houses are built but the demand of consumers is very low. It is important that companies identify profitable projects to maintain the overall business profitability.

Because of the existing market situation, the importance of procurement is emphasized. It is important to know the products and services that are bought and search profitability by concentrating to right product categories. Nowadays categorization of the products and services is identified to increase effective management of procurement (Holmström et al., 2002). Category structure and management are models that are also spread to construction industry.

As the markets are constantly changing, it is important to identify changes in customer needs and demands. Companies provide more and more overall services that combine materials and work. The customer value, cooperation with suppliers, quality and sustainability are aspects that have become important not only when thinking just the procurement process itself but also the effects to the cost structure of procurement (Van Weele, 2005). Construction industries need to meet increasingly stricken demands for significant changes and improvements concerning productivity, radical reductions of accidents, defects in the end results and disputes (Kumaraswamy and Dulaimi, 2001).

As the industry is highly influenced by stricken demands, and facing the economic changes, the importance of effective procurement has increased. When procurement is managed in category structure, the possibilities to analyze and identify different kind of cost structures increase. Category management can offer specific data about purchases, cost structures, possible potential for savings or other improvements and also information about suppliers which is beneficial for supplier management and development.

However, it is not solely the category structure itself that offers this kind of important information - it needs systematic planning. With category planning it is possible to identify and analyze critical categories and move resources to ones which are seen

strategically and financially important. Naturally, it requires specific information of the categories from the item level. In construction industry, companies can identify saving potential and actually improve category management with systematic and well developed category planning.

Category management is tightly related to portfolio management and analysis. Though, the category management itself is generally identified and applied way of management, the category planning process is mainly studied in retail industry. As the category planning is tightly dependent on industry specific and inter-organizational factors, it might be even impossible to apply directly models that are used in other industries. The meaning of this thesis is to develop a systematic tool or operational model to enhance and facilitate category planning in a case company used in the thesis. Since there is not much theoretical literature available about the subject, the information of the case company and experience of writer, is leveraged comprehensively to support the theoretical background of this thesis.

## **1.1 Research objectives**

The objective of this thesis is to study the possibilities to develop category planning in case company. The aim is to create a category planning tool that can improve and standardize the category planning process. To create this kind of a tool it is important to identify the similarities and differences in the categories and additionally, how the importance of different categories can vary depending on the unit or region. As an example, when taking civil and residential building to closer look it is obvious that there might occur differences between the needs in the units and categories.

The purpose is to develop a tool that is easy and simple to use. One of the major challenges in the development of the tool is the lack of literature and studies concerning category planning development. However, it is quite understandable that general models are not been developed as category planning can be seen highly organization specific process. Though, the planning processes may include similarities and same phases, but the content differs based on internal and external

operational environment where the company is operating. Additionally, business strategies and objectives naturally vary by company. To gain this kind of large scale knowledge and data to support the development, it is important to collect specific data at the category level in different units. With this kind of knowledge it can be possible to create and define criteria for category planning.

In the light of existing literature it can be stated that research concerning category planning in construction industry is inadequate. To support and establish valid conclusions, the existing scientific literature and empirical examples will be exploited comprehensively to reach the imposed objectives.

## **1.2 Research scope**

This thesis focuses to construction industry and concentrates to the case company. The research results may not be possible to be generalized to a wider scope. The focus of the thesis is in identifying the factors and features that are influencing in the development of a systematic tool for the category planning process. As construction industry can be identified to be a complex environment –externally and also internally- it is important to identify the meaningful factors, parties and relationships which are essential for successful category planning.

To limit the scope of the subject, the research is made from procurement's perspective. In this context the external environment includes also other units and operations of the company. The construction sites and other operative level functions can be defined as procurement's customers. The main task of procurement is to serve their customers, construction sites and projects, support and offer different solutions with the procurement knowledge and by preparing good agreements to satisfy the needs of the projects. Moreover, procurement must operate according to the business level strategies towards the goals of the whole business.

### **1.3 Research questions and problems**

By concentrating to critical or potential categories the case company can identify saving potential and gain specific knowledge of their purchases. The case company has invested in category planning already with category team work, which has proved to be an effective way to identify specific information about different categories and develop category management. However, the company has not developed one simple way for category planning. As the aim and objective of this thesis is to develop a tool for category planning, the following research questions have been addressed:

- How to develop category planning process in a project based construction company?
  - What are the essential factors and processes in category planning?
  - What kind of benefits can be achieved with category planning tool?
  - What is needed for implementation of the category plans?
  - What challenges are related to the implementation of the model?

Through these questions category management and planning is discussed in this thesis. The questions will be answered through empirical study. The study and findings will be presented and discussed in empirical study chapter and further in the conclusions.

### **1.4 The Structure of the Study**

The empirical perspective will strongly feature this thesis, also in the theoretical parts. As the subject is not extensively studied, especially in the frame of construction industry, theories and studies from different industry areas are utilized for creating theoretical background for the study.

The theoretical part of the thesis is characterized by the different levels of category management. Different perspectives and responsibilities are discussed through the theoretical background. As category management and planning are seen as a result of strategic decisions made in corporate, business and procurement strategy level, these aspects are highlighted through the thesis. By presenting different perspectives to procurement strategy and category management it is possible to create an overall understanding of the status of procurement and identify the objectives and requirements that need to be considered in category planning.

The theoretical part consists of three different levels identified in the category planning presented in Table 1.

Table 1. The theoretical structure of the thesis

1) Strategic level	<ul style="list-style-type: none"> <li>• Procurement strategy: policies, strategies and targets</li> <li>• Information flow management as a part of procurement strategy</li> <li>• Category management and purchasing portfolio model</li> <li>• Operational environment, markets</li> </ul>
2) Category Management Process	<ul style="list-style-type: none"> <li>• Defining the category</li> <li>• The role of the category</li> <li>• Evaluation and analyses of the category</li> <li>• Setting the targets for the category</li> <li>• Establishing the category strategy</li> <li>• Establishing the category tactics</li> <li>• Guidelines and instructions</li> </ul>
3) Implementation level	<ul style="list-style-type: none"> <li>• Applying the instructions and guidelines</li> <li>• Adopting the common objectives and instructions</li> <li>• Individual competence and motivation</li> </ul>

In the first section the focus is on procurement strategy and defining the guidelines to which way the category planning should be developed i.e. which factors are defining the overall procurement objectives that must be taken into account also in category management and planning. In addition to only presenting procurement strategy, it is important to bring up the importance of information management and sharing as a way to implement the strategies to the company.

Category management is discussed more profound in the second part of the theoretical background. Purchasing portfolio model (PPM) is discussed as a background for categorization and classification of overall category management. Different categorizing methods are presented based on PPM and possible benefits and challenges are brought up.

The third section concentrates to the actual category planning and to the planning process. In this section the purpose is to combine the procurement strategy and category management to category planning. The benefits and challenges in category planning will be discussed. In addition, the influence of the information sharing through the organization will be analyzed. After that, the purpose is to study, what kind of value can be achieved with category planning and how this value can be captured to the organization.

After introducing the valid theoretical background for the study, the research methodology will be presented starting with defining the research design and continuing with data collection and analysis. After this, the validity and reliability of the study will be evaluated. The results of the research will be presented and critically evaluated in the seventh chapter.

## 1.5 Literature review

There exists a clear gap in category planning research in the field of procurement. However, some research is still done (Timonen, 2001; Holmström, Främling, Kaipia and Saranen, 2002; Kaipia, 2009; Kaipia and Tanskanen, 2003; Kaipia and Holmsrtöm, 2007): the publications and studies concerning directly category management concentrates however mainly on retail industry. Holmström et al. (2002) have for example presented category management as a systematic strategy for maximizing profitability, improving the value for customer. As the literature of category planning is limited, supporting studies was searched relating to category management and purchasing portfolio management – especially concentrating to the features of construction industry.

Category management has nonetheless generated significant interest and activity in retail industry since 1990's (Dhar, 2001). As a field of study, the subject is quite novel, which explains the scarcity of existing research. Category management is a strategic decision to manage procurement. It involves both front-end activities to enhance the demand in category and back-door activities to improve the whole supply management and logistics coordination with suppliers (Dhar, 2001).

Overall business strategy creates guidelines for procurement strategies which are executed at category level. Business and procurement strategies are topics that have been discussed in a large scope in the literature; differing perspectives to strategy development and implementation have evolved through time. The focus of the perspectives differs from one's view of capacity and individual and organizational motives (Cheah & Garvin, 2004; Whittington, 2001). It is however noteworthy to bring out that the mainstream strategic studies have not typically considered construction industry.

The construction industry has often downplayed the significance of strategy. (Cheah & Garvin, 2004) Later the number of publications regarding strategic management in construction industry has increased. Warszawski (1996) outlined a methodological

procedure for strategic planning for construction companies, discussing about mission, effects on the business environment and resource analysis. His procedure of competitive strategy was mainly based on Porter's (1980) strategy model.

Purchasing portfolio analysis is generally identified and widely leveraged approach to classify procurement and designing strategies for different categories in many industry areas (Bruch and Bellgran, 2014). Portfolio approach is originally suggested by Krajlic (1988). The original interest of the portfolio analysis was to classify the items according to the importance of purchased items and the complexity of the supply markets (Krajlic, 1983; Ellram and Olsen, 1997). Latterly, the portfolio analysis has been leveraged and developed by many authors and researchers from varying perspectives (Dubois and Pedersen, 2002; Gelderman and Semeijn, 2006; Gelderman and Van Weele, 2003; Wagner and Johnson, 2004).

## **1.6 Research framework and key concepts**

The research framework is structured based on the idea on how information flows through the organization. As the category planning is mainly about the specific product level knowledge and analyzing the effects on business success, it is essential to open the structure of the planning.

The framework presented in figure 1 is divided to five different divisions based on the phase of the planning process and organizational factors that has an influence on the category planning. The first division consists of the targets and strategies. The first factor is the industry and company specific limitations that create an overall scope for the study. When moving further down, the next inputs to the planning become from the overall business strategy and at more specific level from the procurement strategy which influences category management. The targets and strategies are seen as a guideline and support for the direction of the actual category planning.

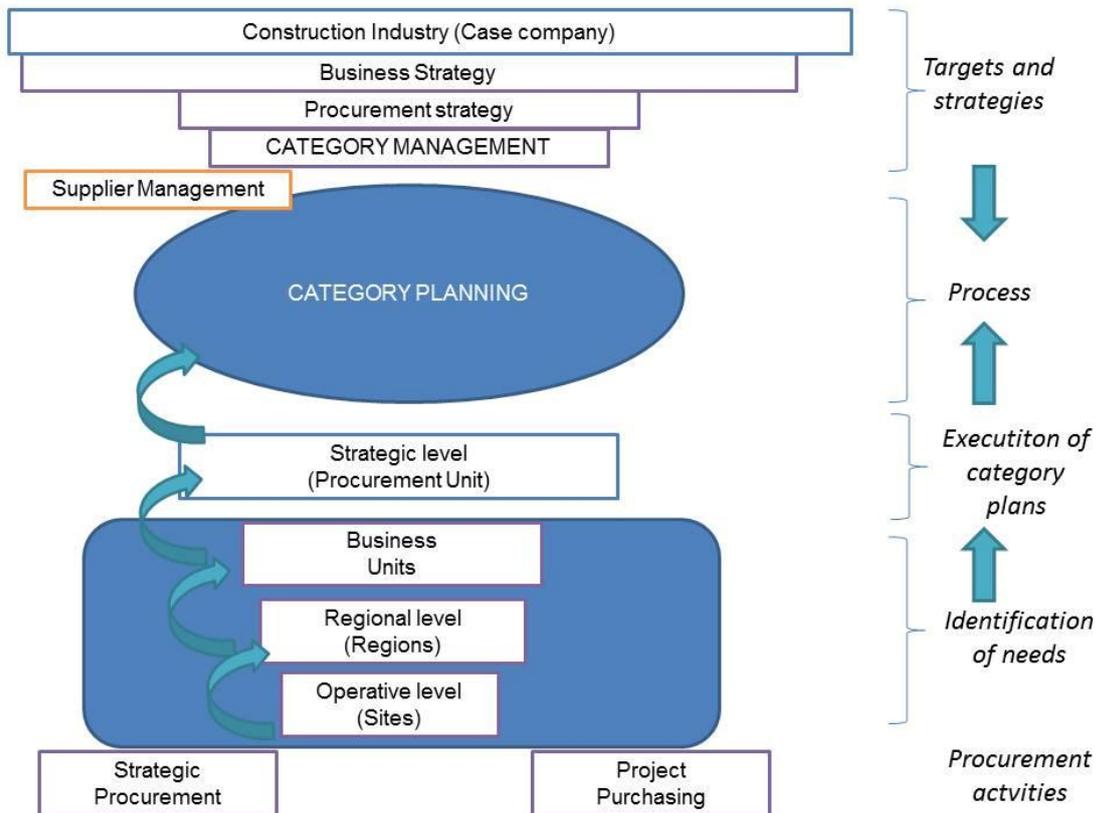


Figure 1. Research framework

The lower level divisions are formed from the actual procurement activities, which presents two different ways of making the actual procurement. Strategic procurement includes the centralized procurement activities and development of critical supplier relationships. The project purchasing includes project specific procurement and also the purchases made at the site. The identification of the needs is part of the category planning. It is important to highlight the direction of the information flow when the needs are specified. The needs of different categories lay at the bottom at the sites and in different regions. The information flow of the needs should move from sites to regional level and from there to procurement unit to category managers who execute the category plans. The role of each functional level is worth for attention in the category planning. As noted, the procurement unit executes the planning process i.e. analyzes the existing data about categories and makes decisions based on the available information and data. In the following the key concepts of this thesis explained and defined in the light of the subject.

**Procurement and purchasing** are both definitions for the buying processes. It is important to identify and define the differences of the meaning of these two concepts. According to Waters (2009), when speaking about purchasing the focus is on the function that makes the operational buying. Procurement is seen in a wider perspective. It consists of the related activities to get materials and/ or services from supplier into the organization, for example selecting suppliers and other activities that support the operational purchasing. (Waters, 2009, 304; Iloranta & Pajunen-Muhonen, 2012) Lysons and Gillingham (2003) for example defines the purpose of procurement to obtain materials of the right quality in the right quantity from the right source delivered to the right place at the right price. Van Weele (2005) defines purchasing as a management of external supply of goods, services and capabilities for maintaining, managing and securing the company's core and support activities at most favorable conditions.

Procurement **category** is defined in the thesis as a homogenous group of material and/ or work and/or subcontracting. **Category management** is defined to be a coordinated management of different categories: to control, develop and plan strategies for different categories and to identify their roles in overall business success and profitability (Timonen, 2001). **Category planning process** is defined as a periodic review and an assortment of decisions made for identifying the critical categories within category management aiming to increase effectiveness and efficiency in category management (Timonen, 2001; Kaipia and Holmström, 2007).

**Purchasing portfolio model** is a tool that combines two or more dimensions to a certain category. The categorization can include supplier level classifications, or classifications that are concentrated on purchasing and products. In this thesis, portfolio analysis is defined as a tool for analyzing the product segments to find out the existing potential for improvements, savings and better ways to manage these categories. Though supplier management is very tightly included in portfolio analysis and category management, it is limited out from the scope of this thesis. Portfolio analysis is seen as a background for category management among procurement

strategy. (Krajlic, 1983; Gelderman and Van Weele, 2003; Van Weele, 2005; Olsen and Ellram, 1997)

## **2. CREATION OF BACKGROUND FOR CATEGORY PLANNING**

In this section the focus is on themes concerning strategies, targets and policies in business concept. Procurement strategies are presented from strategic point of view. As the implementation of new strategies can create some resistance inside a company, the management of the strategies is discussed in the light of force field analysis which is a framework for identifying driving and restraining forces that affects to changing operational environments.

Category management is a strategic decision to manage procurement, costs, supplier base and naturally the product and service portfolios. Portfolio analysis is generally known tool for product categorization and it will also be leveraged in this thesis as a basis for category management and planning.

### **2.1 Procurement strategy**

Procurement strategy plays a significant role in category management. When the business strategy gives the guidelines to procurement strategy, the procurement strategy defines the baseline for category management. The importance of aligning business and purchasing strategies has been underlined among existing research. (Luzzini et al., 2012) Though, procurement strategy is closely related to category management and planning, it is presented just briefly to keep the focus on category planning process itself.

In general, procurement strategy includes decisions concerning procurement behavior. The most general issues related to the procurement strategy are presented in Table 2.

Table 2. Decisions related to procurement strategy (Van Weele, 2005)

Decisions related to procurement strategy
1. Make- or- buy decisions (MoB)
2. Supplier base
3. The structure of procurement organization
4. Cost Management
5. Global or national procurement
6. Standards and quality certificates
7. Logistics

As presented in the chapter 1, procurement covers 60-80% of the projects' total costs in construction industry. Based on this, MoB- decision may not need further attention: it is clear that the construction companies are utilizing mainly outsourcing. Otherwise, the concentration to the key competences would be even impossible. On the contrary, the rest six decisions are more than interesting regarding construction procurement. As the supplier base is very extensive, its management is seen at the top of the importance order in procurement strategy. Relevant questions for the category management related to supplier base are concerning the amount of suppliers, the nature of the relationship and importantly what is the competence that is wanted from the supplier and further, how it could be utilized more effectively.

### 2.1.1 Procurement strategies: centralization vs. decentralization

Procurement can be organized centralized or decentralized. Nowadays centralized procurement is generally highlighted. It is seen that with centralized procurement is possible to increase cost saving potential. It has been actually identified that the large-scale construction companies exploits centralization, especially with the bulk material procurement. (Wu and Lin, 2012) Centralization increase the scale of economies and negotiation power for contracting, which can lead to better offers and even to gaining cost savings. Also standardization of procurement in wider scope is

possible when the volumes are centralized. Centralization is often linked to increasing efficiency and cost effectivity of a procurement organization. As the procurement organization is working centralized, the need for education of the procurement people increases and the role of competencies is emphasized. As a result, differentiation comes possible. Additionally, management, measurement and rewarding of the procurement organization become easier. (Wu and Lin, 2012; Iloranta and Muhonen-Pajunen, 2012; Van Weele, 2005)

Though there are a lot of benefits in centralized procurement, it is notable to identify also possible disadvantages. One of the possible disadvantages is related to the decision making processes of the units. Centralization may limit the decision making in strategically important issues (Vagstad, 2000). Strategic targets and requirements might be disregarded also in case of the standardization. When concerning the relationship of procurement unit to other organizational units and communication, the interaction to other functional units become weaker compared to decentralization of the procurement and the focus of the procurement organization narrows. Centralization can cause resistance in units, when the distance of procurement organization is large to the ones executing operational purchasing and using the products and services. (Iloranta and Muhonen-Pajunen, 2012)

As centralized procurement has its benefits and disadvantages, so does decentralization. The delimited decision making by the rules of business concept is defined to be a benefit of decentralized procurement, which is followed by direct profit (Vagstad, 2000). Interaction between suppliers and the users of the products and services is direct. Also suppliers can be better utilized in product development. Reporting is simpler than in centralized procurement because of reduced bureaucracy and need for coordination (Van Weele, 2005; Iloranta and Muhonen-Pajunen, 2012).

In accordance to Lee et al. (2014) the structure of the procurement organization determines comprehensively the procurement activities. The roles of the procurement personnel must be defined accurate enough. Well-structured and defined

organization is naturally more effective than fragmented and unclear. When the responsibilities are assigned clearly, the effectiveness of the procurement organization clearly improves as the waste of the time related to responsibility matters is minimized.

When procurement is decentralized, it leads to fragmentation of purchasing volumes which is followed by decreasing negotiation power. Standardization of the procurement is challenging and leads typically to fragmentation concerning contracts, terms and conditions and prices in different business units. It creates difficulties to understand the total costs of procurement at corporate and business level (Vagstad, 2000). Difficulties arise also in development of competencies, if there is no standard way of working. It can be seen additionally that the emphasis of procurement is on local suppliers and the potential possibilities of international procurement are more difficult to utilize. (Van Weele, 2005)

Regarding to cost management, the control over the costs is highly important. Olsen and Ellram (1997) outline that without comprehensive knowledge and understanding of the cost structure, it is difficult to create targets for cost management and identify possible saving potential. As the international procurement is seen as a huge opportunity to increase saving potential, the question concerning the locality of procurement is tightly related to cost management as well as decisions concerning the supply base.

