

IMPROVING PUBLIC SECTOR IT SERVICE  
PROCUREMENT – A QUALITATIVE CASE STUDY

Master's Thesis  
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This thesis aims to determine leading IT service purchasing practices for the public sector which can make the procurement selection process more efficient from a long-term value perspective. Services is the largest sector in the economy and its trade is growing rapidly especially in IT services. The public sector is a major procurer of services. Public organizations must comply with EU directives on public procurement which seek to ensure that goods and services are acquired at competitive prices. However, these directives make managing the public procurement selection process costly and inflexible. The most recent act on public procurement, the Act on Public Procurement and Concession Contracts (1397/2016) entered into force on January 1, 2017 and provides new possibilities for improving the public procurement selection process regarding IT services. These possibilities have not yet been studied. This thesis therefore studies these new possibilities enabled by the Act as a qualitative case study providing sufficiently detailed data for concrete actions for practical improvement in the selection process for the procurement of IT services. The thesis consists of a theoretical part, the findings of which create the background for the procurement document analysis of the case organization, and for the interviews of public procuring entities and IT suppliers in the empirical part, thereby enabling the empirical results to be compared to the wider context.

The results of the theoretical and the empirical parts show that there is no single selection method that fits all IT service procurements. The most appropriate procurement procedure depends not only on the uniqueness and complexity of the information system or IT service, but also on the market situation and the public entity's own preferences like supplier strategy. However, everything begins with studying the need and market knowledge. These are fundamental prerequisites for successful IT-procurement. The most recent act offers new procurement procedures for the public sector which allow closer co-operation with suppliers. The importance of co-operation is emphasized in the literature and in interviews in this thesis because it ensures higher long-term value. However, this study shows that public entities lack the practical knowledge of these new procurement possibilities. The thesis provides practical tips and a recommended tool for the selection of the appropriate IT-procurement method. Public entities can also improve IT procurement by sharing knowledge among each other. Furthermore, it is essential that there are specialists who focus on IT procurements. Otherwise, no special knowledge accumulates, and this would result in inefficient procurement. Public entities should also actively utilize feedback from different IT suppliers to improve IT procurement efficiency. To achieve the best results, sharing of sufficiently accurate information with IT suppliers and even advertising IT procurements are required. The dialogue with IT suppliers and the appropriate supplier strategy ensure the achievement of the most appropriate IT solution in the long-run. Successful IT service procurement must ultimately be a win-win situation for both sides in practice.

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**Keywords** public procurement, IT procurement, IT service procurement

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Tämän lopputyön tavoitteena on määrittää parhaita käytäntöjä julkisen sektorin IT-palveluiden hankintaan, jotka mahdollistavat tehokkaamman hankintaprosessin pitkän ajan arvon näkökulmasta. Palvelut ovat talouselämän suurin sektori ja palvelusektorin kauppa kasvaa nopeasti erityisesti IT-puolella. Julkinen sektori on iso palveluiden hankkija. Julkisten organisaatioiden tulee noudattaa julkisen hankinnan EU-direktiivejä, jotka pyrkivät varmistamaan, että tavarat ja palvelut hankitaan kilpailukykyiseen hintaan. Nämä direktiivit kuitenkin tekevät julkisesta hankintaprosessista kalliin ja joustamattoman. Uusin hankintalaki, joka tuli voimaan 1.1.2017, tarjoaa uusia mahdollisuuksia parantaa IT-palveluiden hankintaprosessia. Näitä mahdollisuuksia ei ole vielä juuri tutkittu. Tässä lopputyössä tutkitaan nyt näitä uuden lain tarjoamia mahdollisuuksia kvalitatiivisena case-tutkimuksena, jotta tuloksena saatavan tutkimusdatan yksityiskohtaisuus mahdollistaa käytännön parannustoimet. Lopputyö koostuu teoriaosuudesta, jonka tulokset toimivat taustana empiirisen osuuden hankintadokumenttianalyysille ja julkisten hankkijoiden ja IT-toimittajien haastatteluille, ja mahdollistavat näin empiiristen tulosten vertailun laajempaan kontekstiin.

Teoriaosuuden ja empiirisen osuuden tulosten mukaan ei ole olemassa yhtä ainoaa oikeaa valintamenetelmää, joka sopisi kaikkiin IT-palveluiden hankintoihin. Sopivin hankintamenetelmä ei riipu vain tietojärjestelmän tai IT-palvelun ainutlaatuisuudesta ja monimutkaisuudesta, vaan myös markkinatilanteesta ja julkisen hankkijan omista preferensseistä, kuten toimittajastrategiasta. Kaikki lähtee kuitenkin liikkeelle tarpeen kartoituksesta ja markkinatietämyksestä, jotka ovat perusedellytyksiä onnistuneelle IT-hankinnalle. Uusi hankintalaki tarjoaa uusia hankintamenetelmiä julkiselle sektorille, mitkä mahdollistavat tiiviimmän yhteistyön toimittajien kanssa. Tämän yhteistyön tärkeyttä korostettiin sekä kirjallisuudessa että lopputyön haastatteluissa, koska se varmistaa hankinnan pitkän ajan arvon. Lopputyön tulosten perusteella julkisilta hankkijoilta puuttuu kuitenkin käytännön tietämystä näiden uusien hankintamenetelmien tarjoamista mahdollisuuksista. Tässä lopputyössä annetaankin käytännön tietoa ja työkalu soveltuvan IT-hankintamenetelmän valintaan. Julkiset hankkijat pystyvät myös parantamaan IT-hankintojen tehokkuutta jakamalla tietämystä keskenään. On myös elintärkeää, että tietyt asiantuntijat keskittyvät julkisiin IT-hankintoihin. Muuten tietämys ei kumuloidu ja hankinta on tehotonta. Julkisten hankkijoiden kannattaa lisäksi aktiivisesti hyödyntää toimittajilta saatua palautetta hankintojen tehostamisessa. Parhaan tuloksen saavuttaminen vaatii riittävän informaation jakamista IT-toimittajille ja jopa tulevien IT-hankintojen mainostamista. Pitkällä tähtäimellä sopivimman IT-ratkaisun saavuttamisen varmistavat IT-toimittajien kanssa käytävä dialogi ja soveltuva toimittajastrategia. Loppujen lopuksi onnistuneen IT-palvelun hankinnan täytyy olla win-win-tilanne molemmille osapuolille kestääkseen käytännössä.

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**Avainsanat** julkinen hankinta, IT-hankinta, IT-palveluhankinta

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## 1 Introduction

In 2017, annual procurement of services in the public sector was valued at 5.395.067.850€ in Finland (Statics of Hilma 2017). This value consisted of 4.652 procurements (ibid.). According to Pajarinen et al. (2013) services account for 75% of total production in developed countries. This makes services by far the largest sector in the economy and their sales are increasing rapidly (ibid.). This is mainly due to IT services (ibid.). So, there are many potential users for research leading to a better IT service procurement process in the public sector.

Not much empirical research has been done on services (Pajarinen et al. 2013). However, one quantitative research has been recently done among Finnish IT service suppliers by Pro Growth Consulting (TIVIA, 2018). The research also included questions about public IT service procurements. In the research inquiry, as many as 83% of 100 Finnish IT suppliers responded that competitive tendering for IT services in the public sector does not work properly. This shows a clear need for improvements, especially in IT service public procurement. Therefore, the aim of this thesis is to identify the leading way to manage the procurement of IT services in the public sector.

EU directives dominate public sector procurement (Arlbjørn and Freytag, 2012). Public organizations must comply with EU directives on public procurement which seek to ensure that goods and services are acquired at competitive prices (Arlbjørn and Freytag, 2012; Yescombe 2007). However, these directives make managing the public procurement selection process costly and inflexible (Lian and Laing, 2004; Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018; Nicolaidis and Schoenmaekers, 2014). The process is costly both for public organizations and for tenderers who must put a lot of time and effort into creating a tender according to set requirements without any guarantee of a contract (Lian and Laing, 2004; Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018).

The literature shows that private companies do not use open tendering in the same way as public-sector organizations. Private companies prefer a close relationship with business partners because it makes operations and development easier and less costly (Arlbjørn and

Freytag, 2012). So, private sector companies seem to have a more efficient procurement selection process compared to public sector organizations. This is a challenge for public sector organizations because the main aim of the public sector is to obtain more out of the public budget and simultaneously gain more value for the money spent (Arlbjørn and Freytag, 2012). Furthermore, according to the survey among Finnish IT service suppliers, Finnish public organizations do not give enough consideration to long-term costs in IT service procurements (Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018). So, the real challenge for public sector organizations is how, based the regulated public procurement selection process, they can efficiently achieve competitive prices and maximum value in the long run.

Earlier studies show that there is still much unknown in the procurement selection process of professional service, which IT service is, in the public sector (Corcoran and McLean 1998). So, further research is needed to fully explore the topic. Especially interesting is how public organizations can utilize possibilities which the most recent Act on Public Procurement and Concession Contracts (1397/2016) offers to achieve the leading procurement selection process for their special needs and environment. According to Roodhooft and Van den Abbeele (2006), it would be especially interesting to conduct a qualitative research of a specific aim of public procurement in a case organization. Furthermore, although Pro Growth Consulting (TIVIA, 2018) has already done a quantitative research of the public procurement of IT services in Finland, it is difficult to make improvements to the selection process of IT service public procurement because the results do not provide enough information for concrete improvement actions. A qualitative case study can provide these adequate detailed results for improvements.

Moe et al. (2017) have done a qualitative study about information systems public procurement. Their research shows that the selection of the most appropriate procurement procedure depends on the uniqueness and complexity of the information system. However, they analyzed only three cases. Usually, for theory generation purposes, at least 4-10 cases are required (Eisenhardt, 1989). So, further research is needed to confirm or challenge their theory. Furthermore, their research cases did not include the new public procurement procedures which the most recent Act on Public Procurement and Concession Contracts (1397/2016) allows. (Finlex 2016).

For these reasons, this thesis examines the challenge to find the leading public procurement selection process according to the most recent regulation by using a qualitative case research method which provides adequate detailed result data. The aim is to determine the leading IT service purchasing practices for public organizations which can make the public procurement selection process for IT services more efficient and create maximum value in the long-run for public organizations and still comply with the Act on Public Procurement and Concession Contracts (1397/2016). This is done by examining in detail different procurement procedures from the perspective of different public organizations and from IT suppliers.

Research questions are:

- What is the leading IT service public purchasing practice in each situation from a process efficiency and long-term value perspective?
- Which aspects influence the selection of the most appropriate public procurement procedure?

After this introduction, part 2 presents a review of the relevant literature. The theoretical part seeks to examine the challenges, opportunities, benefits and disadvantages of the different aspects in the IT service procurement selection process in the public sector based on earlier researches from the perspectives of efficiency and long-term value. The findings in the theory part create a background for part three, the empirical part, thereby enabling the empirical results to be compared to the wider context. The empirical part aims to make a qualitative case study of IT service procurement processes in different public organizations and especially in one main case organization and the influence of these processes on IT tenderers in Finland. The research process and details of the research method used are described in the beginning of the empirical part. This is followed by an analysis of the procurement documentation of the chosen main case organization and the results of qualitative interviews of selected public entities and IT-suppliers. At the end of part three, the reliability and the validity of this study are assessed. In part four, the empirical results are compared to the results of the theoretical part and the findings for the research questions are analyzed. Furthermore, the limitations of these findings and needs for future research are analyzed at the end of part four. Finally, the fifth part discusses the practical implications of

the results. The main aim of this thesis is to provide leading practices for the public procurement process of IT services based on the results of the theoretical and empirical parts.

## 2 Theory

This theoretical part examines the challenges, opportunities, benefits and disadvantages of the different aspects in the IT service public procurement process based on earlier researches. The aim is to find a suitable framework which can be compared to the results of the empirical part. The beginning of the theoretical part defines the public procurement selection process and describes its challenges. This is followed by a comparison of public and private sector procurement practices. There is then a discussion of the significance of the long-term value and long-term contracts and a presentation of Public-Private Partnership (PPP) as a new model of long-term contracts. After that, there is an analysis of the special characteristics of IT services as a professional service from the procurement perspective. Then follows a presentation of possible selection criteria and public-sector procurement methods which the new Act (1397/2016) allows. The end of the theoretical part discusses a framework for the selection of the procurement method for public IT services based on the literature review.

### 2.1 Defining the public procurement selection process and its challenges

This thesis focuses especially on the IT service procurement selection process. Selection is a part of the whole procurement process. The whole procurement process consists of the following phases:

- Needs detection
- Selection
- Implementation
- Final consumption and evaluation

(Roodhooft and Van den Abbeele, 2006)

There are two different main forms in procurement selection processes: partnership and open competition (Parker and Hartley, 1997). Partnership is a current trend in selection processes (ibid.). The reason for this is that during the past few decades, public procurement managed through traditional purchasing practices has faced significant pressures to change because of notable shifts in the public procurement environment (Torvinen and Ulkuniemi,

2016). One of the current paradigms of public procurement is encouragement to abandon its traditional practices of doing business and to move closer to relationship contracting, partnerships, networks and strategic alliances (Lawther & Martin, 2005). A widely shared opinion by public procurement experts is that traditional procurement methods and strict control of practices can be harmful, as they have the potential to smother both innovativeness and the cost effectiveness of procurement projects (Torvinen and Ulkuniemi, 2016). The lead idea behind closer collaboration in public procurement is that no single actor has all the knowledge, overview, information or resources to solve the complex and diversified problems encountered (Scheded, 2003 in Lawther & Martin, 2005). However, strict national and EU-level regulation aimed at ensuring equality and transparency in the public procurement process can work as a barrier in the implementation of innovative public procurement procedures (Torvinen and Ulkuniemi, 2016). Procurement practices in the private sector are said to be more innovative and more efficient (Arlbjørn and Freytag, 2012; Roehrich et al., 2014). The following chapter compares more closely the differences between procurement practices of the public sector and the private sector.

