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BEST PRACTICES IN E-PROCUREMENT IMPLEMENTATION

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ABSTRACT

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Despite the fact that e-procurement has become more common phenomenon in the past decade and its benefits are well-known, many implementation projects have ultimately proven to be unsuccessful. Therefore, the objective of this thesis is to discover how implementation process should be executed in order to accomplish a successful implementation of e-procurement system. Moreover, the study focuses to assess the case company's current state of e-procurement infrastructure to find out whether changes to current systems are needed at the first place. Potential challenges faced during the upcoming implementation process and how to outcome them are also addressed in the study. The possible new e-procurement solution's effects to purchasing function are also explored as the new solution is expected to offer plenty of potential advantages and enhance the activities of indirect procurement.

The research is conducted as a qualitive intensive case study and the data has been collected by semi-structured interviews among the case company's procurement department. The results demonstrate that change management has a critical role in change projects as the new system won't provide any value itself without the users who are willing to use it. Thus, acquiring buy-in from users is vital. It can be achieved by open and clear communication throughout the implementation process. On-going support and trainings are also recommended for users to mitigate possible resistance against the change. The role of purchasing function is anticipated to develop further to more strategic direction due to possible upcoming change.

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Siitä huolimatta, että sähköiset hankintajärjestelmät ovat yleistyneet viime aikoina, ja niiden tarjoamat hyödyt ovat yleisesti tiedossa, niin useat uusien järjestelmien käyttöönottoprojektit ovat epäonnistuneet. Tutkimuksen tarkoituksena on selvittää, miten uusi sähköinen hankintajärjestelmä saadaan otettua onnistuneesti käyttöön, ja mitä tekijöitä tässä prosessissa tulisi ottaa huomioon. Tutkielma arvioi case-yrityksen sähköisten hankintajärjestelmien nykyisen tilanteen, jotta saadaan selville tarvitaanko muutoksia nykytilanteeseen. Tutkimuksessa selvitetään uuden järjestelmän käyttöönoton mahdollisia haasteita. Mahdollisen uuden sähköisen hankintajärjestelmän vaikutuksia käydään läpi, sillä uuden järjestelmän odotetaan tehostavan yrityksen epäsuoria hankintoja ja tarjoavan uusia mahdollisuuksia.

Tämä tutkimus on toteutettu kvalitatiivisena tapaustutkimuksena, ja tutkimuksen aineisto on kerätty puolistrukturoituina haastatteluina. Haastateltavat ovat case-yrityksen hankinta-osastosta. Tutkimuksen tulokset osoittavat, että muutosjohtamisella on keskeinen rooli muutosprojekteissa, sillä uusi järjestelmä ei tuota lisäarvoa ilman käyttäjiä. Sen takia on tärkeää saada käyttäjät hyväksymään tuleva muutos ja uusi järjestelmä. Tätä tavoitetta helpottaa avoin ja selkeä kommunikaatio koko järjestelmän käyttöönottoprosessin aikana. Tulosten perusteella jatkuva tuki ja koulutuksen järjestäminen käyttäjille on suositeltua. Epäsuorien hankintojen roolin odotetaan muuttuvan yhä strategisempaan suuntaan mahdollisten tulevien järjestelmämuutosten takia.

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1. INTRODUCTION

Rapid development in information technology has transformed the way of conducting business. This revolutionizing change began from the 1990s as new e-commerce technologies appeared along with the entrance of internet. Firstly, by 1991 e-commerce included five basic facilities: e-mail, fax, electronic data interchange (EDI) and groupware, and by 1995 the development continued with emphasis on a security alongside diversity of secure transaction processing services (Yen & Ng, 2003). Ever since, the use of e-commerce in B2B-markets has increased significantly which has eventually led to remarkable adoption of new supply chain-related technology and applications by companies worldwide (Smart, 2010).

In the area of procurement and purchasing it has been a transformation phase into more strategic direction with strategic sourcing alongside e-procurement. Smart (2010) points out that companies have understood the potential for increasing both profits and stock values by leveraging buying power and reducing spend with external suppliers. It has led to wide recognition of the need for different tools and technologies which can ultimately assist companies' procurement departments to enhance their productivity and contribution to value creation (Smart, 2010). These previously mentioned tools and technologies that support procurement are combined in a concept called e-procurement. E-procurement's primary objective is to automate the buying cycle, optimize spend, improve processes, support bidding and tendering and enable more efficient search of products and services via the internet (Smart, 2010).

Piotrowicz and Irani (2010) have listed most typical e-procurement benefits which are reduction of transaction cost and buying price alongside enhancing both purchasing process and information exchange. Centobelli, Cerchione, Converso and Murino (2014) confirm advantages of e-procurement by stating that automated procedures for purchasing through e-procurement technologies enable companies to achieve a noteworthy reduction in costs (averagely 8 – 12 %) of total purchases.

However, despite the generally accepted benefits of e-procurement, in many cases these benefits fail to be realized. The reason for failing to capture desired results are often due to an unsuccessful implementation of e-procurement which can become very costly for

organizations. Many corporations tend to lack an approach to comprehensively and quantitatively estimate their options, benefits and risks which is very vital since a company should be able to evaluate carefully its own business and procurement processes in order to be able to implement the systems that are most suitable for them (Trkman & McCormack, 2010). Chang (2013) reminds that before implementing e-procurement, organizations should carefully ponder challenges and risks involved in the implementation process such as end-user resistance, partner relationships and IT-system integration in order to achieve the best possible outcome.

1.1 Background and research gap

Even though e-procurement is a relatively new phenomenon it already has been studied quite a lot in past few decades. Its benefits and issues have been comprehensively investigated in numerous studies. However, most of the research in e-procurement implementation has been conducted from management's perspective (Brandon-Jones & Kauppi, 2018). Thus, only a slight amount of research on implementation of e-procurement has focused on the perspective of internal customers. Internal customers are the end-users of e-procurement systems and therefore, their perception on the subject is essential and also a pivotal research subject. Traditional approach of purchasing has changed from centralized into decentralized which will also have a significant effect on the role of personnel in purchasing (Centobelli et al., 2014). Therefore, it is logical to study internal customers perspective on e-procurement implementation and their own role in it.

Brandon-Jones and Kauppi (2018) highlight the growing attention on internal customers role in influencing the success of several e-business projects. Furthermore, users' reluctance to notable changes in business processes has been noted as one of the key issues in the implementation of e-procurement systems (Angeles & Nath, 2007; Day, Fein & Ruppersberger, 2003). Users' reluctance could suggest that users are not impressed with the arrival of a new e-procurement system which might indicate that either the system is not the most suitable for users' needs or users haven't been convinced of the system's operability and functionality for some reason. Therefore, change management has also a major part in implementing processes of new e-procurement systems. Although change has been toted to be a key success factor nearly in every IT-related project, companies still need to comprehend the complexity involved in change management (Smart, 2010).

Lines, Sullivan, Smithwick and Mischung (2015) illustrate that implementation of new procedures in procurement requires a concerted change management effort to support organizational members who need to learn new approaches besides dismissing the old habits and methods. Ahn, Adamson and Dornbusch (2004) note that according to some studies even more than half of the change management initiatives can't make an enduring effect for companies. Bendoly and Schoenherr (2005) add that majority of these above-mentioned unsuccessful change initiatives is due to incomplete implementation strategies. Thus, this phenomenon is something that should be really studied more thoroughly.

Jain, Abidi and Bandyopadhayay (2018) suggest that use of e-procurement system is one of the most crucial factors in controlling complex supply chain systems nowadays. Nevertheless, simply implementing e-procurement infrastructure won't necessarily bring an instant success for the implementing company. Hawking, Stein, Wyld and Foster (2004) indicate that e-procurement is not merely a strategic actor in supply chain but also a key driver in extending and developing in such networks. Hsin Chang, Tsai and Hsu (2013) support this statement by stating that any phase of e-procurement implementation process can provide additional value for companies through the utilization of IT-based resources. Furthermore, information sharing tends to decrease order processing costs remarkably by reducing transaction cost besides providing also improvements in controlling and managing supply chains (Hsin Chang et al., 2013). Jain et al. (2018) also point out that e-procurement implementation might help an enterprise to acquire and develop knowledge within its supply chain partners such as suppliers, customers and markets. Therefore, a link between e-procurement and an efficient supply chain management can be identified which ultimately adds the overall value e-procurement might be able to offer for companies.

1.2 Literature Review

E-procurement and implementation process have been studied for a while now ever since the introduction of e-commerce. It has been noted that it provides wide array of possibilities. The key themes and articles have been listed on Table 1 below. Rai, Brown and Tang (2009) have comprehensively addressed the wide range of different e-procurement applications which are mostly designed for following areas: 1) Supplier selection (online reverse auctions); 2) Order placement (electronic catalog management); 3) Order fulfillment and lastly, 4) Payment and settlement.

Exploring e-procurement benefits is crucial as typically implementation processes entail affirmation to initiate the process. Piotrowicz and Irani (2010) remind that achieved benefits from e-procurement aren't purely financial. Out of most common benefits such as reduction of both transaction costs and buying price bring financial impact but the rest – shortening process, improvement of information exchange and control – are difficult if not impossible to be estimated financially (Piotrowicz & Irani, 2010). Therefore, benefits are often non-financial and intangible which can potentially be an obstacle in initiating e-procurement implementation project. E-procurement also offers possibility to consolidate sources and control maverick buying which can provide significant savings for organization (Puschmann & Alt, 2005).

E-procurement allows procurement to shift into more strategic direction as it reduces the needed resources in operational activities which releases more time and resources to strategic procurement and supplier management as illustrated later in Figure 3 (Puschmann & Alt, 2005). The ongoing transition has emphasized the importance of strategic sourcing. Strategic sourcing has changed the purchasing function's role from traditional transaction-processing into more strategic role which includes effective cross-functional collaboration with purchasing and different departments of the company, and also both information sharing and development with the key suppliers (Kocabasoglu & Suresh, 2006).

Bendoly and Schoenherr (2005) have focused to explore various strategic choices that firms are facing while determining the correct e-procurement system to go along with. A key observation is to find the correct system to fulfill company's own needs which means that company should do an extensive research before implementing a e-procurement system. Sila (2013) has studied factors that affect the adoption of e-commerce technologies. He uses TOE framework which includes three different contexts: technological, organizational and environmental. Angeles and Nath (2007) have gathered both success factors and challenges that are most essential in e-procurement implementation. They point out that corporations should focus on their supplier network as an entire value chain's performance is vastly affected by other members within the network.

As procurement has developed drastically, there has been and there will be a plenty of changes from now on as well. Philips and Wright (2009) have studied the importance of

flexibility in continuous change. They state that ability to adjust e-business processes to customer preferences is a necessity for online systems nowadays. Furthermore, all-sized organizations should realize the need for flexible structures while implementing their e-business strategy. Lines et al. (2015) state that: “successful implementation of new processes for procuring, contracting and managing requires a concentered change management effort”. Nearly all changes tend to face resistance at first and therefore, change management should be heavily invested in upcoming implementation projects.

Table 3. Summary of main articles

Main theme	Article	Authors
E-procurement applications	Organizational Assimilation of Electronic Procurement Innovations	Rai, Brown and Tang (2009)
E-procurement benefits	Successful use of e-procurement in supply chains	Puschmann and Alt (2005)
	Analyzing B2B electronic procurement benefits: information systems perspective	Piotrowicz and Irani (2010)
Strategic sourcing	Strategic Sourcing: An Empirical Investigation of the Concept and Its Practices in U.S. Manufacturing Firms	Kocabasoglu and Suresh (2006)
E-procurement implementation	How both the product and process of ERP system implementation can facilitate and increase the effectiveness of future e-commerce projects, such as B2B e-procurement	Bendoly and Schoenherr (2005)
	Factors affecting the adoption of B2B e-commerce technologies	Sila (2013)
	Business-to-business e-procurement: success factors and challenges to implementation	Angeles and Nath (2007)
Change management	E-business's impact on organizational flexibility	Philips and Wright (2009)
	Overcoming resistance to change in engineering and construction: Change management factors for owner organizations	Lines, Sullivan, Smithwick and Mischung (2015)

1.3 The aim of the study and research questions

The objective of this thesis is to address comprehensively how the e-procurement systems work in the case company presently and what kind of possibilities it is to further develop the tools and infrastructure. Especially, the research focuses on how to implement e-procurement tools effectively as the case company is currently considering implementing a new e-procurement solution concerning the Request-to-pay (R2P) process. E-procurement is a diverse and unique subject for each organization and their own business environment. Thus, this research concentrates to address best practices on implementation process rather from change management perspectives than technical specifications from different applications. Furthermore, this research focuses mostly on the case company and especially from its indirect procurement department's point of view.

Main research question:

- How the implementation process of e-procurement system should be executed?

Main research question's objective is to find out all the different fundamental aspects that should be considered during the implementation process in order to achieve a successful implementation of e-procurement. It turns out to be a complex and time-consuming process in which change management plays a major part.

Sub research questions:

- Why are the changes for the current e-procurement infrastructure considered?
- How to outcome possible challenges in e-procurement implementation?
- How e-procurement changes the role of purchasing function?

Sub research questions' role is to support main research question by bringing up versatile views from different perspectives to the subject. The first sub research question's aim is to find out why the whole implementation process is even considered at the first place. Why the change is needed at the first place and what possible benefits this change will offer to the company. The second sub question addresses the inevitable challenges that the

implementation processes tend to generate and especially, how to outsmart these challenges in order to have a successful implementation of new system. Finally, the third sub question focuses on how the purchasing function's and purchaser's role is affected with the implementation and development of e-procurement systems.

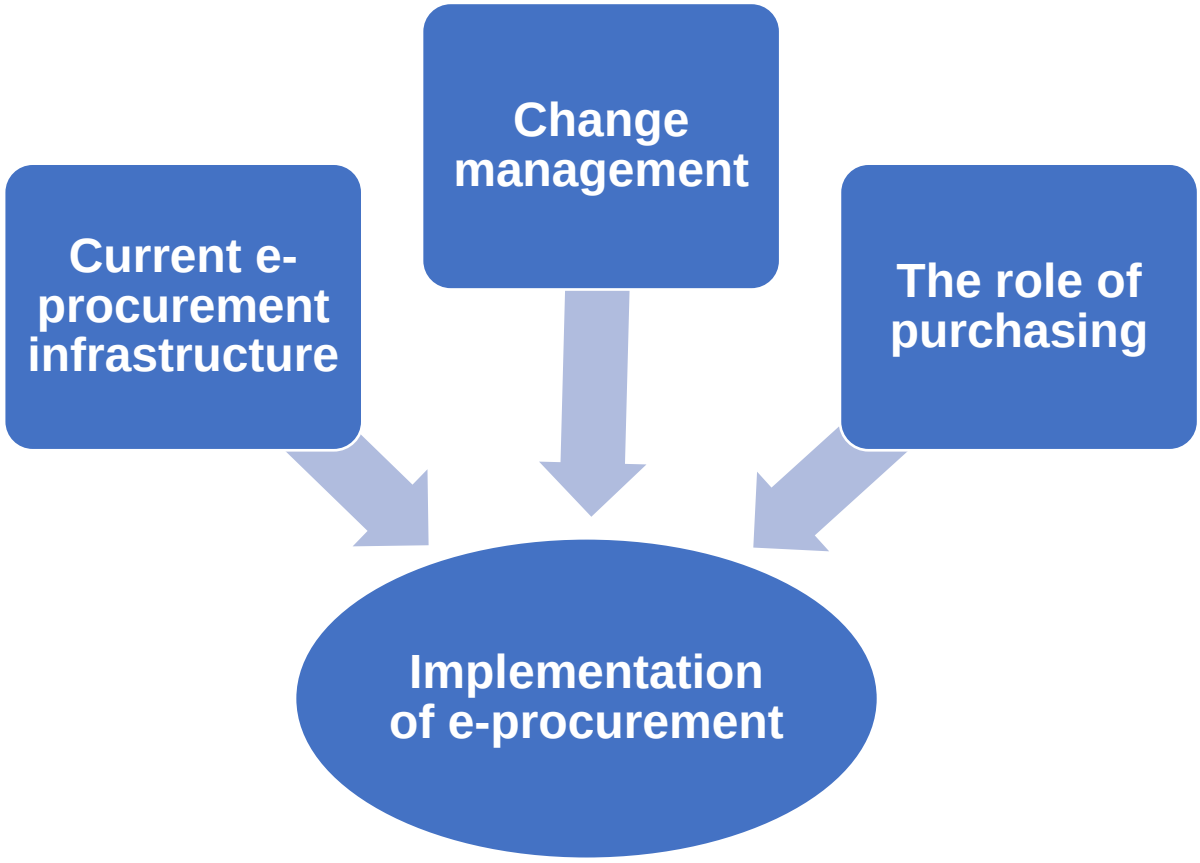

Figure 1. Conceptual framework

Figure 1 illustrates the conceptual framework of this research and it's strongly linked to the objectives and research questions of this thesis. Firstly, implementation of new e-procurement system is heavily affected by current e-procurement infrastructure as new application needs to be integrated to existent infrastructure. Secondly, change management has a significant role in implementation projects since the new application itself is not enough. Change management's purpose is to assure users that using new system will be beneficial in the long term even though it might require extra effort at first. Finally, the role of purchasing is chosen to the conceptual framework as it is remarkably interesting to find out what

kind of an effect possible implementation of new e-procurement will have to the purchasing function.