However, when taking a category perspective, the strategies may vary significantly across different categories. For that reason the strategic alignment requires also considering the category specific features. By leveraging differentiated strategies to different categories, the possibility to exploit available optimization opportunities in procurement increase (Wagner and Johnson, 2004; Olsen and Ellram, 1997; Dubois and Pedersen, 2002; Luzzini et al. 2012).

## **2.2 Purchasing portfolio analysis as a baseline for category management**

The portfolio model can be defined to be a major part of the basis of the category management – its purpose is to identify and categorize the products and product groups based on their importance to business and create categories and give guidelines for managing them more effectively and efficiently. The categories are then applied in differentiating strategies based on the role of the category. By categorizing the products and services it is easier to allocate resources and communication effectively (Olsen and Ellram, 1997). It has actually been stated that a portfolio approach can make the difference between an unconfused, ineffective procurement organization and a focused, effective one (Hadelier and Evans, 1994). That is seen also as a driving force for increasing organization's procurement maturity. Portfolio analysis has been leveraged also in researches that study procurement maturity (Gelderman and Van Weele, 2005), which can be considered to be actually one prioritization criteria in category planning. (Vos, 2013) In addition to increasing procurement maturity, leveraging a portfolio analysis have been studied to increase the possibility to improve competitiveness (Bruch and Bellgran, 2014).

Nowadays, the focus easily directed to external environment, especially to suppliers. Development of relationships and operations related to suppliers is naturally one of the key focus areas in today's business, but this kind of behavior may lead to a situation, where the procuring company doesn't identify the need to develop its own, internal operations. According to Lee et al. (2014) portfolio structured procurement has a significant impact on risk allocation and additionally it influences decisions in subsequent supply chain management. For example a long-term contract with a fixed price can shift more risk and responsibility to the contractor than a short-term contract with fluctuating price. The uncertainty is a relevant categorization factor and very existing in construction industry.

### 2.2.1 Krajllic's matrix and different category strategies

In the following the Krajllic's (1983) matrix is introduced in more specific quadrant by quadrant. The model can be exploited in category planning process to analyze the features of categories and to identify possibilities to develop category strategies and improve the whole category management process. As introduced earlier in chapter 1, Krajllic's approach is resulted to a 2 x 2 matrix that classifies the purchases based on profit impact and supply risk of the procurement items into four different categories. The Krajllic's matrix is illustrated in figure 2. (Gelderman and Van Weele, 2005)

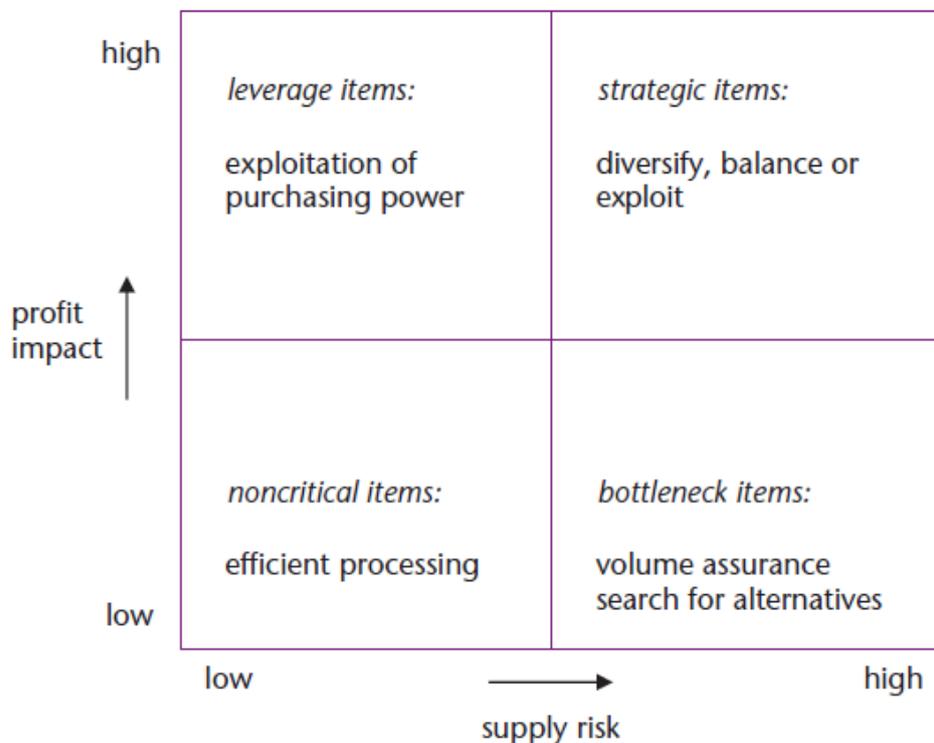


Figure 2. The Krajllic matrix with categories and recommendations (Gelderman and Van Weele, 2005)

The proposed recommendations of Krajllic (1983) are constructed on the basis of the differing features of each category. Each of these four categories allow differentiated strategies to category and supplier management based on the main idea of Krajllic to minimize the supply risk and increase the purchasing power (Gelderman and Van Weele, 2005). Though, the procurement is moving towards integration, dividing the

procurement into categories gives a good basis to develop the purchasing portfolio model in more industry and/or company specific level. The features of categories in portfolio model are introduced briefly in the following (Gelderman and Van Weele, 2005; Gelderman and Van Weele, 2003):

- 1) **Leverage items:** The leveraged item category allows the procuring company to exploit its purchasing power most effectively as the supply risk is low regarding the items in the category. Within this category a company can gain benefits through tendering, target pricing and for example product substitution.
- 2) **Noncritical items:** The items in this category are routine products with low business value for the company. The frequency of the orders is high leading to increasing transaction costs without standardized operation models. Because of these features the strategies of this category are aiming at reducing the transactional costs through category management with developing functional electronic procurement system, hereafter e-procurement, solutions to increase the efficiency of the procurement process.
- 3) **Bottleneck items:** This category can cause significant problems and risks related to the supply chain and availability of the needed item. These occurring risks and problems can be dealt by ensuring the volumes and actively searching for alternative suppliers and/ or new substituting solutions for the items in the category.
- 4) **Strategic items:** As the items in strategic category have both high impact on profit and high risk in supply field, the category requires more collaborative strategies between the procuring company and supplier to balance, diversify or to exploit the possible collaboration with the suppliers.

### **2.2.2 Challenges and benefits of purchasing portfolio models**

The purchasing portfolio model has had a lot of attention among researchers and has been modified and studied from various different perspectives (Bensaou, 1999; Nellore and Soderqvist, 2000; Gelderman and Van Weele, 2005; Olsen and Ellram, 1997). Olsen's and Ellram's (1997) dimensions included the difficulty of the purchasing situation and strategic importance of the purchasing. In contrast to other models, the rationale of Olsen's and Ellram's (1997) dimensions was experience-based. They divided the difficulty of purchasing situation into product characteristics, supply characteristics and environmental characteristics. On the other hand, the strategic importance of the purchasing on the other hand depends on competence factors like the existing experience about the purchases, economic factors and image factors. Nonetheless, other models have been developed on basis of the Krajjic's approach; it thereafter became a predominant approach and basis of procurement strategy for companies across several industries (Gelderman and Van Weele, 2003).

As the model has been modified by several authors, it has received lot of critique and support concerning the functionality of the model. Arguments related to the challenges and on the other hand to benefits are pulled together by Gelderman and Van Weele (2003). Before presenting the managerial implications of the model, it is seen valid to identify the strengths and weaknesses of the purchasing portfolio model. The critiques and supporting arguments for the model are gathered to the following table 3 (Table 3) based on the study made by Gelderman and Van Weele (2003):

Table 3. Critiques and support for purchasing portfolio models (Adapted from Gelderman and Van Weele, 2005)

Critiques	Author	Support	Author
Difficulty to choose classification variables	Nellore and Soderqvist (2000)	Possibility to decrease limitations of other analytic tools	Hartmann et al. (2001)
Lack of the supplier's perspective	Homburg (1995); Dubois and Pedersen (2002)	Improvement of resource allocation	Olsen and Ellram (1997)
Difficulty to operationalize and measure dimensions	Ramsay (1996); Olsen and Ellram (1997)	Coordination of sourcing strategies increases across business units resulting in leverage and synergy	Carter (1997); Gelderman and Van Weele (2002)
Difficulty to define the "high" and "low"/ the boundary between them	Homburg (1995)	Possibility to differentiate purchasing strategies for differing categories	Hadeler and Evans (1994); Cox (1997); Lilliecreutz and Ydreskog (1999); Gelderman and Van Weele (2002)
Excessiveness in simplicity to define the strategies	Dubois and Pedersen (2002)	Paying attention to interdependencies and trade-offs across supply relationships	Wagner and Johnson (2004)
The independency of resulting strategies	Coate (1983); Olsen and Ellram (1997); Ritter (2000)	Increase of strategic role of purchasing	Carter (1997)
Lack of proactive thinking regarding negotiation power distribution	Cox (1997)		

The introduced challenges and benefits can be quite easily linked to practical category management. The presented supporting arguments highlight the improvements concerning resource allocations as the knowledge of different categories increases through the analysis (Olsen and Ellram, 1997). It is also found that by portfolio analysis, the coordination of sourcing strategies can be improved across different business units (Carter, 1997; Gelderman and Van Weele, 2002). The previous statement can be related to increasing need for information sharing across separate units for gathering comprehensive and valid information to support the categorization. As the knowledge of the features of different categories increases, also the possibility to exploit the differentiation in developing the specified procurement strategies for different categories increases (Hadelier and Evans, 1994; Cox, 1997; Lilliecreutz and Ydreskog, 1999; Gelderman and Van Weele, 2002). As a result of the increasing attention to procurement gained through portfolio analysis, it is evident that procurement shall increase its role as a strategic function in organizations (Carter, 1997).

In addition to the benefits of portfolio model, it is valid to identify also its weaknesses. The difficulty to choose the classification variables is probably one of the major challenges (Nellore and Soderqvist, 2000). As the selection of the right classification variables should be tightly linked to specific features of a company's strategy, it is quite obvious that the model cannot offer fully completed selection criteria that would suit to any company. Another challenge is the question of how to know where to draw the line between the high and low boundaries in the matrix and what is the zero point where the categories should be compared to (Homburg, 1995). The third highlighted challenge is the difficulty to operationalize and measure the dimensions (Ramsay, 1996; Olsen and Ellram, 1997). Gelderman and Van Weele (2003) point out that though there are many publications made about purchasing portfolio models: the focus of the researchers has been on identifying problems and unanswered questions instead of describing how these problems and challenges could be solved. The filling of the matrix should be seen as a starting point for further portfolio analysis and planning, not a finishing point. To benefit and exploit the information offered by

the model, overall business strategy, supply markets and additionally the capacity of the suppliers should always be included in the analysis. (Gelderman and Van Weele, 2003)

### **2.2.3 Managerial implications of the different category strategies**

The previously presented item categories are generally identified and known, not only in the frame of academic research broadly also in practice. Gelderman and Van Weele (2003) studied the portfolio models by case studies to find answers to unanswered questions related to the purchasing portfolio model. The case studies revealed that companies are aware of the choices related to each category dimension. According to Gelderman and Van Weele (2003) companies have two different strategic directions on how to operate within the different categories: firstly actions to maintain the same position in the matrix, and secondly actions to pursue other positions in the matrix. (Gelderman and Van Weele, 2003) It has been stated that the companies that are holding on the current positions are taking the circumstances for granted. Based on the observations made by Gelderman and Van Weele (2003) companies accept the positioning in the matrix for different reasons – relating to either positive or negative choices. For determining that a position is definitely the best solution for certain items or, on the other hand, it is possible that a company accept the position since other realistic options do not exist and possibility as change is seen impossible. Consequently, the first type of the strategic directions, moving to another position, includes more radical features: possibilities are identified and pursued as the circumstances are desirable. (Gelderman and Van Weele, 2003) These strategic directions, “moving to another position” and “holding position” are subsequently added on the matrix and presented with the possibilities identified in each quadrant in the figure 3 (Gelderman and Van Weele, 2003).

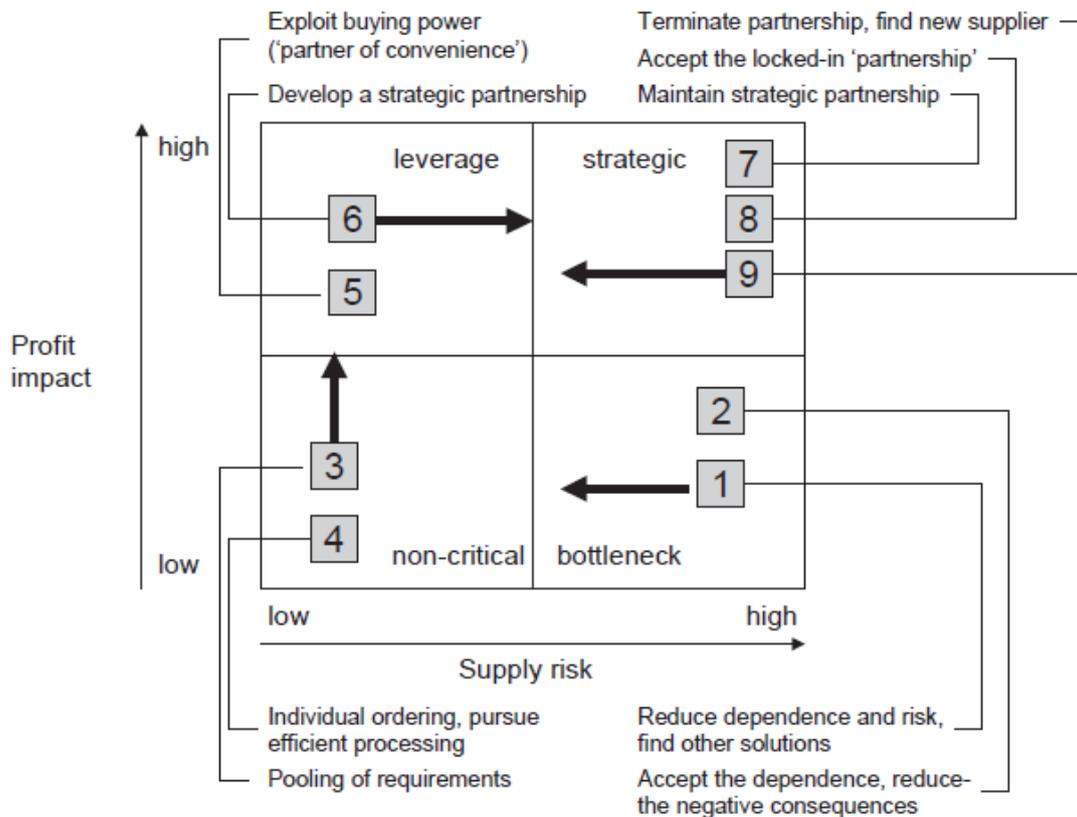


Figure 3. The strategic directions for the categories in Kraijlic's matrix (Gelderman and Van Weele, 2003)

From the figure 3 can be seen the possible directions for each category defined by Gelderman and Van Weele (2003). Generally, the movement concerning strategic and bottleneck items emphasizes reducing supply risk and with the noncritical items the movement pursues increase of purchasing power and finally the leverage position can be exchanged to strategic position. However, it must be noted that it is not only depending on the conscious decisions made by the company: changes in external environment may lead to a situation, where the movement of a category is forced by changes occurring in the markets or in supplier field of the company. The strategic directions are introduced and explained in the following in more specific starting with bottleneck items.

- **Bottleneck items:**

- 1) The movement to another position towards noncritical category requires actions to broadening the specifications of the products included in the category and searching for new solutions or substitutes for example from new suppliers. As the bottleneck items include high risks and low value, it would be economically rational to aim for finding new alternative solutions to replace the current product or supplier depending on the situation. It is not only option to search totally new solutions. Other option is to improve the existing supplier relationship through development operations for lowering the level of risk and dependency on a supplier. By increasing the availability of the products and through development of current supplier or by finding new solutions a company is able to move categories to the noncritical dimension. (Gelderman and Van Weele, 2003)
- 2) Holding on the current position of a category, in case of bottleneck items, usually can be considered to be a sign that no other options are available and the procuring company must accept its dependency on a supplier. According to Gelderman and Van Weele (2003), this kind of bottleneck situations are usually responded by combining contingency planning and risk analysis leading to long-term contracting to assure the supply and quality. (Gelderman and Van Weele, 2003)

- **Noncritical items:**

- 3) The movement towards leverage item category is achieved by “pooling of requirements”, in other words, by combining the quantities of the noncritical items for increasing the purchasing power of the procuring company. The pooling strategy can be executed through product standardization process. As the volumes are combined, it is possible to exploit framework agreements and e-procurement systems leading to decrease of both direct and indirect purchasing costs as the transaction

costs decreases through standardization. (Gelderman and Van Weele, 2003)

- 4) When the pooling of the requirements is not a possible, the remaining option is individual ordering of the noncritical items. The strategy in the situation should aim to decrease the indirect purchasing costs through efficient processing of the procurement of the items, as the individual ordering evidently increases costs related to ordering, invoicing and other administrative activities. (Gelderman and Van Weele, 2003)

- **Leverage items:**

- 5) Holding the position in leverage item category is generally preferred position for the products and suppliers (Gelderman and Van Weele, 2003). The position can be maintained by exploiting purchasing power and keeping the partnership with suppliers at convenient level which means in this context a situation where the cooperation and the development activities are made with the suppliers, but without a dependency on the supplier. The position of high purchasing power can be exploited with aggressive supplier management through competitive biddings and short-term contracts. (Gelderman and Van Weele, 2003) As critics, the transaction costs that follows the administrative activities resulting from short-term contracting should be taken into account and evaluated critically, also in that case the procuring company has the dominant power over the supplier.
- 6) By developing a strategic partnership with a supplier, movement from the leverage item category to strategic item occurs. This can be seen to be related to increasing amount of dependency on the supplier from the side of the procuring company resulting in a loss of the dominant power position. This kind of collaborative strategy is profitably pursued only if the involved supplier has common interests and sufficient capability to

contribute the competitive advantage of the procuring company. A strategic partnership is attainable for development oriented suppliers that are driving innovations in their operations. (Gelderman and Van Weele, 2003)

- **Strategic items:**

- 7) According to Gelderman and Van Weele (2003), maintaining the position within strategic item quadrant has two different alternatives. The first alternative is that the company is willing to maintain the strategic partnership. It is rational and beneficial to the company to build a long-term strategic partnership with its key suppliers, if they are genuinely contributing the competitive advantage of the company. As it is generally identified, these kind relationships basis on mutual trust and commitment, and on transparent exchange of information. However, as Gelderman and Van Weele (2003) found in their study, genuinely strategic partnership relationships are rare in practical business environments. (Gelderman and Van Weele, 2003).

Most commonly, holding on the position is result of accepting a “locked-in” partnership. This kind of situation might be caused by a patent and monopolistic position or for example high switching costs of supplier. These kinds of circumstances obviously cause an involuntary holding position at the quadrant. (Gelderman and Van Weele, 2003)

- 8) Moving from the strategic quadrant can be executed by terminating a partnership and by finding new alternative suppliers. In accordance to Gelderman and Van Weele (2003), if the performance does not contribute the desired stage of increasing competitive advantage of the procuring company, to maintain the desired performance level, the procuring company may be forced to find another options i.e. search new possible suppliers and start developing the relationship from the beginning.

## **2.3 Information flow management**

Construction industry is defined to be a “slow-learning” industry. On the other hand, it is too “fast-moving” to take time to learn from past or present projects (Kumaraswamy and Dulaimi, 2001). Needs and situations are changing rapidly which create challenges for the procurement management. The schedules are strict and usually the needs must be answered in no time. This kind of confrontation between the learning and movement creates challenges generally for procurement. Moreover, it highlights the importance of smooth and rapid information sharing between the projects, procurement organization and management. From the perspective of procurement the information from the operational level is valuable – without this kind of information it is clearly difficult to fulfill the needs of the projects related to the needed procurement activities.

Information flow management is closely related to procurement strategy and further to category management. The information management is quite complex in construction industry, because of the nature of the project business and the amount of parties involved in the projects. As there are many parties included in construction project, the need for communication and information sharing is relevant – not just for the procurement but all parties that are involved in the projects. The management of information flow is a significant contribution, not only concerning the project level importance but the organizations as a whole (Kumaraswamy and Dulaimi, 2001; Titus and Bröchner, 2005).