## **2.2 Public vs. Private sector procurement**

There have been many studies which have compared public and private sector procurement, supply chain and transition management processes (Arlbjørn and Freytag, 2012; Lian and Laing, 2004; Larson, 2009; Roodhooft and Van den Abbeele 2006; Taponen and Kauppi, 2017). Clear differences between public and private sector procurement processes have been highlighted in these studies (Arlbjørn and Freytag, 2012; Lian and Laing, 2004; Larson, 2009; Roodhooft and Van den Abbeele 2006; Taponen and Kauppi, 2017).

In the private sector, companies try to minimize the number of tenderers to avoid risks (Arlbjørn and Freytag, 2012). According to Parker and Hartley (1997), private sector companies attempt to create partnerships with few suppliers. Procurement paradigms, however, in the public sector are based on the assumption that there is a perfect market and that open competition is therefore the most effective form of exchange (Lian and Laing, 2004). As a result, the aim of public procurement is fair and open competition (Arlbjørn and Freytag, 2012). Therefore, the aim in public sector procurement has been to have as many



tenderers as possible in order to increase competition. However, open competition is not always the most appropriate way to procure. The best practice depends on the product complexity and the level of market freedom (Parniangtong, 2016). Product complexity refers here to the degree of knowledge required to procure, manage and use the product, as well as the product's uniqueness (ibid). Market freedom represents the level of competition within the market and the magnitude of costs involved in switching between suppliers (ibid). When market freedom is high, and the product is not complex, open competition and a focus on cost are appropriate (ibid.). Whereas when market freedom is low, open competition and pure cost focus are not so suitable (ibid.). Furthermore, the public-sector procurement selection process is costly (Lian and Laing, 2004). This may on the other hand decrease the number of tenderers from desirable open competition also when market freedom is high (Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018). The restrictions imposed by EU directives may therefore not produce optimal outcomes (Lian and Laing, 2004). Focus on purchase price rather than the total cost of ownership and a lack of collaborative, long-term partnership with suppliers may not succeed in minimizing the total life cycle costs as the quantitative survey among Finnish IT-service companies has indicated (Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018). However, since open tendering is such a costly and risky selection mechanism, there have been indications that even public-sector buyers and their suppliers are moving towards a longer-term relationship whenever the legal purchasing protocol allows it (Lian and Laing, 2004).

In the past two decades, proponents of New Public Management (NPM) reforms have claimed that the public sector should imitate the private sector (Hartley et al., 2013). The assumption is that the public sector would become more flexible and efficient by introducing private sector management techniques (Osborne and Gaebler, 1992 in Hartley et al., 2013). However, it must be noticed that private companies vary enormously – from small and micro-companies run as a family business, to huge trans-nationals governed by a complex corporate structure (Halvorsen et al., 2005). Large private firms are often aggressively pitted against each other to gain the largest share of the market, and continuous growth is seen as the ultimate goal; while many small businesses are run by people who simply want to make enough money to live a comfortable and secure lifestyle (Halvorsen et al., 2005). These different kinds of private companies face diverse challenges depending on their circumstances (Halvorsen et al., 2005). So, direct imitation is not reasonable. Instead, a

public organization should consider its circumstances when looking for a proper benchmarking target. Otherwise, the cross-sector, public vs. private, comparison may hide important sub-sector variance including, for example, variation across the types of service and different organizations (Hartley et al., 2013). Furthermore, the New Public Management referred to discourages service providers from sharing knowledge and engaging in interorganizational learning. These aspects along with trust are key in developing total new solutions (Rashman, Withers and Harley 2009 in Hartley et al., 2013). So, instead of imitating practices from private companies, public organizations should utilize wide co-operation to create new valuable long-term innovations. The following chapter analyzes more closely this long-term value and the significance of partnership in it.

### 2.3 Long-term value

Procurement often focuses on acquisition price instead of total lifecycle cost. Both short- and long-term monetary outcomes should be measured because many of the benefits and costs incurred will be realized over a longer period of time (Töytäri and Ristola, 2015). According to Töytäri and Ristola (2015), buyers typically nowadays seek the best available total solution and the maximum long-term value for their organization. However, as the results of inquiry to Finnish IT companies indicated, Finnish public organizations do not yet adequately consider quality and long-term costs in their procurement of IT services (Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018).

Töytäri and Ristola (2015) presented value-based selling (VSB) as an innovative solution for this long-term value maximization. It benefits both supplier and customer organizations by offering a life-cycle and customer-centered approach. Anderson, Narus and van Rossum (2006) suggested also the same kind of theoretical approach with their customer value propositions. According to VSB, suppliers must have a detailed understanding of the customer's requirements and preferences to be able to offer superior value for the customer. Töytäri and Ristola (2015) emphasize that higher relational complexity, an innovative approach, management of risks and uncertainty lead to the need for an even deeper relational commitment between both parties. Value-based selling is based on this mutual trust and respect. It requires the sharing of essential information (ibid.). Andersson, Narus and van Rossum (2006) supported this view of Töytäri and Ristola.

Once a supplier has better understanding of a customer's needs, they can allocate investments of scarce resources in developing better offerings based on those needs (Andersson et al 2006). A longer-term relationship between a purchaser and a supplier offers the stability necessary for specific investments and for development which can benefit both parties (Lian and Laing, 2004, p. 254). A focus on short-term results affects this negatively (Töytäri and Ristola, 2015). Only with specific information, can suppliers offer real strategic value for the customer (Narus and van Rossum, 2006). Suppliers of course seek to eliminate rivals before competitive tendering, but the strategic value which the supplier offers is also to the customer's long-term advantage (Töytäri and Ristola, 2015; Andersson, Narus and van Rossum, 2006).

Clearly, the processing of complex issues is improved when actors with different experiences, perspectives and forms of knowledge are brought together (Hartley et al., 2013). Partnership provides an important driver especially in high-tech (Powell and Grodal 2004 in Hartley et al., 2013). Collaboration between public organizations and private companies is a key factor in developing totally new solutions (Moore and Hartley, 2008). However, collaboration is also a risk when particular private actors are able to capture their own advantage (Hartley et al., 2013). Furthermore, in the public sector, this collaboration is also a specific challenge, because when a public entity chooses a partner, it must take into account the principles governing public procurement. The procuring entity must treat suppliers involved in a procurement procedure in an equitable and non-discriminatory manner, and act transparently (Finlex 2016). This must be considered in collaboration and in partner selection.

According to Hartley et al. (2013), collaboration takes time and has high transaction costs. So, when there are time and resource constraints, other strategies will be more attractive and effective (Hartley et al., 2013). Parniangtong (2016) introduces the idea that suitable strategy depends on product complexity and the level of market freedom. Figure 1 and Table 1 presents Parniangtong's matrix of appropriate supplier strategies and focus areas of procurement for different situations based on the aspects of product complexity and market freedom. According to Parniangtong's (2016) matrix, when market freedom is high, there can be single or multiple supplier strategy. Whereas when market freedom is low, a

single supplier partnership strategy is the best (ibid.). Furthermore, it should be noticed that when market freedom is high, and the product is non-complex, there is no need for costly and time-consuming collaboration according to Parniangtong (2016).

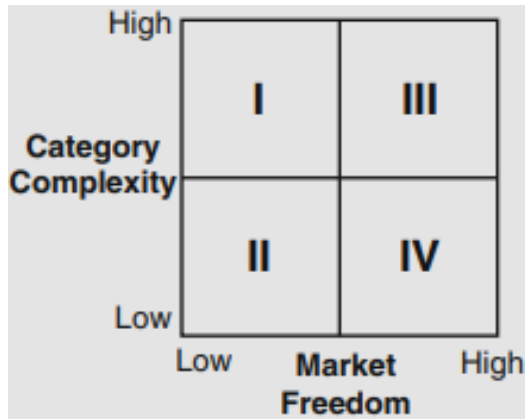


Figure 1. Parniangtong's supplier strategy selection matrix (2016)

Table 1: Supplier strategy implications according to Parniangtong's matrix (2016)

I: Procure from a single supplier, focus on quality aspects	III: Procure from a single or multiple suppliers through selective request for proposals, focus on cost and service
II: Procure from single supplier through selective request for proposals, focus on service aspects	IV: Procure from a single or multiple suppliers through open procurement, focus on cost aspect

So, public organizations should carefully analyze their situation in each case. When the situation is appropriate for partnership, a long-term contract is required. The following chapter discusses more closely aspects of these long-term contracts from the IT service procurement perspective.

## 2.4 Long-term contracts

According to Lawther and Martin (2005), many public procurement partnerships involve long-term relationships. These long-term relationships require long-term contracts. Long-term contracts, some of which can run for 10, 15 or even 30 years, present challenges for public procurement, where contracts must be based on original procurement

documentation (Finlex 2016). Long-term contracts should adhere less to the specific contract language, because only the basic features of service can be exactly described at the beginning of a long contract period (Hoppe and Schmitz, 2013; Gelderman et al., 2015). After some time has passed, it becomes clear how the service can be improved by adapting it (Hoppe and Schmitz, 2013; Gelderman, 2015). So, there should be as much possible communication, dialogue, negotiations and compromises as the procurement law allows during a long contract period (Lawther and Martin, 2005; Gelderman, 2015). This is especially important in professional IT-service contracts (Gelderman et al., 2015).

A public entity can contract for additional features that increase its benefits and also the costs of provision if it has prepared for this in the procurement phase (Hoppe and Schmitz, 2013; Finlex 2016). Therefore, it is important to get the incentive structure in the contract right (Grimsey and Lewis, 2007; Hoppe and Schmitz, 2013). When planning appropriate incentives, it should be taken into account, that in a real long-term, innovative and productive partnership contract, partners should share both the risks and the rewards (Lawther and Martin, 2005). Public-Private Partnership (PPP) is a long-term procurement contract type which has become very popular in the public sector (Ng, Wong, & Wong, 2013; Yescombe, 2007). The following chapter presents its advantages and the situations where it is an appropriate procurement model.

## 2.5 Public-Private Partnership

Public-Private Partnership (PPP) has become a worldwide trend in larger public acquisitions (Ng, Wong, & Wong, 2013; Yescombe, 2007). In PPP procurement projects, the supplier carries a larger liability of the object or service produced for a longer period of time, the “whole-life” of the procurement (Torvinen and Ulkuniemi, 2016). In PPP projects, the public entity specifies only end targets in terms of “outputs” but does not specify in advance how to reach these targets (Yescombe, 2007). The supplier receives payments (“service fees”) over the life cycle of the PPP contract (perhaps 25 years on average) on a pre-agreed basis. These payments are intended to repay the financing cost and to give a return to investors (Yescombe, 2007; Grimsey and Lewis, 2007). So, PPP requires a long-term commitment from the actors (Torvinen and Ulkuniemi, 2016). By sharing

responsibilities for the project, it is possible to deliver the best qualities and know-how of both parties – the public entity and the supplier – instead of only one party as with traditional public procurement practices (Krtalic & Kelebuda, 2010 in Torvinen and Ulkuniemi, 2016). The following paragraphs present common advantages seen for the implementation of PPP practices:

- Avoid limitations of public-sector budget, because PPP does not require a large initial funding from the public sector. Payments of service are charged over the “whole-life” of the PPP contract. So, with PPP, the public-sector can make investments which would not otherwise have been possible. (Yescombe, 2007)
- Transfer risks to the private sector (Grimsey and Lewis, 2007). However, this risk transfer is quite limited, because if the PPP project fails, it is quite likely that the public entity will still pay the required extra costs, for example (Yescombe, 2007).
- When the same supplier is responsible for implementation and operation and service delivery, they are incentivized to design output to produce the best “whole-life” cost (Grimsey and Lewis, 2007; Yescombe, 2007). This is desirable if the investments are also quality-enhancing (Hoppe et al., 2013). This is a new approach compared to the traditional public procurement which approach is to go for the lowest initial capital cost (Yescombe, 2007; Hoppe et al., 2013).
- Under traditional procurement, incentives to invest are weak (Hoppe et al., 2013). So, when inducing of the desirable investment is important, PPP is preferable according to an analysis by Hoppe et al. (2013).
- It is claimed that a private-sector PPP supplier would be fundamentally more efficient than a public-sector producer because the profit motive is deemed the main incentive for efficiency (Yescombe, 2007). However, the public-sector entity should make sure that there are also suitable quality controls in place in the PPP contract (Yescombe, 2007; Roehrich et al., 2014).
- PPPs give suppliers the opportunity to offer a variety of different solutions and give the public sector the benefit of innovatory approaches and a technical knowledge and skills of the private sector (Yescombe, 2007).
- A PPP makes the real cost clear. It shows the whole-life cost, including operation and maintenance, in transparent way. (Yescombe, 2007)

- With PPP projects, public entities can better avoid time and cost overruns (Yescombe, 2007; Grimsey and Lewis, 2007).
- It has been claimed that PPPs encourage especially to innovative solutions within both public infrastructure as well as in service acquisitions (Hoppe & Schmitz, 2013).