1.4 Definitions of key concepts

This thesis includes a few key terms and concepts which are explained briefly on this chapter in order to clarify main key terms. The target is to make this thesis easier to understand for readers.

Business process: “A set of inter-related activities conducts by a company to achieve its goals” (Mahendrawathi, Zayin & Pamungkas, 2017).

E-commerce: “Buying and selling activities of information, products, and services via computer networks” (Yen & Ng, 2003; Westland & Clark, 1996). In this thesis e-commerce is interpreted from B2B-perspective.

E-procurement: The use of e-business technologies in procurement (Presutti, 2003). Includes all tools involved in procurement that are enabled by internet in this study. A technology that enable and support the acquisition of commodities through the Internet (Liu, Sun, Wang & Zhao, 2011).

ERP (Enterprise Resource Planning): Integrated package software that possess a single database and different modules to assist the needs of different activities in a company (Mahendrawathi et al., 2017).

E-marketplace: Web-based applications that connects several buyers and suppliers in one central virtual marketplace and enables the electronic trade between buyers and suppliers at a dynamic price (Vaidya & Campbell, 2016).

P2P: Procure-to-pay. Consists the whole process of procurement from need specification,

sourcing decision, placement of purchase order and ending up to settlement and payment (Trkman & McCormack, 2010).

R2P: Request-to-pay.

PO: Purchase order

PR: Purchase requisition

RFX: In case the buyer wants to inquire a certain specific product or service and wish to request for quotation (RFQ) or information (RFI) from supplier (Ronchi, Brun, Golini & Fan, 2010).

Reverse online auctions: Online auctions where specific invited suppliers make offers in order to get contract from buyer (Smart, 2010).

Strategic sourcing: A process of acquiring inputs and managing supplier relationships besides accomplishing organization's long-term targets (Smeltzer, Manship & Rossetti, 2003).

Maverick buying: Purchasing goods or services outside the company's formally defined instructions and authorized suppliers (Angeles & Nath, 2007).

Change management: "The process of continually renewing the organization's direction, structure, and capabilities to serve the ever-changing needs of the marketplace, the organization, and employees." (Moran & Avergun, 1997)

Process mining: A method that enables monitoring different phases of specific business processes by using data recorded by information system to provide complete view on the concrete process (van der Aalst, 2011).

1.5 Structure of the thesis

This study comprises of seven main chapters as portrayed in Figure 2 below. Firstly, introduction contains a brief overview of the thesis' topic, objectives of this research, research questions, conceptual framework and definitions of key terms. Structure of the thesis is also presented.

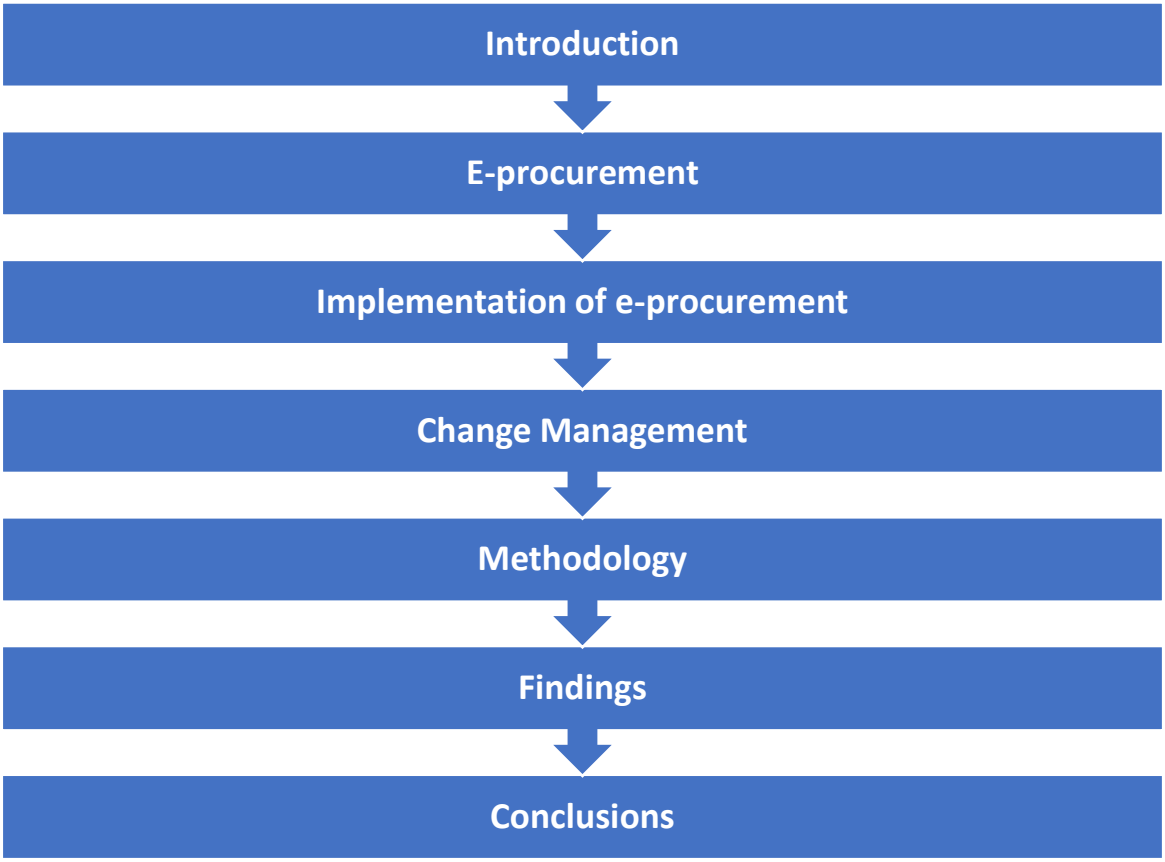

Figure 2. Structure of the thesis

Theoretical parts of the thesis are presented in chapters in next three chapters which include E-procurement, Implementation of e-procurement and change management. Second chapter introduces an overview of the most common e-procurement applications, the benefits of e-procurement and strategic sourcing which is highly related to the topic due to purchasing's development further to more strategic direction. Implementation of e-procurement chapter consists of the challenges faced often during implementation phase. Moreover, factors affecting the implementation process are addressed. Change management – chapter includes background about managing the change. It presents that change always originates resistance and therefore, it's also covered how to mitigate the upcoming resistance in order to achieve a successful change implementation project.

The study's methodology is exhibited thoroughly in chapter 5. It addresses which research methodologies have been used in the study, how the data has been collected and it also involves the consideration of the thesis' credibility and reliability. The sixth chapter gathers the findings of the empirical section this research. The last chapter of the research, Conclusions combines all the results of the thesis' theoretical and empirical sections and provides answers to all research questions. Finally, limitations and interesting future research topics are addressed on the end of thesis.

2. E-PROCUREMENT

E-procurement has been widely utilized by a growing number of organizations lately. Traditional sense of purchasing has changed from centralized to decentralized and as a result of this change, also the roles of employees in purchasing has been changed drastically (Centobelli et al., 2014). Centobelli et al. (2014) see that e-procurement systems are a necessity for larger companies as it enhances comprehensively management of the whole process of controlling purchasing and supply network. They also feel that implementing e-procurement applications may provide a valuable chance for smaller corporations to become a part of global business with several opportunities for growth.

Procure-to-pay (P2P) process has become a significant challenge to organizations worldwide which have implemented management practices and technologies with the intention of reducing transaction costs. The automation of whole P2P process has a crucial role in reducing these transaction costs which emphasizes the significance of e-procurement. E-procurement consists of the use of electronic means to enable the purchases of utilities and services via the Internet. (Trkman & McCormack, 2010) Rai, Tang, Brown & Keil (2006) have divided e-procurement innovations (EPIs) into four separate groups: supplier selection, order placement, order fulfillment and payment and settlement. These four e-procurement innovations contain almost all the elements of whole P2P process except the need specification. Specification of need is an important part of P2P process since it starts the whole process and thus, it also dictates the process accordingly.

2.1 E-procurement applications

E-procurement applications are designed to automate the buying cycle, optimize spend, improve process and workflow, support bidding and tendering and enabling more effective search for products and services via the internet (Smart, 2010). Chang et al. (2013) demonstrate e-procurement systems as a mixture of sub-systems that are complementary to each other and beneficial for organization’s value creation. Rai et al. (2006) found in their research that usage of e-procurement tools increased digitalization of core procurement transactions which eventually led also to improved productivity of procurement. Therefore, it is

crucial that companies invest enough resources in finding the most suitable e-procurement systems for their own specific needs.

Rai et al. (2009) mention that despite the several benefits of e-procurement systems, companies have serious challenges in implementing new electronic applications meanwhile achieving expected outcomes of these implementation projects. They disclose four reasons why there is only limited knowledge of e-procurement implementation. Firstly, there is only little theory-based research on the subject and secondly, most of these studies have only focused on one specific e-procurement innovation such as reverse online auctions (Rai et al., 2009). However, it should be noticed that e-procurement tools are complementary to each other. Therefore, by focusing only one system the general view of the whole subject can be ignored. Previous studies on procurement have also failed to capture the fact that implementing new technology is an ongoing process and furthermore, by only concentrating on a single phase of the implementation it can lead to a serious misinterpretation (Rai et al., 2009). Finally, they conclude that majority of previous research on procurement innovation has been anecdotal.

Rai et al. (2009) divide e-procurement into three different categories which are (1) e-sourcing, (2) e-coordination and (3) e-communities. E-sourcing involves online auctions, online bidding and online tendering. E-coordination includes e-catalogs and payment systems while e-communities mainly consists of e-marketplaces. E-sourcing and e-coordination are technologies that are planned to enhance the procurement process whereas e-communities provide alternative Internet-enabled platforms for exchange between buyers and suppliers that are utilizing these e-sourcing and e-coordination technologies. (Rai et al., 2009)

Rai et al. (2009) found in their research that the companies which are using extensively E-procurement applications achieve the greatest productivity benefits. Especially, managers are mentioned as capable to support E-procurement tools adaptation by emphasizing why the change is being undertaken at the first place, and by justifying e-procurement applications better suitability to procurement's strategy instead of traditional procurement (Rai et al., 2009). Nearly all changes tend to face reluctance by employees which makes efficient change management crucial under new e-procurement implementation projects. Rai et al. (2009) point out the importance of organization readiness since it can provide important

resources which can be applied to direct adaptation and assist in overcoming resistance and inertia.

Enterprise Resource Planning (ERP) is regarded as one of the most typical IT investments initiated by organizations (Mahendrawathi et al., 2017). ERP is anticipated to offer competitive edge since it promises access to integrated data across company and integration of several business processes. Its implementation should also improve efficiency of the procurement by reducing cycle times. ERP benefits can be classified as concentrating either on the product itself (ERP system) or the whole process connected with the implementation including business process engineering (BPR) and modification of system. (Bendoly & Schoenherr, 2005)

Benefits of ERP can be divided into five classes: 1) Operational, 2) Managerial, 3) Strategic, 4) Organizational and 5) IT infrastructure. Operational benefits consist of benefits that ERP system provides to operational processes such as procurement and inventory management. Managerial benefits are efficiency and effectiveness that ERP brings for managerial decision making. Main strategic benefit is competitive advantage supported by ERP system and it can be estimated through innovation and business growth. Organizational benefit refers to organizational improvement that is achieved through learning and implementing strategy by usage of ERP systems. Lastly, IT infrastructure benefit refers to improved ability to handle IT applications in jobs they can be used. (Mahendrawathi et al., 2017)

Companies are also encountering difficult strategic selections. One dilemma considers whether to invest in e-commerce developed either by developers of ERP systems or vendors who have focused in other e-business applications. One argument is that ERP systems have usually been regarded as back-office function whereas e-business functions are often linked to external activities between suppliers and customers. (Bendoly & Schoenherr, 2005) Oliver (1999) argues that effectiveness of these systems depends on both ERP systems ability to capture relevant information and effectively to transfer accurate data within organization’s ERP infrastructure. Another key issue is selection of the appropriate vendor to provide the whole ERP-system. Small- and medium-sized firms have traditionally been regarded as late adopters of advanced technologies mainly due to scant resources.

However, lately due to emergence of more simple and cheaper e-commerce solutions have enabled also the smaller enterprises to take part in adopting these systems better.

The research of ERP has transformed form studying its benefits into direction that it is seen as a necessity for maintaining competitive advantage in the future. ERP system is seen as an infrastructure that supports company's other information tools and processes rather than just being a simple tool providing a single output. ERP has also a key role in integrating information technologies within the whole company. Additionally, the whole process of implementing ERP system obliges enterprises to enhance their understanding of their core competencies and make essential changes to business processes that might have been overlooked in another case. Thus, it is essential to also pay attention to the implementation process as it can be a possibility to improve firm's market position. (Bendoly & Schoenherr, 2005)

2.2 Benefits of e-procurement

Puschmann and Alt (2005) found in their study that e-procurement enables firms to decentralize operational procurement processes and centralize strategic procurement processes since adoption e-procurement has increased transparency in supply chains. Figure 3 illustrates how emergence of e-procurement has released resources from operational functions into strategic procurement and supplier management which both can be described as more value-adding processes compared to operational activities. This figure demonstrates how procurement's role has evolved from merely purchasing into more strategic direction with increased emphasis on supplier management as well.

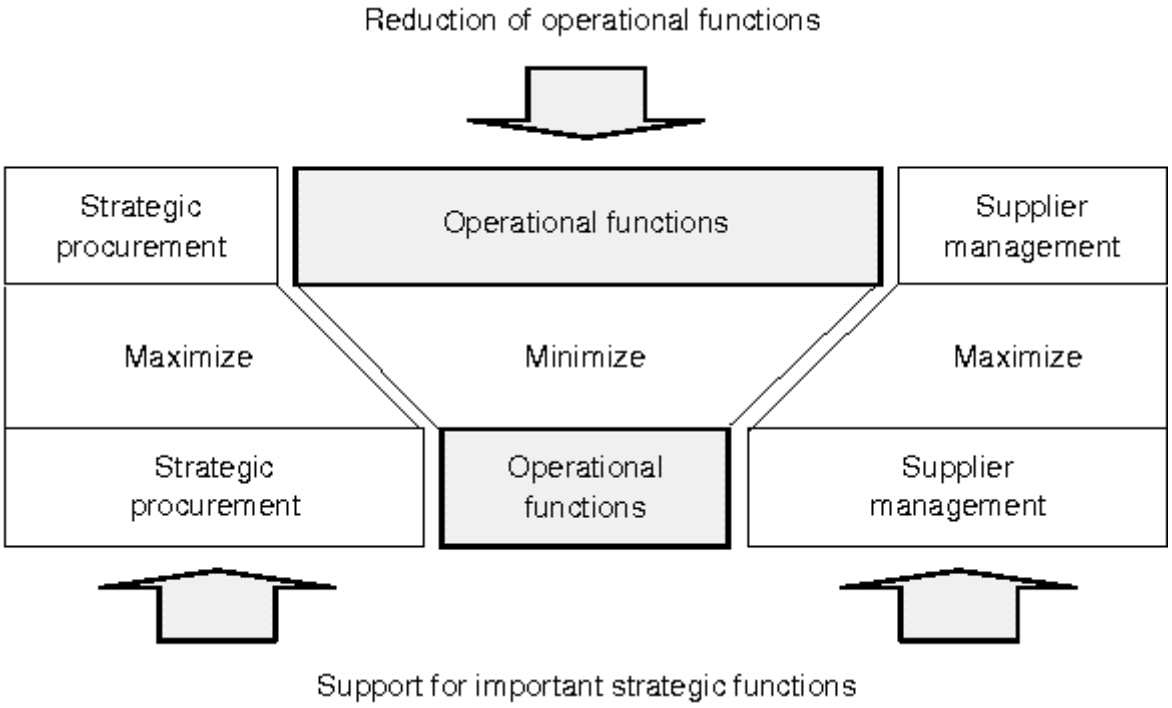

Figure 3. Effects of e-procurement (Puschmann and Alt, 2005).