Titus and Bröchner (2005) have created a model for managing information flows throughout the construction procurement supply chain. Based on their studies, procurement strategy can be understood as a need to obtain value for the money and for the resources involved in projects through the projects whole life cycle. Information sharing is seen as a key component in optimizing performance in the whole supply chain according to Titus and Bröchner (2005). However, the model is concentrating mainly from project perspective and the focus is on operational level of

construction project. Nevertheless, it offers supporting arguments for the fact that especially in construction business, the information sharing and its management is in a key role for overall business success, but is still a major challenge to overcome.

It is evident that the amount of information is huge and complex and therefore challenging to handle – however, it is nevertheless necessary. With managing and sharing information effectively, it is possible to influence the costs, quality level and time consuming. The role of the procurement in the project is concentrating on these three aspects: procurements function is to ensure the availability at right time, create the best value for money and avoid cost uncertainties and find the best possible suppliers to execute the needs of the projects. Though organizational strategies and targets would be addressed and applied through a company, it is common that divergent objectives and working methods occur at project level and for that reason prevents the information sharing. Other challenge is related to real-time information in daily basis and its availability. This kind of information is not easy to access and impossible to handle by one person because the large scope of the data and information concerning for example products, internal and external requirements and many types of interactions. (Titus and Bröchner, 2005)

In addition to project level information, which is playing a significant role in category planning process when identifying needs and possibilities in category management, Titus and Bröchner (2005) highlighted the importance of information sharing in contracting phase: it is obvious that sharing and gathering information is the most relevant activity when negotiating for contracts and identifying requirements for an agreement. As presented previously, efficient information flow management is one of the key features in improving time, quality and cost factors. (Titus and Bröchner, 2005)

Information sharing and management is additionally identified to be a key factor in successful portfolio management – and from this it can be stated that it is in a key role also in category planning. Trent and Monczka (1994) have found many benefits in creating cross-functional teams to improve information sharing: according to their

studies, cross-functional teams can offer various opportunities to increase competitive advantage in the key performance areas and categories. Ellram and Pearson (1993) added to the benefits also the responsibility aspect i.e. the emphasis of responsibility is shared with the team and so disseminated also outside of the procurement unit. Gelderman and Van Weele (2005) see the ability of a procurement unit to gather and participate in cross-functional teams to be a sign of a mature and advanced management of procurement. It might be a challenging task to gather a cross-functional team in which all the participants have mutual goals and strategic intents.

The teams should promote improved level of communication awareness and additionally integration of the procurement function with other functional units in the company. The strategic orientation of the units influence highly on the level of team participation (Giuniperio and Vogt, 1997): when procurement's strategic importance is identified and understood through the whole company, a positive correlation to the usage of the cross-functional teams has been detected (Johnson, Klassen, Leenders and Fearon, 2002). As the existence of strategic consensus of a company towards procurement has a major influence on the success of cross-functional teams, it is at least as important to ensure that the participants are skilled enough and have sufficient competence to be able to create and share valuable information for gaining competitive advantage.

## **2.4 Cost Analysis**

So far, the basis of category planning has been created, introduced and discussed in light of procurement strategy, purchasing portfolio model and information flow management, it is valid yet to approach the category planning from the perspective of and to introduce analysis models that are seen functional as a support for further category planning.

The purpose of the category planning can be defined in addition to other aspects, to be a way to increase the effective management of categories by identifying possible sources for cost savings. To identify these possibilities, it is essential to have a profound understanding of cost structures within the categories.

The cost analysis aspect is presented and discussed through spend analysis and total cost approaches in the following.

#### **2.4.1 Spend analysis**

Spend analysis is one the most important and used tool to support category management. It gives important information for category managers about their category. With spend analysis it is possible to analyze the cost structures and historical data about purchases: who is purchasing, how much, how often and from where the purchases are procured. Spend analysis can offer information about the meaning of the specific purchase or category to overall procurement. With spend analysis it is possible to identify which suppliers are the most important and strategically most meaningful ones.

Spend analysis is theoretically a very good tool for category analysis. However, is not unusual nowadays that the information related to the procurement is fragmented and unmanaged in separated units and several information systems. This makes the procurement information hard to find and apply, though the information exists. (Iloranta & Pajunen-Muhonen, 2008) The poor spend visibility causes limited understanding of cost structures and as a result the reported volume figures can be notoriously inaccurate. This can easily lead to misunderstanding of the volumes and to sub-optimizing savings instead of overall procurement optimization. According to Pumphrey (2014) spend visibility can be enhanced by organizing the suppliers into categories that reflects the supplier markets (Pumphrey, 2014). However, there is more factors reflecting the visibility of spend. It is also a matter of the used systems and in this case, it's a matter of the construction sites and how they manage their invoices.

### 2.4.2 Total Cost Analysis

Total cost of ownership (TCO) model describes the total purchasing and usage costs in procurement to the buying company and is other relevant analyzing tool for category management, among spend analysis. The price is not seen any more as the only one component of the procurement costs. When defining the categories and their importance or criticalness to the company, other components must be taken into account. There are various different sources for costs that can influence to the category's criticalness, such as costs related to transportation and other logistical questions, waste and issues related to the quality for example.

Ellram (1993) divides total costs into three categories, based on when the costs are emerged.

- 1) **Pre-transaction costs** may include costs associated with investigation, qualifying sources, or the costs from adding new suppliers to company's purchasing system.
- 2) **Transaction costs** cover the purchasing price, deliveries, inspections, invoicing and other costs included in the actual business process.
- 3) **Post-transaction costs** of a purchase include reworks of finished service or goods, costs of returns, warranty works and other costs associated with purchase.

When considering category management and planning of category strategies, TCO model can be seen as a useful tool, when identifying the cost structures and identifying the critical components from those structures. With the total cost approach, the possibilities of identifying and influencing factors or processes those create defectiveness or deficiency increase. These kinds of costs cause post-manufacturing costs, including rework, loss of productivity and warranty work among other transactional costs, which can turn out to have high effects on profitability of

construction projects. (Dobler and Burt, 1996) For that reason, this kind of costs should be identified and minimized. According to Ellram (1993) total cost of ownership can be defined as a concept which strives to analyze and understand the real costs of business processes. TCO strives to identify the major cost elements associated with procurement and for that reason it can offer valid information about the products and processes at category level.

As with spend analysis, companies are facing difficulties to leverage total cost analysis. Ellram (1993) found that the greatest obstacles for using total cost approach were lack of data resources, training and education, and corporate culture. As a concept, total cost approach is quite easy to understand, but in practice the complexity of gathering data for the analysis may limit its adaptation and usage. The importance of IT-systems and information management is highlighted in studies made from TCO. It also noted that resource allocation is one limiting factor in total cost analysis. (Ellram, 1993) It could be assumed, that companies would have the resources needed for using TCO because of the major development of IT-support function and systems. However, the challenge concerning the access for right and valid data is notable. It is not enough to have many different IT-systems. The availability to the data should be good and easy to access and find.

The model supports and can improve decision making and internal and external communication. The decision making improvement relates to the rational approach that looks other cost factors among price. TCO helps to clarify the cost structures and factors of the products and services. As a result, the understanding of purchases improves creating beneficial information for category management. This understanding and information is highly beneficial in negotiations and can also help to increase the awareness of non-price factors which affect the purchasing of the companies and motivates to continuous improvement efforts. (Ellram, 1993)

### 3. CATEGORY PLANNING PROCESS

Category planning is an important part of category management. With the planning process the company defines the existing categories and their role and priority to overall business. The category plans are constructed based on category goals, the competitive environment and the purchasing behavior of the company (Dupre and Gruen, 2004). In the category planning process the categories are analyzed; the needed resources are addressed, the category specific targets and strategies are defined and established. It is not enough just to analyze and establish the above presented matters. To create real value for the business, specific action plans must be planned for the business operations. Timonen (2001) separates the planning process in two levels. The first one – strategic planning – includes the matters presented above. The second – tactical planning – is a phase of the planning that involves operational level procurement people. As a matter of fact, one of the most important goals of category planning is to create guidelines and instructions based on the strategic planning to execution of the action plans at operational level. Yet, mere planning does not create results. The plans must be implemented to business procedures. The implementation phase is separated in this thesis from other category planning phases due its validity and importance for the success of the category planning process. The implementation will be discussed in the fourth chapter more profoundly.

It is highlighted that the planning process should be continuous, not one-time project (Timonen, 2001). The planning needs monitoring and follow-up through the process i.e. updating and sharing the information for decision making should be continuous, especially when company operates in quickly changing environment, such as construction industry. The process offers an opportunity to go through common concepts and meanings in the organization and externally with the most important interest groups, such as key suppliers. It is actually found that the cross-organizational involvement in the process is one of the key factors to successfully go through the process and achieve the set objectives. (Egbu, 2004; Bröchner, 2005)

This can be stated also based on the results of the category team work made in case company. The knowledge about the categories and understanding of their structures has increased cross-functionally. This kind of data creates opportunities to identify saving potential and increases negotiation power with suppliers and naturally can lead to better agreements. Timonen (2001) presents a model for category management process based on a model launched by Partnering Group and Roland Berger & Partners (1999) where the process is divided in eight steps presented in the following chapters.

### **3.1 Defining the category**

Defining the category creates the basis of the category planning. Without profound knowledge about the products and their influence to the operations it is naturally difficult to set goals or prepare any further plans for achieving those goals. (Timonen, 2001)

As construction is project business, the relevant defining factors can be the phase of the project i.e. when is the procurement executed, is the procurement direct or indirect purchasing. In addition, one of the basic defining factor is to separate the materials and work. However, subcontracting is nowadays quite popular way to purchase, which creates challenges to analyze the categories. For that reason, the defining should begin from the product level. It is essential to know the products and services that belong to the managed category (Expert interview).

Strategic point of view to the definition of the categories is concentrated to creating competitive advantage – can it be achieved in the category and does the category have such potential? To how many different portfolios, categories and further subcategories the business would be reasonable to divide? Is it possible to implement wanted changes in the business structure? How about the suppliers and their strategies, are they consistent to company's own strategies? Strategic point of view highlights also identification of the current value and future potential in the categories. If the categories are defined without careful analysis, it is possible that

the focus of the category is in totally irrelevant factors. When the categories are divided further to smaller segments, they are easier to analyze and manage. According to Timonen (2001) business idea and operational concepts of a company are realized through category management. When it comes to case company, the concept is to carry out the projects profitably, driving safety, cost efficiency, environmental efficiency, with good quality and of course in accordance to legal requirements. These business strategies and priorities must be included in the planning as factors of category definitions.

When defining a category, also questions about logistics, competence and motivation for the planned category management need to be taken into a consideration. The logistical matters play an important role in construction projects. Logistics need careful planning and scheduling to develop routines that facilitate the operations of the construction sites and to reduce material handling and inventory of the sites. Logistics is just one example of the operations which need sufficient competence from the procurement organization to be successful. (Timonen, 2001)

Competence and motivation through the whole company is a key factor also in defining the categories. Competence can be gained through sufficient education and training. It is important to know the materials and services in the categories. In that way the categories can be analyzed and developed. Motivation usually is built on trust, mutual targets and transparent information sharing through organization. The information sharing aspect can be improved through cross-functional collaboration between different units, as presented in chapter 2.3 (Titus and Bröchner, 2005).

### **3.2 Defining the role of the category**

The role definition for the categories is included in the strategic category planning, as these decisions concerning the role of categories directs strategy establishment and target setting. It is the phase, where the prioritization will be made and the importance of a specific category to overall business is evaluated. The prioritization is essential when the resources are limited. (Timonen, 2001; Dhar et al, 2001) Defining

the role has a significant influence for the whole category management. When defining the role for category, it is significantly meaningful to take additionally into account as well the strategic perspective as the operational one. The purpose of role definition is to classify categories by the differing characteristics and the needed management models based on the differences. Traditionally the roles are defined leveraging Krajlic's (1983) four-field matrix.

Productivity, saving potential, cost efficiency, risk level and the maturity stage of the category can be defined as strategic matters in role definition. Operational matters are related to resources and existing competence in the company. It is relevant for successful category management to assure sufficient resources to the right categories and more importantly assure adequate competence level.

From external point of view, company's supplier base and market situation affects to the role definition of category. The nature of the supplier relationships and possibilities needs to be evaluated. It is not uncommon that the procuring company does not give attention to how the supplier actually sees the company and how important actually the procuring company is for supplier. The role of the category can change solely because of the availability of alternative suppliers. Other external matter is naturally the market situation and competitive environment. With an understanding where the company is placed compared to other companies in the market, it can plan and develop its strategies more accurately.

### **3.3 Evaluation and analyses of the category**

According to Timonen (2001) the assessment of the categories creates the basis for targeting. Evaluation is important for identifying direction of possible changes – in companies' internal processes and operations or in external environment related to markets or suppliers and other important networks – that might have an influence on business procedures.

When analyzing profitability the financial perspective is not the only aspect that must be taken into consideration. According to Timonen (2001), to improve profitability, processes effectiveness, competence and motivation level of the personnel are factors that affects to all elements of profitability.

It is important to assess the categories from internal and external aspect and identify possible laying potential in both operational environments. From internal perspective the categories can be evaluated based on spend information to analyze the financial share of the category. Important internal information is also, how spend is managed and how possible agreements are used.

The external environment gives insights in category management basically concentrates to supplier field and competing companies that operate in the same markets –how the company is situated in the markets compared to competitors and how important the company is for its suppliers. The price levels and indexes give insights how the external environment is developing and how these changes might affect to company's own operation. In category planning it is important to identify and anticipate future changes and possible occurring risks, such as availability problems e.g. strikes, the mentioned changes in external operational environment and price increase.

To facilitate the evaluation traditional SWOT-analysis can be useful. It offers a simple way to identify and evaluate the categories: the existing strengths and identified weaknesses, possible opportunities that have not been identified or yet exploited, or threats that might create challenges in the future.

### **3.4 Setting the targets and strategy for the category**

The target setting should be based on business vision and concept. It is generally highlighted that the set targets should be measurable. As the measurability is important, it is at the same time very complex and challenging to develop simple and functional measures. Therefore, as the main purpose of the whole category planning

is to identify and achieve possible improvements in effectiveness and profitability of the procurement, the actual savings, and improvements in the processes can be seen as measures for how well the category planning is succeeded. The measurability can be facilitated depending how well the targets are defined and presented. Kumaraswamy and Dulaimi (2001) highlights the importance of identifying and synergizing internal and external factors at the same time as targeting particular priorities with complementary operational or managerial sub-systems like safety or quality management in the context of construction industry.

Other important aspect in establishing strategies and targets is to take the needed competence and professional skills into account. The needed competence level of a procurer depends on the nature of the function (Freeman and Cavinato, 1990) i.e. more technical competence is needed in execution of task-oriented functions and in contrary with strategic functions the commercial competence is prioritized. This emphasizes the professional purchasers must have variety of competences. To establish and develop category strategies and set specific targets, the variety of the knowledge and skills of procurement and its external function should be benefited in decision making within different kinds of categories (Pearson and Gritzmacher 1990). To develop differentiated procurement strategies in category level, competence to plan, evaluate, implement and control procurement and supplier strategies are required, as presented in the context of purchasing portfolio model. (Carr and Smeltzer, 1997; Gelderman and Van Weele, 2005)

With strategic categories, the strategies presented in literature are closely relating to supplier management and developing partnership relationships with strategic suppliers. (Elliot-Shircore and Steele, 1985; Hadeler and Evans, 1994; Lilliecreutz and Ydreskog, 1999; Olsen and Ellram, 1997; Van Weele, 2002) Concerning the leveraged item categories, the focus is on exploiting the purchasing power and leveraging large volumes and further to drive profit through these actions (Elliot-Shircore and Steele, 1985; Olsen and Ellram, 1997; Van Weele, 2002). As the bottleneck item categories are identified to include risks concerning supply and low level of purchasing power, the strategies introduced for such categories are focusing

on ensuring the supply and on seeking for standardization possibilities and alternative substitutes (Elliot-Shircore and Steele, 1985; Olsen and Ellram, 1997; Van Weele, 2002) Additionally, creating a close relationship with supplier is presented as a strategy for the bottleneck category to increase mutual commitment also from suppliers side (Hadelor and Evans, 1994). The strategies recommended for noncritical categories include as minor use of effort and resources as possible. With noncritical categories the focus should be on minimizing attention through e-procurement for example. The contracting should be as simple as possible (Hadelor and Evans, 1994) and additionally focus should be on driving for standardization and consolidation of the products and volumes (Olsen and Ellram, 1997).

After the categories are evaluated, strategies established and the targets set, the next step is to establish category tactics.

### **3.5 Establishing the category tactics**

With tactics is meant in this context the operational activities that are executed for achieving the set goals. The tactical planning includes specific action plans that describe specific actions which drives the established strategy and achieving the set targets. It is not enough just list tactical actions to be executed in operational level: it is as important to address the responsibilities for the executions. The category tactics is mainly executed at operational level. The tactics include operational actions which mean that the responsibility of the execution must be spread outside of the procurement unit. To achieve the desired targets, differencing competences and knowledge are needed (Pearson and Gritzmacher 1990). As highlighted already earlier, the importance of cross-functional information sharing is emphasized and is most effectively achieved by cross-functional team work, where the differing knowledge and competences can be combined and exploited for improving the competitive advantage of the whole company. (Pearson and Gritzmacher 1990)

The category tactics can be planned and established by developing specific action plans for different business units and functions basing on the established category

strategy and targets, not to forget the overall business strategy and targets of the company as a basis for further strategy development and target setting (Timonen, 2001).

### **3.6 Guidelines and instruction**

As the actual category plans are developed, targets, strategies and tactics are established; the plans should be also implemented and spread out from the procurement unit throughout the whole company from the top level to lowest operational level.

The importance of information sharing is once again highlighted. By creating understandable and simple instruction, what actions and how the plans should be executed and most importantly why something is done, facilitates great deal of the successful implementation of the plans. Most importantly, the information and guidelines should be shared by the right persons in the company. (Timonen. 2001)

## 4. CATEGORY PLAN IMPLEMENTATION

To achieve sustainable competitive advantage, established category plans need to be consistently and completely implemented to the company. The overall influences can turn to be limited due to inconsistent and incomplete implementation.

Dupre and Gruen (2004) studied factors that contribute category plan implementation. They also identified sources of possible barriers for successful category plan implementation. Though, Dupre and Gruen (2004) were concentrating to retail industry, their model (Figure 4.) can be utilized in general level also in construction industry.

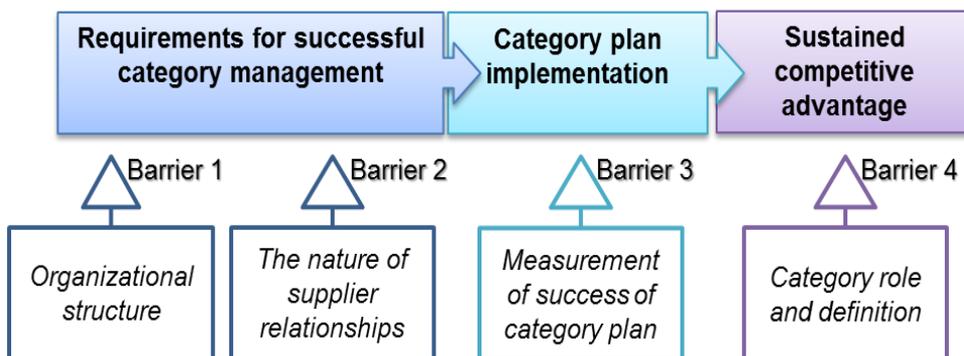


Figure 4. Category plan implementation model (Dupre and Gruen, 2004)

The barriers are discussed in the light of construction procurement in the following.

**Barrier 1:** The first barrier is closely related to two inter-organizational factors: organization structure and professional skills of the personnel. The commitment of top management is generally highlighted. Unquestionably this is evident, with the support of top management any implementation processes facilitates. However, this is not the whole truth: the top management can and should support category management and plan implementation. According to interviews of studies of Dupre and Gruen (2004), the issues concerning category plan implementation comes down just for few things. Regarding the organizational structure, ownership was defined as one. If category management level develops a plan and just throws it to operational

level, it probably will not ever be fully implemented. This emphasizes the importance of defining and sharing responsibilities across the organization and involving the operational level to the actual planning process. It is also noteworthy to involve the right person with sufficient skills and understanding of the purposes of the category planning. As a solution for the barrier, Dupre and Gruen (2004) offered formation of cross-functional procurement teams for combining different knowledge expertise.