However, it is difficult to prepare for all possible future eventualities in PPP contracts (Yescombe, 2007). There may be a change in technology which requires a significant part to be replaced during the life cycle of a PPP (ibid.). PPP contracts do not accommodate such events easily (Yescombe 2007; Grimsey and Lewis, 2007). Therefore, IT projects where technology is changing rapidly are not so suitable for PPPs (ibid.). So, a major concern in PPPs is especially the lack of flexibility (Roehrich et al., 2014). However, even though PPPs seem not to be so appropriate to the rapidly changing IT sector, there have still been some ICT PPP projects (Grimsey and Lewis, 2007). However, in Finland PPP has mainly been used in the construction industry (Rakennusteollisuus, 2018).

According to Yescombe (2007) and Roehrich (2014), the size and complexity of typical PPP projects can discourage smaller suppliers from tendering. This reduces competition, which may affect the final cost of PPP. Furthermore, PPP procurement costs are 5-10% higher than those of traditional procurements, because more legal and financial advisors are needed, and a time-consuming negotiated procedure is typically needed in PPP procurements (Yescombe, 2007; Grimsey and Lewis, 2007; Torvinen and Ulkuniemi, 2016; Roehrich et al., 2014). Advisors and negotiations are required because contracts play a vital role in managing long-term PPP relationships (Yescombe, 2007). Contracts clarify partnering parties' responsibilities (Roehrich et al., 2014). As long-term contracts, PPPs have aspects, for example how to avoid "lock-in-situations", which should be considered carefully in the same way as in other long-term contracts (ibid.). The complexity of PPP arrangements needs a contract for robust and appropriate performance regimes (ibid.). There should also be appropriate performance incentives in the contract to ensure the best outcome of PPP and to drive both short- and long-term innovations (ibid.).

For the reason of procurement cost, PPPs are not the most effective method for procurements involving very small projects. According to Roehrich et al. (2014) in the

comprehensive literature review of the public-private partnership, PPPs are best suited for medium-sized projects which can function as stand-alone solutions with a low risk profile. These kinds of projects are not too small for PPP and they are quite stable as a stand-alone solution with a low-risk. In very large projects, there are usually too many dependencies and too much risk for PPPs.

According to Grimsey and Lewis (2007), hybrid PPPs can be a solution for the procurement cost and contract inflexibility problems mentioned concerning traditional PPPs. These new hybrid PPPs have different degrees of partnership. The aim is to reduce procurement costs and increase especially flexibility and the possibility for innovations. These hybrid PPP models of Grimsey and Lewis (2007) are presented next. In Local Improvement Finance Trusts (LIFT) and Local Education Partnership (LEP) methods, a public entity contracts with a single partner for several small-sized projects on a stage basis to reduce procurement costs and time. The MoDEL project is similar to LIFT/LEP, but it is designed for heterogenous work. All elements of the work are tendered out and suppliers compete for the initial specified works via a fixed-price contract. All unspecified works are then competitively produced by the chosen prime supplier. The third hybrid PPP is an incremental partnership. In an incremental partnership, a private sector partner competitively produces the service from subcontractors using its procurement expertise to negotiate the best deals. The incremental partner is responsible for the service performance. In this alliancing, the public entity shares all the risks with the supplier in a partnership relationship which encourages a “solutions-based” culture without any “blame”. An incremental partnership is especially suitable for complex projects with considerable uncertainties and scope for design innovation. This also supports the view, presented by Lawther and Martin (2005), that in a real long-term innovative and productive partnership contract partners should share both the risks and the rewards.

It was mentioned that PPPs are not so suitable for IT projects where technology is changing rapidly. So, the procurement of professional and fast-changing IT services has its own characteristics. The following chapter analyzes this aspect more closely.



## 2.6 IT service procurement

Many times, a purchase decision of consultancy, which IT service is, is complex and difficult to make (Moe et al. 2017). As an intangible service product, IT service is much more difficult to purchase than ready-made products (Roodhooft and Van den Abbeele, 2006; Corcoran and McLean, 1998). A purchaser must be able to provide enough information about the requirements and the volume of the complex IT service for tenderers to get proper offers (Taponen, 2017; Moe et al., 2017). Then the purchaser must assess suppliers' ability to deliver the service in other ways when the service cannot be so realistically tested before purchase (Roodhooft and Van den Abbeele, 2006; Corcoran and McLean 1998).

According to Lian and Laing (2004), Parniangtong (2016) and Moe et al. (2017), the complexity of the procurement in particular should be considered when determining the appropriate level of the balance between competition and co-operation in the purchasing process. The most appropriate procurement selection mechanism needs to be adopted based on the complexity of the procured service while at the same time considering in the influence of the internal and external environment (Lian and Laing, 2004; Parniangtong, 2016; Parker and Hartley, 1997).

Ill-defined scope and the highly complex nature of producing IT services increase the risks of cost escalation, delays and final products that do not perform as expected (Lawther and Martin, 2005; Gelderman et al., 2015). The rapidly changing nature of technology means that software which was appropriate at the beginning of a project may not be relevant at the end of the project (Lawther and Martin, 2005). The risk of these changes cannot be reduced by writing a detailed contract so that it will cover all the possible aspects also in the future (ibid.). Therefore, as in every successful partnership, a public procurement partnership built on trust is needed (Lewis in Lawther and Martin, 2005; Gelderman et al., 2015).

According to Lawther and Martin (2005), when producing complex IT services, a request for proposals approach can be the most appropriate. In a request for proposals, the public procurement entity selects the "right" partner... the one who will deliver the best service. Also, Moe et al. (2017) recommend innovation partnership for information system

procurements which are unique and complex. However, this selection of “right” partner can be challenging, for example, because suppliers may have more specialized knowledge of IT service technology than the public procuring entity has (Lawther and Martin, 2005). Furthermore, suppliers may also be better informed about potential additional costs when changes in circumstances occur (Hoppe and Schmitz, 2013). There is also often an unclear understanding of how previously applied technology can be “customized” to meet needs. Furthermore, some private suppliers may not even fully understand how best to provide the requested service, but still respond to requests for proposals with the hope of learning on the job (Lawther and Martin, 2005). So, the complexity in understanding the procured IT service may prevent achievement of effective partnership (Lawther and Martin, 2005). According to Moe et al. (2017), the risk of this problem can be decreased partly by learning from peers. The public procuring entity can utilize its network of fellow public entities to obtain help for complex IT procurements. In this way, the procuring entity does not have to rely so much on the supplier and can avoid possible disadvantages of information asymmetry. However, professional IT service can be so complex that there is still a need for close collaboration and interaction with suppliers (Gelderman et al. 2015). The following chapter discusses more closely public procurement selection methods which allow a different level of collaboration.

## 2.7 Public procurement methods

There are many possible public procurement selection procedures for public organizations to use. Lian and Laing asked already in 2004 whether there is a lack of knowledge of the selection possibilities which EU directives allow in the public sector. The most recent act in Finland, the Act on Public Procurement and Concession Contracts (1397/2016), entered into force on January 1, 2017. The Act is based on EU directives on public procurement. It seeks to enhance especially efficiency in the use of public funds, to promote high quality, innovative and sustainable procurement in competitive tendering for public procurement (Finlex 2016). So, it tries to respond to the need for efficiency and for more innovative procurement methods which would be more like partnerships (Moe et al., 2017).

This chapter first describes possible selection criteria. This followed by a presentation from the IT service procurement perspective of different public procurement selection

procedures which are allowed by new EU directives. These procedures can be categorized into two broad forms: adversarial competition and partnership sourcing (Parker and Hartley, 1997). Adversarial competition procedures do not allow dialogue with suppliers during the formal procurement selection process (Finlex 2016; Moe et al. 2017). Whereas partnership sourcing procurement procedures allow a varying degree of dialogue (ibid.). There are two adversarial procurement methods – Open procedure and restricted procedure – which are presented after the introduction of the selection criteria together with a dynamic purchasing system. Then the procurement methods which allow the dialogue are described. A framework agreement which provides a special way of co-operation in purchasing is presented at the end (ibid.).

### 2.7.1 Selection criteria

According to European Public Tendering Process (PTP) legislation, the lowest price is only one of the selection criteria, but it does not have to be the dominant attribute. However, it plays an important role also when other selection attributes permitted by PTP are used because even then the most economically advantageous tender must be selected according to the set total scoring. (Roodhooft and Van den Abbeele, 2006; Finlex 2016).

As mentioned earlier, a focus on awarding the contract to the lowest tender does not necessarily produce the most successful outcome in the procurement of complex and rapidly changing IT services. So, when procuring a complex IT service, the contract award decision must be made based on cost and other factors being considered (Lawther and Martin, 2005). Besides product complexity, the level of market freedom should also be analyzed in the selection (Parniangtong, 2016). The lowest tender focus is appropriate only when the product is non-complex, and when market freedom is high, but when the product is complex also other aspects should be considered (ibid.). Furthermore, when market freedom is low, the focus should not be on price at all (ibid.).

According to PTP, the procuring entity may impose price-quality ratio comparison criteria related to qualitative, societal, environmental or social considerations or innovative characteristics (Finlex 2016). Qualitative criteria may include technical merits, esthetic and functional characteristics, accessibility, a design that meets the requirements of all users,

operating costs, cost-effectiveness, after-sales service and technical support, servicing and delivery date, or delivery or implementation period and other terms and conditions of delivery (ibid.). It is possible to consider also all life cycle costs, which Töytäri and Ristola (2015) recommended to use when a public entity is selecting a supplier (ibid.). The public procuring entity may also consider the qualifications and experience of staff assigned to implement the procurement contract and the organization of the staff if the quality of assigned staff may significantly affect implementation of the procurement contract (ibid.). However, the more there are different pre-defined requirements, the more work the suppliers must also do to prepare the tender and this may decrease number of tenders (Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018).

According to the Act (1397/2016), the procuring entity shall indicate the criterion for determining the most economically advantageous tender or the price-quality ratio comparison criteria that it employs in the contract notice, the call for tenders or the invitation to negotiate. The procuring entity shall also specify the relative weighting of comparison criteria. Weighting may also be expressed by indicating a reasonable range. The weight of price can be under 50%. So, the regulation of public procurement allows quite good possibilities to follow a theoretically optimal selection model. However, according to PTP, the comparison criteria must be non-discriminatory and ensure the possibility of genuine competition.

### 2.7.2 Open procedure

An open procedure is one of the adversarial procurement methods. It is the simplest and the most commonly used procedure (Moe et al. 2017). Its share of tender notices has been as high as 73% from 2006 to 2010 (ibid.). It has been in operation since 1988, and so is very well-known (ibid.). An open procedure provides the highest degree of competition (Roodhooft and Van den Abbeele, 2006). It can be categorized with the very traditional purchasing practices which aim for as many tenderers as possible in order to increase competition (Lian and Laing, 2004).

In an open procedure, all interested suppliers may submit a tender based on a contract notice and call for tenders (Finlex 2016; Moe et al., 2017). The call for tenders contains a

“frozen” requirements specification (ibid.). Tenderers can be excluded on the grounds of certification, financial stability and technical ability if these are stated in the call for tenders (ibid.). Comparison and selection are done according to scoring, which is defined in the call for tenders (ibid.). Figure 2 presents the phases in the open procedure procurement process.

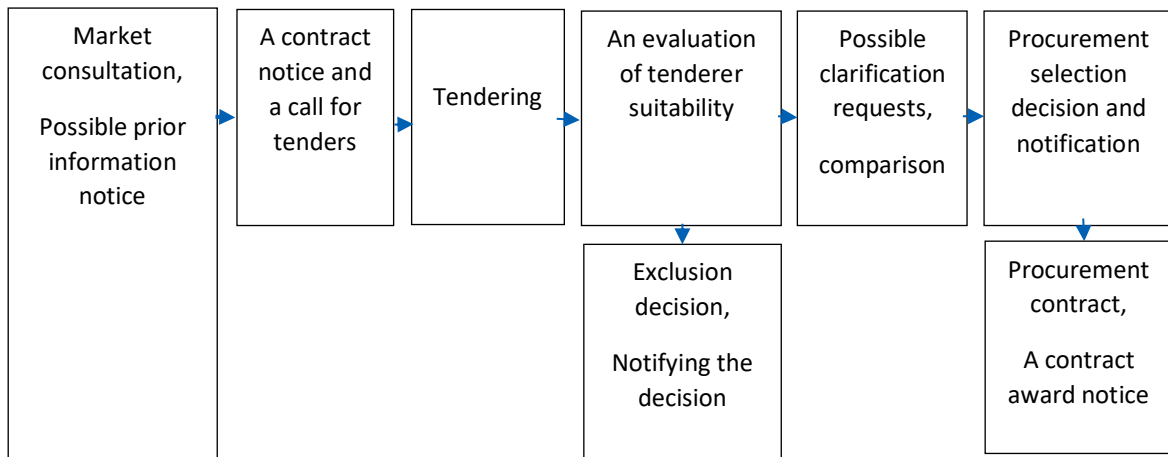


Figure 2. Process of an open procedure (Ministry of Finance, 2017)

The tendering period in an open procedure must be normally at least 35 days (Finlex 2016). Even though open procedure is still the fastest public purchasing method because it does not include any negotiations, it is the most suitable for simple, non-unique and non-complex procurements especially when market freedom is high (Moe et al., 2017; Parniangtong, 2016). For these reasons, open procedure is not, for example, used in PPPs because PPPs are complex and therefore require negotiations, which are not allowed in open procedure (Yescombe, 2007; Finlex, 2016).

However, although there is no possibility to negotiate with suppliers in an open procedure after the formal publication of a contract notice and a call for tenders, the procuring entity may conduct market consultation to prepare the procurement and inform suppliers of their plans for the forthcoming procurement before the formal publication (Finlex 2016). This market consultation phase is also allowed in all other procurement methods which are described later (ibid.). The market consultation opportunity is very important in open procedure because the procuring entity must define the “frozen” requirements before the publication of a contract notice and a call for tenders (Moe et al.,

2017). During market consultation, the procuring entity can freely improve and finalize the requirements (Finlex 2016).