Piotrowicz and Irani (2010) mention reduction of transaction cost and buying price, shortening time of process, improvement of information exchange and control as the most common benefits of e-procurement. Besides decreasing costs, e-procurement also eliminates paperwork, improves data accuracy, co-operation and transparency of the process as reducing inventory levels and lead times (Trkman & McCormack, 2010). Therefore, one of e-procurement's main benefits is that it enables procurement organization to concentrate into more value-adding processes by reducing the amount of non-value-adding transactional work tasks.

Ronchi et al. (2010) divide benefits from e-procurement into two classes: financial and organizational. Financial benefits are perceived as enhanced efficiency in the organizational structure, such as the reduction of purchasing department size and number of functional areas involved in the purchasing process. Therefore, it leads to that employees' time spent on operational activities can be transformed into more strategical activities which are often seen more profitable. The following four types of financial costs are identified: order cost, administrative cost, lead time opportunity cost and opportunity cost of capital. First mentioned is the internal cost for purchasing department in placing orders, and it is measured by evaluating the labor cost and the number of orders (Presutti, 2003). Administrative costs

are the internal cost of the administrative department causing from managing orders. The waiting time between the internal request for purchase and the followed order placement to the vendor is classified as lead time opportunity cost. Lastly, opportunity cost of capital is the perceived savings gathered by avoiding early orders. (Ronchi et al., 2010) Eadie (2007) states that e-procurement allows a higher order frequency which ultimately reduces advance payments. Therefore, e-procurement can potentially generate notable savings in all above-mentioned categories.

Organizational benefits are the ones, which are not measurable monetary – unlike financial benefits. Thus, they are qualitatively measured. Organizational benefits are control, transparency, maverick-buying, decentralization and supply base rationalization. Control comprise the real-time control of internal spending which can be seen essential as firms more and more pursue in having fast and reliable control of spending. Increased transparency is also important as e-procurement enhances transparency both internally and externally with suppliers in areas such as contract conditions and terms and order tracking. Preventing maverick-buying is seen essential as it reduces the number of purchase orders outside the negotiated contracts from different sources. Puschmann and Alt (2005) state that Maverick-buying causes inefficiencies and by controlling it, a firm can field dramatic savings. Decentralization gives a broader number of users a chance to order items independently within a pre-negotiated contract. In a purchasing department perspective, it will release buyers from operational duties into more profitable strategic tasks (Puschmann & Alt, 2005). Finally, supply base rationalization stands for reduction and reforming of the supplier base which is common aim within procurement organizations. (Ronchi et al., 2010)

Nevertheless, it should be noted all those benefits won't be fulfilled due to exogenous and endogenous aspects. Exogenous factors consist of barriers in adoption, and possibly the most crucial barrier is organizational inertia to change. (Ronchi et al., 2010) Conventionally, inertia is classified as the inability to enact change when fronting substantial external change (Miller & Friesen, 1980; Nedzinskas, Pundziene, Buoziute-Rafanaviciene & Pilkiene, 2013).

The possibility of receiving the desired benefits endogenously mostly relates to the goals that company itself has defined to the specific investment (Ronchi et al., 2010). The total

amount of resources – both economical and organizational – devoted for the implementation of e-procurement system is a significant endogenous factor. There is also a possibility that company intentionally leaves a portion of its spending outside the e-procurement system. It can be caused from several reasons such as difficulties in integrating e-procurement in specific categories or suppliers' incapability to use electronic tools. (Ronchi et al., 2010)

2.3 Strategic Sourcing

Nowadays, corporations are seeing procurement as a strategic-level action of developing a competitive advantage (Trkman & McCormack, 2010). Strategic sourcing can be described as a process of acquiring inputs meanwhile managing supplier relations and achieving enterprise's long-term goals (Smeltzer et al., 2003). Strategic sourcing itself, has emerged from two aspects. Firstly, emergence of new information and manufacturing technologies steered a need to combine stock management with production requirements (Kocabasoglu & Suresh, 2006). Secondly, as cost management began to become inevitable to remain competitive, an idea of gathering massive savings with discarding non-value-adding tasks and streamlining purchasing and supply management actions (Kocabasoglu & Suresh, 2006). Therefore, outsourcing has also played a part in raising a growing interest in strategic sourcing.

Kocabasoglu and Suresh (2006) have listed four key points on strategic sourcing:

1) the strategic role of purchasing
2) effective internal coordination between purchasing function and other functions
3) effective information sharing with suppliers
4) supplier development and supply base management

Strategic sourcing typically focuses with suppliers that produce critical strategic commodities which are either strategically crucial or there aren't alternative suppliers easily to be found (Handfield, Krause, Scannell & Monczka, 2000). Kocabasoglu and Suresh (2006) emphasize that the role of purchasing function both within the company and in supplier relationships ought to be well-defined. Nevertheless, a buyer needs to figure out its supply-chain strategies and roles of procurement carefully in order to optimize supplier contributions (Handfield et al., 2000).

Kocabasoglu and Suresh (2006) point out that strategic sourcing affects many functions within a firm and thus, requires cross-functional communication. This leads to increased need of internal coordination which can be efficiently handled through stronger integration between different functions and by growing a number of cross-functional teams (Kraljic, 1983). Improvements within supply chain often start with buyer-focused actions and Handfield et al. (2000) highlight that a buyer-side need to have its "own house in order" before expecting commitment and extensive collaboration from suppliers.

In order to accomplish successful strategic sourcing, companies need to maintain good relationships with suppliers and pursue on achieving their long-term objectives (Chan & Chin, 2007). It often entails information sharing with key suppliers. Handfield et al. (2000) stress that information should be exchanged on regular basis and their study also indicated that information sharing had positive effects on supplier development projects. Furthermore, trust plays a significant role in information sharing as releasing sensitive and confidential information requires strong mutual trust. However, while information sharing is essential in supplier relationships, sharing a confidential information when dealing with new suppliers is typically a difficult task. Therefore, several corporations require extensive nondisclosure agreements especially in technologically advanced products. (Handfield et al, 2000)

Purchasing integration by using strategic sourcing endorses better buyer–supplier relationships and supplier development (Narasimhan & Das, 2001). Krause (1999) describes supplier development as any activity that a buyer engages to enhance supplier's performance and capabilities to fulfill buyer's supply needs. Krause, Scannell and Calantone (2000) mention that supplier development efforts contain 1) evaluation and feedback of suppliers, 2) utilization of competitive bidding among suppliers, 3) providing incentives to suppliers and 4) involvement in supplies' actions such as training. Nevertheless, supplier development won't be effective method to execute with all suppliers. Thus, company should carefully ponder a few key suppliers with whom to execute supplier development. According to Handfield et al. (2000) research by decreasing number of suppliers it doesn't only lower administrative costs but also create more powerful incentive to conduct supplier development actions with the remaining suppliers.

Kim, Suresh and Kocabasoglu-Hillmer (2015) study's findings indicate clearly that both e-procurement and strategic sourcing have positive effects on organizations performance. E-procurement is also shown to have a positive effect on strategic sourcing. They also urge that by adopting strategic sourcing and e-procurement, a company should be able to enhance its financial, operational and supply chain performance.

3. IMPLEMENTATION OF E-PROCUREMENT

Benefits of e-procurement have been studied a lot but still the process through e-procurement´s contribution to supply chain is a largely unknown phenomenon (Hsin-Chang et al., 2013). They conclude that supply chain integration represents the main cause describing the processes through which e-procurement contributes to supply chain management. Piotrowicz and Irani (2010) found in their study that firms' fail to capture and measure benefits as a result of e-procurement adoption. They point out that much of critique towards e-procurement could be based on e-procurement applications' inability to produce financial value on traditional evaluation meters. Thus, benefits in e-procurement are often intangible and non-financial. (Piotrowicz & Irani, 2010) It could possibly explain why many e-procurement implementation projects seem to face so many difficulties.

Smart (2010) notes in his research that there have been only few studies investigating the aspect of making it a business case for e-procurement. Presutti (2003) mentions that making a business case for e-procurement requires supply manager to illustrate the link between an e-procurement strategy and the corporation's financial performance. Therefore, Presutti (2003) suggests that supply manager should use and also understand the concept of EVA (Economic value added). Furthermore, by creating a clear linkage between e-procurement and its contribution to organization financially, it could support to justify investments and more resources for e-procurement technologies.

Kim et al. (2015) have studied a collective impact of strategic sourcing and e-procurement. They discovered that by adopting e-procurement and strategic sourcing, a company should be able to enhance its financial, operational and supply chain performance. It was also noted that firms improved their efficiency of strategic sourcing by implementing e-procurement since it enables purchasing department to concentrate on strategic actions of sourcing in the companies. Therefore, the enterprises who implement e-procurement besides practicing strategic sourcing generate synergy effects for these enterprises to enhance their performance. Somewhat surprisingly, the study also showed that e-procurement provided a positive impact mainly on companies in their growth stage meanwhile strategic sourcing was seen to provide most value in growth and maturity stages of the product's life cycle. (Kim et al, (2015)

By implementing both strategic sourcing and e-procurement, corporations should be able to improve their financial, operational and supply chain performance with synergy effects. Furthermore, strategic sourcing and e-procurement is proven to be an efficient purchasing method in order to react to dynamic and competitive business environments. Kim et al. (2015) suggest that managers should be aware of their enterprise's business environments when determining to improve their performance by implementing both strategic sourcing and e-procurement.

Jain et al. (2018) have divided the implementation of e-procurement into three different phases which are: pre-adoption, adoption and post-adoption. This process is constructed in Figure 4 below. First-mentioned is an interaction of organizational and business environment factors that leads to developing criteria for e-procurement adoption. This entry stage is on progress when the enterprise is planning to implement an e-procurement system. The second stage is executed during adoption and any mistake during this phase could potentially lead to catastrophe. It includes following five factors: 1) Intention to use; 2) Benefits; 3) Critical success factors; 4) Barriers and 5) User satisfaction. Intention to use relates to perceived ease of use, usefulness and providing sufficient training and instructions to employees. It is critical that internal user accepts and has a positive approach towards the implementation process. Benefits are essential to be listed during pre-adoption and adoption phases to ensure fulfilling those benefits. Figuring out critical success factors assures that implementation is executed in most efficient way. All the barriers such as resistance toward new changes must be handled to achieve a successful implementation. Finally, user satisfaction is extremely crucial as internal users are the ones who are using system and therefore, they should be satisfied with the functionality and impressed with possible benefits that new system is providing. (Jain et al., 2018)

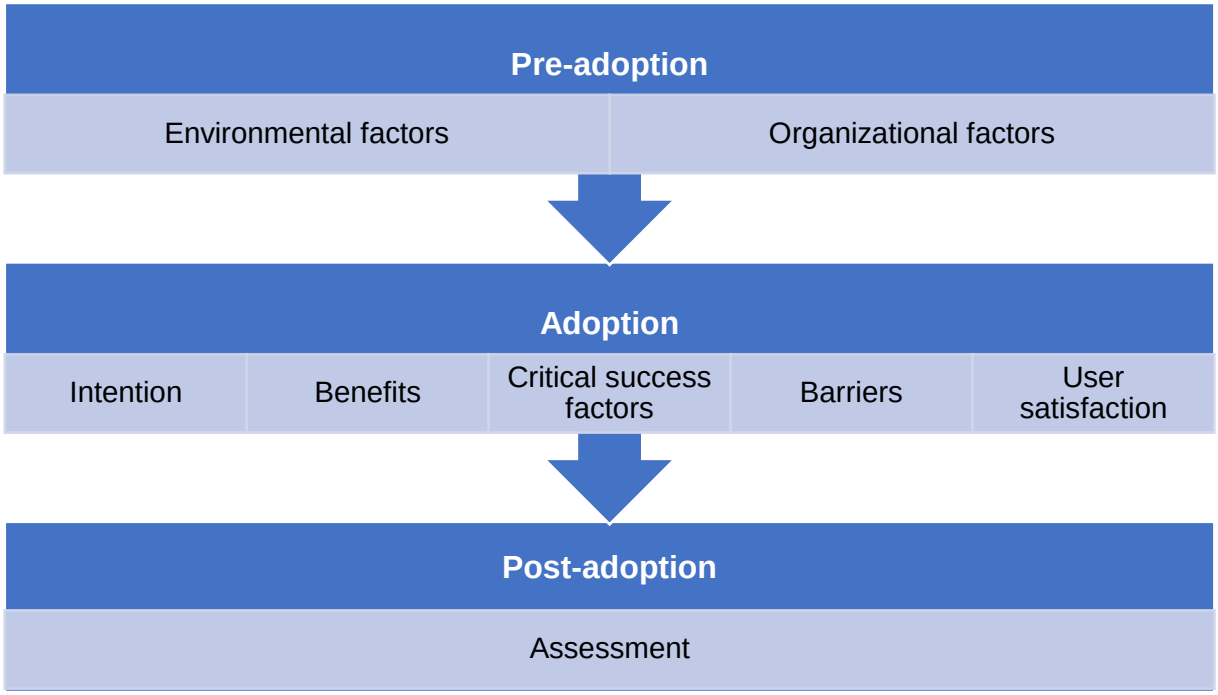

Figure 4. Adoption process (Jain et al., 2018)

Last stage is post-adoption and assessment phase in which the e-procurement system is estimated. If buyer or supplier's benefit is either equal or greater than the perceived expectations of implementation set beforehand, it is considered to be a successful implementation. Otherwise, it is a stage in which additional changes and modifications are still required. Assessment of this post-adoption phase is estimated through three following categories: 1) Improved services; 2) Cost reduction and 3) Process improvement. Services can be in terms such as lead time and after sales services. These factors should be measured to assure that services have progressed during the evaluation phase. Optimization of costs is a typical aim for procurement-based systems and therefore, cost reduction is one of the most essential categories to be valuated during assessment phase. Naturally, process improvement itself is a critical indicator to measure success of implementation process. Factors such as collaboration with supplier, internal workflow, sales flow are significant elements to be assessed. (Jain et al., 2018) Consequently, a final decision whether to modify or go ahead with implementation is done based on the results of these all elements.

3.1 Challenges in implementing e-procurement

Presutti (2003) points out that a successful e-procurement initiative is “often more attributable to the procurement aspects than it is to the electronic aspects”. Rodríguez-Escobar and González-Benito (2015) note that IT investments don’t directly produce value for procurement performance by themselves. Furthermore, technology is usually seen as enabler. It is also noted that technology can’t fix a faulty process. Therefore, a corporation seeking to maximize value-creating benefits form e-procurement strategy, must carefully evaluate its purchasing process comprehensively to decide whether the process needs to be fixed. (Presutti, 2003) Smart (2010) suggests that firms need a stronger understanding of areas in which each e-procurement application can contribute within a business case instead of only justifying e-procurement in generic sense. Moreover, corporations would be able to measure value and benefits more accurately and compare contributions that each tool can provide for them (Smart, 2010).

Ronchi et al. (2010) also mention that value-assessment of e-procurement is a difficult task mainly due to variety of different technological solution platforms by diverse IT companies. Trkman & McCormack (2010) add that corporations face difficulties in realizing the benefits and finding the ways to measure the value in e-procurement and which factors eventually affect this value. IT investments are often problematic to measure on typical performance metrics such as return on investment (ROI) as they tend to require more holistic model to measure the investment’s role to the operational and financial performance. (Barua, Konana, Whinston & Yin, 2004). Corporations often fail to identify the actual benefits and properly assess the value of e-procurement and therefore, they are not able to recognize the actual value of e-procurement either (Trkman & McCormack, 2010).