**Barrier 2:** The second barrier that Dupre and Gruen (2004) identified was related to the supplier relationship and the trust level between the supplier and procuring party. It is very common that the procuring company is aiming to commit the supplier without willingness to commit to the supplier itself. In construction business it is more than usual that companies do not want to depend to just one supplier within categories. It is seen as a risk for decreasing competition in the markets. There is a truth in that, but too often companies ignore the fact, that the suppliers still have the best knowledge and expertise of the products or services in the category which might be leveraged more profoundly by the procuring company.

**Barrier 3:** As the first two barriers were related the requirements for successful category management, the third one concentrates on measuring the success of the implementation of category plans. Dupre and Gruen (2004) propose use of scorecards as a solution for the third barrier. The measurement of the success of category plan implementation is seen as one of the key outcomes of preplanning agreements. Dupre and Gruen (2004) states that the ability to measure category success can influence drastically to implementation of the plan and further to the resulting level of sustainable competitive advantage.

The idea of using scorecards is theoretically functional. However, it is more than usual, that companies have many varying measurement systems for different functions but unfortunately are not used according to originally it was purposed. Additionally, as the companies are full of different ways for measuring the processes, the benefits of using these kinds of scorecards might be easily unobtainable (Dupre and Gruen, 2004). The use of scorecards is not so general in construction business.

The same situation is recognized in retail industry. There are several models available, but the main problem is that often the scorecards are perceived as very formal matter. The enthusiasm to leverage the scorecards occurs basically in strategic level but in functional and operational level these kinds of tools can be considered even as a waste of time. (Dupre and Gruen, 2004) As the scorecards can facilitate the category evaluation, the best benefits can be applied at a strategic level.

**Barrier 4:** The objective of the category plan implementation is to drive sustainable competitive advantage. Dupre and Gruen (2004) bring up the lacking defining and assigning of the roles of the categories as a restraining factor for achieving the desired level of the competitive advantage. Dupre and Gruen (2004) presented that to overcome the fourth barrier, the competitive analysis, can play a critical role in the implementation phase. The purpose should be to determine the level of correlation between category roles and financial results and only then prioritize the categories after the comparison of the categories with different performance level.

Dupre and Gruen (2004) presented how the category definition problem was processed in German retail industry. The studied organization was committed in establishing standard subcategory definitions with expectations to manage to reduce arguments related to constructing the categories. Dupre and Gruen (2004) stated that when constructing the categories from subcategory level instead of product by product level, benefits like differentiation comes possible, which can be seen as natural benefit followed by segmentation and portfolio management.

To facilitate the implementation of the category plans, it is highly important to share the new information to the operational functions of a company. The operational level operators apply the instructions and guidelines given. To achieve the targets, it is highly important that all parties identify why something is done and how. It is important to link all the strategically important features together. Otherwise their implementation to the organizational procedures can be challenging. Without this profound understanding, the set plans are difficult to achieve. Timonen (2001) sees

that the key for the fourth barrier is the interaction and communication between different organizational levels. IT e.g. can be considered to be important support to commit the whole organization to the common goals. Commitment and well defined guidelines create motivation. In addition to instructions, interaction and motivation, it is the competencies of the organization, that drives successful implementation of category plans. (Timonen, 2001)

#### **4.1 Force field analysis and identification of general barriers for successful implementation in construction industry**

As a continuum to the presented barriers in category implementation it is relevant to bring up force field analysis, originally presented by Lewin (1951). It was created to explore forces that have effects on managing change. When establishing new strategies, it usually means at least minor changes in the operations of companies. If the strategies require more extensive changes for achieving desired objectives, the possibility to evoke change resistance increase. Force field analysis is seen as a popular means of conducting of the organizational analysis that is widely promoted in research and practice in change management studies. (Harrison and Shirom, 1999) As mentioned earlier, it is a helpful tool for assessing driving and constraining forces that might occur during organizational changes.

Cronshaw and McCulloch (2008) criticize the original force field theory presented by Lewin (1951). They see it as a static analysis of observables, which are not sufficient enough for measuring intangible field forces operating in an extended period of time. However, the traditional model assesses the field conditions as concrete observables within organization, but in a partial and incomplete manner. In response to driving and restraining forces, Cronshaw and McCulloch (2008) identify three sets of the field conditions – facilitating, constraining and blocking. The facilitating conditions are related to resource availabilities, strategic opportunities and facilitating internal and external accessibilities, that are pushing the organization to desired state. Constraining conditions means those resource restrictions, structural and process limitations, and constraining internal and external accessibilities which constrains, but

do not prevent the movement of the organization towards the desired state. Those structures, processes, habits, resistances and disabling accessibilities that prevents the movement of the organization to the desired state, are called blocking conditions. (Cronshaw and McCulloch, 2008)

Identification of the facilitating, constraining and blocking conditions in the organization is evident and should play an important role in category planning process. It can be related to establishment of strategies, and it definitely offers valid information for the implementation phase of the developed category plans. As the barriers for plan implementation are analyzed beforehand, it is much easier to success in the implementation and to achieve the set targets.

As concentrating on construction industry, Titus and Bröchner (2005) have for example identified constraints related to effective information sharing. As brought up earlier, it is more than common that situations and project specific needs are changing rapidly. Despite this, it is very common that the learning scope from project to project is fairly poor (Johnson and Clayton, 1998). This basis on functional fragmentation and self-protective pressures towards e.g. rewarding that are constraining the team work to develop creative solutions for developing the operations. It is not uncommon that the attitude of employees of a construction company towards enhancing new technologies is negative and passive. Anumba et al. (1995) described the culture in construction industry as an adversarial culture that impedes innovations, increases complexity and emphasizes the uniqueness of each projects leading construction industry to a position as a slow adopter of development of supply chain strategies, not forgetting the implantation. (Titus and Bröchner, 2005)

## **5. EMPIRICAL STUDY**

After presenting the theoretical background for the thesis, the empirical study and the results are presented and analyzed. As the category planning can be considered to be very organization specific, the study is carried into execution using case study method. As the literature concerning category planning is mainly related to retail industry, information about the planning process development was gathered from a company that has implemented category planning into practices of the company by interviewing its procurement manager. The information collected is exploited in the empirical study of the category planning process to give broader perspective and guidelines to develop the category planning process of the case company.

The chapter starts with introducing the valid information concerning the background of the case company for further empirical study. Secondly, the selected research methodology is introduced. Additionally, it was seen relevant to identify the procurement specific strategies, structures and decision making methods which are closely related to the actual category planning. Latterly, the category planning process of the case company is introduced and discussed in the light of the theoretical background and the interview. The empirical part is concentrating basically in two different matters. Firstly, on the category planning process development i.e. to identify the lacks in the current process and set improvement proposals based on the theoretical perspective and by exploiting the knowledge of the writer and colleagues in the case company. Secondly, the focus is on developing a simple excel tool to facilitate the coordination and data collection during the planning process.

### **5.1 Background for the empirical research**

The thesis and the research are made for a case company operating in construction industry internationally. Procurement activities have been identified as important drivers for gaining and sustaining profitability. The procurement activities are mainly centralized to procurement department, but procurement is also done project

specifically depending of the procured item. Because of the volume, huge amount of suppliers and the variation of features of the procured items, the category management cannot be described to be simple – not even to mention category planning. Category planning is part of the strategic procurement management in the case company. The company has developed a process description for category planning. Despite the existence of the process description, it is not complied in any way. In addition, there is no common understanding of the means of the category planning which leads to a situation in which the category planning is unmanaged, unsystematic and ineffective.

### **5.2.1 The category structure in case company**

Overall, the procurement is managed in category structure. The procurement department operates in Nordic level, which means that the category structure is basically the same in all countries, though some national differences have been taken into account in the development of the structure. At the moment the Finnish category structure includes 60 different categories in four different portfolios, which are civil, job site, building and indirect. The differences in the structure mentioned above occur at the category level: they are mapped differently in the portfolios in each country. The categories are divided to subcategories and further to product code level (item level).

### **5.2.2 Organizational structure of the company**

The operation of the company cover construction services, residential and commercial project development and also public-private partnerships. The focus of the thesis however is on the construction services that include building construction, building services, and civil and environmental construction. In addition to different units, the structure is also divided regionally. The regions are divided as following: South-, West-, East-, Middle- and North-Finland. Each of these units has also their own regional procurement manager. These structural matters must be taken into account when developing category planning.

The management and planning of the categories is not a simple task to do. The construction industry is complex due to the huge amount of parties involved to the actual construction phase. The needs concerning different categories and category planning can vary a lot between different regions and sites, which increases the difficulty to develop the criteria for category planning. For that reason the information of the needs should be collected from the regions and from the person doing procurement outside the centralized procurement unit, systematically and in a simple way. By involving the sites and regions to the planning process, procurement could increase its transparency and serve better its customers – in this case the construction projects.

It is valid for the research to present also the organizational structure of the company as the category planning and its process should involve information and knowledge sharing through the whole company – vertically and horizontally. It is essential to identify the parties that should be involved in category planning process.

### **5.2.3 The current situation of category planning**

The importance of category management has been identified as a part of procurement and business profitability as a whole. The management level of the company has understood the meaning and the possibilities that category management and planning offers for achieving objectives of business strategy. The case company has already identified potential benefits and improvements which can be achieved through systematic category planning.

The case company has defined the purpose of category planning process as following: the aim is to plan and agree about activities related to procurement methods and strategies with the most important stakeholders within the strategic categories by planning the procurement basis of the needs of the company, the market situation, economic prospects and supplier field. And additionally by establishing clear and measurable goals for procurement and ensuring sufficient and correctly allocated resources.

Currently, the category planning is prepared mainly by category managers and other strategic level procurement personnel and as presented, in very unsystematic way. Thus, the category planning is executed theoretically in yearly basis, the practical planning remains still quite narrow. However, it should be noted that in January 2014 the company founded category team work in Finland in five different categories, which were identified to be critical based on high volume or possible savings. The teams were formed cross-functionally to improve and share knowledge from different perspective. The results of the cross-functional collaboration have been promising for now in the selected categories.

Though the category work is not directly related to the actual category planning process, it can be seen a good example of how to work with the important categories cross-functionally. The category work methods can be exploited in the implementation of the developed and established category plans.

## **5.1 Research methodology**

For the research approach, the mixed method approach was selected. The empirical study of the thesis includes features from both quantitative and qualitative research approaches. The empirical study in the thesis is based on diverse types of data and so can provide more comprehensive and profound understanding of the category planning process and the features and factors related to the studied subject. Creswell (2014) defines mixed method approach as a method that begins with a survey to generalize results and after that to be detailed with interviews to help explain the quantitative survey. (Creswell, 2014)

The means of using choosing mixed method approach is to gather comprehensive set of data from the case company and enable study the category planning and its processes utilizing different perspectives presented earlier in this thesis.

### **5.1.2 The design**

For the design of the study was selected convergent parallel mixed method design. It allows using both quantitative and qualitative approaches and analysis. Typically the researcher collects and analysis quantitative and qualitative data separately without combining them in analyzing phase. The role of quantitative data in the research present bases that is specified complemented and corrected with qualitative data. (Creswell, 2014)

In the context of this empirical study, the quantitative approach concerns the reference data collected from the case company's business analysis system. It is essential to critically evaluate and modify the extracted data as the quality of the data is not as accurate and valid as it should be. For that reason the quantitative data is only used as reference information for the qualitative data collection. The data collection of the empirical study will be introduced in the following.

### **5.1.3 Data collection**

The data collection for the empirical study as presented includes both, qualitative and quantitative data. The collection of the data is made by exploiting the existing data in the information systems of the company. The data exported from the system is quantitative information about the categories based on invoicing – a historical data of the purchases. The analysis tool offers additionally information about buying behavior at category and subcategory level. As it was presented in spend analysis chapter, there are many challenges concerning only spend based analyzes. The selection of categories was made in subcategory level to achieve more specific information for the category planning.

As the primary quantitative data is extracted from the analysis system and included the invoicing information of the company 2013, it was essential to modify it before further analysis. Because of large amount of quantitative data, for further study was selected subcategories that are covering 80 % of the total spend invoiced in 2013.

When selecting the subcategories for the study, the quantitative data was modified as following:

- 1) Spend was analyzed and limited to only purchases made from external supplier. The purchases made by the case company or its national subsidiaries were excluded from the analysis.
- 2) Secondly, subcategories included in indirect purchasing were excluded from the study. (The purchases that are not directly related to construction, for example office supply materials)

The qualitative data collection is made by exploiting two different sources of information. External information about category planning was collected by the interview of the procurement manager involved in development process of the category planning process of the interviewed company. The interview was made with face-to-face method by following open questionnaire (Appendix 1). The collected information was exploited as reference information for the development of the category planning process in the case company. Secondly, the qualitative data for the analysis was collected from the case company through discussion the procurement unit.

As the accuracy of the quantitative data is not valid enough, it needs to be specified by exploiting the qualitative data. The support and feedback for the quantitative data is collected from the case company.

#### **5.1.4 Analysis**

The aim of the analysis was to developed excel tool for collecting and creating valid information for category planning, especially for identification of needs and possibilities based on the information collected quantitatively and qualitatively.

The quantitative data was critically assessed. Problems occurred concerning the category structure: it was difficult to evaluate the categories, even at subcategory

level, especially regarded to subcategories related to work. As a result of the analysis, for developing the tool for gathering valid information, it was seen to be essential, that the data and information that would be completed with qualitative information to achieve the desired information of the categories.

As a result of the analysis, the excel tool was divided in four different parts based on how the information should be gathered and by who. The first part of the excel tool is in responsibility of the category manager. In the second part the information is complemented based on regional aspects. The third and fourth part of the tool is meant to be completed with a workshop method and discussion to gather information related the future projects and their needs – how the procurement unit could serve better solution for the needs of the projects. The established excel tool is presented more profoundly in chapter 5.4.

#### **5.1.5 Validity**

For the presented challenges related to data collection and the quality issues, the data offered from the system, can be used only as reference information for category analyzing and needs critical assessment and assortment before it can offer valid information.

As the validity of the data was identified lacking sufficient level of quality it was seen evident to analyze the data critically before any further analysis was made. To improve the quality of the data, 80 % (included 781 suppliers) of the uncategorized spend was analyzed and remapped to correct subcategories. As the mapping was made, the quality of the data improved and further analysis was then possible, though, there is still a lot of space for quality improvements.

When classifying the data to for example regional and project level, the validity of the data improves. It must not be forgotten that, the best knowledge comes from the people making the purchases. That kind of knowledge is very valuable from the

perspective of procurement unit, as the main purpose is to support the other functions in the company.

### 5.3 Procurement strategy in the case company

Procurement strategy of the case company consists of five different focus areas on which the business level goal of the company is constituted: the profitable growth. The set procurement strategy with its five priorities is aiming on achieving that goal and is creating a baseline for procurement activities. The goal, profitable growth, is pursued through concentrating on profitability and occupational safety. All of these strategic matters must be taken into account also in category planning. Based on the strategic focus areas and targets, regional procurement action plans are made to direct the operation to the desired direction. The procurement strategy is pulled together in the following figure 5 (Figure 5).

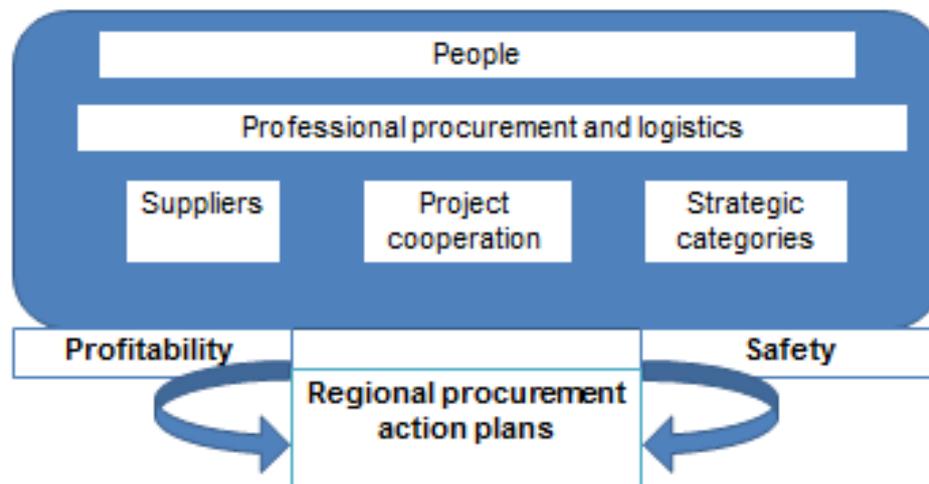


Figure 5. The procurement strategy of the case company

The first priority of the strategy is the people working in the company. The people are seen as the most important resource for business success in the organization. The company's focus is on having committed and motivated procurement people that supports other business units and functions operations. However, perhaps too often procurement, especially the centralized procurement unit is seen to be separated function in the company. This is a challenge, which is identified in the procurement

unit. To increase the transparency of the procurement unit, the distance to other units should be decreased. As it is presented already in the thesis cross-functional cooperation and information sharing is a key to successful category planning process execution. The most relevant information comes from the people working in the case company and to success achieving other business goals, the case company should learn to share information more transparently.

Other priority of the strategy is to have professional procurement and logistics. The second focus area has been defined as an efficient organization, that works wisely and in long-term to improve the competitiveness. This emphasizes the importance of continuous training and education of the procurement and logistics persons for maintaining and developing the professional skills and competence. As in the previous priority, also the information and knowledge sharing plays an important role in learning. It is not solely the organized trainings and educations that will increase the professional skills and competences, but also the professional competence that exists should be exploited cross-functionality.

As a third priority is the suppliers. The supplier management is highly prioritized in the case company and it has been developed in recent years a great deal. As the regulations tighten and environmental and ethical matters are continually becoming more and more important and influencing, it is important the supplier base of the company fulfills the set requirements and is committed to the company's values. The efficient supplier management increases the effectiveness of the procurement as a whole and creates valuable information and negotiation power for the whole company.

The fourth focus area of the procurement strategy is project collaboration. The purpose of project collaboration is to continually improve the procurement's service and support in project environment that is based on transparency and collaboration. As identified earlier, there is a lot to do for improving the transparency of procurement and information sharing in the company.

As the fifth and last focus area is the strategic categories. The strategic categories are selected based on the category planning. By concentrating to the strategic categories the aim is to improve the whole supply chain in the selected categories to find new solutions, to improve competitive positioning and for decreasing the total costs.

Larger companies, such as the case company, are dealing with broad product base, large supplier base and with complex procurement situations and therefore these kinds of companies need more advanced tools to develop effective category and supplier strategies. (Gelderman and Van Weele, 2005) However, it is possible also to take different approach for issues occurring as a result of the large size: The size can be seen also as strength of a company. From this point of view can be raised a question, how the size can be then exploited. As a big operator in a construction markets in Finland one way to leverage the size in category management is to exploit the volumes and seek for differentiation to gain competitive advantage and profitability against its competitors. These are very relevant questions, especially during difficult economic circumstances.

### **5.1.2 The structure of the procurement**

To successfully execute the category planning based on the procurement strategy for achieving the overall business targets in the case company, it is important to identify the structural differences in the procurement organization and additionally the influences on the actual procurement activities.

The organizational structure is a meaningful part of the category planning especially when defining and sharing responsibilities. The responsibilities should be addressed clearly and systematically through the procurement function. It facilitates the execution and implementation of the category plans – not to forget the actual category planning process execution.

It is possible to divide the procurement activities to five different levels based on the strategic importance and complexity of the procurement (Figure 6). It is not solely the centralized procurement unit that does the purchases. The major volume of the procurement is made in daily basis from the construction sites. These purchases mainly belong to noncritical item category based on the minor impact on the business success. In fact, the case company is aiming to increase the effectiveness within these kinds of purchases with e-procurement. As moving upward in the direction of the arrow, the strategic importance and business criticalness of the purchases increase.