The procuring entity may use independent specialists, other public authorities or even suppliers in market consultation (Finlex 2016). While the advice of these parties may serve as an aid to planning and implementing the procurement procedure, the use of advice may nevertheless not result in a distortion of competition, nor to conduct contrary to the principles of non-discrimination and transparency (ibid.). So, even though some suppliers have consulted the procuring entity during the preparation of the procurement, the entity cannot favor them in the selection. The procuring entity must make the procurement selection decision according to pre-defined non-discriminated criteria which enable genuine competition and select the most economically advantageous tender in accordance with the pre-set total scoring (Roodhooft and Van den Abbeele. 2006, p. 493-494). So, the public entity can no longer change the criteria or scoring when they have received actual offers. The procuring entity must therefore consider “frozen” selection criteria very carefully in order to select the best supplier in the open procedure.

### 2.7.3 Restricted procedure

A restricted procedure is another adversarial procurement method. Figure 3 presents the phases of the restricted procedure procurement process. In a restricted procedure, the procuring entity publishes a notice of a contract in which all prospective suppliers may request to participate, but only the candidates selected by the procuring entity may submit an actual tender (Finlex 2016). The contract notice must specify the minimum number of candidates (at least five), and also, if necessary, the maximum number of candidates that will be invited to tender (ibid.). Candidates admissible as tenderers must be selected in accordance with the pre-defined minimum suitability requirements and evaluation criteria specified in the contract notice (ibid.). The more requirements there are, the more suppliers must do work even before they can prepare an actual tender. This may decrease the number of interested suppliers (Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018).

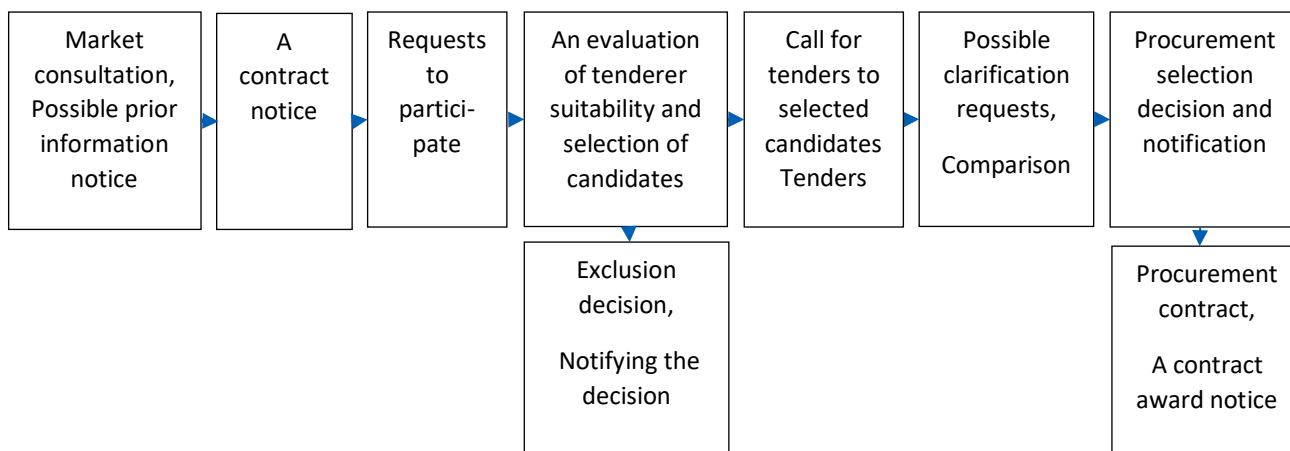


Figure 3. Process of a restricted procedure (Ministry of Finance, 2017)

According to Yescombe (2007), a restricted procedure is mainly used when a quick and low-cost procedure is needed. It is not so suitable for more complex procurements (ibid.). Also, Moe et al. (2017) confirm that a restricted procedure is the most appropriate for non-unique and non-complex procurements.

In a restricted procedure, there must be a time period of at least 30 days for suppliers to submit a request to participate and after that there is the actual tendering period, which must also be at least 30 days (Finlex 2016). So, a restricted procedure will normally take at minimum of more than 60 days and it is therefore much slower than open procedure. In addition, a restricted procedure is not even such a low-cost procedure for procuring entities, because they must first make a notice of contract with suitability requirements and evaluation criteria for the selection of candidates, and then call for tenders with evaluation criteria for the selected tenderers (ibid.). It is not such a low-cost procedure for suppliers either, because they must first make a request to participate and then an actual tender if the procuring entity has selected them as a tenderer (ibid.). Therefore, it is not surprising that the share of restricted procedure procurements is low, 9% of the tender notices (Moe et al. 2017).

#### 2.7.4 Dynamic purchasing system

The dynamic purchasing system is a new procedure which entered into force on January 1, 2017 (Finlex 2016). It is like a special version of restricted procedure. It is a fully

electronic procurement procedure (Finlex 2016). Fully electronic communication saves the time of the procuring entity and suppliers. Furthermore, the dynamic purchasing procurement procedure is open for its whole duration to all suppliers satisfying the terms and conditions of suitability (ibid.).

With a dynamic purchasing system, the procuring entity must approve all candidates that satisfy the assigned suitability requirements (ibid.). The procuring entity must take the decision to admit a candidate to the system within 10 working days after receiving a request to participate in a dynamic purchasing system (ibid.). The procuring entity may prolong this deadline to 15 working days if, in the admission assessment, supplementary documentation must be examined or when the satisfaction of suitability requirements must otherwise be checked, or for some other legitimate reason (ibid.). So, this procedure requires special resourcing arrangements from the procuring entity during, for example, summer time. On the other hand, a dynamic purchasing system enables the procuring entity to utilize the same contract notice during its whole pre-defined duration (ibid.).

Every single purchase in a dynamic purchasing system must be put out to tender (ibid.). The procuring entity must ask all the qualified candidates to submit their tenders for all separate procurements made in the dynamic purchasing system (ibid.). So, the dynamic purchasing system does not save time in the actual tendering phase, but it does save time in checking the suitability of suppliers.

### 2.7.5 Methods that support dialogue

An invitation to dialogue is an appropriate approach when the public entity is not able to define the scope and the requirements of the work precisely beforehand. Obtaining an IT system or IT service that best meets complex requirements usually requires some degree of dialogue between a procuring entity and suppliers through the process (Gelderman et al., 2015; Moe et al., 2017). Also, the results of inquiry to Finnish IT companies indicated a clear need for dialogue between procuring entities and suppliers to clarify the requirements of public procurements (Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018). In a dialogue approach, every supplier makes first a proposal which must meet the general and/or functional requirements (Finlex 2016). Evaluation criteria of the proposals must be clearly



defined in the public announcement (ibid.). So, market consultation before publication of the actual contract notice is needed. The dialogue makes it possible to achieve the “best value” for the public organization (Lawther and Martin, 2005). The procuring entity can avoid an expensive failure by “learning from the best” (Gelderman et al., 2015). However, the procuring entity must have the necessary skills, resources and buyer power for negotiations (Burnett, 2015).

According to Lawther and Martin (2005), when the dialogue approach is used in public procurement partnership sourcing, cost should be a secondary factor in consideration. The focus should be more on the technical expertise of the potential supplier. According to Finlex (2016), in a negotiated procedure, in a competitive negotiated procedure and in an innovation partnership, the procuring entity must negotiate with all qualified supplier candidates. There must be at least three candidates if there are as many qualified suppliers (ibid.). So, these negotiations can be very time consuming. However, the number of participating suppliers may be reduced through the process if the procuring entity has mentioned this in the contract notice (ibid.). The following chapters present in detail these public procurement methods of the dialogue approach.

#### **2.7.5.1 Negotiated procedure**

According to Finlex (2016), the procuring entity can use a negotiated procedure when there are needs which

- cannot be met without adapting existing solutions
- include design or innovative solutions
- cannot be awarded without prior negotiations, because of specific circumstances
- a description cannot be drafted for with sufficient precision with reference to a standard, common technical specification or technical reference.
- Furthermore, it is acceptable to use a negotiated procedure when an open or restricted procedure resulted only tenders that failed to match the call for tenders, or if the tenders could not be accepted or the public procuring entity does not receive any tenders.

The needs described above require dialogue with suppliers, because these kinds of procurements are more complex or otherwise require clarification. These procurements need more dialogue both before and after the contract notice. Usually, there are also requirement specification and technical dialogue with suppliers after the market consultation before publication of the formal contract notice (Ministry of Finance, 2017). These phases are optional and not a part of the formal regulated process (Finlex, 2016).

Figure 4 presents the phases of the negotiated procedure procurement process. In the negotiated procedure, the procuring entity publishes a notice of a contract in which all prospective suppliers may request permission to participate (Finlex, 2016). The procuring entity shall negotiate the terms and conditions of the procurement contract with the suppliers that it selects according to pre-defined selection criteria (ibid.). The procuring entity must ensure an equal treatment of all suppliers (ibid.). All suppliers must receive the same information and get the same time to prepare (ibid.). As a result of negotiations with the selected suppliers, the tenderers shall improve their preliminary tenders (ibid.). The procuring entity may also modify the call for tenders or invitation to negotiate as the negotiations proceed (ibid.). However, the minimum requirements specified in the contract notice, in a call for tenders placed at the time of publishing the notice, or in an invitation to negotiate, and the criteria for determining the most economically advantageous tender shall not be negotiable (ibid.).

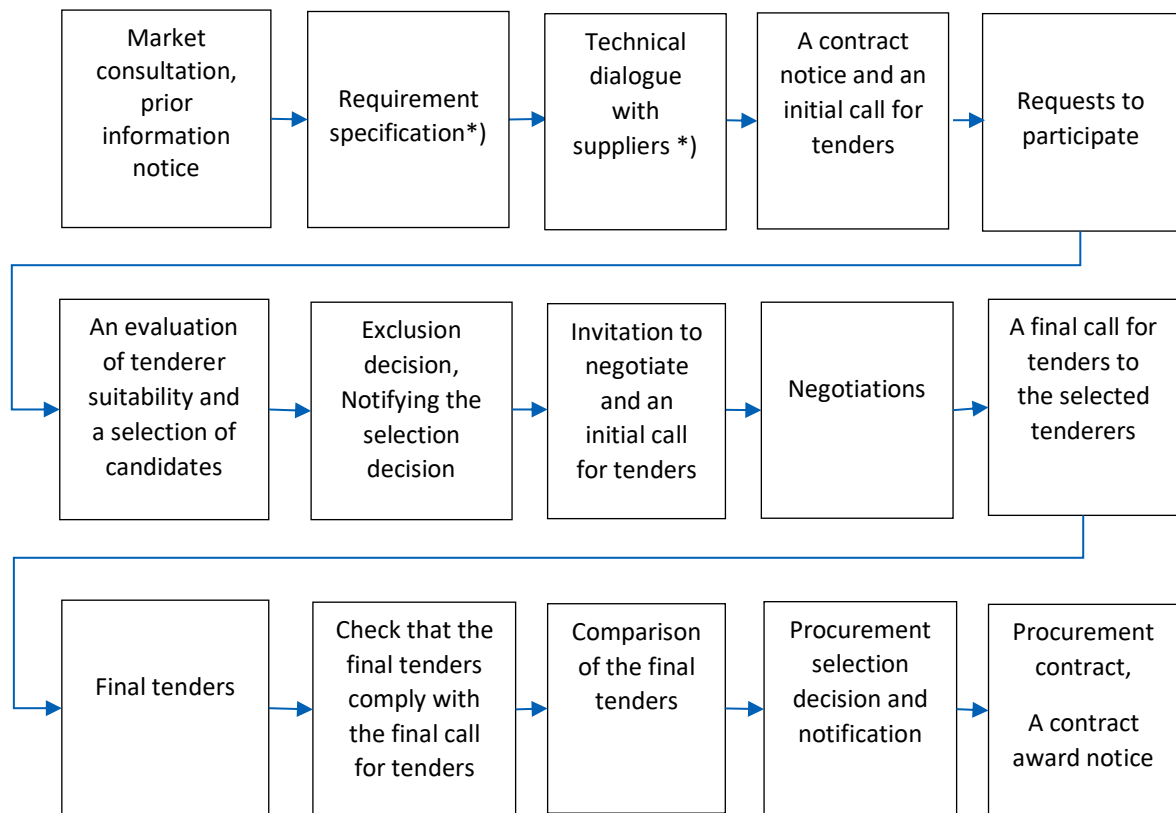


Figure 4. Process of a negotiated procedure (Ministry of Finance, 2017)

\*) Possibility which is not mentioned in Finlex 2016

A negotiated procedure is intended for complex procurements where tenderers may provide different solutions (Yescombe 2007; Moe et al. 2017). Therefore, the negotiated procedure is typically used for example in complex PPP contracts (Torvinen and Ulkuniemi, 2016). A negotiated procedure is very time-consuming. Beyond the time for negotiations, there must be a time period of at least 30 days for suppliers to submit a request to participate and a time period of at least 30 days for the chosen candidates to submit their final tender after negotiations (Finlex 2016). So, a negotiated procedure should be chosen only if there really is need for negotiations.

The negotiated procedure has accounted for nearly 16% of tender notices according to Moe et al. (2017). The reason for this is maybe because it has been in use for such a long time, since 1988 (ibid.). So, it is the best-known of the methods which support dialogue among public procuring entities.