Brandon-Jones (2017) has studied e-procurement quality which he perceives as quality of e-procurement technologies and support provided to use them from an internal customer view. E-procurement still seems to face opposition from its daily users within companies despite the significant investments in the matter. The study discovered five universal dimensions of e-procurement quality perceived by internal customers. The dimensions are content, training, processing, professionalism and usability. Content focuses on suppliers and catalogues loaded on a system and how easily this content is found. Training consists of types of training, timing of training and providing additional information when needed.

Processing considers order-processing speed, ease of authorization, time of requisitions take to reach suppliers and deliver accuracy. Professionalism describes the ongoing support offered to internal customers of e-procurement such as availability, attitude and responsiveness. Usability concerns to views of system availability, server speed and accessibility of the system. (Brandon-Jones, 2017)

Companies may encounter several problems during the implementation phase of e-procurement. Mahendrawathi et al. (2017) point out that implementation of ERP should be conducted as a project that has a several phases and which beginning and ending date is clearly demonstrated. Furthermore, neglecting pre-implementation phase is one possible issue which might lead to misalignment between ERP system and business processes that ERP is anticipated to be supporting (Poon & Yu, 2010). E-procurement implementation tends to be a more complex, more expensive and more time-consuming task for companies than they originally projected. Aslani, Laios and Moschuris (2008) state that corporations are jumping onto the e-procurement bandwagon without fully realizing the inter-organizational collaboration and network effects underlying these technology models, the investment required to move the right information from suppliers to employees, and the complexities of integrating these technologies with existing ERP systems. Therefore, combining these challenges in implementation process result in rather high failure rate of e-procurement application implementation initiatives (Mahendrawathi et al., 2017).

Mahendrawathi et al. (2017) discovered in their case-study – by using process mining – that some purchasing activities were very uncontrolled which inevitably lead to great variation in cycle times. Explanation for rapidly completed activities was found out to be bypassing certain procedures. The bottlenecks in implementation process are mostly due to technical, data migration and cultural issues. Technical issues derivate from errors and bugs in the systems in which end-user is basically powerless and forced to report error to IT-support and wait for a solution to issue. Data migration issues are mainly due to emergence of new materials and categories which need to be migrated into systems. Cultural issues stem from approval processes and the high dependency of hard copy approval in purchase orders and other documents. Furthermore, ERP implementation process entails either business process re-design or simplification of approval process and accurate testing of new tools to guarantee accurate data and achieving required functionalities and integrations. (Mahendrawathi et al., 2017)

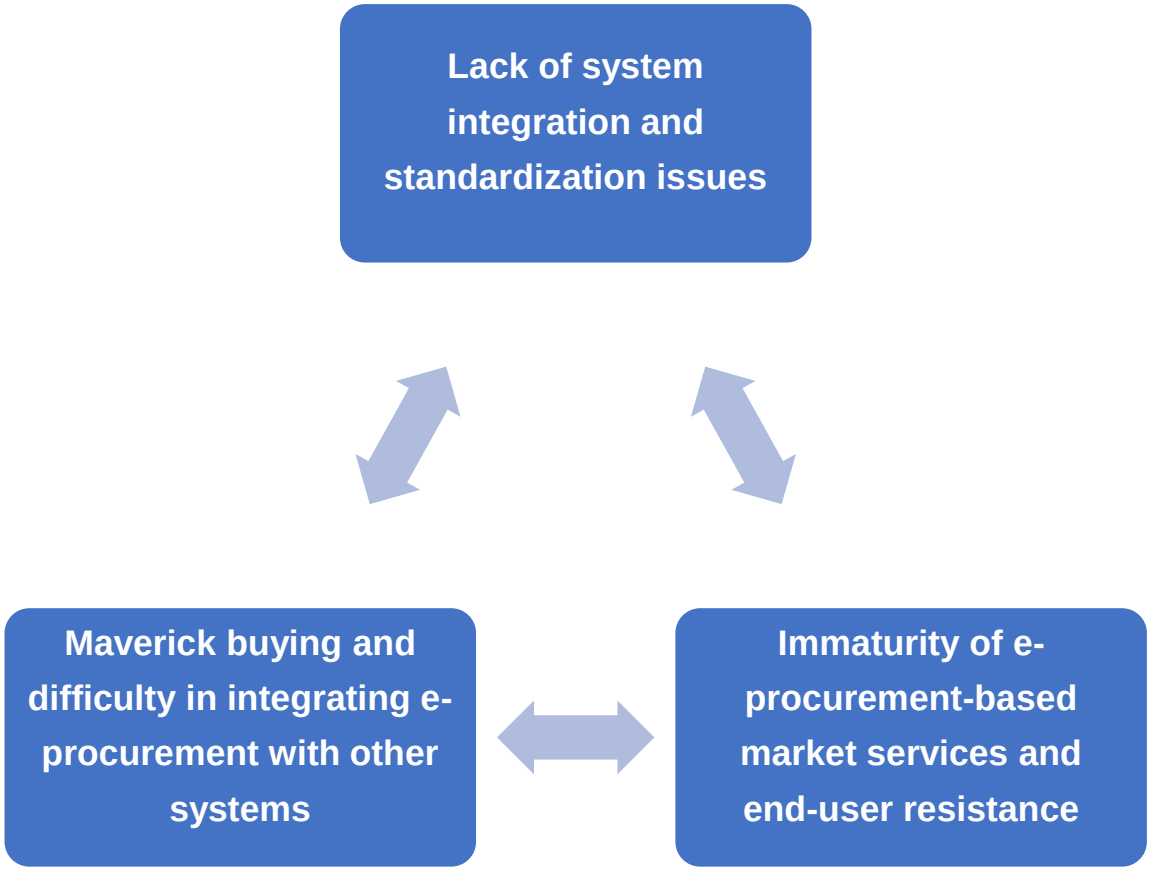

Figure 5. Challenges in e-procurement implementation (Angeles & Nath, 2007)

Angeles and Nath (2007) have categorized the challenges of e-procurement implementation on Figure 5 above. First category “Lack of system integration and standardization issues” focuses on development challenges of e-procurement systems that companies might be opposing. Most of these challenges originate from the fact that e-procurement is still quite new area of business so companies may potentially lack of required infrastructure to integrate all the e-procurement systems efficiently. Firms should also carefully pay attention to hidden costs of implementation that might fatefully be left unnoticed. These costs consist of systems integration, maintenance, end-user training and business process engineering. (Angeles & Nath, 2007). Furthermore, organizations should be prepared of these aforementioned challenges in order to reach a successful implementation.

Second category is “immaturity of e-procurement-based market services and end-user resistance” which comprises of e-procurement service provider’s immaturity and insufficient preparation of suppliers that company is engaging business with (Angeles & Nath, 2007).

There has been rapid development in e-procurement applications in the past decade. Therefore, the issue is more dependent on being able to integrate new e-procurement system to the existent infrastructure of a company nowadays rather than e-procurement service providers immaturity. Suppliers should learn to generate catalogs of their products on sale and process basic Procure-to-pay (P2P) actions which include processing orders and invoices (Angeles & Nath, 2007). End-users might also still be unwilling to learn and start using new e-procurement tools. Potential end-user resistance can be tackled with rewarding purchasers and other stakeholders of using new e-procurement applications besides simply making the use of these new tools appealing to everyone with solid instructions and user trainings. (Angeles & Nath, 2007)

Finally, third and last category is “Maverick buying and difficulty in integrating e-procurement with other systems”. Puschmann and Alt (2005) notify that e-procurement enables better control of maverick buying which can lead to massive savings. Nevertheless, maverick buying has been recognized problematic to eliminate entirely even with e-procurement solutions in use (Angeles & Nath, 2007). Angeles and Nath (2007) state that selling benefits of e-procurement usage to end-users through intensive training and instructing has proven to be one of the most effective approaches to this issue. Maverick buying might also reduce the visibility of spend as the spend data won’t necessarily be captured in any of firm’s systems in maverick buying cases. Visibility of spend and compliance to preferred suppliers is a usual problem for companies and thus, it is also often a one of main initiatives as companies decide to implement e-procurement solutions (Smart, 2010). However, Smart (2010) reminds that e-procurement systems won’t necessarily be able to solve problem of poor legacy management information. Nevertheless, there is no guarantee that new e-procurement system is synchronized with the firm´s existing tools. Furthermore, implementing e-procurement is an important step for company and thus, whole process should be carefully pondered in detail before executing the implementation process.

3.2 Factors affecting implementation process

Sila (2013) divides factors that affect into implementation process of e-commerce into three categories: technological, organizational and environmental contexts. DiMaggio and Powell (1983) developed three types of isomorphic pressures which are mimetic, coercive and normative. These following pressures are driving organizations to adopt new practices or

innovations. Mimetic pressures might force companies to adopt the practices or innovations of other companies mainly in order to increase social legitimacy. Coercive pressures involve pressures which companies face from other organizations that they are dependent on such as governmental organizations or parent firms. Therefore, companies are forced to adopt practices based on the interests of other organizations which are applying the pressure. Lastly, normative pressures lead to adopting specific innovation based on pressure applied by customers, suppliers or the business itself. (Sila, 2013)

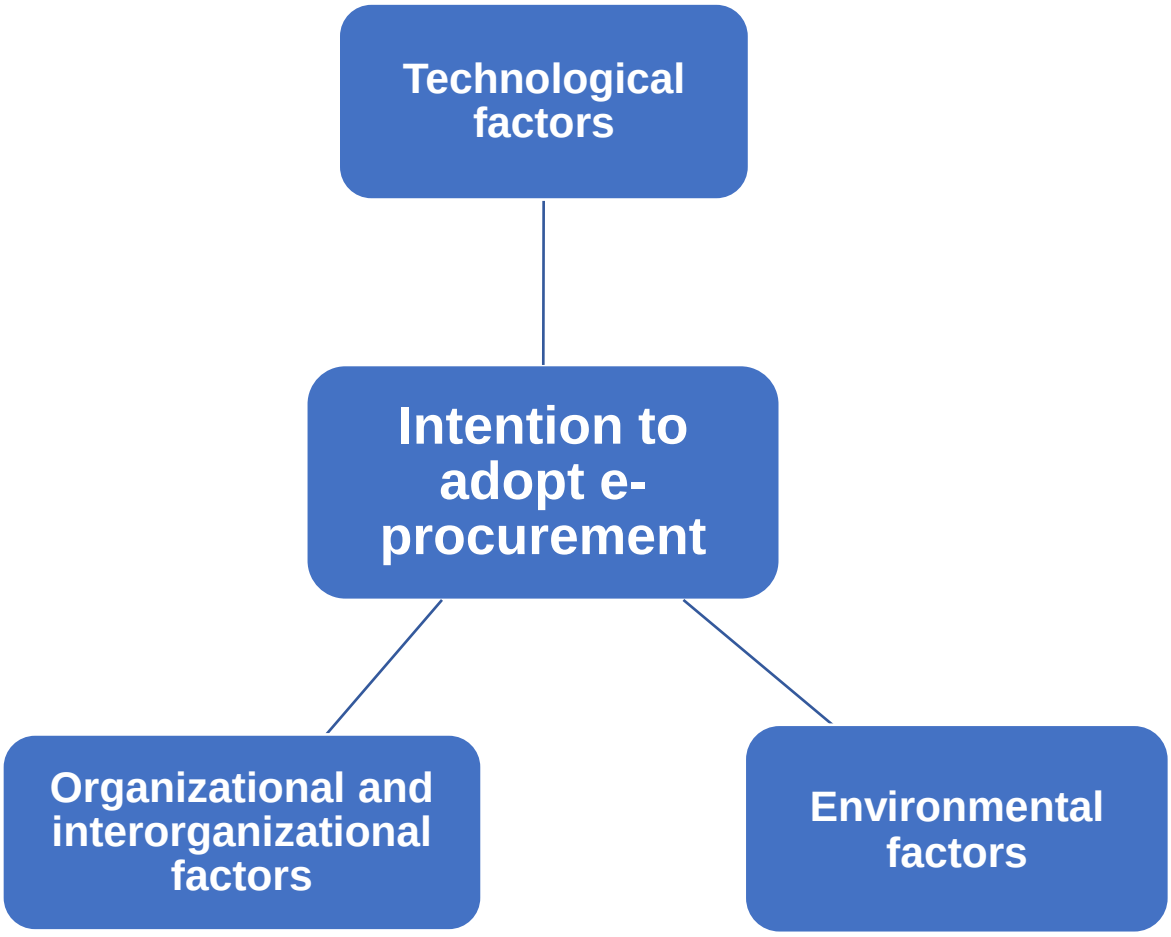

Figure 6. TOE Framework (Sila, 2013)

The technology-organization-environment (TOE) framework as shown in Figure 6 above offers a solid foundation for the research of B2B e-commerce, and it is broadly used among other researchers on this topic. Technological context consists of cost, complexity, network reliability, data security and scalability. Internet enables companies to get access into global

markets which might lead into severe cost savings with the implementation of e-procurement. However, the implementation process tends to be costly for organizations and thus, high implementation cost can also be a regarded as a significant barrier. Complexity simply means how difficult is an innovation to comprehend and use and naturally, less complex innovations are more likely to be implemented (Rogers, 1995). Network reliability enables companies to work efficiently without shutdowns on the Internet whereas data security allows transferring the data and working online safely. Scalability is also a noteworthy factor as it enables corporations to expand their markets and even creating new markets for their commodities with implementation of e-commerce. (Sila, 2013)

Organizational factors include top management support, trust, firm size and management level. Top management support is a basis for every change implementation project as managers' positive attitude toward change provides a suitable organizational environment that is receptive to both innovation and change. (Sila, 2013) Lines et al. (2015) remind that leadership is required for a successful change implementation process. Trust is a crucial factor in transactions between buyers and suppliers (Sila, 2013). Thus, supply chain partners should develop mutual trust before e-commerce technologies are implemented (Son, Narasimhan & Riggins, 2005). Hart and Saunders (1997) found on their study on EDI adoption that mutual trust is essential because it reassures companies to proceed on making investment for adoption. Thus, it could possibly also apply for e-procurement implementation. Large companies have been noted to adopt more electronic commerce technologies which is explained through factors such as more available resources, higher risk tolerance and more power over trading partners (Zhu, Kraemer & Xu, 2003). Wagner, Fillis and Johansson (2003) discovered in their research that managers who possess good skills in e-business are more likely to proceed with the implementation projects.

Environmental factors involve different kinds of pressures that company might be facing from their environment in adopting new technologies. In previous researches concerning EDI adoption there has been noted pressure coming from external sources such as media, industry and government. (Sila, 2013) These pressures can be also used in the context of e-procurement implementation as companies might face pressure to start using these technologies from their customers and suppliers. Sila (2013) mentions that these pressures might appear as threats, persuasion and other similar types of actions.

Sila (2013) found out in his research that scalability is the largest contributor to B2B e-commerce usage. Companies are highly appreciating the possibilities enabled by Internet to find new markets and connecting with their supply chain associates. Results also showed that pressure from competitors, trust, top management support and trust are key factors in determining whether companies decide to adopt B2B e-commerce or not. Corporation's size plays also a significant role in e-commerce adoption process as small and medium-sized enterprises (SMEs) have limitations in implementing these technologies. (Sila, 2013)

Zhu et al. (2003) have listed larger enterprise's advantages in adopting e-commerce compared to smaller firms: 1) Large companies usually have more resources available, 2) they are more likely to achieve economies of scale, 3) they are more capable of tolerating the high risk involved in early stage investments in e-business technology and finally, 4) they have more power to compel their suppliers to adopt technologies. However, larger organizations have their own typical issues regarding to e-business adoption. Their information systems have been built over years and thus, they might be inflexible to adjust new changes. Furthermore, structural inertia tends to delay implementing new e-business systems (Zhu, Dong, Xu & Kramer, 2006).