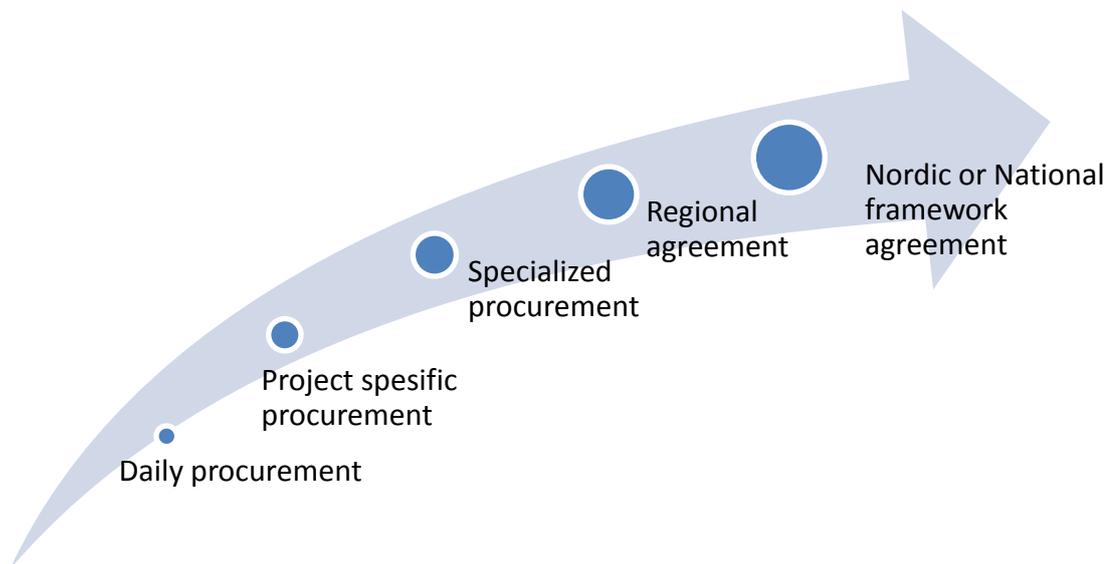


Figure 6. Classification of the purchasing activities

This division of the procurement activities is highlighted and presented to gain understanding of the nature of how the procurement is executed in practice in the case company. The role of the procurement persons executing these different level procurement activities is introduced in the figure 7 to clarify the responsibilities and competences needed to execute the procurement in the different levels (Figure 7).

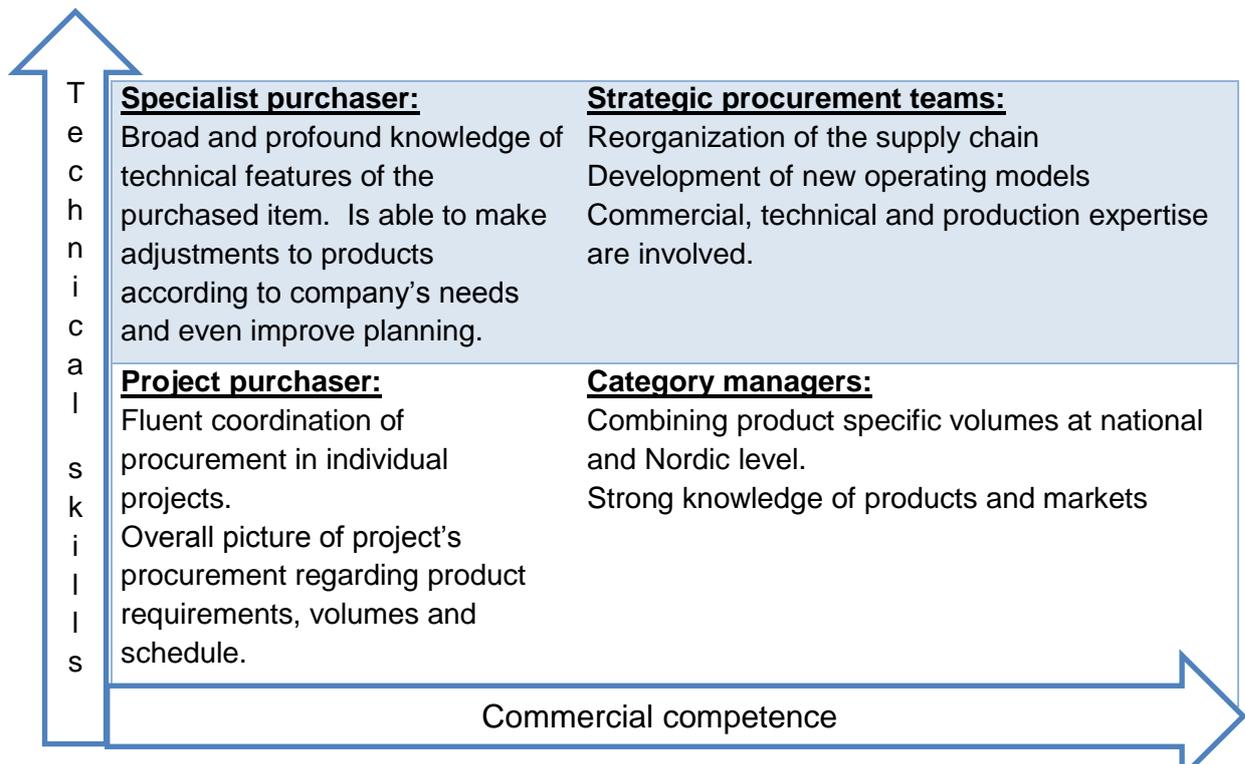


Figure 7. The procurement roles in different levels of procurement

The procurement activities made by the site persons are excluded from the procurement role definitions as those daily made procurement activities basically can be executed by the site personnel who does not have specific training or professional skills for procurement. From the figure it can be seen that the technical and commercial competences vary across the procurement organization.

The project purchasers have the best knowledge and understanding about the project level matters concerning the procurement from technical point of view: they can define the overall picture of project's procurement related to product requirements, volumes and schedules. Project purchasers have the ability and knowledge to define the needs for more strategic procurement.

The specialist purchasers have best knowledge of the technical features of purchased items. The competence of the specialized purchases should be exploited especially in R&D and other planning operations for developing and improving the technical solutions of the projects.

In a contrast to specialized purchasers, the category managers possess the major commercial competence in the procurement organization, but are generally lacking the specific technical competence of specialist purchasers.

To combine all this profound competence and expertise which the company has can be combined by constituting strategic procurement teams. These teams should be formed and exploited as broadly as possible in category planning.

When evaluating more specifically the distribution of the procurement across the whole organization, the division of the purchasing is quite fragmented. As presented, most of the actual purchasing activities are executed at the sites by a person, who is not working actively with procurement. It is notable that only 18 % of total spend of procurement is managed by framework agreements. The procurement executed by the line is covering 32 % of spend. The distribution of the procurement spend is presented in the following figure 8.

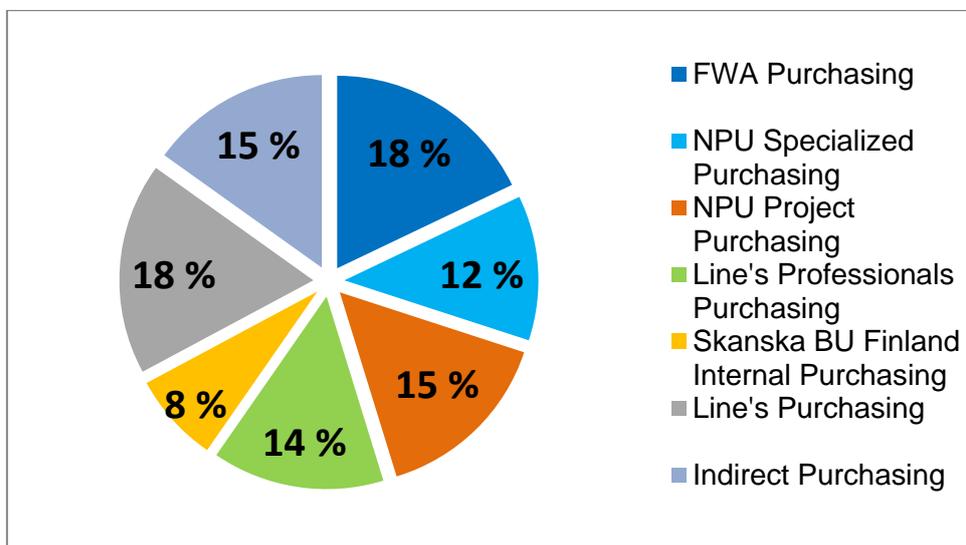


Figure 8. The division of procurement by procurement type in 2013

This emphasizes the contrast with organizational structure and the distribution of procurement management. As these two are pulled together, it can be identified, that the most of spend – the critical and strategically important part of it – is managed by a minor part of the whole organizational. The following figure 9 clarifies the situation (Figure 9):

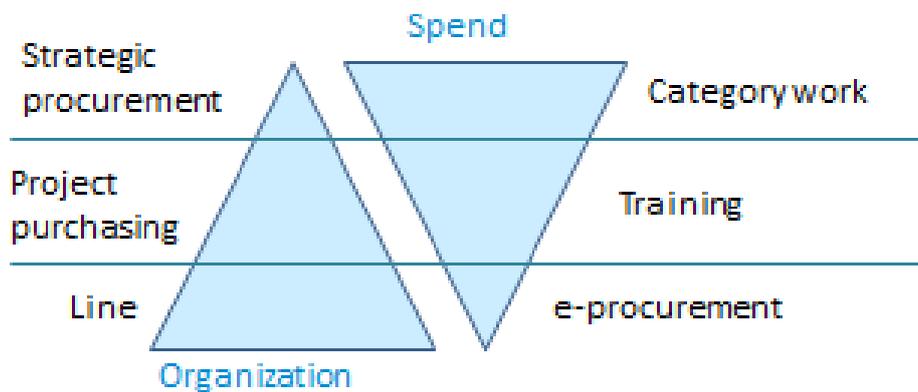


Figure 9. The relation of organizational structure to the distribution of the procurement spend

The pyramids are clarifies the connection between the organizational structure and distribution of procurement spend. When starting from the bottom, it can be identified, that the amount of the purchases is the largest. As mentioned earlier, the line purchases are mainly concerning noncritical bulk materials, those daily used materials and products. The aim is to achieve highest possible rate of use of the e-procurement systems to make the purchasing as effective and efficient as possible. With the high rate of e-procurement usage it is easier to follow up and measure the development of procurement as all the information is saved to the systems.

As moving upward, the amount of people involved in the procurement decreases, and in contrary, the procurement spend with strategic importance increases. The improvement of effectiveness within project purchasing can be achieved through training and education. Other essential matter is to leverage the information from

both, line and strategic procurement level, to project level. When concerning this issue, it can be actually even stated that the project purchasing level is highly essential in the case of category planning i.e. project purchaser are closer to the line and projects than the strategic procurement but yet they have at least a medium level competence and understanding of procurement management. However, as described earlier, the competence is a lot more technical than commercial, which again is the core competence of category managers and other strategic procurement persons. The company sees that the key to increase competitive advantage in the level of project purchasing is training. By training and education, it is possible to leverage also the strategic procurement competence within the project purchasing level, which naturally leads to broader knowledge base and understanding of the procurement in more comprehensive picture.

The top of the pyramids illustrates the strategic procurement level. It covers management and development of the categories that have been identified to be strategically important and critical for the overall business success of the company. The competence needed in this level basis strongly to commercial skills. The strategic procurement is mainly managed by the category managers in national additionally with Nordic perspective. However, to achieve competitive advantage within this level, the commercial competence is not sufficient enough: to effectively manage and develop the strategic procurement, it is essential to combine all the existing knowledge and competence that the company has. For that reason the company has already started to create category teams. The teams put in the practice the idea of cross-functional teams. The members of the teams are selected from different organizational levels with different kind of professional competences. The feedback of this category work has been positive: it increases the highlighted cross-functional information sharing and promotes inter organizational learning.

The structure of the procurement organization has been now highlighted. Though, it does evidently have direct influence on category planning, but is an aspect that must be taken into account as the procurement is divided in different organizational and regional levels. The procurement roles are also valid information for the planning

process, especially when gathering information about current status of the procurement activities in certain category. The information can be utilized in further planning and identification of occurring possibilities to develop the procurement management in category level.

### **5.3.1 Decision making in procurement**

As the structural matters are now introduced, it is also valid to bring up briefly the decision making methods and identify the mandates occurring in the case company. Especially, when assigning responsibilities for different stages of category planning process, the decision making methods must be taken into account. The decision making is divided in two separate parts: 1) the decision making concerning general matters and 2) the decision making concerning the agreements.

At national level, the management team of Finland's business units carries out the decisions concerning procurement strategies and policies, the organizational structure of the procurement organization and budgets, the procurement targets and measurements, and the category planning. In accordance to the business procedures of the case company, the regional managers and business unit managers are responsible for the implementation activities, execution and measurement of the made decisions and plans in their own units with the procurement unit.

The decisions concerning contracting in Finnish business unit are made according to premises and limits addressed in competence of approval of the business unit. The project specific agreements are prepared by procurement people of the certain project according specific process. In addition to the project specific agreements, the case company is exploiting framework agreements for example with high volume categories. The framework agreements, hereafter FWA's, are prepared by the procurement organization based on the category plan and by following the framework agreement process. The documentation of the decisions concerning the approval in tollgate phases is highly important and must be done by each taking part

in decision making. The decisions concerning the tollgates are made in three different levels depending on the scope of the agreements: 1) Tollgates concerning Nordic level agreements are discussed on Nordic Sourcing Board, 2) with national agreements the decisions are taken in Finnish Sourcing Board and 3) regional agreements' tollgate decisions are approved by regional or subsidiary's steering group.

With the introduced decision making methods the coordination over procurement increases. Though, it can increase the rigidity in the decision making, the method highlights the information sharing aspect. Especially when concerning the strategic procurement, it is important that new information spreads out of the centralized procurement to other units as well.

### **5.3.2 The framework agreements**

Category planning is the first step in framework agreement process. The FWA's are formed in the case company in three different levels: in Nordic level, nationally and regionally. Basically the FWA's are prepared by the category managers or regional procurement managers, so the coordination of the agreements is at the strategic level of procurement organization. The meaning and the purpose of the FWA's is to increase the effectiveness and the efficiency of selected categories. The FWA's can be defined to be longer term contract with which the company drives to achieve following benefits in selected categories:

- 1) More competitive agreements followed by higher procurement volumes
- 2) Increasing improvement of productivity from the time saved, when the sites do not need to tender the same routine purchases
- 3) All the FWA suppliers fulfill the company's requirements of safety, ethics, quality and environment

- 4) The management and long-term development of the suppliers
- 5) Exploiting e-procurement systems to increase the procurement effectiveness.

To give a brief overall picture of the process, the main activities are illustrated in the following figure 10. It contains four different main phases: 1) category planning, 2) procurement, 3) implementation and 4) supplier collaboration (Figure 10). The category planning is introduced more specifically in the following chapter.

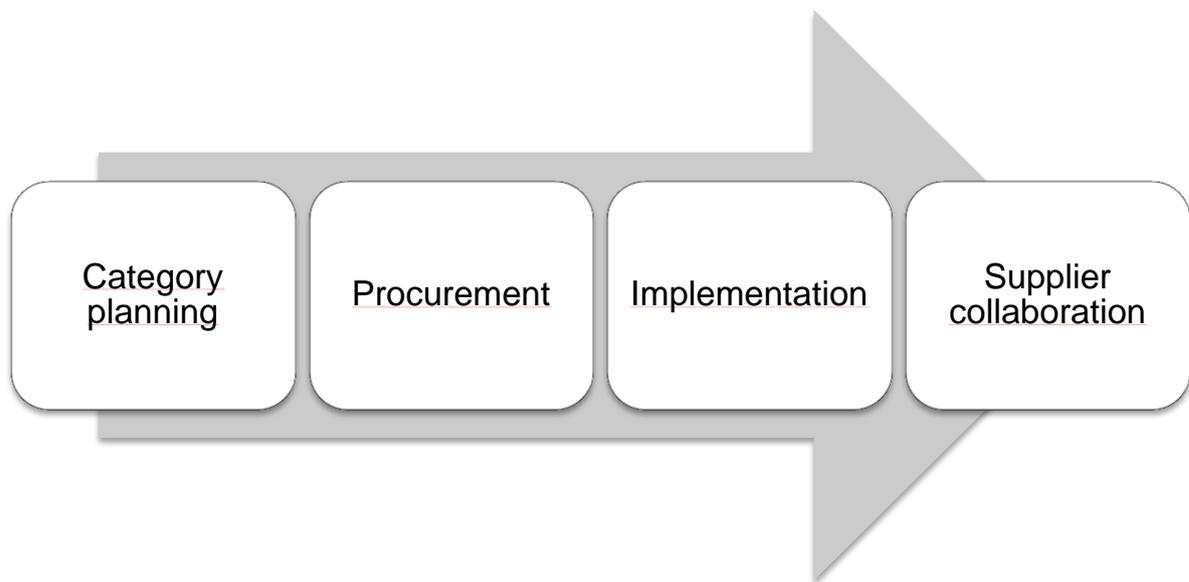


Figure 10. The framework agreement process

The process is presented in very general level, as the focus is on the category planning. It is not valid to open the framework agreement process in more detailed level. However, it includes the tollgates related to the decision making methods presented earlier, where the continuum of the agreement process is approved or not approved and mandate is given for further action i.e. for signing the contract.

The documentation of these agreements is highlighted in the case company. In addition, the new information should be also shared systematically to all functions in the company who can benefit from the information. The information concerning new agreements should be shared clearly not only for the procurement people but also to

the site level: the operational level must be clearly informed about the reasons and benefits following the new agreement.

As one aim of the category planning is to increase the effectiveness and improve competitive advantage through better framework agreements, it is important to take this aspect into account at the early phases the category planning process. Valuable information can be collected through following addressed questions:

- Are the current framework agreements working well?
- Are the FWA's in the correct categories?
- Are there categories that should have FWA?
- Are there FWA's that are not working effectively or are useless for the business?

Currently, the case company has 151 active framework agreements (regional and national in total) with 140 suppliers in 82 categories (Appendix 3.) It is notable that there are many categories from indirect purchases, which are otherwise excluded from the further analysis in this thesis. It can be stated that the reason for preparing FWA's especially within indirect categories, can be explained through the possibility to manage the indirect purchases more effectively and with increasing coordination within the complex categories.

As taking a closer look to other categories where the framework agreements are utilized, it can be identified, that the majority is concerning categories that includes more or less standardized materials, or at least there is an opportunity to develop and exploit the standardization. Other observation is that in many categories the benefits of the FWA's are pursued through consolidating the volumes for one supplier. As the category level is yet quite extensive, the amount of the FWA's varies from one to eleven within the categories. The FWA's can cover very specific item level materials and products and additionally also installation work depending of the nature of the categories.

## **5.4 Category planning process of the case company**

As the case company specific features strongly relating to the actual category planning and management are now introduced and discussed, the focus of this chapter is on the planning process. The process will be discussed and analyzed critically basis of the theoretical aspects and case company specific features presented earlier in the thesis with improvement proposal for future planning adding the information collected with the interview and the case company specific observations and experiences of the writer to the study.

As the customers of the procurement unit are the projects in the context of the case company, the goal of the planning process is to aim towards finding the most suitable way of execute the procurement activities for each category. The increase of knowledge of the categories and items demands cross-functional involvement to planning process as presented already in the research framework of the thesis. However, as the cross-functional involvement increases, the information flow will improve with the transparency of the procurement unit in the line level. Basis of the expert interview it was pointed out that this way the procurement unit is able to manage the categories with increasing effectiveness and simultaneously increase the savings. It was also outlined in the context the connection of the category planning process to the procurement the overall business strategy must be ensured as they are guiding the procurement activities.

As brought up earlier, the case company is already executing category planning in order to achieve the goals introduced above. However, it has been identified that the process is not managed systematically leading to a situation where it is even difficult to identify who is responsible on what. Due to this inconsistency, to improve the process it is evident to identify and address the deficiencies in the current operation model and find solutions for these limitations that are constraining effective execution of the process.

According to the case company's business procedures, the category planning is a yearly executed process in Nordic scope. Nonetheless, this is mainly realized theoretically and does not have real practical execution. Based the category planning the company aims to form a yearly framework agreement plan, which aims to define a balance between framework agreements and project purchasing. In addition, the category plan defines and presents those categories where the resources, especially international procurement and centralized strategic procurement should be concentrated. The case company's category planning process is presented in the following figure 11 including the tollgates for decision making (D0, D1, D2, D3) introduced earlier (Figure 11).



Figure 11. Current category planning process of the case company

The process description describes the steps of the planning through these seven phases presented in the figure 11, but is lacking clear instruction for needed and desired actions to accomplish the operations. Another lack in the current process description is concerning responsibility question – who or which functions are responsible to carry the actions into effect and from where can the needed information and data be gathered. These are relevant question for the development of the category planning process and will be commented more profoundly later on the chapter. As Timonen (2001) highlighted, it is essential to give specific and simple instructions for execution of the planning process.