### **2.7.5.2 Competitive negotiated procedure**

The competitive negotiated procedure was established in 2004 especially for an alternative procurement method for PPP contracts (Burnett, 2015). Its aim is to make a public-private partnership easier, with more flexibility and larger margins for negotiation (Burnett, 2015). The competitive negotiated procedure is not yet a very common procedure. It has been used only in 0.4% of tender notices (Moe et al., 2017). However, the monetary value of these tenders has been 8.6% (ibid.).

A procuring entity may select a competitive negotiated procedure when there are the same kinds of needs, for example, design or innovative solutions as described earlier in the presentation of the negotiated procedure (Finlex 2016). In a competitive negotiated procedure, the procuring entity publishes a notice of a contract in which all prospective suppliers may request permission to participate (ibid.). A sufficient number of candidates must be invited to negotiate to ensure genuine competition in a competitive negotiated procedure (ibid.). At least three candidates must be invited unless there are fewer suitable candidates (ibid.).

The procuring entity negotiates with the candidates admitted to the procedure in order to review and determine the best way of satisfying its requirements. So, this procedure is equally as time-consuming as the negotiated procedure. However, the benefit is that the procuring entity may negotiate on all aspects of the procurement with the selected candidates (Finlex, 2016). So, this procedure allows maximum dialogue with suppliers in setting up the requirements (Moe et al., 2017). So, there is a clear difference in flexibility provided by a competitive negotiated procedure when it is compared to a negotiated procedure where not all aspects are negotiable (Burnett, 2015; Finlex, 2016). However, the evaluation of final tenders must be made according to pre-defined non-negotiable criteria (Finlex, 2016). The contracting entity must evaluate a tender in accordance with the comparison criteria specified in the contract notice or the project description (ibid.).

The procuring entity may pay monetary or other fees or award prizes to participants in a competitive negotiated procedure (Finlex 2016). This may encourage more suppliers to participate in the procurement. However, in the research of Moe et al. (2017), one of the case organizations which have used this method felt that it requires too much work and resources

from the suppliers in terms of dialogue meetings and traveling. Figure 5 presents the phases of the competitive negotiated procedure procurement process.

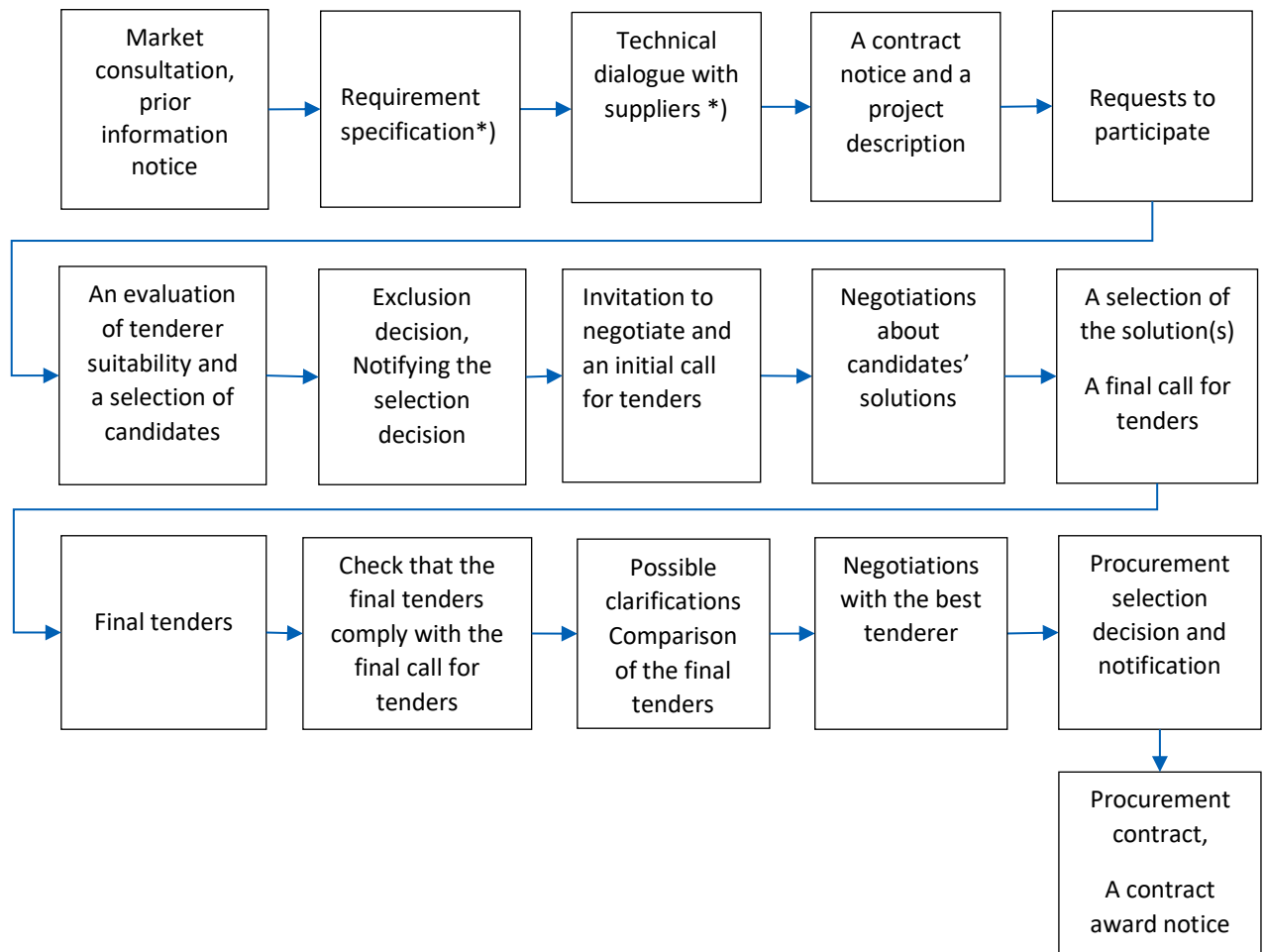


Figure 5. Process of a competitive negotiated procedure (Ministry of Finance, 2017)

\*) Possibility which is not mentioned in Finlex 2016

### 2.7.5.3 Innovation partnership

An innovation partnership is a new procedure which entered into force on January 1, 2017 (Hankinnat.fi 2018). There is not yet much experience of this new procurement method. In an innovation partnership, the aim is to develop an innovative product or service and to procure the resulting products or services (Finlex 2016). In an innovation partnership, the procuring entity publishes a notice of a contract in which all prospective suppliers may request permission to participate (ibid.). The procuring entity shall specify in the contract notice the need for innovative products or service that cannot be satisfied by procuring

products or services that are already on the market (ibid.). So, there must be something new to innovate when a public procuring entity uses this method. The contract notice identifies also the minimum requirements for the procurement that all tenderers must satisfy (ibid.). The requirements must be presented with a precision that is sufficient to enable suppliers to evaluate the nature and the scope of the procurement, and to decide whether to submit a request to participate (ibid.).

The procuring entity may impose an advance limit on the number of candidates invited to negotiate and if necessary the maximum number of candidates that will be invited to negotiate (Finlex 2016). However, there must be a sufficient number of candidates to ensure genuine competition (ibid.). Candidates admissible as tenderers shall be selected in accordance with the minimum suitability requirements and evaluation criteria specified in the contract notice (ibid.). At least three candidates must be invited to join an innovation partnership unless there are fewer suitable candidates (ibid.). So, this method requires time same way as a negotiated procedure and a competitive negotiated procedure.

The procuring entity shall commence negotiations with the selected tenderers with a view to developing the innovative product or service and procuring the resulting products or services (Finlex 2016). The best price-quality ratio shall be applied as the criterion for determining the most economically advantageous tender (ibid.). However, the procuring entity may decide to set up the innovation partnership with either one or more tenderers engaged in separate research and development activities (ibid.). An innovation partnership shall also be divided into consecutive stages corresponding to the various stages of the research and innovation process (ibid.). The procuring entity shall set intermediate targets to be attained by the partner or partners and shall provide for payment of compensation (ibid.). So, the procuring entity must pay for the development. The procuring entity may terminate the innovation partnership after each stage, based on the aims of the partnership (ibid.). If an innovation partnership has been established with several suppliers, then the procuring entity may reduce the number of partners by terminating individual procurement contracts related to a partnership (ibid.). The staged character of the process and the terms and conditions of its use must be indicated in the procurement documents (ibid.). Furthermore, the contracting entity shall not be required to arrange new competitive tendering when procuring the outcomes of the development work if the procurement is made from partners included in this

innovation partnership procedure (ibid). So, the innovation partnership allows the highest degree of freedom for purchasing decision.

### 2.7.6 Framework agreement

A framework agreement provides a special way of co-operation in purchasing. It shall denote an agreement between one or more procuring entities and one or more suppliers (Finlex 2016). The number of suppliers shall be announced in advance in the contract notice, the invitation to negotiate or the call for tenders (ibid.). The purpose is to establish the prices and planned quantities, and the other terms and conditions of contracts to be awarded during a given period (ibid.). This given period cannot be longer than four years (ibid.). So, the framework agreement does not allow a long partnership. Furthermore, no integral modifications shall be made to the terms and conditions of a framework agreement while it remains in force (ibid.).

With a framework agreement, the public entities can together increase procurement volume and thus obtain more bargaining power. Furthermore, this collective procurement entity may have more experienced and competent resources, which are critical factors for the successful procurement (Moe et al, 2017). Big procuring entities can be expected to possess the necessary skills and buyer power to negotiate more “smartly” compared to single and smaller procuring entities, which may even lack the necessary resources (Burnett, 2015).

## 2.8 Theoretical framework for the thesis

There is no single selection mechanism that fits all service procurement situations (Lian and Laing, 2004; Parker and Hartley, 1997; Parniangtong, 2016). Flexibility and adaptability to different environments are the key to the successful and efficient procurement of complex services like an IT service in public sector (Lian and Laing, 2004; Parker and Hartley, 1997). The public procuring entity should therefore always analyze first its situation and needs properly.

According to Lawther and Martin (2005), the choice of the most optimal procurement selection method depends on variety factors:

- The anticipated amount of time to be spent in procurement process
- The confidence that any of the short-listed potential partners can provide the service. This requires adequate market analysis.
- The public entity's knowledge of the service complexity and risk involved. This requires adequate knowledge of the needed service.
- The degree to which the scope of services as outlined in the contract notice and in negotiations identifies specific content, the requirements, that is achievable

Moe et al. (2017) emphasize also the vital role of time in public procurement. Depending on the chosen procurement method, a public procurement process can require a very long time when it is done according to regulation. The time limits described earlier in public procurement procedure presentations are collected below in the table 2. The time limits for submitting tenders in an open and restricted procedure, negotiated procedure, competitive negotiated procedure and innovation partnership can be reduced by five days if the procuring entity approves the submission of tenders in electronic form (Finlex 2016). The tendering period can also be shortened to 15 days in an open procedure and to 10 days in a restricted procedure and a negotiated procedure if the procuring entity has submitted a prior information notice which are described as an optional part of the procurement processes earlier in Figures 2-5 (ibid.). The time limits for the open and restricted procedure and for the negotiated procedure can also be shortened, because of urgency that is duly substantiated by the procuring entity (ibid.). However, the tendering period can never be less than 15 days in an open procedure and at least 15 days must be allowed for submitting a request to participate in a restricted procedure and a negotiated procedure (ibid.). Furthermore, the tendering period must be at least 10 days in a restricted procedure and a negotiated procedure even in an urgency situation (ibid.). These time period rules of a negotiated procedure concern also a competitive negotiated procedure and an innovation partnership. So, there are legal ways to shorten time periods in special circumstances.

As mentioned earlier, suppliers may have more specialized knowledge of technology which the contract entity does not have. So, it can be difficult to analyze if any of the short-listed potential partners provide the service without using a long and time-consuming list of requirements or dialogue with suppliers. Furthermore, some private suppliers may not even



fully understand how best to provide the requested service, but still respond to a request for proposals with the hope of learning on the job as Lawther and Martin have suspected (2005). So, the public entity may potentially need more or less market consultation and learning from peers or even from suppliers before procurement to obtain enough knowledge of the service complexity and risk involved (Moe et al., 2017). This is vital, because otherwise requirements which the procuring entity must set or chosen procurement selection method are maybe not appropriate (ibid.). Table 2 compiles the different procurement procedures described earlier in more detail and the circumstances in which they are suitable.