According to Gupta and Narain (2012) there are plenty of factors that affect e-procurement implementation and they can be divided into organizational constraints and resource constraints. First-mentioned constraints are related to the problems in hiring and training employees with necessary skills, major changes to current approaches, long implementation time and uncertain ROI in e-procurement applications. Gupta and Narain (2012) remind that enterprises should be aware that e-procurement implementation requires major changes integrated with current applications and the long implementation time without a guarantee of a success before executing e-procurement implementation. Resource constraints consist of high initial investment, lots of communication and planning needed, and high costs involved in maintenance and training. (Gupta & Narain, 2012) Furthermore, factors affecting to the decision whether to adopt and implement e-procurement within the company include financial resources, training and education of employees, skills and knowledge (Gupta & Narain 2012; Azadegan & Teich, 2010).

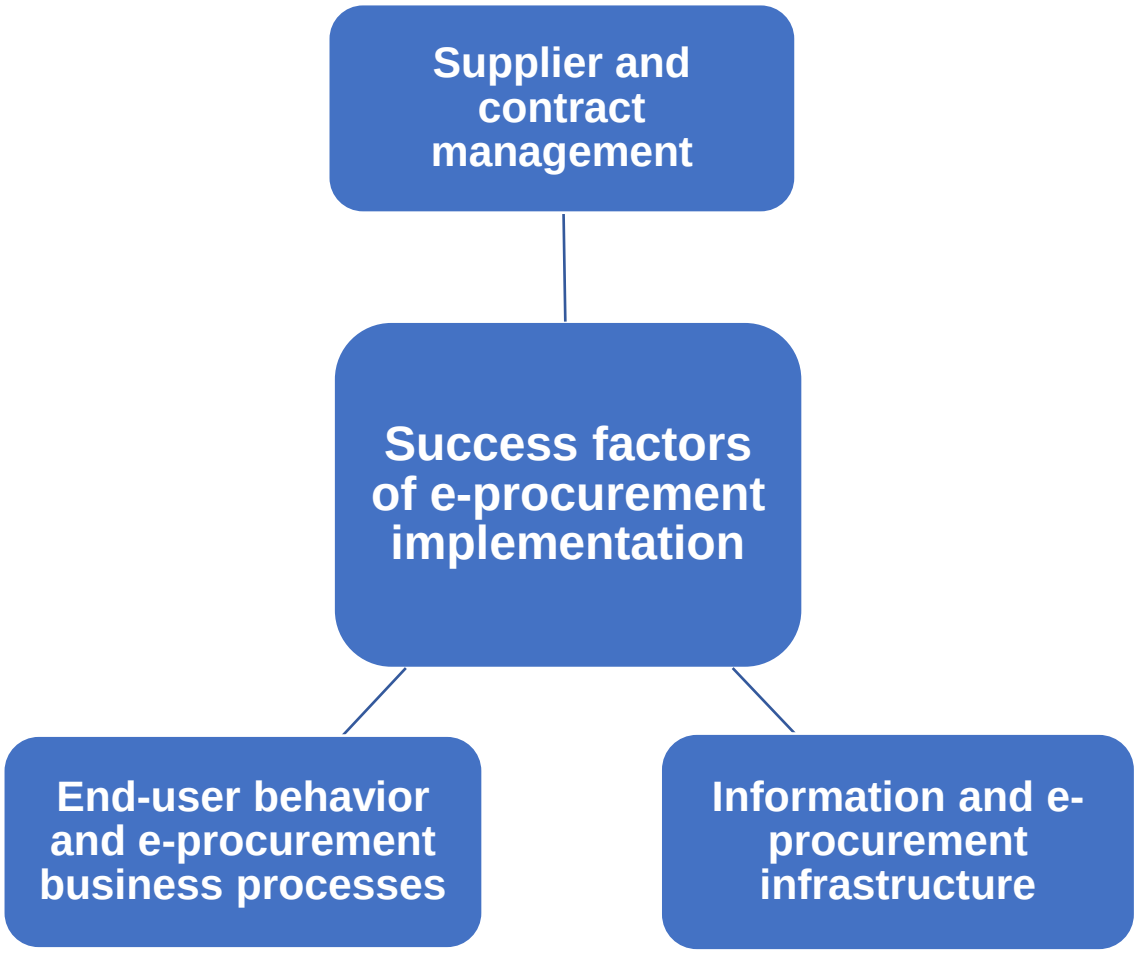

Figure 7. Success factor of e-procurement implementation (Angeles & Nath, 2007)

Angeles and Nath (2007) have gathered main success factors of e-procurement implementation as shown in Figure 7. First success factor stands for rationalization of the enterprise's supplier management. Decreasing the number of suppliers is usually needed to conduct successful e-procurement with suppliers (Angeles & Nath, 2007). However, it is seen difficult to get suppliers to participate completely in e-procurement initiatives meanwhile ensuring that they adopt the required technologies to make these initiatives succeed (Bartels, 2004). According to Min and Galle (2007) large companies have more power in both centralizing their purchasing resources and affecting their supplier network when it comes to adopting the required technologies.

Second success factor has a massive effect to implementation project's result as redesigning affects to business processes and thus, influences end-user's behavior to adapt with the new applications and procedures. Angeles and Nath (2007) suggest that organization should conduct thorough spend analysis prior to business process re-engineering in order to give organization visibility and awareness of spend and therefore, accountability in achieving aimed savings. They also recommend company to centralize control of contracts, product data, catalogs for indirect procurement to access a better control over its sources of supply, inventory and purchase price. Furthermore, most enterprises typically initiate e-procurement in indirect instead of direct procurement in order to avoid complexity in implementation process. (Angeles and Nath, 2007)

Third success factor refers to corporation's actual selection of the e-procurement solution itself and portfolio of buy-side, sell-side or marketplace catalogs it needs to back up as a seller or engage with as a buyer. Companies have different kind of approaches with these abovementioned portfolios. Initially company chooses one of these options – either buy-side, sell-side or marketplace services – that it needs to select in order to execute e-procurement. Nonetheless, company could need to maintain portfolio in all of three options as organization might have various purchasing needs. Therefore, small corporations tend to choose marketplace because of more narrow needs and cost constraints meanwhile larger corporations might end up using a combination of all three portfolios to ensure creating sufficient connections with its key suppliers. (Angeles & Nath, 2007)

Organizations have different implementation strategies when choosing ERP system. Poon and Yu (2010) state that ERP solution adaptation is not only a technical issue but also an essential in company's strategic perspective since the chosen ERP system will have significant effect to firm's processes. If companies are self-assured that their current business processes are managed in right way besides providing competitive advantage over their competitors, they are more likely to adopt system into their current processes by large-scale modifications. On the other end, if companies aren't so assured to their current business processes while they are impressed of some ERP system, they might be poised to adopt their processes to fit in with ERP system. These two above-mentioned implementation strategies present extremes, and it is widely reported that most of successful implementation strategies are between these two extremes. (Bendoly & Schoenherr, 2005) Thus, ERP

procurement process should be well organized in order to guarantee that the most suitable ERP system for a company is chosen (Poon & Yu, 2010).

Poon and Yu (2010) divide ERP adoption to three phases which are (1) pre-implementation, (2) implementation and (3) post implementation. Pre-implementation starts usually by ERP adoption initiative receiving management's support and ends with reached agreement with chosen system vendor. Chosen ERP system is installed, customized and tested until it is accepted for use in implementation phase. This period contains for example adjustments between business processes and ERP system and user training. The scale of needed adjustments between system and business processes depends on company's implementation strategy as Bendoly and Schoenherr (2005) discovered in their research. Finally, after system is accepted for use, there is a formal deployment of the new system and administration as a part of company's infrastructure. (Poon & Yu, 2010)

4. CHANGE MANAGEMENT

Challenges concerning the change management have been studied a lot in the past and the results strongly indicate that change is a key success factor in any IT-related project and companies need to develop their competence on change management generally (Smart, 2010). Lines et al. (2015) mention that successful implementation of new processes requires a concerted change management effort. Complex change implementations have proven to face many difficulties and therefore, change initiatives tend to have a high failure rate (Umble & Umble, 2014).

Umble and Umble (2014) see that significant change often entails uncertainty about the potential effects on people as people may feel their job status or security threatened and such fear often leads to resistance against the projected change. Resistance can be perceived as key issue in implementation of change. Oreg (2006) defines resistance as “a tridimensional (negative) attitude towards change” which includes cognitive, affective and behavioral dimensions. Cognitive element includes what an individual think about change – for instance, will the change benefit or harm me or my department (Erwin & Garman, 2009). Affective element addresses the emotional and psychological reactions employees experience in how they feel about change (Lines et al., 2015). Behavioral aspect simply comprises how an individual behaves in response to change (Erwin & Garman, 2009).

Based on Oreg (2006) research some employees are more prone to both have negative emotions and act against organizational changes because of their dispositional tendency, self-sufficient of the specific nature of change ongoing. Lines et al. (2015) have found twelve specific types of resistive behaviours which are shown in Table 2 below. All of these twelve types of resistive behaviours are disturbing the change process and furthermore, it is essential to take these factors into account beforehand in order to have a successful change implementation process.

Table 4. Resistive behavior types (Lines et al., 2015).

Reluctant compliance	Doing only the minimum work required
Delaying	Agreeing verbally but not fulfilling required task, stalling
Lack of transparency	Hiding or withholding valuable information during implementation process
Restricting education	Avoiding or blocking the incoming change message
Arguing and open criticism	Verbally opposing and accusing implementation process
Obstructing and subverting	Openly sabotaging, restricting and undermining the change implementation
Spreading the negative word	Spreading negative opinions and rumors
Termination	Voluntary or involuntary removal from the project or organization
Reversion	Shifting back to traditional methods during the implementation
Misguided application	Changing the implementation beyond the named process, methods and aims
Forcing the change	Striving for perfection at expense of implementation effort
External influence	Behavior in response to negative feedback from external sources

Raineri (2011) emphasizes on change management practices (CMP) which are a set of managerial actions used in order to administrate the management of organizational change process. There are two groups of employees who mostly use CMPs during the organizational change processes: Change strategists who oversee scheduling the change process and change receptors who receive the impact of the change program (Raineri, 2011). It can be seen essential to also recognize the importance of change receptors. Comprehending the needs and interests of relevant individuals and groups is vital in order to forecast their intentions and responses meanwhile convincing them to support the change process besides mitigating possible resistances towards the process (Holt, Armenakis, Feild and Stanley, 2007; Ranieri, 2011).

Ahn et al. (2004) highlight the importance of leadership in managing change as many popular leadership models may provide needed assistance in some business problems, they are often insufficient while facing constant and rapid change. One reason for change implementation process failure can be in attributes that managers typical possess. Managers are usually talented and well-trained for the use of analytical skills which can be seen highly beneficial in change preparation practices whereas implementation practices require an emphasis on the use of interpersonal and political skills (Ranieri, 2011). Nonetheless, managers have been shown to have an uneven distribution in these latter attributes (Groves, 2005). Furthermore, managers' lack of interpersonal and political skills could partly explain the high failure rate of change implementation projects. Philips and Wright (2009) notify that some managers remain unclear about the implementation and adaption processes regardless of substantial investments in e-business strategies and IT.

Regardless of organization's size, flexible structures are usually required when implementing e-business strategy (Philips & Wright, 2009). Flexible structures might help with sharing of knowledge more efficiently within an organization. Knowledge influences company's ability to adjust to its environment and thus, all employees should be motivated and encouraged to develop, share and use knowledge in order to establish a true culture of learning into organization (Philips & Wright, 2009). An effective change implementation entails genuine buy-in from the individuals both involved in and affected by the change process. It includes end-users and the managers who lead these change implementation projects, and all people involved should comprehend why changes are being made and what effects the change will have on organization and people on it. (Philips & Wright, 2009).

Expectation management is critical as employees' attitude towards technology and their participation with implementation ultimately affects their willingness to use technology accordingly (Philips & Wright, 2009). For instance, in e-procurement implementation cases, it could potentially help in decreasing the maverick buying. Philips and Wright (2009) stress that successful technology implementations depend on much more than just getting the technology right. It involves organizing whole work environment, the roles on it and providing the required training on new technology in order to maximize the benefits from technological change (Philips & Wright, 2009).

Philips and Wright (2009) suggest that developing the capability to implement and manage change is compulsory to survive with the rapid changes in business environment nowadays. They suggest that leaders should take responsibility in the following six areas regarding strategy and execution of strategy which is illustrated in Figure 8 below.

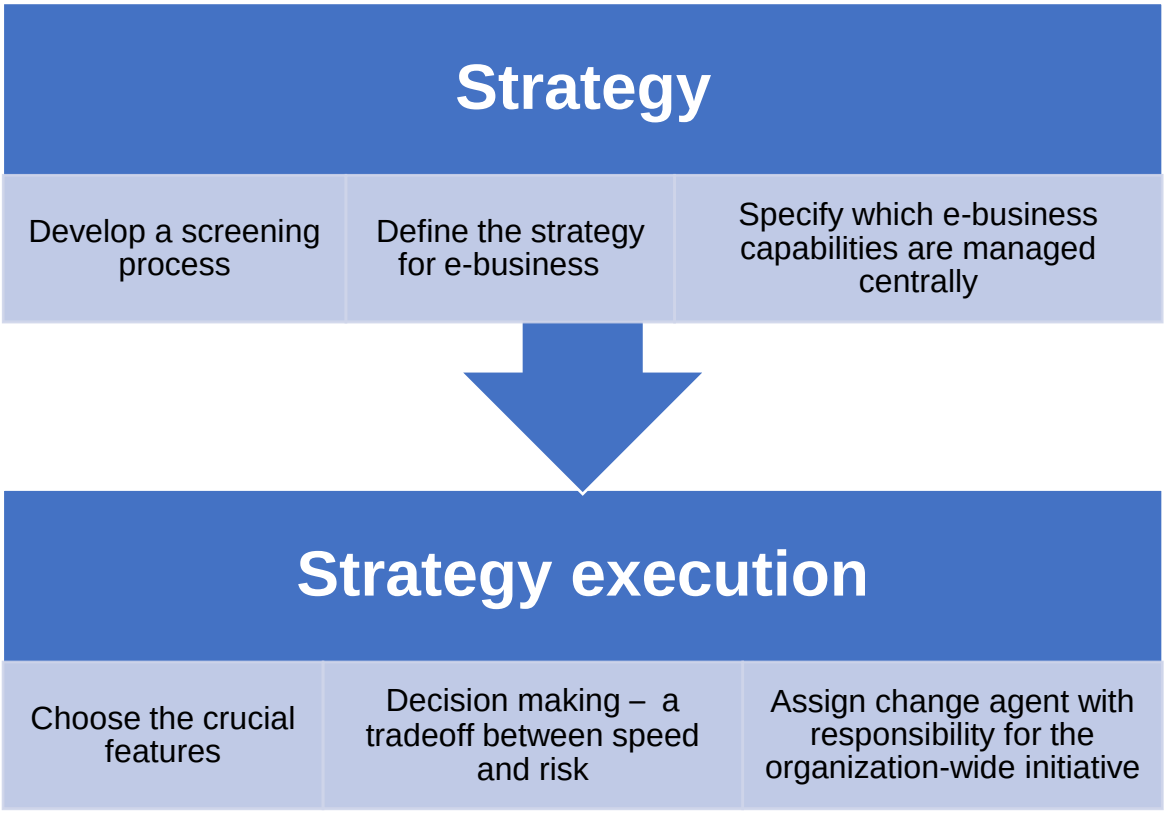

Figure 8. Six areas on strategy and strategy execution (Philips & Wright, 2009)

When creating strategy at first, it typically begins with developing a screening process. During this screening process it is decided which processes should be further developed and invested in. After the screening process, the strategic role for e-business technologies and the required funding to achieve these targets are determined in company. Finally, it is defined which e-business capabilities are managed centrally on organization level and which ones on team/employee level. (Philips & Wright, 2009)

After the strategy has been chosen, it is time to execute the planned strategy accordingly. Execution begins with determining which features are most critical and how much reliability and flexibility is needed. Second part of strategy implementation addresses the fact that decision making includes the tradeoff between implementation speed and risk and therefore, it should be determined what kind of risks are tolerable. On the last phase, change agent should be assigned to monitor the success of strategy implementation with responsibility for the organization-wide initiative. Larger organizations can have metrics such as process mining to follow-up the success of strategy implementation. (Philips & Wright, 2009) These kinds of metrics might help to identify possible bottlenecks on the process and therefore, be a huge asset to help identifying and fixing possibly faulty processes rapidly before they escalate into greater problems.