When concerning the implementation and establishing the guidelines for tactical actions, it is essential to study the nature of the purchases. The procurement activities can be classified based on the extent of the purchases. As the extent of the procurement activities are defined, also the procurement responsibilities should be addressed.

As it has been brought up, the planning process should be a continuous process with monitoring and follow up plans (Timonen, 2001). Since the case company is operating in a quickly changing environment, the continuum of process updating, information sharing and decision making should be ensured, and the planning methods thoroughly implemented to business procedures of the company. In the light of the presented theoretical background, the meaning of the cross-functional involvement to the execution of the category process was underlined and seen as a key factor to successful achievement of the set goals.

Nonetheless, it has been identified that one of the main challenges in the case company is explicitly the cross-functional information sharing. The occurrence of this challenge however varies regionally. The regional differences are not just limited to the information sharing prospect. Differences may occur also when concerning the supplier field, the nature and amount of projects, and additionally the amount of the available procurement resources addressed in that specific area – needs and possibilities are thereby changing.

The process is introduced in the following chapters with proposals of more specific definitions of the phases and instructions how to execute the actions. In each phase of the process have been included four different parts: 1) responsibility addressing, 2) identification of the needed data, 3) source of this information and 4) the needed actions.

#### **5.4.1 Introducing the tool to facilitate the category planning process**

Based on the identified and emerging deficiencies a simple excel was developed firstly to collect the data in a systematic way of preselected categories. The pre-selection of the categories was executed as presented in the research methodology chapter of the thesis. The purpose is to compare the spend information that is offered by the analyzing system tool of the company to practical experiences. The purpose is to fill the in the asked information regionally for identifying regional differences and similarities concerning the importance of these pre-selected categories. This way, it is possible to gain an overall picture about the procurement in national level.

As the category planning is basically executed by the category managers, it is seen as a key factor to involve parties also outside of the procurement unit in different regions to the category planning. As brought up earlier, the knowledge and competence needed for effective planning process is distributed across the organization and therefore it needs to be identified and combined together. The motive of the involvement is not solely the data collection – as the understanding of the category planning increases and its benefits are seen also at the operational level, it facilitates the implementation of the planning process through the whole organization towards a basic business procedure.

The table is divided to four different parts basis of which operational level information is needed and who would be the right persons answering the presented questions. Based on discussions with portfolio manager of the procurement unit the frame for the tool was created.

The first part is mainly prefilled and the information analyzed for the next part. Basically the responsibility of the prefilling should be addressed to an analyst working with systems and quantitative data concerning the categories, so that the pre-selection of the categories is executed with sufficient accuracy and relevancy of the data. It is also evident that the person has sufficient knowledge and competence related to the category specific information – to understand what the categories actually are including. The purpose of the first part is to collect data of the procurement spend, identify the categories that have a FWA, is the contract compliance low or high and how many suppliers are included in the category. Additionally, in the first part the category specific competence of category managers is evident to complement the prefilled information (Table 4).

Table 4. First part of the tool – prerequisite information

1. (PROCUREMENT ANALYST & CATEGORY MANAGER)						
Subcategory	Category	Spend (€)	FWA	Contract compliance %	Number of suppliers	
01.03.01 Prefab concrete element Material	3.02 Concrete Prefab					
12.26.01 Ground Works	5.05 Ground Work					
12.05.01 Water and sewage Work	5.03 Heating, Water, Sewage & Fire					<b>PREFILLED</b>
07.01.01 Site transport/hauler Services	2.05 Construction Haulage					
02.01.01 Builder and Metal Hardware Wholesaler	6.07 Builders Hardware Wholesalers & Other Interior					

As the categories are pre-selected and pre-fill of the information is completed, supplement information is collected regionally. In this part, it is evident, especially for the first time the process will be executed and further implemented, to involve the correct persons from the regions. The purpose of the second part is to collect data concerning how the category management is seen regionally: which categories are seen as the most important ones for the success of the projects, and how the

procurement is executed currently and further how they should be executed. With the execution is referred to earlier presented procurement types (Figure 7). It was seen also important to evaluate the relationship towards the suppliers of the category exploiting the Krajlic's classification – strategic, bottleneck, leverage and noncritical items – presented in the chapter dealing the purchasing portfolio model. Based on the discussions with the portfolio manager of the procurement unit, it is not valid to reach for more specific level with the information. The valid information is specifically concerning the level of the procurement and identification of the ones that needs to be concentrated in the future. The purpose in this second part is to be filled by the business unit manager, regional procurement manager and site manager (Table 5).

Table 5. The second part of the tool – identification of regional situation within the categories

<b>2. REGIONAL PROCUREMENT MANAGER, BU MANAGER AND SITE MANAGER</b>				
<b>Category priority</b>	<b>Supplier relationship</b>	<b>How is the procurement done currently in the category?</b>	<b>How the procurement should be done in the future?</b>	<b>The nature of the procurement (work/ material /subcontracting?)</b>

In the third phase the purpose is to have a workshop for further discussions related to the first two parts. In addition matters that were included in the workshop are relating to the opportunities, needs and possible threats that may rise up within the categories in the future. The workshops are seen as the most effective and productive ways to gather comprehensive information from the regions, especially when discussing about the following matters introduced in the third part (Table 6)

Table 6. The third part of the tool – workshop

<b>3. REGIONAL PROCUREMENT MANAGER, BU MANAGER AND SITE MANAGER</b>			
<b>What should be done during next year(s) in the category?</b>	<b>Opportunities</b>	<b>Threats</b>	<b>Needs</b>

The fourth part is included to the workshop (Table 4). The main point of this part is to gather information concerning any special or meaningful changes that could have effects on the category management to make it possible to anticipate to the changes. By this is meant any bigger projects that may have strategic importance for overall business success, new categories with emerging importance in the future or other issues which may have influence to the profitability of the company. In addition, the information concerning changes in needed competences – highly commercial or technical – can be considered to be very valuable for the category planning process.

Table 7. The fourth part of the tool – Anticipation for special needs

<b>4. IS THERE ANYTHING SPECIAL GOING ON/ COMING UP CONCERNING THE PROJECTS IN THE REGION ?</b>	<b>IN WHICH CATEGORY OR CATEGORIES?</b>	<b>COMMENTS</b>

The excel tool can be exploited in different phases of the actual category planning process. Though it is very simple and concentrating only few aspects related to the categories, it can be stated that the simplicity and easiness to fill facilitates its usage. As the category planning process is lacking specific operational actions for execution and responsibility sharing, the process is dealt in the following phase by phase. The aim is to offer specific improvement proposals for improving the effectiveness and transparency of the process.

#### **5.4.2 Need identification and preparing of the process**

The first phase should offer specific information about the needed actions for further category planning process. The major questions to ask are then what should be done and in which categories. The need identification should be addressed to the operative level as it is relevant to utilize the technical competence and knowledge, and additionally to the strategic management level of the company: for the need identification both line perspective and the overall company strategy and targets need to be taken into account. Additionally, it is relevant to take into account possible new regulations and resulting certificate requirements. The need identification phase is here presented basically as an analysis of current situation which creates a baseline for further planning process.

As highlighted earlier, the main responsibility from the category planning has been laying inside the procurement unit, but as defining the information needed to the planning it can be stated that it is not relevant to believe that all of the information could be found inside of procurement unit. According to the expert interview, to identify the real needs related to categories, it is evident to have profound knowledge of the features of different business units and additionally of the category and item structures. Though, it is quite natural that the input begins from the procurement, but it is highly relevant that the responsibility shared to outer functions as well. It was outlined in the expert interview, that though it is the responsibility of procurement unit to ensure the availability, quality, innovative way of working and cost effectiveness in procurement, it is evident to have support and participation of other units to success

in category planning. In that way the responsibility and information spreads further outside of the procurement.

The pre-selection of the categories made in the excel tool aims to direct the need identification, but not to control it. As the pre-selection was made covering the 80 % of the total procurement, it can be assumed that the most important categories are involved to further analysis. Based on the analysis of the category structure and spend distribution between the categories, the pre-selection was made in company level, though clear differences were identified between different business units and regions concerning the largest categories (Appendix 4), which validates the statement concerning the existing differences in buying behavior between different units and regions.

Further proposals for addressing responsibilities and actions are presented in the figure 12.

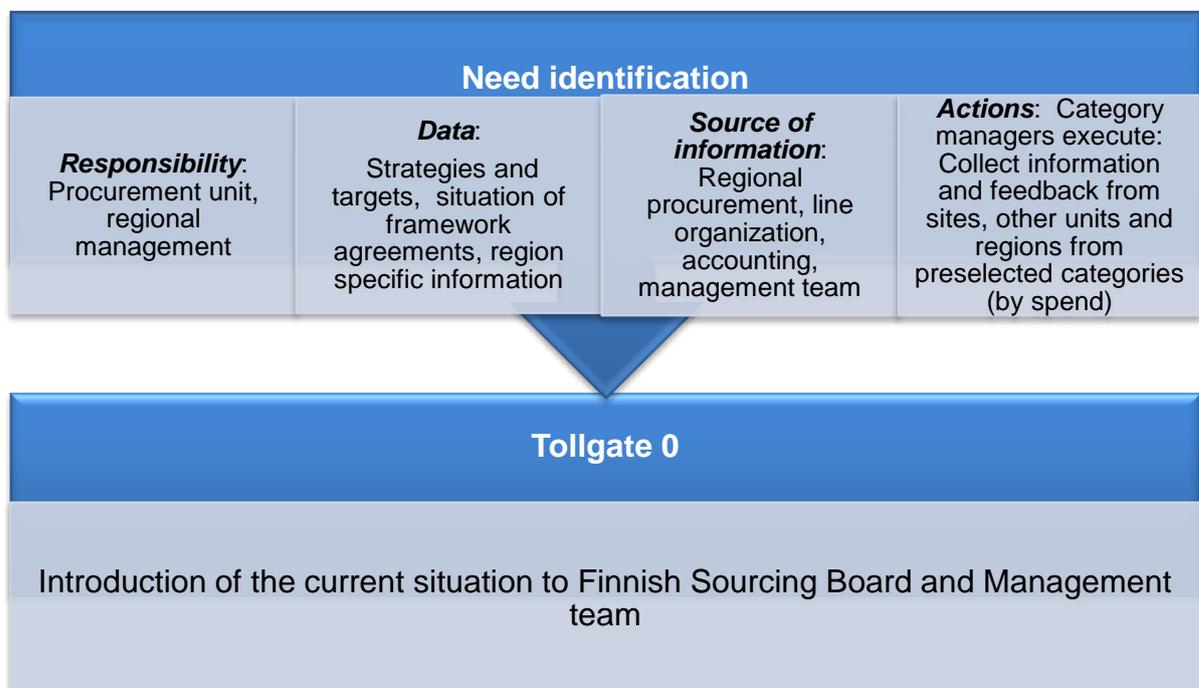


Figure 12. Need identification

The procurement unit's role in this phase is to execute the need identification actions, but the source of information is found outside of the procurement unit. The proposal is to name regionally three persons – regional procurement manager, regional business unit manager and site manager for gathering the needed information. The cross-functional information sharing is playing an evident role in the need identification phase as the both of the strategic and operational perspectives need to be considered.

The prepared excel tool is seen to facilitate especially the need identification phase in category planning as it involves also the operational level person to the collection of regional information. Though the source of the information lay on the operational line level, the responsibility of executing the collection of the information from the right persons should rest on business unit and regional procurement managers. The second and the third part of the excel tool are constructed to give an insight of the possible needs.

After analyzing the preselected categories and the information is gathered regionally, the data needs to gathered, analyzed and specified, a presentation of the current situation and occurring needs is presented to the Finnish Sourcing Board in the first tollgate and Management team to be commented. Based on these comments, the amount of the categories should be limited for further analysis.

#### **5.4.3 Spend analysis**

After the first tollgate, where the mandate for the further phases of the planning process are given, more profound analysis of the procurement spend must be executed. Though, the spend should be just reference information in the planning process, it nevertheless plays a significant role when analyzing the categories (Pumphrey, 2014). The spend analysis phase is presented in figure 13.

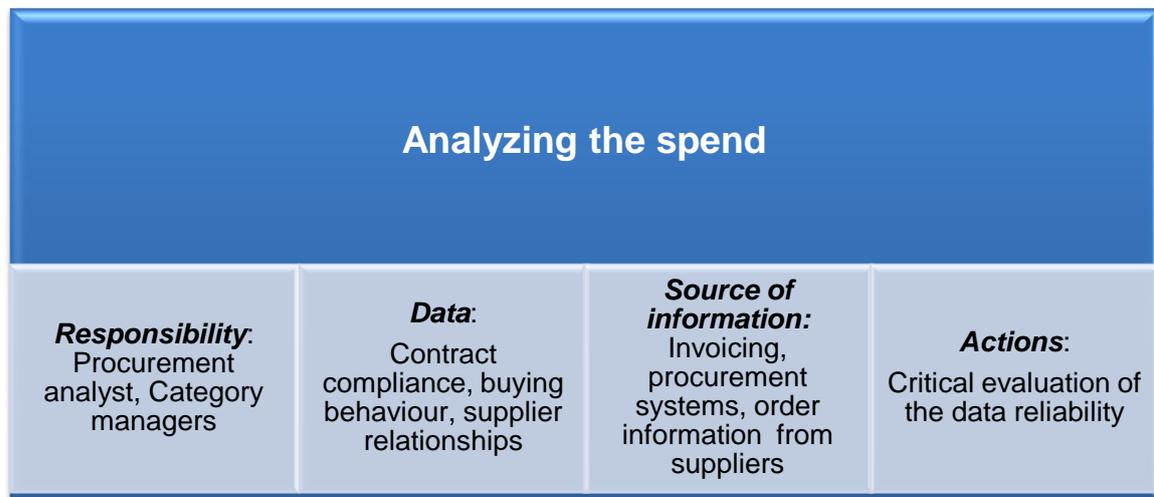


Figure 13. Analyzing the spend

The responsibility of executing this phase should be addressed to procurement analyst and category managers. To successfully analyze the spend, it is evident to utilize the commercial competence of the category managers and procurement analyst.

The data needed for profound spend analysis is relating firstly to the development of the nature of the procurement, how is the procurement executed. The analysis of contract compliance in the category and the usage of e-procurement systems offer valid information for the category plans of the buying behavior of the company. Additionally the spend analysis should be addressed to analyze the suppliers and the supplier field. The number of suppliers describes the current situation of the markets. For example, if there is only one or two suppliers supplying within the category it is a clear signal that searching new alternative suppliers could improve the competitiveness or if there simply is not appropriate alternatives, development of the supplier relationship can be considered to be the key to competitiveness and profitability.

The spend analysis should also indicate specifically, how the procurement spend is constituted within the category. As analyzed the biggest categories addressed in the excel tool, it was identified that the category structure does not specify the

procurement spend with accuracy sufficient enough – not even at the subcategory level. When evaluating for example the spend in flooring category, the floor work subcategory is too broad for profound analysis. The subcategory should be divided further based on the features of the work. When concerning the floor work, it is essentially different if the work is concerning concrete floors or parquet floor work.

In the excel tool, it is requested to specify the nature of the procurement as the subcategories can include material, work or subcontracting. To have a clear and detailed view, how the procurement is executed, spend information concerning the division of the procurement based on its nature is valid. With this kind of knowledge it can be possible to identify how the cost structure is constructed and could it be enhanced.

As it has been brought up the quality of data concerning the spend information available in the analysis system is identified to be quite poor, critical evaluation and analysis is needed to avoid making misleading conclusions (Pumphrey, 2014). The ability to analyze the categories more profoundly and specifically could increase with ERP-system, which the case company is yet lacking. The ERP-system was discussed also in the interview and actually the whole category planning process was launched and implemented at the same time as introducing the system (expert interview). Concluding this, the possibilities, especially concerning the spend analysis phase, the ERP system is seen as highly valid and important possibility to increase the effective and efficient category planning.

#### **5.4.4 Identification of possibilities**

The identification of possibilities can be most effectively executed through cross-functional discussions. Based on the introduced theories and the interview, it is here proposed to execute this phase as a workshop. The interviewed expert emphasized the information sharing throughout the organizational boundaries. For identifying profoundly improvement possibilities within the categories, it is essential to combine the technical and commercial competence, which can be achieved with the workshop

method. The purpose of this phase is to identify those categories that have the most potential for improvement through cost savings, international procurement or for example through supplier development. For identifying the improvement possibilities it is essential to analyze the role of the procurement and the relationship towards the suppliers with in the category. Based on that information, it is easier to outline realistic possibilities and further improvement actions in the categories (Figure 14).

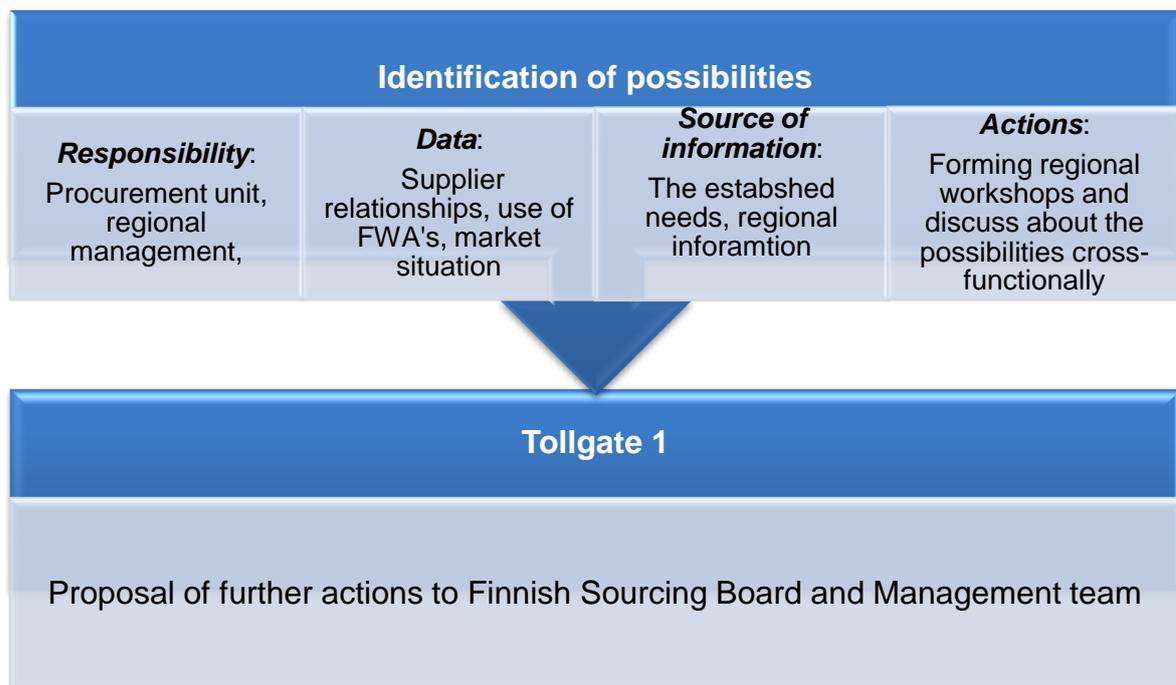


Figure 14. Identification of possibilities

The supplier relationship analysis gives valid information for the possibility identification. The presented purchasing portfolio model offers a simple way to classify the categories and at the same time giving guidelines for potential possibilities based on the role. As the roles are identified, it is easier to identify the possibilities.

When concerning the case company the major aim is to create cost savings through procurement. The possibilities to be identified in the category planning are concerning for example the following matters:

- Utilizing and consolidating volume through framework agreements,
- Seeking new possible international suppliers to increase competition,
- Development of supplier collaboration with existing suppliers especially within strategic categories

The identification of the possibilities requires very profound analysis. It requires analysis concerning the markets and the external shareholders of the company, mainly suppliers. The international procurement has been gaining a lot emphasis in the procurement strategy and seen as a major opportunity for achieving cost savings and other new possibilities. The possibilities related to utilizing the framework agreements and improving the contract compliance of the FWA's can be identified by gathering feedback from the operational level. The feedback is very important for serving the projects better by offering framework agreements in correct categories.

As the data is gathered in the workshops regionally, it needs to be further analyzed and pulled together for creating an overall picture about the possibilities identified in the regions. Valid information can be gained also by comparing the similarities and differences between the regions.

After identifying and defining the rising possibilities they are presented to the Finnish Sourcing Board in tollgate 1. Based on the comments got from the board the prioritization of the categories is made in the following phase of the planning process.