*Table 2: Procurement procedures and their special characteristics*

Procedure	Time period (56 §)	Number of tenderers	Special	Further information
<b>Open procedure</b>	<ul style="list-style-type: none"> <li>At least 35 days*) tendering time</li> <li>In an urgency situation 15 days</li> </ul>	All interested suppliers may submit a tender	The fastest public purchasing procedure	Suitable especially when market freedom is high, and product is non-complex. There is no need for negotiations and initial requirements can be frozen.
<b>Restricted procedure</b>	<ul style="list-style-type: none"> <li>At least 30 days' time to submit a request to participate and at least 30 days*) tendering time</li> <li>In an urgency situation 15+10 days</li> </ul>	At least five candidates which satisfy the suitability requirements must be invited to tender	Candidates to tender shall be selected according to the pre-defined suitability requirements and evaluation criteria	Appropriate when there is need to limit the number of tenderers
<b>Dynamic purchasing system</b>	Open throughout the duration of the procedure.	All interested suppliers may request permission to participate	The procuring entity must approve all candidates that satisfy the assigned suitability requirements in 10 working days or in special circumstances in 15 working days	Like a special version of restricted procedure. It saves time in checking the suitability of suppliers. The all qualified candidates must be asked to submit tenders for all procurements made in the system.
<b>Negotiated procedure</b>	<ul style="list-style-type: none"> <li>at least 30 days' time to submit a request to participate,</li> <li>time for negotiations and</li> <li>at least 30 days*) tendering time</li> <li>In an urgency situation 15 days + negation days + 10 days</li> </ul>	At least three candidates which satisfying the suitability requirements must be invited to negotiate	The procuring entity will negotiate the terms and conditions of the procurement contract with the selected suppliers. Appropriate for complex contracts where tenderers may provide different solutions. The minimum requirements and the criteria for determining the most economically advantageous tender shall not be negotiable.	When there are needs which <ul style="list-style-type: none"> <li>cannot be met without adapting existing solutions;</li> <li>includes design or innovative solutions;</li> <li>cannot be awarded without prior negotiations, because of specific circumstances</li> <li>cannot be drafted with sufficient precision with a standard or common technical specification</li> </ul>

Procedure	Time period (56§)	Number of tenderers	Special	Further information
<b>Competitive negotiated procedure</b>	<ul style="list-style-type: none"> <li>at least 30 days' time to submit a request to participate,</li> <li>time for negotiations and</li> <li>at least 30 days*) tendering time</li> <li>In an urgency situation 15 days + negation days + 10 days</li> </ul>	At least three candidates which satisfying the suitability requirements must be invited to negotiate	Possible to <ul style="list-style-type: none"> <li>negotiate on all aspects of the procurement,</li> <li>evaluation of tenders according to pre-defined criteria.</li> <li>monetary fees or award prizes can be paid to participants</li> </ul>	When there are needed wider possibilities to negotiate than it is possible in negotiated procedure.
<b>Innovation partnership</b>	<ul style="list-style-type: none"> <li>at least 30 days' time to submit a request to participate,</li> <li>time for negotiations and</li> <li>at least 30 days*) tendering time</li> </ul>	At least three candidates which satisfying the suitability requirements will be invited to negotiate	<ul style="list-style-type: none"> <li>Allows highest degree of freedom for purchasing decision,</li> <li>Possible to choose more than one supplier,</li> <li>The procuring entity must pay for the development</li> </ul>	When there are needs for innovation which cannot be satisfied by procuring goods or services that are already on the market
<b>Framework agreement</b>	In accordance with the chosen procurement procedure	In accordance with the chosen procurement procedure	<ul style="list-style-type: none"> <li>Agreements shall be between one or more procuring entities and one or more suppliers.</li> <li>May remain in force for no longer than four years.</li> </ul>	Make it possible to get more volume, bargain power and procurement competence.

\*) The time limits for submitting tenders in an open and restricted procedure, negotiated procedure, competitive negotiated procedure and innovation partnership may be reduced by five days if the procuring entity approves the submission of tenders in electronic form.

Moe et al. (2017) have made a qualitative case study from three information system public procurement projects. They analyzed, “*How does a public procuring entity procure the information system best suited to its requirements and simultaneously follow the regulations?*”. Moe et al. (2017) suggested in their framework that the public procurement method for information systems (IS) should be selected according to the complexity of the requirements and uniqueness of the system. Table 3 presents their guide to this selection. According to the table, if requirements are simple and the system is not unique, the procuring entity is likely to be able to specify the requirements by themselves or to borrow them from other entity. However, the borrowed requirements must be tailored. The most efficient procurement methods are then the open or restricted procedures. If the requirements are

complex but the system is not unique, the procuring entity can utilize learning from other entities. This requires that the procuring entity find an appropriate other entity. Some dialogue with suppliers may still be required in this situation. So, Moe et al. (2017) suggest a negotiated procedure. If requirements are simple but the system is unique, more dialogue with suppliers is required. Then the negotiated or competitive negotiated procedure can be the most appropriate methods according to Moe et al (2017). If requirements are complex and the system is also unique, procedures which allow most dialogue with the suppliers are the best alternatives. Then Moe et al. (2017) suggest competitive negotiated procedure and innovation partnership which may best enable a required constant dialogue with suppliers, until requirements are specified.

*Table 3: Framework of Moe et al. to guide the selection of information system procurement method*

	<b>Non-complex requirements</b>	<b>Complex requirements</b>
<b>Non-unique system</b>	Recommended approach to specify requirements: Do by yourself or borrow requirements from other entities	Recommended approach to specify requirements: Learn from other entities
	Interaction with suppliers: Not essential	Interaction with suppliers: Carry out dialogue to evaluate the system
	Appropriate procurement methods: Open or restricted procedure	Appropriate procurement methods: Negotiated procedure
<b>Unique system</b>	Recommended approach to specify requirements: Learn from other entities	Recommended approach to specify requirements: Engage in dialogue with multiple suppliers
	Interaction with suppliers: Carry out dialogue with supplier to clarify requirements	Interaction with suppliers: Carry out constant dialogue with suppliers, until requirements are specified
	Appropriate procurement methods: Negotiated or competitive negotiated procedure	Appropriate procurement methods: Competitive negotiated procedure or innovation partnership

The framework of Moe et al. gives a good background for the empirical part of this thesis, although it did examine only information system procurement and not IT service in general. The requirement aspect which Moe et al. presented, is important from a procurement selection process perspective because as the results of the inquiry to Finnish IT-companies indicated, improper requirements can prevent selection of the most economically advantageous tender in the long run (Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018). However, Moe et al. (2017) did not consider short- or long-term costs in their research. According to Töytäri and Ristola (2015), both short- and long-term monetary outcomes should also be measured because many of the benefits and costs incurred will be realized over a long period of time. Furthermore, Moe et al. did not consider market freedom in the procurement method selection. According to Parniangtong (2016), both product complexity and market freedom should be considered. These influence significantly the appropriate procurement tactic. Nevertheless, the research of Moe et al. offers a useful

framework with results that can be compared to the results of the empirical part of this thesis as long as these additional aspects are kept in mind.

As stated at the beginning of the thesis, the challenge for public sector organizations is how they can achieve competitive prices and maximum value in the long run via a regulated public procurement selection process. The chapter on theoretical framework in this thesis has presented different aspects which should be considered in the selection of public IT procurement procedure when the target is the maximum value in the long-run. This theoretical framework will now be tested in the empirical part. The aim is to examine whether empirical results support this theoretical framework or complement it by new aspects.

### 3 Empirical part

The above-mentioned findings in the theory part create a background for this empirical part and enable the empirical results to be compared to the wider context. The aim of this empirical part is to make qualitative case study of IT service procurement processes in different public organizations, and especially in one main case organization, and their influence on IT tenderers in Finland. The beginning of this part three, the research process and the used research method are described. This is followed by an analyzation of the procurement documentation of the main case organization and the results of qualitative interviews of selected public entities and IT suppliers. The reliability and the validity of the study results is assessed at the end of the empirical part.

#### 3.1 Research problem and research question

As described earlier, Pro Growth Consulting has recently done a quantitative research among Finnish IT service suppliers (TIVIA, 2018). The research contains questions about public procurement. In the research inquiry, as many as 83% of 100 IT suppliers responded that public procurement does not work properly in Finland. According to the research results, Finnish IT suppliers criticized especially the procurement selection process, improper requirements and selection criteria, and a lack of dialogue. Nevertheless, based on these results, it is difficult to make improvements to the IT service public procurement selection process because the results do not offer enough precise information about the situations that the feedback has concerned. So, a more detailed qualitative case study is needed for concrete improvement actions.

Moe et al. (2017) have done qualitative case study about the public procurement of information systems as has been presented in the theory part of this thesis. However, they analyze only information system purchasing and not IT service purchasing in general. According to their research, the selection of the most appropriate procurement procedure depends on the uniqueness and complexity of the information system. However, they analyzed only three cases and their research cases did not consist of an innovation

partnership method nor a dynamic purchasing system, which are the newest public procurement procedures. Furthermore, they did not consider at all efficiency of the procurement selection process nor influence on long-term value or circumstances like market freedom.

In this study, the aim is to examine in detail different procurement procedures from the perspective of different public organizations and IT suppliers and especially from the aspects of process efficiency and long-term value. The research questions are:

- What is the leading IT service public purchasing practice in each situation from process efficiency and long-term value perspective?
- Which aspects influence the selection of the most appropriate public procurement procedure?

## 3.2 Research design

In this thesis, a qualitative research approach is used. It is suitable especially for complex research problems when the researcher may not know the important variables to examine (Creswell, 2009). So, it is a preferred method for an empirical exploration of a complex phenomenon such as IT service public procurement according to the new Act (1397/2016), where the boundaries between the phenomenon and its context are not clearly evident (Yin, 2003). A qualitative research method provides detailed data of a small group (Payne and Payne, 2001). Furthermore, only a qualitative method with its detailed, flexible, sensitive and naturalistic characteristics, is suitable to produce adequate sociological accounts (ibid).

In qualitative research, a single or multiple case study can be used depending on the requirements of the research problem (Yin, 2003). A single case study is suitable for a unique case (Yin, 2003). The key characteristic of single case study is that the social unit selected is a single example of the many cases (Payne and Payne, 2001). However, its findings cannot automatically be generalized (Payne and Payne, 2001). Although the findings cannot establish a new general theory, they can challenge earlier assumptions and allow new ideas to emerge (Payne and Payne, 2001; Yin, 2003). When case studies focus on a single, compact unit, they can be carried out on a small-scale and detailed basis (Payne and Payne, 2001;

Yin, 2003). By beginning this way on a small case, new ways of understanding can provide a framework for further research (Payne and Payne, 2001).

In contrast, a multiple case study approach supports the comparison between different cases, for example, for theory testing or theory generation purpose (Eisenhardt, 1989). For the purpose of theory generation, 4-10 cases work well (Eisenhardt, 1989). Random selection of cases is not necessary, or even preferable (Eisenhardt, 1989). The goal in the case study is to choose cases which are likely to replicate or extend the emergent theory (Eisenhardt, 1989). Furthermore, theory-building researchers typically combine multiple data collection methods, for example, interviews and archival sources (Eisenhardt, 1989). The benefit of documentary data is their ability to represent the naturally occurring phenomenon directly without reacting to the study process or the researcher's bias (Payne & Payne, 2004). This ensures the validity of the study (Yin, 2003). Multiple investigators would also enhance creative potential and confidence (Eisenhardt, 1989).

### 3.2.1 Case organizations and data collection

This case study focuses on especially IT service procurement in one main case organization. The main case organization makes regular IT service procurements. There are interviewees also from three other public-sector organizations which have frequently purchased IT services, from one public procurement broker entity and from five IT supplier companies which have regularly participated in public tendering processes for IT services. So, there are ten different case organizations.

Before the interviews, the procurement documentation data from the main case organization was analyzed to obtain more information for the interviews and to examine whether the interview data and documentation data support each other. So, different kind of data collection methods were used. However, in this case study, it was not possible to use multiple investigators. Instead, the findings were audited by the representative of Aalto University and reviewed by co-researchers and by the key informant to obtain complementary insights.

A public-sector organization, Keva, was chosen for the detailed public IT procurement document data analysis. Keva is an appropriate main case organization because it frequently makes IT service purchases. Keva is one of Finland's largest pension providers. The pension sector is a very data intensive market area which requires very complicated calculation processes according to current and previous pension laws. Because of large databases and high transaction volumes, complicated calculations have been automated in pension sector and especially in Keva. Keva administers the pensions of local government, the State, Evangelical Lutheran Church and the Social Security Institution of Finland (Kela) employees. It serves a total of 1.3 million public sector employees and pensioners as well as some 2,300 employer customers, i.e. local government organizations, State employers and parish unions. Keva is also responsible for funding the pensions of local government employees and for investing their pension funds. Keva's need for data management and automation have required many IT service procurements. So, Keva had enough historical data on public procurement of IT services for analysis in this thesis. (Keva, 2018)

The main case organization's IT procurement documents since January 1, 2017 were analyzed in this thesis. This time frame was selected because the most recent Act (1397/2016) in Finland entered into force on January 1, 2017. So, this period was the most interesting.

After the procurement documentation analysis, in-depth interviews with open-ended questions were performed. The interview data was collected in Finland in fall 2018. The data collection was performed by face-to-face or Skype meeting interviews of relevant key informants who had participated in public procurement processes involving IT services. Interviewees were Finnish executives, managers, procurement specialists and one procurement lawyer from public entities and executives from IT suppliers. Two of the supplier companies were small, one was medium-size and two were large IT companies. Different sizes of supplier companies give an opportunity to analyze the influence of company size. Table 4 presents an overview of the interview data.

The structured interview approach was followed, but follow-up questions were asked when necessary. Each interview lasted approximately one hour. All interviews were audio taped and extensive field notes were taken in all cases by the same interviewer. All



interviewees were allowed to read the transcripts and correct or delete parts they feel are incorrect or do not wish to disclose. Also, comparisons were made between interviews. For example, opinions of the different public procuring entities were compared and further tested with the experiences and opinions of the suppliers. The questions focused especially on the selection phase of the public procurement process for IT-services. Appendix A presents the questions to interviewees from public entities and Appendix B the questions to interviewees from IT suppliers. Additional interviews ended when interviews began to uncover redundant information after 15 interviewees.