Lines et al. (2015) emphasize on the fact that change requires leadership and in order to successfully implement change, companies should appoint change agents who oversee leading and implementing the change process. Earl (2000) also points out that individuals must take responsibility for continuous learning and change within companies. Appointing change agents assigns responsibility and accountability of change implementation success to certain specific people which clarifies the process. Secondly, change agents can assist and support other employees who might either question or struggle with the change. (Lines, 2015) Furthermore, corporations which haven't formally nominate change agents have proven to confront four times more resistance than organizations who appointed change agents (Lines, 2015). Thus, appointing change agents seem to be an essential part of a successful change implementation.

Lines et al. (2015) highlight the importance of patience in change implementation projects. According to their research, when employees mutually expected a rapid change implementation, they underwent the largest amount of resistance. However, companies that predicted change implementation to be a long-term process that entails continuous support and education had seven times less resistance. Companies should be patient and comprehend that it isn't recommended to force the change occur any faster than employees (and possibly stakeholders) are comfortable with. (Lines et al., 2015) Kotter (2017) confirms this by stating that change process often requires a considerable length of time and he also mentions that skipping phases never produces a desirable outcome.

5. METHODOLOGY

This chapter describes research methodology and research data that has been utilized in this thesis. Chapter's purpose is to clarify how this thesis has been conducted by explaining which certain research methodologies have been used in this study and also explaining why and how they have been conducted in practice.

5.1 Research methodology and data collection

The empirical section of this thesis addresses case company´s current state of e-procurement infrastructure and especially, how new e-procurement system could be implemented successfully from case company's perspective. Study's empirical part is conducted as qualitative research. The research method was chosen after pondering extensively the characteristics and purpose of this thesis. Qualitative research is optimal when primary objective of study is to gather understanding of a certain phenomenon through individual experiences and finally, generalizing these experiences to a greater population (Bluhm, Harman, Lee & Mitchell, 2011). Ghauri and Grønhaug (2005, 202) also remind that qualitative research is suited exceedingly well when preceding perceptions about a phenomenon under examination are modest which implies that qualitative research tends to be exploratory and flexible due to its unstructured characteristics.

Qualitative study examines the research subject comprehensively which is also an essential objective for this thesis (Hirsjärvi, Remes & Sajavaara (2009, 161). Research object of this study is a quite large company with notable procurement department. Case company wishes to appear anonymously in this thesis. Responsibility and sustainability play a major role in a case company's strategy which reflects to company's supply chain management and eventually to both e-procurement and e-sourcing by creating throughout efficient and sustainable supply chains.

This thesis focuses on one company's perspective and view on the e-procurement. Saunders, Lewis and Thornhill (2000, 381) confirm that qualitative research method is used when analysis is conducted through the use of conceptualization since the data is based on

meanings which are expressed through words. Therefore, conducting research as case study is natural research strategy for this thesis since case study is also considered as a typical research strategy for qualitative study (Metsämuuronen 2006, 92). As addressed previously in study's theory section, e-procurement necessarily isn't a process that can be easily duplicated to different organizations with exact same features. On the contrary, implementation of e-procurement is heavily based on each corporation's individual needs which also determine the specifications of e-procurement systems. Furthermore, case study is seen as most suitable research strategy for this thesis.

Yin (2009, 2) generalizes that case study is the most optimal research method when researcher is trying to find answers to "how" and "why" question, and the focus is on a present phenomenon within a real-life context. Yin (2009, 27) presents five essential components of a research design for case studies:

1. study's questions
2. propositions
3. unit of analysis
4. the logic linking data to propositions
5. the criteria for interpreting the findings.

In case studies "how" and "why" questions are most typically used. Each proposition directs attention to possible things to study within the scope of research. Third component's unit of analysis's role is to help narrow the study's scope within feasible limits. The fourth and fifth component main worry during the design phase is the common awareness of the main choices and how will they adapt to the specific case study. (Yin, 2009, 27-35)

Quantitative research is often seen as primary research strategy in area of business and moreover, case study research is introduced as a research strategy when addressing for example complex organizational and managerial matters, which are considered challenging to study with quantitative methodologies (Ghauri & Grønhaug, 2005, 171; Eriksson & Kovalainen 2008, 216). Case study can be divided into two types which are intensive and extensive. Intensive case study research's objective is to understand a unique case from inside by presenting a thick, holistic and contextualized description whereas extensive case study's goal is at elaboration, testing or generation of generalizable theoretical constructs

by replicating a number of cases (Eriksson & Kovalainen, 218) This thesis is conducted as intensive case study research as this study focuses on one case, and as already previously mentioned e-procurement isn't a phenomenon that can be easily copied from one organization to another. Furthermore, the goal is to find the most suitable e-procurement solutions to the case company.

Research data of this thesis is collected by four interviews within the case company. Interviewees are chosen from case company's procurement department as they are expected to be most familiar with the current e-procurement processes, applications and practices. Interviewees are also expected to have opinions in e-procurement implementation through their knowledge on current tools and past implementation experiences. Moreover, the interviewees were selected carefully in order to fulfill this research's purpose. All interviews were held as face-to-face interviews and they also were recorded and transcribed afterwards. More detailed information on the interviews is shown in Table 3 below.

Table 3. Interviews

Interview no.	Current role	Involved in implementation process	Interview method	Interview length
Interview 1	Data-analyst	No	Face-to-face	45 minutes
Interview 2	Purchaser	In supporting role	Face-to-face	1 hour
Interview 3	Purchaser	Yes	Face-to-face	35 minutes
Interview 4	Development manager	Yes	Face-to-face	40 minutes

Often in interviews, interviewers ask questions first to which interviewees respond by answering the questions. Nonetheless, qualitative interviews can bear a resemblance to everyday conversations, in which the distinction between the interviewed and the interviewee isn't so apparent (Eriksson & Kovalainen, 2008, 79). Interviews of this thesis are conducted

as semi-structured interviews. In semi-structured interviews interviewers can choose a prepared outline of topics with themselves with a possibility to change the wording and order of questions in each interview. The main advantage is that the materials are somewhat systematic and comprehensive while the interviews themselves are quite conversational and informal. The interviewer should make sure that all topics are well-covered meanwhile being prepared to inquire for more in-depth responses from the participant. Nevertheless, sticking too close with preplanned questions might prevent essential topics from being raised by the interviewee. (Eriksson & Kovalainen, 2008, 82-83).

Data collection in qualitative research might often be a problematic issue for the researcher. Frequently researcher starts collecting data without deciding beforehand how many cases will be studied. Researcher may begin interviews and continue doing them for as long these new interviews provide new relevant information for the study. Data collection phase is ready when same topics are being repeated in interviews without new purposeful information coming out of interviews. (Hirsjärvi et al., 2009, 181-182) Moreover, data collection and its analysis are often prone to the context aiming at a holistic understanding of the topics researched (Eriksson & Kovalainen, 2008).

In the context of case study, there are a couple of key factors in data collection phase. Firstly, the interviewer should ask good questions and also be able to interpret the answers without holding onto own ideologies and preconceptions on the matter. Interviewer should also be adaptive and flexible with seeing newly encountered and unplanned situations as opportunities and not threats. Interviewer must also be familiar with the research subject. This enables that researcher is able to identify the relevant information related to the study. It is also essential that researcher is unbiased by preconceived notions, such as existing theory. Therefore, a person should be sensitive and responsive to possible contradictory evidence derived from the case study. (Yin 2009, 69-72). All of these aforementioned aspects are precisely considered while planning and executing interviews for this thesis.

5.2 Analysis of research data

Yin (2009, 127) mentions that case study evidence is one of the least developed and most difficult elements of executing case studies. Unlike quantitative analysis, there are only

few fixed ways of conducting the analysis in qualitative case studies. Instead, much relies on a researcher's own style of rigorous empirical thinking, along with the sufficient showing of evidence and careful deliberation of alternative interpretations. (Yin, 2009, 127).

Research data of this thesis consists of several interviews conducted within the case company's procurement department. Research subject has been chosen due to researcher's own general interest and knowledge of the subject. Furthermore, research object was chosen as the case company has a notable and widespread procurement department with continuous interest and wish to further develop. The case company is also currently considering implementation of new e-procurement system which makes this thesis topical. Researcher also has a contact to case company and moreover, the general knowledge of case company's suitability to this particular research.

The group of interviewees was chosen by their knowledge and own involvement on the research subject. Case company has multiple different procurement categories, and this was also considered by selecting participants of the study from different procurement categories so that study would comprehensively address the case company's current status and future headings of e-procurement.

5.3 Reliability and validity

The credibility of research's results is extremely essential. Therefore, in order to avoid presenting wrong results and findings in research, focus should be turned into two extents on research design: reliability and validity (Saunders et al., 2000, 100). The aim of reliability is to minimize the errors and biases in the research Objective is to be assured that, if an another investigator followed the same procedures as described by an earlier researcher and conducted the same case study all over again, the later researcher should come up with the same findings and conclusions. (Yin, 2009, 45). On the other hand, validity concerns whether the findings are what they ought to be (Saunders et al, 2000, 101).

Case study is chosen research method for this thesis which partially also affects to study's credibility. The chosen research object, group of interviewees and different circumstances

in other studies might have an effect to interviews' content. A positive influence on study's validity was tried to be achieved by careful examination of research question and objectives in order to gain credibility from the interviewees. Interview questions were carefully prepared and presented in order to avoid too leading questions which might have had an influence on interviewees' answers. Due to semi-structured interview method, the key questions were presented for all participants although the order of questions might have varied which on the other hand, helped interviewees to voice out their own views on the topic.

Selection of the qualitative research method for this thesis provides more holistic understanding of the research subject compared to quantitative research method which increases the credibility of the research as well. Semi-structured interview questions with possibility to unreservedly answer and discuss on the subject also support finding answers to complex research questions.

6. FINDINGS

This chapter presents findings gathered from empirical section of this thesis. The goal is to illustrate findings from the interviews and to analyze further these findings by reflecting them to theory section of this research. The case company is currently considering new e-procurement solution for indirect purchases which leads questioning why this possible change would be pondered at first place and secondly, how the transformation process should be executed. Therefore, main focus of this study is to discover how the e-procurement implementation process should be executed and what all aspects should be considered in order to achieve the best possible outcome.

6.1 Current state of e-procurement systems

"Overall, we got basic activities covered with our current systems but there's a lot of room for improvement"

The case company is broadly using various solutions to cover different processes in area of procurement. It currently has own separate tools for ERP, sourcing and supplier management, contract management and data management. Indirect procurement´s purchasing is mostly done through ERP presently and it covers the Request-to-pay (R2P) cycle all the way from purchase requisition to RFP, purchase order and finally, receiving the goods or service and payment. Sourcing, tendering and supplier management are covered by a cloud-based platform in which all the supplier data is manually inserted. Contract management and spend management have their own respective systems as well. Current e-procurement systems are illustrated in Table 4 below.

Table 4. Current e-procurement systems

Tool	Used for	Comments
ERP	R2P-process in indirect purchasing	Tool for maintenance. Unsuitable for procurement (service purchases), not user friendly, no possibility to integrate catalogs
Sourcing and supplier management	Sourcing and tendering processes, supplier management	Suitable for tendering, easy-to-use, data on suppliers not synchronized with other tools
Contract database	Contract archive	A stand-alone system, not synchronized with other tools
Data management	Spend analysis	Great but underestimated tool, challenging that data comes from many systems

"Not the best (tool) possible for acquiring services. You can make orders, but the system won't support purchasing in the best possible way"

The ERP is presently used for purchasing on case company's indirect purchases. The interviews revealed that ERP provides a clear structure of working which helps R2P-process to work accordingly. It is also noted that ERP provides some flexibility in automatization in both invoicing and creation of new purchase requisitions. Nevertheless, many issues were also being listed. Probably the most significant issue is that present ERP is originally designed for maintenance and material environment. Thus, it isn't planned for procurement's purposes and especially, the incompatibility is demonstrated most in purchasing services. However, it should be considered that the case company has several different categories which makes it difficult to find one system to fit every category's needs for purchasing.

"People in procurement are generally using the systems very well but stakeholders can be really reluctant to use them for example in request-to-pay process as it hasn't been so thoroughly implemented. There have been many problems where stakeholders don't want to or claim that they don't know how to use the system according the given instructions. It has been going so long, that isn't really a system's fault anymore."

Interviews illustrated that stakeholders' incapability or unwillingness to use e-procurement systems is one issue to look at more closely. Interviewee 2 confirms this by stating: "Challenges are mainly on stakeholder side, who are responsible of creating purchase requisition." Main challenge seems to be that there are so many stakeholders from different organizations and teams which makes arranging well-organized training and instructions for everyone quite challenging. Thus, clear instructions and on-going training would be essential to introduce to stakeholders as well. Additionally, some problems seem to arise from stakeholders' reluctance to use the systems according the procurement process. They might have gotten used to maverick buying in the past when the correct processes and way of working wasn´t yet properly introduced.

"In (current ERP) training is limited, there's some basic training and there's instructions there. The main area is that there's lot of functionalities and reporting there what we don't understand. People use tool for years and they don't have any understanding of the system. They just know the basic things that are required in their daily work."

Furthermore, interviews illustrated that it would clarify the situation remarkably if someone is clearly appointed for ownership for each tool. For example, regarding the present ERP there isn't a clear ownership anymore even though there used to be an owner for ERP before. Interviewee 4 mentions: "In some areas we have more training but main reason to succeed, I think that you have a clear owner for each tool. Ownership of tool, make that visible as well." When there's no clear ownership of tool, it creates uncertainty who is responsible for organizing training for each group. If training is not well-organized there is a risk that nobody organizes enough training and other employees are needed for constant tutoring of new users. Interviewee 3 states that it creates a lot of extra work to both new users and current users who are forced to stop their own job and go to advice new users constantly with different tools. Interviewee 3 believes that this could be prevented by

organizing a well-organized introduction training to ERP tool for new users – both procurement personnel and stakeholders.

"There is a huge improvement where we have implemented (sourcing and supplier management tool). It has improved efficiency clearly. There's some clear transparency and other benefits in using e-sourcing tools."

Case company´s sourcing tool gets a lot of credit from the interviewees. It is stated that tool works well in tendering as everything is done under one system. The system contains all supplier data, quotations and even the messaging is done within the tool. This has been reported to save a lot of time from each party involved. The tool is also easy-to-use, and it is possible to utilize previous tenders in creating new tenders so that every step doesn´t necessarily need to be repeated in every event. Nevertheless, the same system is also used for supplier management. Unlike the sourcing aspect, the supplier management side of the tool doesn´t receive such praise as the data isn´t integrated to other systems and master data. The supplier data needs to be inserted manually to the system. It is also a challenge to keep the supplier data updated as it isn´t linked to master data. Therefore, the supplier data can easily become outdated in the system and keeping the data up-to-date requires plenty of resources.

"On our supplier management side, the current tool isn't that good. The obvious reason is that it's not integrated to our master data. It's a stand-alone system so the only visibility for the suppliers is what you have uploaded to that tool manually, but you can't see any spend data or other transactions for suppliers."

The contract database receives much criticism in interviews. Interviews directly expressed that the system isn´t good and secondly, it is not designed for procurement which is also the case for other tools as well. Interviewee 4 summarizes the present contract management tool followingly: "not that much of positive things to say about that, the reporting, overview, connectivity everything is done manually, there's not really synchronization between it and other tools".

"Too many different systems, having just one tool would be enough to normal or current procurement activities - - Regarding data-management, it would be a lot easier to have data only in one place"

On the data management perspective, the current situation is seen challenging as there are various systems in use at the present and mostly aren´t connected or synchronized with other systems. It is problematic to combine data from many different sources, but this is seen more as a general issue rather than just solely procurement´s challenge. The data management tool itself and its features are appreciated on case company even though from time to time there has been some complaints regarding the tool. The negative feedback can be seen originating more from insufficient amount of training and instructions to use the tool rather than the system itself. Besides the increased training and more clear instructions to utilize the data in more efficient way, another solution is to provide fewer e-procurement tools which are synchronized and connected to each other.