#### **5.4.5 Category prioritization**

Based on the identification of possibilities, spend analysis and identified needs, the information is analyzed and category prioritization made. It has been noted in the case company, that the prioritization phase is one of the challenging one in the planning process. The major question is how to then identify which categories are the strategic and critical ones?

As brought up, the procurement spend has been playing a key role as prioritization factor. Undoubtedly, it is a meaningful factor when prioritizing the categories, but main observation and comments based on also the expert interview is, that the spend information is just a guideline and more emphasis must be given to the cross-functional discussions.

The prioritization issue has been taken into account in the excel tool. The importance of the category has been requested to be defined by the regional persons, including the site managers. The priority defined in three levels 1) low, 2) medium and 3) high. In this way, the responsibility of the prioritization is expanded also outside of the procurement. The inter-organizational collaboration was highlighted also in the expert interview to increase the integration in the whole organization. In the case company this means collaboration from the site level to the strategic procurement and further to the management level.

In the prioritization phase the preselected subcategories are analyzed based on their importance to the overall business. As a result of this phase, the strategically important subcategories should be identified for the actual category specific planning. As the identification of the possibilities has been done regionally, it is then possible to also identify the most meaningful operational areas and the factors that are playing a critical role in these areas. The prioritization should include analysis concerning the procurement volumes and possibilities to utilize the large volume to gain cost savings and increase competitive advantage.

Additionally the prioritization should basis to the structures of the procurement, as mentioned earlier concerning the example of floor work. It is evident to identify the critical factors in the categories from the item level. The category work done in the case company is a good example, how to gain information from the existing possibilities and critical factors in the categories: though all of the categories had specific affecting factors, it was identified that the knowledge of the categories in item level was playing a significant role in identifying the possible saving potential.

Relating to the structural factors, and complexity of the item structures, possibility to standardize can be considered to be a prioritization factor. By standardization it is possible gain cost savings in categories where the complexity of the structures can be simplified.

The fragmentation of the supplier field and risk identification is also issues that should be taken into account when defining the prioritization of the categories. If the supplier field within the category is fragmented and includes a great amount of suppliers, it would be appropriate to allocate resources to identifying would there be possibilities to gain savings through bidding and contracting, for example. When concerning the risks related to the external environment of the case company, relevant information can be gained by following the price development, changes in the operational environment, especially following how the business of the suppliers is developing and how the availability of the procured items is developing. Major changes in price levels and availability problems give indications, to which should be paid attention and take into account the category prioritization. This notion came up also during the expert interview.

The strategic importance is not then depending only on the large share of procurement spend and many other aspects need to be taken into account, including the presented factors. The prioritization is then executed based on the previous phases and the data collected regionally with the excel tool. The final selection of the prioritized categories should be addressed to be responsibility of the Finnish Sourcing Board and Management Team. The phase is yet opened in the following (Figure 15).

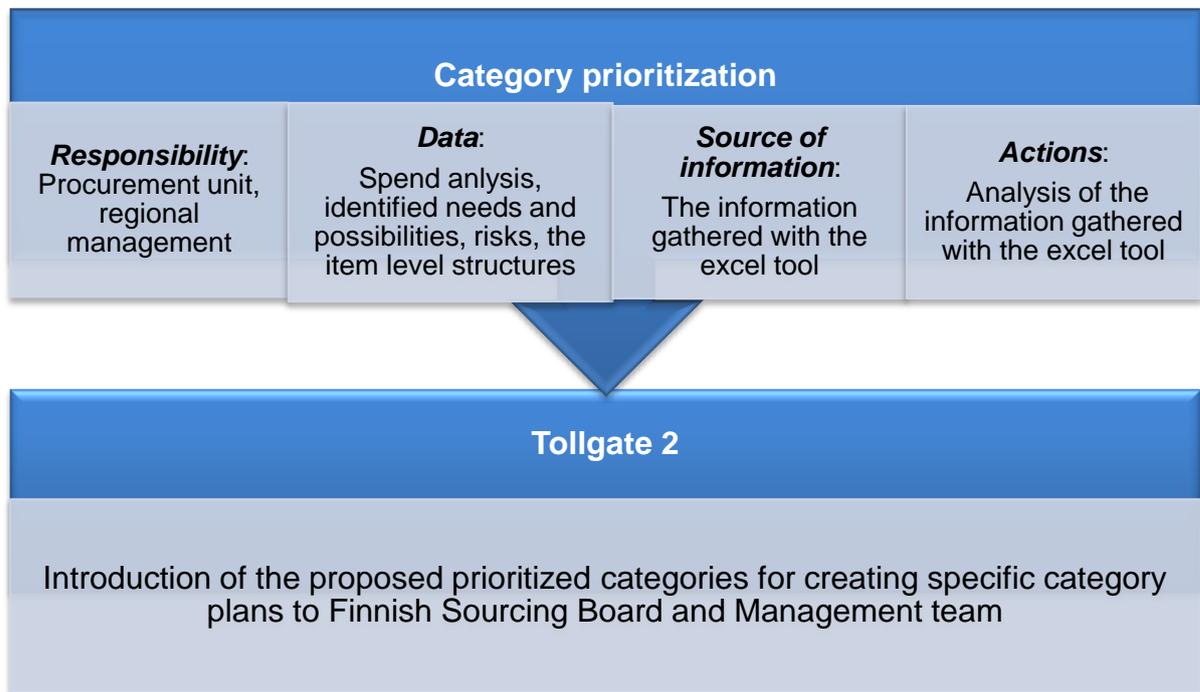


Figure 15. Category prioritization

#### 5.4.6 Planning

After addressing the priorities for the categories and selecting the strategically important ones, the next step is to establish category specific plans to each category (Figure 16). The responsibility of execution of the category plans are addressed to the procurement unit and category managers. Based on the interview, the execution of the category plans was primarily the responsibility, but later for example the planning department was involved as well in the category work. The aim then should be also in the case company to success in involving other departments to the category planning, but it is clear, that in this current situation, the procurement unit needs be the example and show the possible benefits that can be achieved with category planning.

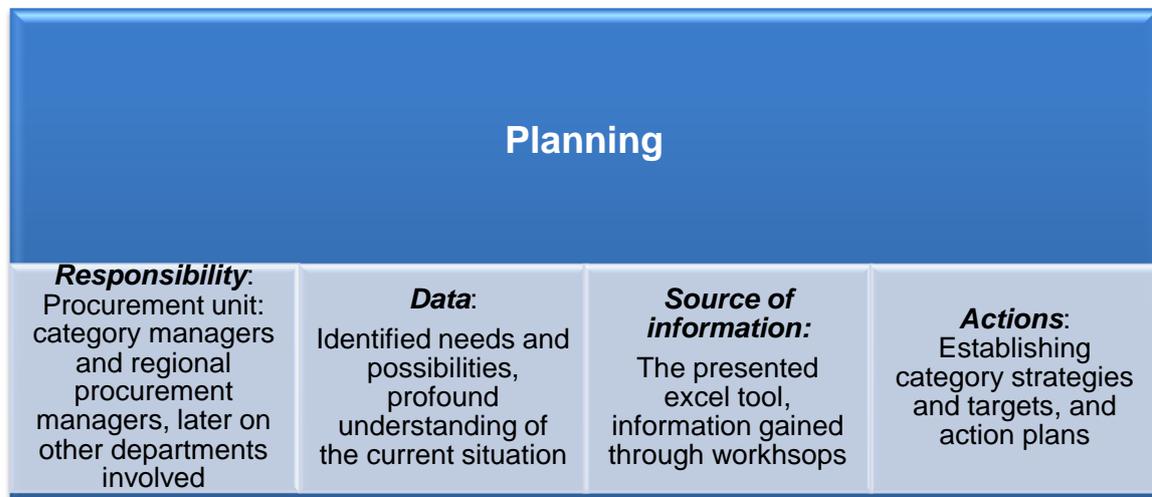


Figure 16. Category specific planning

The common, overall business strategies, and moreover, the common targets of the company bounds the external organization of the procurement to the planning process. It is evident to follow the business strategy and targets in the category planning. It has been brought up frequently in the case company that the involvement and support from the top management is not sufficient enough. Though the involvement and support from the management is important, especially when implementing new business practices, the input for the support must be demonstrated and the benefits to be shown practically.

The established excel tool offers valid information to the actual category specific planning. The purpose of the planning phase is to establish category specific strategies and targets based on the previous analysis and cross-functionally gathered information. The case company have been using Nordic scope category cards for establishing the category plans, but based on the feedback, the usage of them is not defined sufficient enough. The purpose of the cards is to conclude the new plans and therefore can be seen useful, but it can be stated that they are lacking the guidance for further usage.

Based on the established strategies and targets, the action plans should be developed for each category and define actual action for achieving the targets. The

action plans should include regional and business unit specific perspective and for that reason the involvement of the regional procurement people and managers is seen evident. The establishing the action plans is closely related also to the next phase of the process, which is discussed in the following.

#### **5.4.7 Specific research**

The specific research (Figure 17) is the context defined to include profound analysis of the potential savings, needed resources and budgets for successfully execute the established plans. In this phase it needs to be demonstrated the improvements that will be achieved by concentrating to the selected categories, as the phase is followed by the last tollgate, where the mandate for the implementation of the category plans is given.

The action plans should be specified with the analysis presented above. Additionally, measuring points for follow up should be addressed. The measuring of the success of the category plan execution is not necessary an easy task to do. In accordance to the expert interview, it was outlined, that the most important measure for the category plans are the actual influences to the result of the company – the achieved savings or operational improvements in the operations within the category.

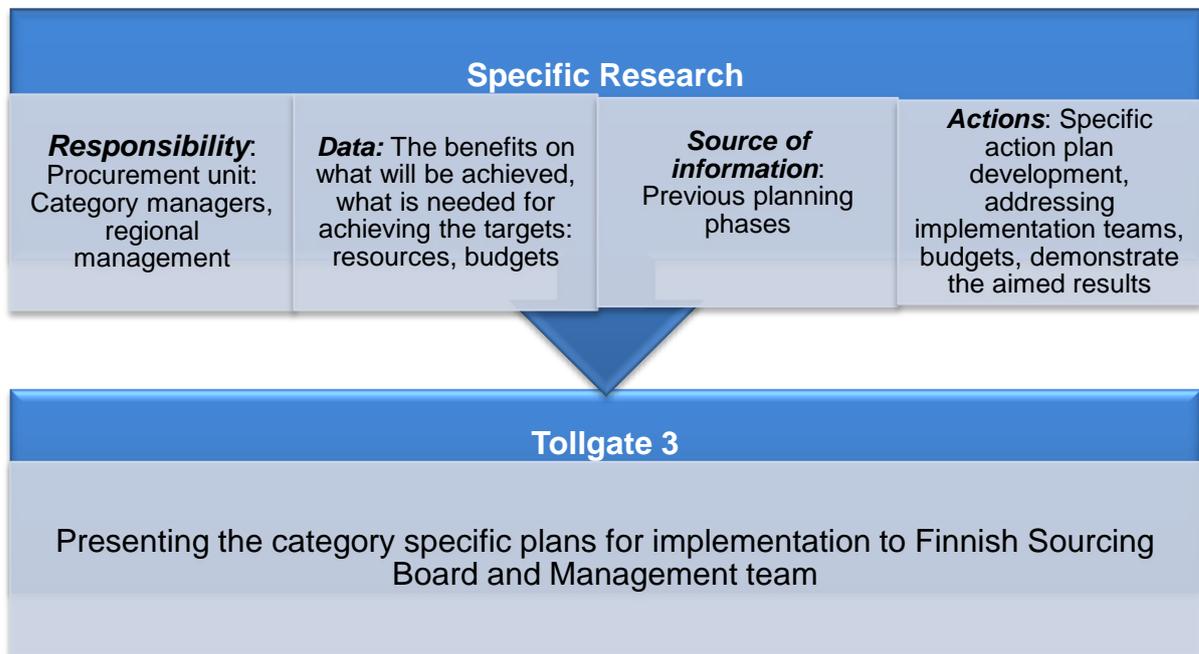


Figure 17. Specific research

In addition to addressing the goals, budgets and other specific plans, it is evident to make a plan for the implementation phase. As it is now highlighted, to success in the implementation process, the responsibilities must be addressed and defined clearly. For that reason, it is important the plans include proposals of the formation of steering group and project group. Based on the interview and the experiences of the category planning in the interviewed company the steering group should be formed of the procurement and additionally include persons from different functions to utilize the varying competence and perspectives. The role of the procurement is to facilitate the execution. To run the implementation additionally a project team should be formed. Based on the interview and observations of the writer it is important to involve persons from the line level to the implementation. Main challenge is however to motivate the line persons and get them to understand the benefits of the planning and how the purpose is to facilitate the operations of the line.

In the theoretical part of the thesis the barriers – constraining forces were discussed. These issues should be analyzed in the specific research phase: it is important to identify the possible challenges and problems that might occur in the implementation

phase. As an example of a barrier can be defined, explicitly, the challenge of motivating line persons to involve in the planning process.

#### 5.4.8 Implementation

The execution of the category planning process has been done every year in Nordic countries. An interesting observation is that if the planning is ran every year, how there is time to implement the plans thoroughly. Should the category planning process then be ran at yearly basis? According to the expert interview it is not relevant run the planning process every year. Though, the market situation in construction industry can change even very rapidly, it could be more efficient to plan more long-term oriented. As the framework agreements are mainly done for two to three years at the time, the planning process might be most efficient to combine to the framework agreement process more genuinely. The category planning is the first step in the framework agreement process, but however it should be emphasized more.

The implementation phase (Figure 18) should have a significant meaning in the planning process. There is no sense to make plans without profound implementation – it is impossible to achieve the aimed targets without careful implementation.

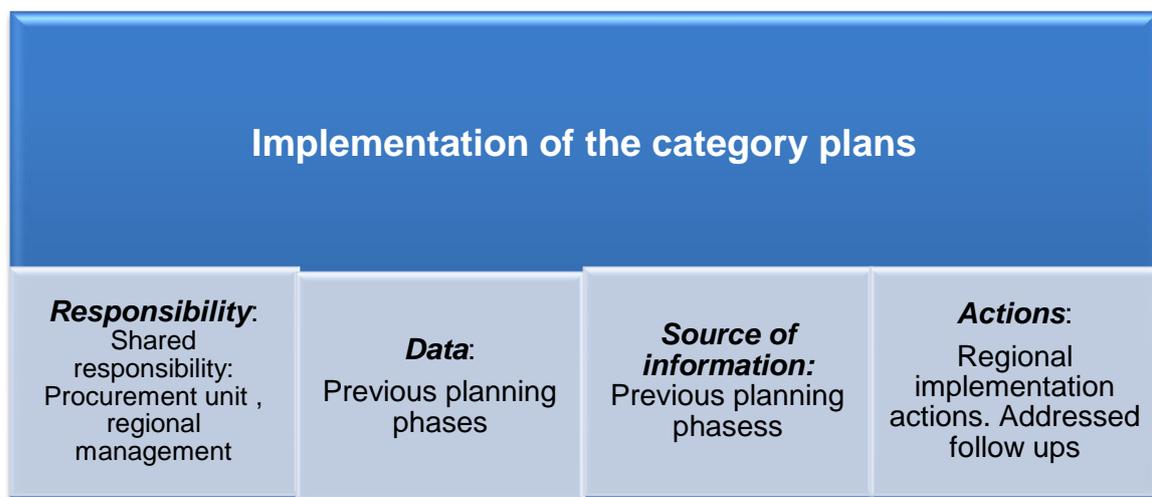


Figure 18. Implementation of the category plans

As brought up within the specific reasearch phase, it is essential to form steering group for the implementation phase and additionally category spesific project teams. The implementation process is not automated, especially not at the current situation of the case company. For that reason, the implementation requires resourcesto be succesfull. The involvement of the procurement unit is then not sufficient enough. However, as noted earlier, it might be challengin to success in gathering motivated persons to the implementation. The motivation is a driving factor that facilitates the implementation. Nonetheless if the cross-functionality is succesfully involved in the early planning phases, it is a lot easier to involve them also in the implementation. To facilitate the implementation, the plans it is seen necessary to establish the implementation plans regionally.

In the following figure 19 it has been identified possible drivers and barriers for the implementation phase (Figure 19).

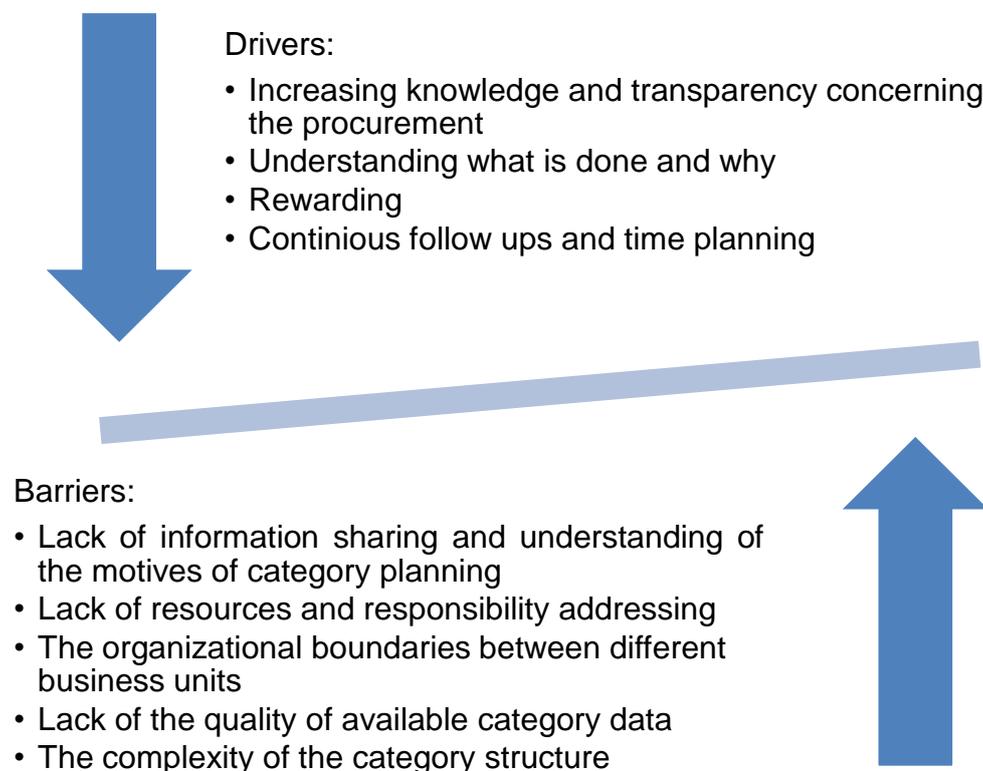


Figure 19. Drivers and barriers in the implementation

As brought up, the implementation takes time. In the interviewed company, the implementation took one year. It was seen in the interviewed company that the planning would be relevant to run every two or three year. With this timeframe, the implementation of the plans can be executed, and there is time for careful follow up. Though the planning process would be ran every three years, it is natural that the follow up and measurement of the results must be continious: in the interviewed company the follow up was a part of monthly routines. It is clear the need of the resources can be significant and time consuming, so for that reason the proposal for the follow ups is to execute them quaterly. As the project teams are set up, the information of the results should rise from these teams about the achieved results. The follow ups does not necessarily need to be more than a discussion of the current situation versus the starting point: what is achieved and how and if the results are not at the desired level, why and what could be done then to get to the desired stage. The follow ups and measuring points need to be planned in advance and the desired results clearly addressed.

## 6. RESULTS AND CONCLUSIONS

The aim of this thesis was to develop the category planning process in the case company. As the interest in the field of research has just recently started to emerge towards the benefits of category management and planning, the theoretical background was strongly derived from literature of subjects with a relation to category planning – as the existing literature of category planning is currently strongly focusing on retail industry. The background for category planning was derived from procurement strategy and purchasing portfolio model. In addition, information flow management and cost analysis were found to be meaningful perspectives influencing on category planning. Based on the created background the category planning process was discussed through a process model presented by Timonen (2001).

As the case company has organized the procurement partly centralized and partly decentralized depending of the strategic level of the procurement, the benefits and disadvantages of these two strategic directions were presented (Van Weele, 2005; Iloranta and Pajunen-Muhonen, 2012). It was identified that to exploit the available opportunities of optimization most effectively, the case company should leverage differentiated strategies to different categories (Wagner and Johnson, 2004; Olsen and Ellram, 1997; Dubois and Pedersen, 2002; Luzzini et al. 2012). The classification of the categories and strategies for different dimensions were discussed basis of Krajlic's (1983) 2x2 matrix.