Table 4: Overview of the interview data

Interview data		
Actor	Interviewee	Running time
Customer 1: Medium-size	IT-manager	24.8.2018: 46 min
Customer 1: Medium-size	Public procurement specialist	3.9.2018: 52 min
Customer 1: Medium-size	Public procurement lawyer	7.9.2018: 63 min
Customer 1: Medium-size	CIO	24.9.2018: 46 min
Customer 2: Small	Development manager	10.9.2018: 43 min
Customer 3: Large	Leading procurement specialist	4.10.2018: 66 min
Customer 4: Large	Director of development and ICT	21.9.2018: 56 min
Customer 4: Large	Procurement manager	21.9.2018: 56 min
Public procuring broker	Procurement specialist 1	11.10.2018: 61 min
Public procuring broker	Procurement specialist 2	11.10.2018: 61 min
Supplier 1: Large	Head of Technology Advisory	5.10.2018: 64 min
Supplier 2: Large	Customer executive	10.9.2018: 49 min
Supplier 3: Medium-size	Business unit director	21.9.2018: 58 min
Supplier 4: Small	Sales director	4.10.2018: 68 min
Supplier 5: Small	CEO	14.9.2018: 61 min

An essential feature of theory building is a comparison of the emergent concepts, theory, or hypotheses with the extant literature (Eisenhardt, 1989). In this study, findings were compared to the results of the theory part and especially to the framework of Moe et al. (2017) and to the findings from the quantitative research among Finnish IT suppliers which was made by Pro Growth Consulting (TIVIA, 2018). Differences and similarities in interview material were analyzed. Common themes were identified. After comparison, the findings were discussed and verified with the key informant to fine-tune the analysis.

### 3.3 Procurement data analyses

The document analysis of the chosen main case organization Keva's IT procurement documentation was done first as an input for the interviews. The aim was to get in this way further explanation and interpretation from the interviews for the document-based findings. Table 5 presents an overview of the case organization Keva's IT procurement documentation data. An advantage of studies within a public-sector organization is its built-in requirements for transparency, which assures that documentation is saved.

The case organization Keva has a 20.000€ internal threshold value for procurements. So, every procurement which is over 20.000€ in value must be tendered in the case organization. Under the Act on Public Procurement and Concession Contracts (1397/2016), the national public procurement regulated threshold value excluding value-added tax is 60.000€ (Finlex 2016). So, according to the Act only procurements which value is over 60.000€ require a regulated public competitive tendering. The European Union threshold value based on the Procurement Directive and the Concession Contracts Directive excluding value-added tax is 207.000€ for IT-services (ibid). In this thesis document analysis focused on IT procurements which are over the national threshold value. In the research period from January 1, 2017 to the end of October 2018, there had been 14 IT procurements in the case organization Keva. Only one of these procurements had been national. So, the EU-level threshold value is quite low for IT procurements when almost every IT procurement must be tendered at an EU level. This impacts efficiency. EU-level procurements are more bureaucratic.

Since January 1, 2017, an open procedure had been used 11 times (79%), a negotiated procedure two times (14%) and a restricted procedure one-time (7%) in the IT procurements of the main case organization Keva. The percentages of the usage of the different procedures correlated quite closely with the statistics presented by Moe et al. (2017): open 73%, negotiated nearly 16% and restricted 9%. A competitive negotiated procedure, the new innovation partnership or the new dynamic purchasing system were not used at all in the main case organization. Instead one framework agreement was made from the open procedure procurement. The electronic procurement system of the main case organization provides a possibility to use these new procedures although there are no templates for these

new procedures. For old procedures there are templates. These results confirmed the view of Lian and Laing, mentioned earlier in the theory part, that there is a lack of knowledge and helping tools for these new selection possibilities which EU directives allow in public sector. However, this assumption must be ensured also from other public procuring entities in interviews.

Finnish IT suppliers criticized the number and quality of the public procurement requirements in the quantitative research of the Pro Growth Consulting (TIVIA, 2018). There are mandatory requirements which every public entity must require from suppliers according to the Act (1397/2016). Requirements of European Single Procurement Document (ESPD) are these. ESPD consists of a self-declaration of the businesses' financial status, abilities and suitability requirements for a public procurement procedure (European commission, 2018). This declaration is used as preliminary evidence of fulfilment of the conditions required in public procurement procedures across the EU. Every supplier must complete it when participating in public procurements at the EU level. In the main case organization, Keva, the Tarjouspalvelu web portal for electronic tendering is used (Cloudia, 2018). There suppliers can complete this ESPD information after registration. The information is saved to the suppliers' profile. So, the suppliers do not have to complete all the information again every time they tender. Currently 275 public procuring entities are utilizing this Tarjouspalvelu (Cloudia, 2018). So, suppliers can benefit from their pre-completed information in Tarjouspalvelu in all procurements of these 275 public entities. The State has its own Hanki Tarjouspalvelu web-portal for electronic tendering where there are 545 state public procuring entities (Cloudia, 2018). So, suppliers must complete their ESPD information on these different web-portals to be able to offer in the public sector. Furthermore, some of the requested information on the ESPD is optional (Hilma, 2018). The procuring entity determines which pieces of information must be provided by suppliers for each call for tenders. So, suppliers must still check the ESPD requirements needed from each call for tenders. It must be clarified in supplier interviews what would help suppliers with these mandatory ESPD requirements of procurements from an efficiency point of view.

According to Table 5, in the main case organization, also other requirements along with the ESPD were almost always required. Only in one open procedure procurement, where only JBOSS-licenses and basic support service for them were purchased, was just the

ESPD required. The JBOSS procurement was simple, ready-made product and service purchase where additional requirements were not needed. The average number of special requirements was 83 pieces in Keva's open procedure procurements, but there was a large range between the procurements. All the case organization Keva's open procedure procurements were purchases of ready-made IT product and/or IT services. This partly supports the framework of Moe et al. (2017). Moe et al. recommended open procedure for non-unique and non-complex systems. However, some of the IT systems or IT services needed were more complicated than others and this influenced the number of special requirements in these open procedure procurements. The case organization Keva received an average of 3.9 tenders per open procedure procurement. The digital service framework agreement increased this average value significantly. Without it, the average was only 2.3. This is quite low. Furthermore, there was a procurement which did not receive any tenders via the public procurement process in the research period. This can be an indication of too many or too restrictive requirements. This must be ensured from suppliers in interviews.

Contrary to the framework of Moe et al. (2017) the case organization Keva did not always use a negotiated procedure for complex, but non-unique information system or IT service procurements in the timeframe of this thesis. Instead, it utilized successfully the open procedure and in-depth market consultation before that. However, for unique systems Keva has used a negotiated procedure, which supports the framework of Moe et al. (2017). Other public entities' practices are examined in interviews.

The most requirements were demanded in the negotiated procedure procurement of the custom-made pension payment calculation system. In the other negotiated procedure procurement (Robot Process Automation), suppliers were required to demonstrate proof of concept (POC) in phase 2. In one day, they had to automate given scenarios by their robot tool. So, both negotiated procedure procurements were very time-consuming and costly for suppliers. One of the suppliers gave up before the costly POC of the Robot Process Automation procurement. The laboriousness of procurements must be examined more closely in interviews with suppliers.

The negotiated procedure process lasted an average of over 180 days from the contract notice publication date to the procurement decision date, when the duration of the open

procedure was an average of around 50 days in the case organization Keva during the study period. The duration of a restricted procedure was between these two. So, the open procedure is clearly the best procedure when there is a limited amount of calendar time. However, this timeframe of the procurement selection process did not include the “need detection” and “market consultation” phases, which had been performed earlier. The time from the “need detection” to the procurement decision can be much longer. From an efficiency perspective, when these results are compared to the minimum time-period of the Act (1397/2016), which was presented earlier in Table 2, it is clear, that the procurement process of the main case organization is not very efficient. The open procedure procurements of the main case organization Keva lasted on average 50% longer than the minimum limit required in an open procedure when the submission of tenders in electronic form are approved (Finlex 2016). A comparison of the duration of the restricted and negotiated procedure procurement in the case organization Keva with the legal minimum time-period is not reasonable because volumes of these procedures were so low in the study period. Attempts were made in the interviews to try and find practices which would improve this efficiency.

Based on the procurement documentation of the case organization Keva, there was no support to suppliers’ feedback in Pro Growth Consulting’s research that public organizations emphasize prices over quality. Weightings of quality were higher than price in 71% of the case organization Keva’s procurements. However, the long-term value, the importance of which in procurements Töytäri and Ristola (2015) emphasized, had not been considered in the selection of the case organization Keva’s procurements. The selection decisions had been made purely based on a time period of 1-4 years despite the contract times. However, Keva has long contract times in its critical information systems although they have not used longer times in procurement selection scoring. These results are compared to the results of other public entities’ and suppliers’ interviews and analyzed to see whether they support each other.

Table 5: Overview of the procurement documentation data from the case organization.

Contract notice date	Duration (days)	IT-service	Number of tenders	Procedure	Value	Qualification requirements	Selecting criteria weightings
22.2.2017	195	Pension payment calculation system	4	EU, Negotiated	2.500.000€	ESPD+439	Phase 1: References Phase 2: Price 70%, Quality 30%
20.3.2017	36	CRM-online service	2	EU, Open	450.000€	ESPD+68	Price 60%, Knowledge 40%
24.5.2017	42	Portfolio Analysis System	2	EU, Open	485.000€	ESPD+69	Quality 70%, Price 30%
28.8.2017	43	e-Learning system	5	EU, Open	60.000€	ESPD+123	Price 60%, Quality 40%
5.10.2017	36	Red Hat JBoss licenses and support service	4	EU, Open	480.000€	only ESPD	Price 85%, Quality 15%
6.10.2017	A: 118 B: 93 C: 90	A: DW-service B: system specification service C: Implementation, testing service	A: 4 B: 3 C: 0 *)	EU, Restricted	A: 2.850.000€ B: 950.000€ C: 2.000.000€	Phase 1: ESPD+44 Phase 2: Interviews of offered experts	Phase 1: Knowledge 100%, Phase 2: Price 30%, Interviews 70%
24.10.2017	167	Robotic Process Automation (RPA) licenses and service	Phase 1: 3, Phase 2: 2	EU, negotiated	1.300.000€	Phase 1: ESPD+31 Phase 2: Proof of Concept-scenarios	Phase 1: Knowledge 60%, Technical 40% Phase 2: POC 70%, Price 30%
2.2.2018	34	Contact center system	4	EU, Open	600.000€	ESPD+168	Quality 70%, Price 30%
23.3.2018	53	Fixed Income Portfolio Analysis Tool	1	EU, Open	900.000€	ESPD+113	Quality 70%, Price 30%
26.3.2018	50	ESG analysis Saas-service**)	1	EU, Open	1.720.000€	ESPD+76	Quality 70%, Price 30%
18.5.2018	still open	Hedge Fund Advisery service	1	EU, Open	850.000€	ESPD+83	Quality 75%, Price 25%

Contract notice date	Duration (days)	IT-service	Number of tenders	Procedure	Value	Qualification requirements	Selecting criteria weightings
28.5.2018	75	e-Invoicing service	3	National, Open	40.000€	ESPD+50	Quality 60%, Price 40%
25.6.2018	88	Digital service framework agreement	18	EU, Open	10.000.000€	ESPD+14	Quality 60%, Price 40%
3.7.2018	49	Virtualization and cloud solution service	1	EU, Open	3.500.000€	ESPD+155	Quality 60%, Price 40%

\*) The procuring entity was allowed to do direct procurement from the chosen supplier because no supplier participated in the public procurement of implementation and testing service.

\*\*\*) ESG: Environmental, Social and Governance, Saas: Software as a Service

### 3.4 Analysis of interview data

This section presents the main results of interviews from four public-sector organizations which have frequently purchased IT services, from one public procurement broker entity and from five supplier companies which have regularly taken part in public tendering processes for IT services. The analysis of interview data results begins from the procurement process perspective. According to the interviews, the initial activities of the procurement process have a very important role. This is followed by an analysis of aspects which can improve the procurement process. The end of the section presents a recommended framework for IT procurement method selection based on interview results.

#### 3.4.1 Importance of initial activities in procurement process

The procurement process begins from the need detection (Roodhooft and Van den Abbeele 2006), which precedes the actual selection phase (ibid.). The need detection phase produces the essential information for the selection phase. Selection requirements are then produced according to these needs. However, before public entities can “freeze” their selection requirements, they should do an in-depth market analysis and understand the influence of the supplier strategy. These essential preceding activities were especially emphasized in interviews and are therefore presented first.

### **3.4.1.1 Need detection**

The IT suppliers and experienced public procurement specialists emphasized the importance of need detection beyond the selection phase of public procurement process in the interviews. A successful procurement cannot be made without enough accurate information about the IT service needed. Moe et al. (2017) suggested that public entities can “borrow” requirements from other public entities. According to the interviews, the public entities have not done much of this kind of “borrowing”. Many interviewed public entities emphasized their own special needs which decrease the usefulness of requirements sharing. However, more general procurement experience sharing was done, and the public entities analyzed it as being very useful.

Experienced public procurement specialists analyzed that even more working time can be spent in this need detection phase than in a formal public procurement selection process. The formal public procurement selection process takes of course calendar time, but it can be forwarded very routinely according to the Act (1397/2016). According to the interviews of public entities, despite the work-time spent on it, it is very important to perform need detection carefully because the understanding of the IT service needs significantly affects the selection of the most suitable public procurement method. This supports the framework of Moe et al. (2017). However, although the public entities analyze their needs carefully, they may not usually know all the opportunities without in-depth market research, which is therefore presented next.

### **3.4.1.2 Market research**

According to Moe et al. (2017), more interaction with suppliers gives procuring entities a greater opportunity for learning and discovery. This is most freely done in the consultation phase before the procuring entity has “frozen” its requirements (Finlex 2016). Also, the suppliers and experienced public procurement specialists emphasized the importance of comprehensive market research in the interviews. The public entity should know the market situation and potential suppliers before starting the formal procurement selection process. According to the interviews of IT suppliers, a prior contract notice can reach suppliers which the public entity would not otherwise have even considered. Different



suppliers can present very valuable information for the procurement preparation and offer innovative new solutions.