6.2 Change management

Change management has been generally raised as a key theme in implementing new processes successfully. Every interviewee also pointed out the importance of managing change being extremely crucial in every implementation project. Interviewee 3 describes change management role: *"Primary issue, which needs to be in order so that implementation process can be executed successfully. You should have action plan, how the implementation is going to be executed."* This statement underlines the fact that each change project is something that should be carefully prepared and planned so that executing implementation phase goes as smoothly as possible.

"It involves many aspects such as communication. the key thing is to have a structured way to communicate that change is going to happen, to ensure that you have the needed engagement in different areas."

A lot of it comes to giving them (end users) information and being open about upcoming change as with every change.

“Even if you don’t know everything you got to tell people that you don’t know everything, so being open is really essential.”

Communication and being as transparent as possible are aspects that are introduced in each interview essential in managing change. With clear and open communication each party involved is aware of the ongoing process and therefore, everyone can feel that they are a part of the process as well. The buy-in from the users is critical as the new tool itself won´t bring any extra value. Interviewee 4 describes this phenomenon followingly: *“If you have a new tool, the tool itself is nothing, you have to have the content there, the users and the transactions there so having the change management is as important as having the tool itself.”*

“It’s the same as with every change, when you have rapid changes all the time, it tends to create resistance towards the change and then if it’s not properly told to them like why this (change) is being done. Of course, on the ideal situation, end users have said that this (change) is what we would need and then there would be of course less resistance also.”

With constantly changing business environment, it is also important to tell end-users why the change is being made, what effects it will bring to their everyday work and how it will eventually help them in future. Interviewee 1 pointed out that buy-in from end-users is much more probable if the change initiative comes from themselves. It is reasonable as in that case the end-users have already been assured of necessity for the change and they are probably also aware of the benefits that new system might be able to provide. Thus, besides open communication it is essential to reassure users why the change is being made at first place and what benefits it will provide.

“So, you don’t automatically get these new good features and advantages to use but you have to learn new system and it requires extra effort at start. That’s why change management is important in order to get these advantages of new system to common knowledge. So that users know why the change is made and what are the benefits. In case of some difficulties or problems, support must be provided to the users, so they are getting

answers to their requests and they are not struggling with the change alone and start complaining about new system and get attitude against it."

Interviewee 2 supports the reasoning with open communication and expressing a clear message why the change is being made to the users. Interviewee 2 expresses the importance of support to end-users at the beginning of change implementation process. It is seen crucial to provide the needed assistance to users especially in the beginning of implementation process when everything is new for them. Otherwise, there´s a risk that new system gathers plenty of resistance from users. It is essential to reserve enough resources for supporting users during the first steps on the implementation process. Therefore, key users should be appointed to take care of user-trainings.

6.3 Implementation process

Each implementation process is unique occasion but nevertheless, there are some similar patterns that can also be utilized in different projects. Most of these similarities are related to change management as technical side of implementing new systems differ most of the times. However, change management is an aspect that needs to be managed properly in each time in order to have a successful implementation. Therefore, this study address some of the previous implementation projects that the interviewees have participated in the past. The idea is to gather best-practices in former implementations that can be utilized to support up-coming implementations of new e-procurement tools.

"At first, people tend to need some change management before starting to use a new system. The feedback has been good. For example, if you tried to take our sourcing and supplier management tool away, people would get mad."

As already mentioned in previous chapter, proper change management is needed in order to get acceptance from users. After the acceptance has been received from the users it is essential to provide support and trainings to users during the implementation phase so that execution goes in best possible way. Furthermore, it´s crucial to involve users and possibly both stakeholders and suppliers already in early phase to get their valuable

feedback regarding the usage of systems and possible concerns. Interviewee 1 addresses this by commenting: *"It depends, sometimes they will as a part of resistance ask about what about this kind of exceptions and actually it can be a good thing that they will voice out these things if they haven't been thought of before".* Therefore, resistance shouldn´t only be seen as negative issue that should be prohibited. It can also be constructive criticism which enables to fix the possible issues even before introduction of new system. This can be seen as a huge advantage for the implementation project as the earlier you´re able to correct the glitches the better the outcome will more likely to be eventually.

"In many cases until now, efficiency improvements haven´t been very well measured. At least now we have tool in (current ERP). That´s one way to measure throughput or system efficiency in possible changes"

Recently, the case company has deployed a tool for process mining on current ERP. It enables to assess and monitor purchasing activities and cycle times meanwhile revealing possible bottlenecks in the process. As Mahendrawathi et al. (2017) found out in their study, the bottlenecks in the implementation process are mostly due to technical, data migration and cultural issues. Therefore, it´s essential to do extensive testing on new system before carrying out the introduction of new e-procurement tool. Process mining is a great way to spot the probable issues during the implementation process. By effective use of process mining it´s more likely to achieve required functionalities and integrations for the new e-procurement system.

"If you know, you got a good case and you know in the long term that it will speed up the process. That of course depends on the process or tool you're implementing. At first it will slow down people, first cases will take more time and it's obvious. That needs to be communicated, that this will take longer compared to the way you've done it previously, but it will eventually get faster and more efficient."

Throughout the introduction of new e-procurement system, it usually requires more time and effort from each party involved in the beginning. Thus, it´s crucial to communicate this to users, possibly to stakeholders and suppliers as well depending on their involvement on

the implementation process. Long-term benefits are also important to be told so that users are aware that new system will eventually make their job easier and more efficient. Furthermore, you need the genuine buy-in from the users to have a successful introduction of new system.

"Good project management has speeded up the process and creating roll-out plan and conforming it. In the beginning, we checked the largest suppliers and listed in which order we implement them to use this new system. It was really contributing factor that we kept up the schedule and new suppliers to use this new system."

The case company has recently experienced an e-procurement implementation project regarding the R2P-process. The project involved all parties – procurement, stakeholders and suppliers. It went well mainly due to great project management and creating a roll-out schedule and conforming it accordingly. It enabled to keep up with the schedule and get new suppliers to use the system as planned. Weekly training events were also organized for stakeholders and suppliers where they were able to raise questions and possible issues. It clarified and speeded up the introduction of new system as stakeholders and suppliers knew precisely where and when to ask any questions concerning the implementation process. Interviewee 3 summarizes that transparency of information and clear instructions is the driving force of successful introduction of new system.

"Especially, I have been in some areas where's there has been no system and systematic approach and then you go there, there's always people like thinking that they can't make their voice heard and their requirements are not listened but obviously you're making a tool to suit every category so you can't make it too specific."

From the group of interviewees, there was also some past experience of introduction of e-procurement tool to areas which hadn´t previously used any kind of tool until the introduction of new tool. In these cases, users tend to have more resistance towards the change as systematic approach may change their tasks and roles significantly. If the implementation process goes through even with the involvement of probable resistance, then users will eventually start to buy-in the benefits of new system. Therefore, it´s crucial to have a clear

project management and provide needed support for users while introduction of a whole new way to work. Meanwhile, it´s important to hear users´ opinions and requirements concerning the new tool it´s nearly impossible to get solution that will suit every category in best possible way. Interviewee 1 states that it´s difficult to have one system to support all different procurement´s categories in case company as there is many different categories. For example, the needs of R2P-process are very diverse among each category which makes the usage of system more complex and it´s also more demanding for the system. Thus, it might be challenging to transform to be using just one procurement system. Moreover, it is vital to appoint change agents who have responsibility and accountability in change implementation process as it is proven to be mitigating the resistance among the users (Lines, et al. 2015).

"I have noticed that when we have made requirements for (new purchasing solution) that everybody has strong opinions what's important and so on. People don't see the big picture. It's hard to explain why we make it in certain way."

"*I see that especially, in the (new purchasing solution), proof of concept is important, so that we start from new supplier's intake to competitive tendering, signing contract all the way to purchases within frame agreement and invoicing."*

"It's important that in the new system, we think of all the things we do there from three perspectives: Procurement view, stakeholder view and the supplier view."

The new purchasing solution has arisen a lot of interest within the case company´s procurement department and also among the interviewees. One notable thing is that there are variety of opinions which areas should be prioritized in new system. It´s hardly a surprise as there are many different categories with various needs as already addressed previously. Nevertheless, it might be challenging task to find a compromise to suit every category´s needs meanwhile satisfying all the parties involved. Furthermore, the focus should be in supporting procurement´s tasks by adding connectivity and synchronization between different systems and releasing more resources from transactional tasks into more strategic and value-adding tasks. However, the planning shouldn´t only be done from different

procurement categories point of view but rather as a combination of each procurement´s, stakeholders´ and suppliers´ perspectives.

"Major thing is that there's whole new thing of governance and infrastructure you need to think if you do these kinds of things, who manages user rights, what kind of visibility different user groups have, who will train the people, who will be responsible for updates. There's lot of things which you don't notice if you use the system or if you have a tool, but there's always infrastructure."

When planning implementation of new e-procurement system, there is always the infrastructure and governance behind the systems. As interviewee 4 mentions it often might be left unnoticed but nonetheless, it´s essential part of the implementation process. There should be a process owner appointed for each tool or process so that there is a common clarity of each tool's ownership and responsibilities such as managing user rights, organizing trainings and providing updates for the system. When infrastructure and governance are figured out properly there is expected to be less issues as well. This is demonstrated with the current ERP in which there is still a lot of confusion with the trainings and usage of the system – especially, with stakeholders.

6.4 Development of purchasing function

What kind of an effect would possible new purchasing solution bring to the case company´s procurement department and especially, to the purchasing function? Besides the new purchasing solution, also the possibilities which automatization could provide in future are explored on this chapter.

"Huge impact on the way how it will transform the way of working of the procurement. Transform it from operational and transactional organization to more strategic and tactical organization."

"A huge possible value by changing the systems. Not just like in efficiency way. In compliance way, transparency, user-experience, there's so many aspects."

"By going from a model that we have so many stand-alone systems so just having to jump from the system to system. You don't have in the one list whole suppliers. Manual transactions between the systems. That's way too labor-intensive."

Every interviewee mentioned that procurement´s role is developing further to more strategic role which is in line with Figure 3 (Puschmann & Alt, 2005). What is interesting is that it´s still topical subject even after so many years of rapid development in technology ever since. The idea of new purchasing solution is seen as an enabler to change the way of working drastically. The current e-procurement tools in use have been a huge leap forward compared to the time before any systematic approach and tools to support working. Nonetheless, there is still much room left for improvement. Present stand-alone systems are seen as inefficient not to mention the problems with user-friendliness by needing to jump from one system to another all the time. It is believed that possible new system and automatization will decrease the amount of transactional work which will allow purchasing function to focus into more value-adding tasks. Furthermore, this development can be seen to provide more business value from procurement department.

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"Most important thing is that when you have a e-procurement system is that the tools are there for support your work. If you do transactional work that isn't value-adding, then that's reducing the focus from important things. That's not correct way of doing it."

The current purchasing system isn´t described as the most user-friendly one and it requires plenty of transactional work to conduct every purchase nowadays – not only from procurement, but also from stakeholders. Interviewee 2 confirms this and adds: "Especially with stakeholders, there are difficulties with these persons who create PR, the system is really difficult to use as they are using it once in a month. The system requires that you remember what you should do and in what order to get a PR done, so it´s not user friendly". Furthermore, this issue creates extra work and inefficiency to both procurement

and stakeholder sides at the moment. Thus, a more suitable e-procurement tool for purchasing would be a significant leap forward.

"Pilots are one thing what we need to increase substantially, pilot and do more will be the sell-of-service purchasing of stakeholders"

"Increase the amount of purchase transaction that will flow without interaction of procurement such as punchout catalogs."

Interviewee 4 believes that procurement´s role and work will be more value-adding which means that for example low value orders will flow through the system. It would change procurement´s tasks more from regular purchasing into sourcing work and additionally, both creating and updating catalogs. Interviewee 4 suggests that low value orders could be executed by self-service purchasing by stakeholders. It would mean that once procurement has negotiated the terms and conditions for the purchases, there´s no necessity for procurement involvement in routine low value purchases, especially if the purchases are made under the frame agreement. Punchout catalogs allow buyer to browse supplier´s catalogs and make purchases within buyer´s own e-procurement system. Possibility to use only own e-procurement system is a massive benefit as then buyer doesn´t need to use multiple suppliers´ own systems.

"In my opinion, every manual task which isn´t value-adding should be automatized. For example, company´s internal purchases should already have been automatized so that our resources would be available for other tasks"

Many of operative tasks should be automatized because it would free up to not necessarily more important but at least more strategic direction. For example, if you have 25 POs and you have a problem in one of them. Other 24 are just automatic work which barely contain any human decision tasks. It feels weird that you spent so much of time just passing them through and can't fully investment your time to solving that one problematic case.

Interviewees had already found out a notable number of tasks that could be automatized. It was seen that tasks that weren´t value-adding should be automatized first. This would allow procurement to focus more for more value-adding tasks. Interviewees believe that in new purchasing solution purchasers time will be released from operative tasks to more strategic tasks. Interviewee 2 estimated that even 80% of purchaser´s daily work time goes either directly on purchases through ERP-system or indirectly by helping stakeholders to use the system accordingly. Previously mentioned self-serving purchasing by stakeholders and punch-out catalogs would probably significantly release purchasers' time from operative tasks to more strategic tasks.

6.5 Summary of results

This subchapter gathers results of this chapter and combines them with previous theoretical sections of this study. First of all, it has become clear that meanwhile the case company currently has all the basic activities covered with present systems, there is still plenty of room for improvement. The current tools are not connected and synchronized between each other which causes a lot of extra transactional work. Moreover, most of the current tools such as ERP and contract management tool are not designed for procurement´s purposes which isn´t obviously an ideal situation.

Potential opposing factors concerning the implementation process have been illustrated in Figure 9 below. First possible obstacle is a question on new purchasing solution´s suitability on each category. It´s a theme that has come up in several interviews of this research. Interviewee 1 describes the variance of different categories´ impact to e-procurement implementation process followingly: "Something that makes implementation of procurement´s e-procurement system difficult. Hard to have system to support all different kinds of categories, very different needs in categories in R2P-processes, documentation, confirmations what could be needed". It´s more demanding for the system and also makes the usage of system more complex. Therefore, interviewee 1 believes that it might be more difficult to use just one procurement system while it otherwise, would be more convenient. It might also be a difficult task to convince people to see new system comprehensively instead of the perspective of just their own category as interviewee 4 suggested.