In accordance to Pearson and Gritzmacher (1990) to developing differentiated strategies for categories, the ability of the company to combine the variety of the knowledge and competence of procurement and its external function was outlined and should be exploited more comprehensively in the case company. Basis of the empirical study the case company is not yet fully exploiting the variety of existing expertise of the company. This issue was mainly identified to relate to the lack of fluent information sharing, which was clearly identified between the procurement unit and other functions in the case company.

Based on the presented theory and empirical study, important factors influencing to the success of the category planning process were identified. Cross-functional information sharing and involvement in the category planning process was identified to be evident and outlined also in the interview. In accordance to Freeman and Cavinato (1990) the information needed to the category planning process is not available solely in the procurement unit – the knowledge and competences from the line level to strategic management level with regional aspects are needed through the planning process. The importance of the cross-functional involvement was outlined also by the expert interview and was identified to be one of the core factors in all phases of the planning process. In addition to cross-functionality, a profound understanding of the structures of the items of the categories was identified to be a vital element in the category planning process. Based on the analysis made of the category structure and availability of the data concerning the procurement spend of different categories two important conclusions were made. Firstly, the determined category structure does not allow enough specific analysis of the categories as it is currently structured. Secondly the quality of the spend information is not valid enough. For this reason, the information related to these two factors need to be complemented with existing information of the people in different functions in the organization since the procurement spend and structures of the categories is yet the directing factor. Despite the fact, that the category structure is predetermined and unmodified, the case company should identify the matter of fact, that by reconstructing the category structure, it could be possible to improve the clarity of category structure and data quality related to the procurement spend.

The development of the category planning process was approached through these presented factors and each phase of the process was critically analyzed in the empirical study. As the case company was not systematically following the existing process model cause of the missing clear instructions and guidelines, proposals for addressing responsibilities, identifying the source of the needed data and actions were presented based on the discussed theories, interview and discussions in the case company.

To facilitate and clarify the category planning process the excel tool presented in the chapter 5 was established. To conclude the potential benefits of the excel tool and systematic category planning clear benefits can be identified. The company can increase knowledge of procurement i.e. what is procured and from where. This leads to increasing potential to identify and exploit standardization possibilities in more genuine way. Additionally, the systematic approach can be increased in practical work. As the knowledge of the categories increases, the coordination of the procurement improves. It was found that there exists a clear gap between procurement unit and other functions of the company. By increasing the cross-functional collaboration in the category planning, the transparency of procurement increases. Through the cross-functional involvement to the planning process, transparency and understanding of the purposes and tasks of the category planning spreads to other functions. As a result, the responsibility of the category planning can be distributed also outside of the procurement unit with shared workload in the category planning.

The implementation of the category planning process was studied through identifying driving and constraining factors related to the success of the implementation (Dupre and Gruen, 2004; Titus and Bröchner, 2005). The identified barriers were presented in figure 19 and were closely related the data quality issues. Additionally it was found that the lack of responsibility addressing with inadequate understanding and motivation towards the implementation might constrain the successful implementation of the category planning process. The implementation of the category planning process was also brought up in the interview. Basis of the interview the implementation of the category plans was found to require above all cross-functional information sharing concerning the executed category analysis to indicate the potential benefits to other business units and through the whole organization.

In conclusion and for further studying, based on the theories and the empirical study the proposal of the category planning process is given and a tool developed for gathering essential information to support the execution of the process. The presented proposals for the case company can be considered to be a framework and

guidelines for the implementation of the category planning process into the practices of the company. The theoretical background of the thesis did not give direct instruction for executing and implementing the process. Basis of the interview, the input for the implementation of the category planning comes from the procurement unit. However, to successfully implement new practices, cross-functional steering group should be formed to specify the proposed process model further. The first step for the case company in the implementation is to achieve a mutual understanding of the meaning and aims of the category planning. The most probable challenge the case company will most likely face in the implementation process is how to maintain the involvement of the external stakeholders i.e. business unit and regional managers to the category planning process. The functionality of the category planning process could be tested through pilot project and further development acts done by the practical experience.

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# APPENDIXES

## Appendix 1: Interview questionnaire

<b><u>Interview concerning category planning: 13.8. Expert interview</u></b>
<b><u>The starting point for category planning:</u></b>
1. How the procurement is organized in the company? (Centralized/Fragmented/Regional etc.)
2. When and why the category planning was started?
3. From where the input for category planning came and is coming at the moment?
4. What were the starting point and background information for category planning?
5. Which factors should be taken into account at the beginning of the category planning?
6. How and what kind of data is needed for the category planning?

7. What tools are exploited in the category planning?'
<b><u>Selection of the categories:</u></b>
8. How are the categories prioritized?
9. How are key factors identified in the categories?
10. How these are prioritized categories worked with and by who?
11. How the category planning is seen as a support for procurement?
<b><u>Decision making and implementation:</u></b>
12. How long the implementation of the category plans did take and how was the implementation phase managed?
13. Who participated in the implementation phase?
14. Who are participating to the decision making concerning possible actions?
15. What kind of challenges or problems has occurred in different phases of

category planning and they were solved?

**The continuum of planning process:**

16. How the planning can be enhanced and specified?

17. What kind of benefits can be gained through category planning?

18. How the continuum of the planning process can be ensured?

19. How often the planning process should be repeated and by which arguments?

**Measurement and evaluation:**

20. How the results of the category planning can be measured and evaluated?

21. How the influences of the category planning are evaluated and followed up? (For example savings?)

22. What kind of influences category planning has to procurement?

**Taking the external environment and international aspect into account:**

23. How is the international aspect taken into account in category planning?

24. How are the external stakeholders related to the planning?

25. How are the changes in company's external environment taken into

account in category planning?

## Appendix 2: Subcategories covering 80 % of the total procurement spend

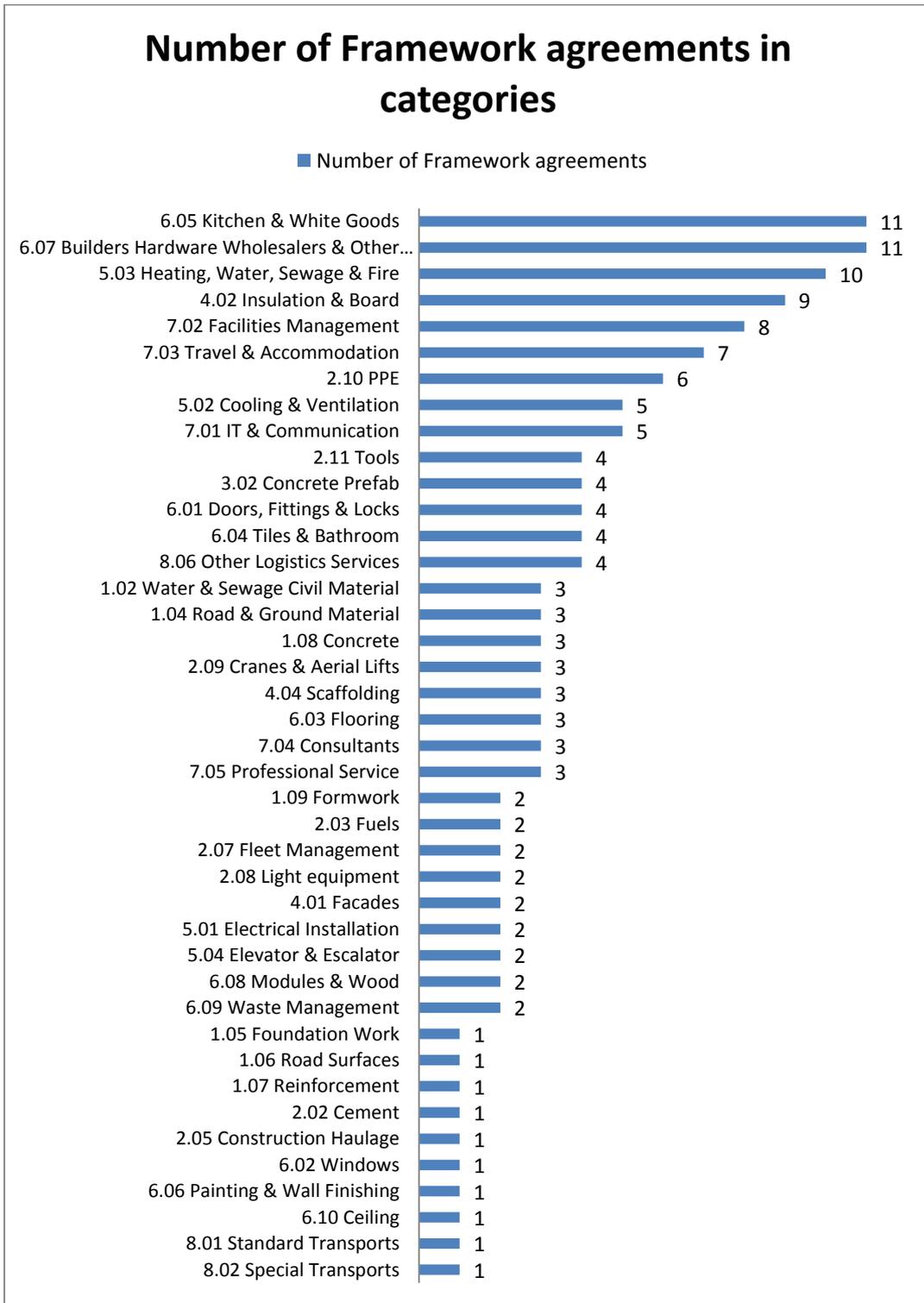
Subcategories covering 80 % of the total spend	Sum of Consolidated Invoice Amount (EUR)	% of the total spend	Cumulative % share of the total spend
01.03.01 Prefab concrete element Material	45 653 234,4	6,84 %	6,84 %
12.26.01 Ground Works	36 050 594,9	5,40 %	12,24 %
12.05.01 Water and sewage Work	28 731 517,6	4,31 %	16,55 %
08.05.06 Office supply Material	26 525 860,4	3,97 %	20,52 %
08.01.99 Other (Insurance) Service	24 232 546,0	3,63 %	24,15 %
07.01.01 Site transport/hauler Services	17 672 810,7	2,65 %	26,80 %
02.01.01 Builder and Metal Hardware Wholesaler	16 552 014,0	2,48 %	29,28 %
05.04.01 Concrete piling Material	13 200 198,0	1,98 %	31,26 %
01.02.01 Ready-mix concrete Material	12 829 473,3	1,92 %	33,18 %
06.01.01 Bitumen (asphalt oil) Material	10 914 898,4	1,64 %	34,82 %
09.06.99 Other (Technical consulting) Service	10 729 962,7	1,61 %	36,43 %

12.15.99 Other (Paint) Work	9 983 889,1	1,50 %	37,92 %
04.05.01 Equipment Work	9 789 968,3	1,47 %	39,39 %
12.08.01 Floor Work	9 724 068,0	1,46 %	40,85 %
03.07.01 Kitchen and bathroom cabinet Material	9 177 999,3	1,38 %	42,22 %
12.31.04 Cast-in-place concrete Work	8 518 607,0	1,28 %	43,50 %
12.07.01 Window, skylight, glass and steel Work	8 356 395,3	1,25 %	44,75 %
01.01.01 Reinforcement Materials & Equipment	8 151 430,4	1,22 %	45,97 %
14.01.01 Uncategorized Spend	8 031 096,6	1,20 %	47,18 %
12.22.01 Roof Work	7 653 141,5	1,15 %	48,32 %
09.03.01 Scaffolding	7 545 407,2	1,13 %	49,45 %
09.01.01 Site accomodation (Camps, cabins & barracks, etc)	7 153 199,9	1,07 %	50,52 %
08.99.99 Other (Indirect) Material & Service	7 048 205,7	1,06 %	51,58 %
12.13.01 Ceiling Work	7 037 817,6	1,05 %	52,64 %
08.09.01 Fuel Material	6 667 714,6	1,00 %	53,63 %
09.06.02 Architect Service	6 660 722,0	1,00 %	54,63 %
12.30.01 Asphalt Works	6 582 739,2	0,99 %	55,62 %
09.01.08 Lease and rental of property or building Service	6 463 047,8	0,97 %	56,59 %
06.03.01 Infrastructural (Ballast & Crushed Stones) Material	6 208 654,1	0,93 %	57,52 %
09.05.05 Tower cranes rental	6 045 390,2	0,91 %	58,42 %
12.03.01 Ventilation Work	5 825 696,8	0,87 %	59,30 %
03.02.01 Window Material	5 708 867,3	0,86 %	60,15 %
07.03.01 Excavator Service	5 682 572,6	0,85 %	61,00 %
12.31.03 Concrete reinforcement Work	5 643 742,7	0,85 %	61,85 %
12.20.01 Sheet metal Work	5 607 427,3	0,84 %	62,69 %

12.21.01 Construction steel Work	5 291 843,8	0,79 %	63,48 %
12.36.01 Stone crush and extraction of rock Work	5 207 219,2	0,78 %	64,26 %
12.26.02 Landscaping Works	5 170 927,0	0,77 %	65,04 %
03.10.01 Kitchen and laundry appliances	4 808 275,5	0,72 %	65,76 %
10.01.03 Drilling Equipment	4 769 681,3	0,71 %	66,47 %
12.09.01 Tile Work	4 627 450,7	0,69 %	67,17 %
01.01.99 Other (Steel) Material	4 599 720,4	0,69 %	67,86 %
12.23.01 Foundation piling Work	4 565 644,2	0,68 %	68,54 %
12.31.99 Other (Concrete) Work	4 410 548,3	0,66 %	69,20 %
08.03.03 IT Service	4 357 864,0	0,65 %	69,85 %
08.04.99 Project Collaboration Tools	4 310 089,5	0,65 %	70,50 %
08.04.02 Financial Service	4 269 034,0	0,64 %	71,14 %
09.02.01 Electricity Service	4 219 042,6	0,63 %	71,77 %
12.14.01 Plastering, brick and mortar Work	4 014 863,6	0,60 %	72,37 %
09.05.08 Heavy equipment (Excavator, loader, etc.) Rental	3 910 511,8	0,59 %	72,96 %
01.03.02 Steel Element	3 602 473,8	0,54 %	73,50 %
04.02.99 Other (Water & sewage) Building Material	3 578 230,0	0,54 %	74,04 %
12.28.01 Insulation Work	3 563 847,2	0,53 %	74,57 %
03.01.02 Metal door Material	3 495 579,6	0,52 %	75,09 %
12.19.01 Construction Site Cleaning	3 378 619,3	0,51 %	75,60 %
12.21.99 Other (Construction steel) Work	3 338 613,3	0,50 %	76,10 %
12.11.01 Stone/brick Work	3 275 317,9	0,49 %	76,59 %
12.24.01 Demolition Works	3 072 773,4	0,46 %	77,05 %
10.01.99 Other (Construction) Equipment	3 052 290,0	0,46 %	77,51 %
05.09.02 EPP (external plastic pipe)	3 033 165,1	0,45 %	77,96 %

Material & parts			
05.09.99 Other (Water & Sewage Civil) Material	2 964 015,1	0,44 %	78,41 %
12.01.99 Other (Electrical) Work	2 896 234,9	0,43 %	78,84 %
09.05.99 Other (Site services and equipment rental)	2 791 210,8	0,42 %	79,26 %
12.25.01 Elevator Material and Work	2 778 325,6	0,42 %	79,68 %
08.06.01 Soft and Hard Facilities Management	2 678 584,3	0,40 %	80,08 %

### Appendix 3: Number of framework agreements in categories



## Appendix 4: Example of regional differences in categories covering 80 % of the total spend in the category

Infrastructural building	Grand Total	% of total spend	Cumulative % of total spend
5.05 Ground Work	11426891,64	9 %	9 %
2.05 Construction Haulage	9415221,76	7 %	16 %
1.04 Road & Ground Material	9008992,873	7 %	23 %
1.05 Foundation Work	8115173,417	6 %	29 %
1.08 Concrete	7358712,08	6 %	35 %
7.06 Insurance	6719449,3	5 %	40 %
1.03 Ballast & Crushed	6443881,089	5 %	45 %
2.04 Heavy Equipment Investment	6221443,7	5 %	50 %
7.02 Facilities Management	5463665,057	4 %	54 %
1.01 Loader & Excavators Service	5120028,64	4 %	58 %
1.06 Road Surfaces	4706117,445	4 %	62 %
1.02 Water & Sewage Civil Material	4511260,493	3 %	65 %
1.07 Reinforcement	4291378,147	3 %	69 %
3.01 Steel	4281903,73	3 %	72 %
7.04 Consultants	3986577,02	3 %	75 %
7.05 Professional Service	3187846,36	2 %	77 %
2.08 Light equipment	3081782,774	2 %	80 %

Building Services	Grand Total	% of total spend	Cumulative % of total spend
3.02 Concrete Prefab	47619799,64	10 %	10 %
5.03 Heating, Water, Sewage & Fire	34181741,82	7 %	18 %
7.02 Facilities Management	33000855,9	7 %	25 %
5.05 Ground Work	25728971,66	6 %	31 %
7.04 Consultants	24481933,44	5 %	36 %
1.08 Concrete	21858681,75	5 %	41 %
3.01 Steel	20957284,85	5 %	45 %
6.07 Builders Hardware Wholesalers & Other Interior	17407119,39	4 %	49 %
4.01 Facades	17004850,93	4 %	53 %
7.06 Insurance	14535640	3 %	56 %
6.05 Kitchen & White Goods	14515536,67	3 %	59 %
5.01 Electrical Installation	13412586,44	3 %	62 %
6.06 Painting & Wall Finishing	12370111,64	3 %	65 %
7.05 Professional Service	11323444,89	2 %	67 %
6.03 Flooring	11032610,27	2 %	70 %
1.05 Foundation Work	10844222,89	2 %	72 %
5.02 Cooling & Ventilation	9620523,582	2 %	74 %
1.07 Reinforcement	9417497,058	2 %	76 %
6.01 Doors, Fittings & Locks	8552824,785	2 %	78 %
4.02 Insulation & Board	8039283,585	2 %	80 %

Eastern Finland	Grand Total	% of total spend	Cumulative % of total spend in
5.05 Ground Work	5685618,057	8 %	8 %
7.04 Consultants	5333889,99	8 %	16 %
1.08 Concrete	4039021,787	6 %	21 %
1.01 Loader & Excavators Service	3944119,85	6 %	27 %
5.03 Heating, Water, Sewage & Fire	3927316,055	6 %	32 %
3.01 Steel	3713336,468	5 %	38 %
7.02 Facilities Management	3709167,995	5 %	43 %
6.07 Builders Hardware Wholesalers & Other Interior	3645982,607	5 %	48 %
3.02 Concrete Prefab	3479008,437	5 %	53 %
4.01 Facades	2657312,767	4 %	57 %
6.01 Doors, Fittings & Locks	2308470,195	3 %	60 %
6.05 Kitchen & White Goods	2238761,195	3 %	63 %
5.01 Electrical Installation	2130577,661	3 %	66 %
6.06 Painting & Wall Finishing	1942714,62	3 %	69 %
1.07 Reinforcement	1908701,393	3 %	71 %
4.03 Roof Covering	1701584,922	2 %	74 %
2.08 Light equipment	1698900,801	2 %	76 %
6.03 Flooring	1465839,584	2 %	78 %
5.02 Cooling & Ventilation	1434457,975	2 %	80 %

South-Finland Residential	Grand total	% of total spend	Cumulative % of total spend
3.02 Concrete Prefab	14148799	15 %	15 %
7.02 Facilities Management	7059873,98	7 %	23 %
5.05 Ground Work	6929920,41	7 %	30 %
4.01 Facades	6444362,74	7 %	37 %
7.04 Consultants	5257284,42	6 %	42 %
6.07 Builders Hardware Wholesalers & Other Interior	4829918,74	5 %	47 %
6.05 Kitchen & White Goods	4627183,03	5 %	52 %
1.05 Foundation Work	4609278,2	5 %	57 %
1.08 Concrete	3847931,9	4 %	61 %
6.03 Flooring	3226043,25	3 %	65 %
3.01 Steel	2929551,55	3 %	68 %
5.01 Electrical Installation	2799228,68	3 %	71 %
6.06 Painting & Wall Finishing	2486912,98	3 %	73 %
6.02 Windows	2012982,44	2 %	76 %
5.03 Heating, Water, Sewage & Fire	1943545,01	2 %	78 %
2.08 Light equipment	1896843,98	2 %	78 %
1.07 Reinforcement	1868392,36	2 %	80 %