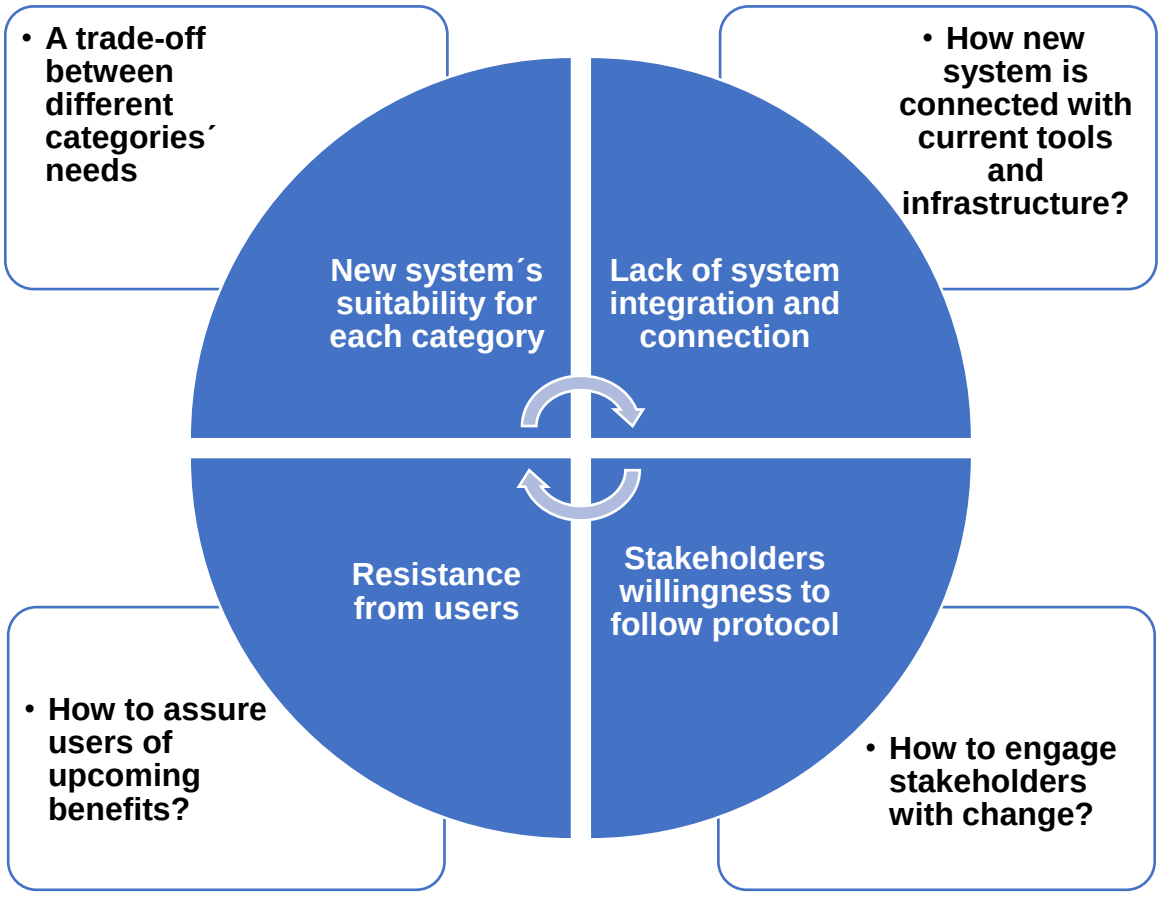

Figure 9. Potential opposing factors on the implementation process

The second potential opposing factor is the lack of system integration and connection between current infrastructure and the possible upcoming solution. It makes situation even more difficult that many of the current tools are stand-alone systems which makes the system integration really challenging. The dilemma could be solved by a long term planning, and possibly end up eventually replacing current systems completely in phases by new system infrastructure.

Stakeholders have also notable role in e-procurement implementation process. Stakeholders´ role in R2P-process might vary considerably depending on each individual´s position and department. For example, someone can be in contact with R2P-process and procurement almost daily whereas others might have the similar activities only once or twice in a

year. Therefore, having a proper change management is crucial for stakeholders as well. Possible upcoming e-procurement system should be easy to use for both basic and advanced users also on stakeholder side. There should be also clear instructions and separately appointed key users for different departments from whom the support could be easily asked.

Finally, there is irresistible resistance originating from end users what is naturally expected with every change. Even though avoiding the resistance entirely is an unrealistic scenario, there are many actions that can be done in order to mitigate the probable resistance. The objective is to assure users of the upcoming benefits that the new system will eventually provide compared to the existent system. Furthermore, employees should also be aware why the change is being made and what effects will it have on individual and organization level. By getting a genuine buy-in from end users is a critical step in reaching a successful implementation. As Lines et al. (2015) mention the change implementation is a process that can´t be forced to occur any faster than employees are comfortable with. It was reported in their research that companies who predicted change implementation to be a long-term process which entails constant support and training faced seven times less resistance.

Figure 10 below demonstrates the phases which are needed to progress the implementation process. First of all, the e-procurement implementation project entails creating a valid business case in order to receive the needed approval and support for the project from top management. After the approval from top management has been received it´s time to execute pre-study phase. Efficient project management plays a major role in a successful implementation as it´s essential to have right people involved during the correct phases on the project. Moreover, it helps to keep up with the project schedule which is also important.

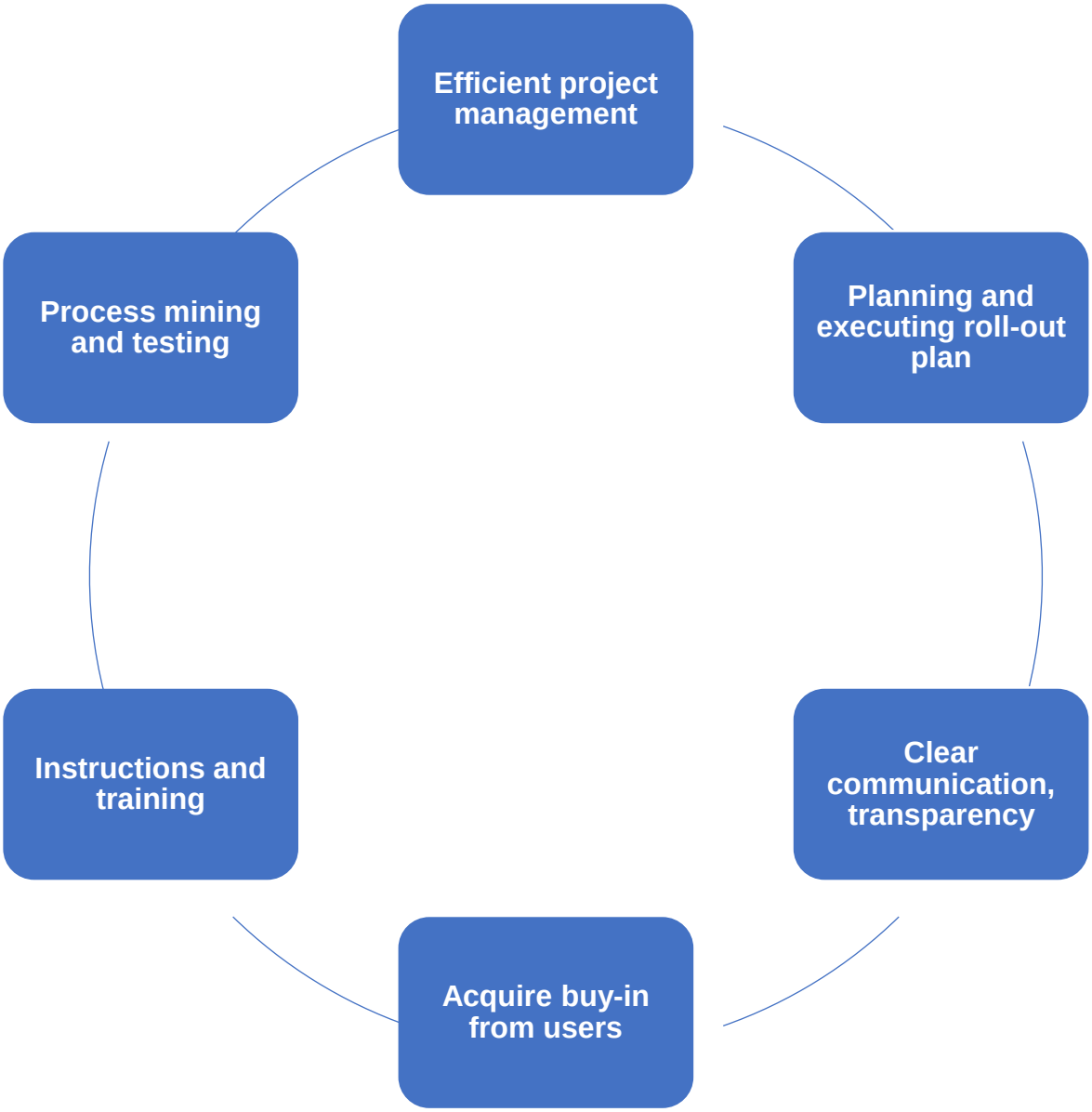

Figure 10. Methods to progress the implementation process

After the pre-study phase is finished and the vendor to provide the new system has been chosen, extensive testing and piloting of the new system is done. This is required to ensure the system´s suitability to company´s procurement processes. Planning and executing roll-out plan of introduction on the new system has a key role in implementation process as it brings visibility of the project and it supports to engage all the parties to work together in order to achieve the objectives. Clear communication and transparency are vital methods of change management throughout the process since they mitigate the

resistance from end users and also increase their engagement. A successful change implementation requires buy-in from the employees both involved in and affected by the change process. Philips and Wright (2009) emphasize that all these individuals should understand why the change is being made and what effects the change will have on both individual and organizational level. When users are made aware that these changes will have a positive effect on them for long term the buy-in and support for the change comes more easily.

The users´ approval and engagement for change is not something that can be taken for granted. Therefore, continuous on-going instructions and user trainings are entailed so that users know what is expected from them and how can they fulfill these expectations by using new systems. Finally, process mining can be used as a method to progress the implementation. Process mining enables to look for more detailed information on certain activities such as lead time in purchasing. It also helps to identify the possible bottlenecks during the implementation which can be divided into technical, data migration and cultural issues (Mahendrawathi et al., 2017). By using process mining throughout the testing and piloting phase, it enables to identify the most common problems before the actual introduction of the system. It´s essential to fix most of the problems due to official introduction of the application so that implementation process goes as smoothly as possible. Furthermore, if there are many technical difficulties which will affect to system´s usability during the implementation phase, it might lead to increased resistance among the users against the change.

7. CONCLUSIONS

The findings and analysis illustrated that the case company has all the basic activities covered in the area of indirect procurement. Nevertheless, there is still much room for improvement. The main area of further development is to get applications that are designed and suitable for procurement´s activities. Moreover, the lack of current systems integration and synchronization are significant problems nowadays. The case company currently considers changes to its current e-procurement infrastructure. Therefore, the research focuses on achieving the best possible outcome on possible upcoming e-procurement implementations by utilizing contributions from both theoretical and empirical parts of this thesis.

"How the implementation process of e-procurement system should be executed?"

First of all, when planning introduction of new e-procurement system – especially regarding the R2P-process, it is extremely important that the design is thought from procurement's, stakeholders' and suppliers' perspective. A successful implementation of new system is built on this basis. The project management team has a great responsibility of potential success of the new system's implementation. Therefore, it's essential to appoint all the personnel who are needed for the project. Appointing a change agent is crucial as it assigns responsibility and accountability to specific people which ultimately enables more efficient project management. It's also important to create schedule for roll-out and then attempt to execute it accordingly. Nevertheless, a change project should be considered as long-term process which requires plenty of patience and support. Lines et al. (2015) reminds that change can't be forced to occur any faster than the employees are comfortable with.

Change management has a major role throughout the e-procurement implementation. As illustrated in both theoretical and empirical sections of this thesis, clear and open communication is vital during the implementation phase. Efficient methods of change management enable to mitigate the resistance from users by assuring them of upcoming benefits of the change. The resistance can be also partly mitigated by extensive testing and process mining before the introduction of the new system. Furthermore, it's essential to

appoint key users to not only to participate on the testing phase but also for organizing trainings for the users after the initial introduction of new e-procurement system. It is recommended that trainings of the new application will be organized internally by several key users especially, in this case as there are many different categories in indirect procurement and naturally in stakeholders as well. Therefore, the need for on-going training can be seen as constant in the case company.

"Why are the changes for the current e-procurement infrastructure considered?"

The current systems are working decently, and it can be said that they mostly enable working according to the case company´s procurement processes. Nonetheless, many of the current applications are outdated and most importantly, current tools are neither connected nor synchronized between each other. It means that most of the applications are standalone systems and all the data regarding suppliers, spend and contracts need to be inserted manually to each system separately. Eventually, this leads to data being shattered between various systems which ultimately causes that it´s difficult to maintain data updated. It also causes much of extra transactional work as users must jump from one system to another in a hope to find required information.

Most of the present tools are not primarily designed for procurement needs which causes difficulties in the usage of tools – especially with stakeholders. The usage of current applications relies too much on transactional activities in operative purchasing, which are seen mostly as non-value-adding tasks. There are also some restrictions on current outdated systems which prohibit on fully utilizing automatization and digitalization. Furthermore, there is still notable amount of maverick buying occurring in the case company. It´s strongly suggested that possible new solution for indirect purchases could decrease the amount of maverick buying and therefore, improve the visibility of spend as well.

"How to outcome possible challenges in e-procurement implementation?"

Implementation project should always be well-planned in order to mitigate the amount of probable issues and challenges. By careful and well-thought planning it´s possible to avoid most of the probable problems related to change. Nonetheless, in change implementation projects it´s more than likely that everything won´t go as smoothly as planned. Thus, change management has a crucial role in facing challenges during the implementation process. Being open and having clear transparent communication throughout the process has proven to be an efficient method in change management generally. By well-executed change management, it´s not only possible to avoid resistance from users but also reaching the needed engagement from the users, stakeholders and suppliers in order to achieve a successful e-procurement implementation project.

On technical side, process mining helps identifying where are the possible bottlenecks and glitches which might cause problems. Thus, conducting process mining with extensive testing before the final introduction of new system is a crucial phase in order to get rid of the greatest issues concerning the usability of the new system. By succeeding in this, the new system will work as it should be from the beginning and it´s much easier to receive acceptance from the users. Moreover, on-going training and easily available instructions for users is seen as a key factor in acquiring acceptance and reducing amount of resistance from the users. Furthermore, it´s suggested that appointed key users would take the main charge of training instead of system provider after the initial introduction phase.

"How e-procurement changes the role of purchasing function?"

During the past few decades, the role of purchasing has transformed drastically as already illustrated previously in Figure 3 (Puschmann & Alt, 2005). The empirical section also supports this statement as every interviewee suggested that the role of purchasing continues to develop from traditional operative and transactional purchasing even further to more strategic and tactical direction. Currently, the R2P-process at the case company requires plenty of non-value-adding transactional work from stakeholders and procurement mainly due to outdated infrastructure of e-procurement applications. Present stand-

alone systems are seen as inefficient due to needed high amount of manual transactions between different applications.

New possible solution for indirect purchases is believed to be a significant step forward in various areas such as efficiency, user-experience and compliance. Interviewees addressed that there are still many areas that could be further automatized by new system. Punchout catalogs and self-service purchasing from stakeholders were identified as possible methods that could develop purchasing further by reducing the amount of non-value-adding transactional work. These suggested changes would allow procurement to focus into more strategic tasks such as sourcing work and catalogs.

7.1. Limitations and future research topics

This thesis has focused on the best practices of e-procurement implementation process mainly from the case company's perspective. The research also concentrates on e-procurement implementation particularly for R2P-process. The e-procurement systems are usually modified to each company´s specific needs and procurement processes. Therefore, the more detailed technical aspects of different e-procurement systems are left out of this study´s scope. The case company can be regarded as large company in Finland. The results might vary if the case company would have been for instance, smaller enterprise or from different industry area.

As this study has been conducted before the actual implementation process, it would be interesting to study further the results of the implementation if the case company eventually decides to introduce new solution for indirect purchases. Assessing the implementation process would enable many possibilities to further study. It would allow to evaluate firstly, how well the recommendations of this research has been complied and secondly, have the recommendations worked out as they should have been. Moreover, it would be intriguing to execute the research concerning the R2P-process implementation from suppliers' perspective. The implementation process is probably experienced differently by suppliers so it is interesting to see how they will respond to the change. Furthermore, are they satisfied with the overall implementation process and what aspects could be further developed from their point of view.

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APPENDICES

Appendix 1: Interview questions

Background:

- What is your current role and possible former roles in the company?
- How many years of working experience you have in area of procurement?
- Are you involved in operative purchasing R2P (request-to-pay), contract management, sourcing management or supplier management? In which specific areas?

E-Procurement systems and tools

- Are you satisfied with current e-procurement systems and tools?
- What are main advantages on current e-procurement systems in different processes?
- Is there room for improvement in some areas or systems?
- Have e-procurement systems and tools improved efficiency in your work? How?
    - What kind of advantages these systems provide?
- Do you think that e-procurement systems have reduced maverick buying? How?

Personal experiences

- Do you feel that there is appropriate introduction on e-procurement applications for new users and enough training available for current users?
- Have you been involved in or experienced implementation of new e-procurement system?
    - If yes, please clarify how has it been organized and how have the end users reacted to introduction of new system?
- How suppliers and stakeholders have responded to introduction of e-procurement systems?

- What kind of factors that either slow down or speed up the implementation process?
- Has there been any challenges involved in e-procurement usage?
- How do you see change management as part of implementation process?

Future trends

- How do you see current value of e-procurement systems and new possibilities?
- What kind of e-procurement systems could be possibly added?
- What future pilots could be tested?
- How do you feel about automatizing procurement processes? What processes of procurement do you see as ideal to automatize?
- Do you think that e-procurement systems and/or automatization will have an effect on your everyday work? How?