Furthermore, with early market consultation, suppliers can better prepare for the forthcoming procurement. According to the theory part, when a supplier has a better understanding of customer needs, they can allocate investments of scarce resources in developing better offerings to those needs (Andersson et al 2006). Supplier interviews confirmed that suppliers have understood this aspect. Suppliers who have made the decision to focus on the public sector or to focus on specific public entities have allocated their specific resources to the public sector or to specific public entities. They trust that when they do their work well and have a good relationship with public customers, their good references and with their experienced resources will enable them to succeed in the public procurement selection process now and in the future. Also, public entities should assess how they would like to co-operate with suppliers because this also influences procurements. This aspect is analyzed more closely below.

#### **3.4.1.3 Supplier strategy**

According to interviews, the supplier strategy of public entities significantly influences the selection process. The supplier strategy helps determine the overall approach to procuring and to the focus needed with precise need detection and the comprehensive market research presented earlier in the theory part. When market freedom is high, a single or multiple supplier strategy can be utilized (Parniangtong, 2016). Whereas when the market freedom is low, a single supplier partnership strategy is the most appropriate (ibid.). So, public entities can have a multiple supplier strategy, or they can focus IT service procurements on a few main suppliers – partners – depending on market situation. This strategy influences especially the suitable procurement method and the requirements of the procurement.

According to the supplier interviews, small and medium-size suppliers appreciate a framework agreement and dynamic purchasing system because these methods enable easier offering for them, too. These methods allow co-operation between small and medium-size suppliers to implement even larger IT projects or offer IT services from many different kinds

of IT specialists. The main benefit for public entities with these procurement methods is that they can better avoid a vendor-lock situation. On the other hand, the main disadvantage according to interviews is that these methods require a lot of coordination and controlling work from public entities to manage these many different suppliers. One experienced IT procurement specialist from a large procuring entity, which has multi-supplier strategy, said in the interview, that it takes him a half of his actual worktime to coordinate and control IT suppliers. Furthermore, one interviewee from a large IT supplier raised a concern of unclear responsibilities in multi-vendor engagements. When multiple suppliers work with the same information system, one responsible entity for problems may not be easy to identify. This can lead to a blame game between stakeholders.

According to interviews, in a large IT project, usually only one supplier is chosen. This must usually then be a larger supplier to ensure enough resources are available to fulfill the requirements of the large procurement contract. The main benefit for the public entity is that this chosen supplier then has responsibility for the whole IT project, and also for project management. So, the public entity has less coordination work, but of course controlling of the chosen supplier is still needed. There is also the potential risk of the public entity ending up in a vendor lock situation with this one supplier. The contract type for these large IT project contracts can be a fixed-price one, which also influences supplier interest in the procurement. Fixed-price contracts entail higher risk for suppliers and small or medium-sized suppliers can more seldomly afford to take that risk than larger ones. The procuring entity should also notice that suppliers offer higher prices for these fixed-price contracts because of this risk.

The suppliers interviewed were asked also about the public-private partnership (PPP) method, which is presented in the theory part of this thesis. The small and medium-sized suppliers analyzed that it would decrease the number of offers because only large suppliers can invest in such large procurements. Instead, the large suppliers were understandably more interested in the idea of using the PPP method in IT procurements. So, the public entity must decide its supplier strategy carefully according to its goals, because this greatly influences procurements and the public entity must ensure that it has enough resources to implement procurements according to its supplier strategy.

### 3.4.2 Rationalization of the public procurement process

As described earlier, Pro Growth Consulting has recently done a quantitative research among Finnish IT service suppliers (TIVIA, 2018). In the research inquiry, as many as 83% of 100 IT suppliers responded that public procurement does not work properly in Finland. According to the research results, Finnish IT suppliers criticized especially the procurement selection process, improper requirements and selection criteria, and a lack of dialogue. The interviews of this thesis confirmed that there are problems with these aspects in public procuring entities which are not so experienced in procuring. Some supplier interviewees expressed that some suppliers even avoid unprofessional public procuring entities, especially when the market situation is good from the supplier point of view. This section analyzes aspects which can improve the public IT procurement process. A pre-assumption was expressed in the theory part that private sector procurement selection processes would be better than public ones. The IT supplier interviews in this thesis did not confirm this. This chapter first presents the reasons for this before analyzing the prerequisites which make this possible.

#### 3.4.2.1 Advantages of public sector procurement

The beginning of this thesis stated that private sector companies have a better procurement selection process compared to public sector organizations. In new public management (NPM) reform, it has been supposed that the public sector should even imitate the private sector (Hartley et al., 2013). Furthermore, Lian and Laing (2004) claimed that the public-sector procurement selection process is costlier than the private sector one. It was assumed that this may decrease the number of tenderers (Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA, 2018). The IT supplier interviews in this thesis did not confirm these assumptions. According to the IT suppliers, public IT procurements do not require too much workload from IT suppliers when procurements are performed professional way and without unnecessary activities. As one supplier interviewee put it, *“Public procurements require much less prose writing than private ones”*. Furthermore, some IT suppliers interviewed even expressed that they especially appreciate public procurement as fair and open competition. As one supplier interviewee said, *“In the public sector we always know why we lose or win the deal”*. Suppliers get important information from public procurement documentation about what to do better next time if they are not awarded the contract.

Furthermore, they get valuable information about market prices. This is not possible in the same way in the private sector. However, to succeed public entities must forward IT procurements in a professional way by utilizing all the opportunities that the Act (1397/2016) allows and by avoiding the unnecessary activities.

#### **3.4.2.2 Internal procurement policies**

According to the interviews, some public entities have their own procurement policies which are more restrictive than the Act (1397/2016). Many of these entities have an internal threshold value in their procurement policy where competitive tendering is required also for procurements which are significantly under the legal national threshold value, but over this internal threshold value. According to the interviews, this kind of competitive tendering required by internal policy can be equally time-consuming even though is under the legal national threshold value. This is a problem in IT procurements, because as one interviewee from a large public entity said, *“In ICT procurements agility is essential. There is always something new in ICT markets which should be able to be tested without competitive tendering when it is under the legal national threshold value”*. For this reason, this large public entity has made the decision that they do not use competitive tendering in ICT procurements which are under the legal national threshold value. Whereas, they do still tender for other procurements when the value is under the legal national threshold value but over their internal threshold value. The suggestion for the public entities is that they do not use these kinds of internal threshold values for IT procurements where agile experiments are essential. This will make IT procurements which are under the legal 60.000€ national threshold value more efficient. This is also the aim of the new Act to avoid unnecessary procurement activities when the value of the procurement is low compared to the work involved in competitive tendering. This is why the national threshold value was increased in the new Act. Public entities should utilize this possibility especially in IT procurements.

#### **3.4.2.3 The challenge of naming IT specialists to procurement projects**

The public procurement process takes calendar time as shown earlier in Table 2 because there are mandatory waiting times based on the Act (1397/2016). This is a problem for suppliers in procurements of IT specialists when suppliers have insisted on naming the specialists offered at the beginning of the procurement process. According to the IT suppliers

interviews, it is very difficult to guarantee that the same named IT specialist is still available at the end of the procurement process when actual work begins. As one interviewee from a supplier said, “*What supplier has a possibility to keep experienced IT specialists waiting for weeks or even months for a potential new job without any guarantee of the deal?*”. According to IT supplier interviews, some public entities have tried to avoid the changing of IT specialists by imposing sanctions. As a result, suppliers may not even offer because of these sanctions or they offer at higher prices.

The IT suppliers interviewed would like to see procurement selection based on criteria other than named IT specialists’ interviews, references and knowledge, because they are irrelevant when there are usually other IT specialists available when the actual work begins. According to the interviews of the IT suppliers, better criteria would be supplier level requirements which ensure that chosen supplier(s) has enough IT specialists needed to offer during the contract period. This will potentially decrease prices and make procurement more efficient when there are no more unnecessary discussions about the changing of IT specialists. Furthermore, the public procurement legal waiting times do not bother IT suppliers when they do not have to keep named IT specialists waiting a long time for a possible deal.

#### **3.4.2.4 Sharing of procurement information**

According to the IT suppliers’ interviews, professional public procuring entities give enough information about procurement before and during the formal procurement process. The interviewees even suggested promoting procurements to potential suppliers. This would give suppliers enough time to prepare their offerings. The procuring entities must ensure that a specification of the procurement and/or a project description is sufficiently accurate. For example, one IT supplier criticizes in the interview that: “*Sometimes it has not been even clear whether the information system to be procured is ready-made or not*”. Furthermore, professional procuring entities ensure that the web-portal or file-templates which must be used by suppliers in offering work properly. According to the interviews, the web portals for electronic tendering have not been so user-friendly and especially small suppliers have needed help with them. There have also been errors which have appeared when the procurement question time has already ended near offering deadline, because suppliers

usually send offers just before deadline. These kinds of problems can be avoided by testing procurements beforehand in a web-portal and their refillable files. In addition, maximum time for questions should be utilized.

#### **3.4.2.5 Importance of dialogue**

The IT suppliers suggested in the interviews that procuring entities carry out dialogue with suppliers as much as possible before and during the formal procurement process when the chosen procurement method allows it. The IT suppliers appreciate a collective live-briefing about procurement where everybody receives equally the same information and can ask questions face-to-face. The public entity also gets more information about suitable solutions which most suppliers support. According to the interviews, this ensures successful procurement and long-term value. Suppliers understand the aim of the procurement correctly and a public entity can be sure that the solution can actually be implemented, and that it is the most appropriate solution for the public entity in the long-run. For confidential questions, the interviewees recommended also mutual collaboration between a supplier and a public procuring entity. However, according to the interviews there must be care with equality in the mutual discussions. General collaboration can also be continued, for example, in a web-portal, where suppliers can anonymously comment procurement documents and see other suppliers' comments even before publishing the formal contract notice. One of the public procuring entities interviewed has utilized this opportunity. The other interviewees analyze this to be a good possibility for additional interaction, but not a substitute for face-to-face or Skype-meetings with suppliers. So, the interviews gave practical tips for improving the dialogue which was one of the concerning aspects in Pro Growth Consulting's quantitative research results (TIVIA, 2018).

#### **3.4.2.6 Rational procurement requirements and the checking of them**

According to the interviews, professional public procuring entities do not make too tight or loose requirements or too many requirements. For example, the more customer references from a specific area are required, the fewer potential suppliers there are. The public entity must be able to justify these requirements and they must be fair. Especially, unlimited responsibility requirements or high sanctions are very difficult for liable suppliers. The IT suppliers reminded in the interviews that unnecessary or too tight requirements can

frighten suppliers and increase prices. However, some incentives should be as mentioned in the theory part. For example, a Service Level Agreement (SLA) can consist of both sanctions and bonuses. If the supplier does not meet requirements, it will have sanctions. If it meets targets it will get bonuses. These incentives must be appropriate when compared to the value of the procurement.

Furthermore, professional procuring entities do not insist on unnecessary proof documents from suppliers. Usually, it is enough to check proof documentation requirements only of the winner of the procurement. One interviewee from a large procuring entity even suggested automatic checking of Alfa-rating and a criminal record, which are always required as mandatory criteria. This would streamline the work both of public entities and suppliers. Furthermore, professional public procuring entities should do the checking in a professional way. Professional public procuring entities do not require feedback interviews from the supplier's customers during the Christmas holiday or try to call only three times and then reject the supplier if the supplier's customer does not answer these three calls. Even two of the interviewed IT suppliers mentioned these kinds of very unprofessional procurement cases from the public sector. Professional procuring entities can instead prefer, for example, a feedback inquiry which supplier's customers can complete and sign or send electronically to the public entity requiring reference customer feedback as a part of their procurement selection process. So, using simple actions public entities can easily improve the public procurement process from the requirements point of view. This was one of the aspects concerned in Pro Growth Consulting's quantitative research results and in the procurement document analysis results of this thesis.

#### ***3.4.2.7 Proper selection criteria***

Professional procuring entities define suitable criteria for the selection. According to the interviews, some good suppliers even avoid procurements where selection criteria are based only on prices, especially during an upturn. Even so, some public entities are still using 100% price weighting in scoring and, according to the IT suppliers interviews, suffering the consequences of it. So, as described in the theory part, a pure price focus is a suitable criterium only when market freedom is high, and the product is non-complex. The professional public entity checks the market situation before procurement.

The experienced IT procuring interviewees from the public procuring entities admitted that it must be a win-win -situation for both sides in the end. When contract prices are too low compared to the market price at the time, suppliers will not offer experienced IT specialists. Furthermore, professional procuring entities must be familiar with the potential suppliers in the market because if they set qualitative requirements which do not separate suppliers, it will become a price competition even though price is not the only selection criterion. According to the interviews for this thesis, in resource-based IT service procurement, interviews of the IT specialists offered were seen to be a very useful procurement selection criterion. To avoid too many interviews of IT-specialists, professional procurement entities must first use other requirements to limit the number of participating suppliers. However, these interviews of IT specialists must be made at the end of the procurement process just before the selection and the starting time of the actual work should be clear and informed to suppliers beforehand.

#### **3.4.2.8 Procurement templates**

Many of the interviewees from the procuring entities commentated that templates of procurement documents in the web portal for electronic tendering for example Tarjouspalvelu (Cloudia, 2018) and ready-made attachments for calls for tenders would be helpful for public entities and IT suppliers. These ready-made attachments can include contract templates, project model, test model, information security and data protection requirements depending on the circumstances. Furthermore, one supplier mentioned that it would be very helpful for suppliers if ESPD is in same format in every procurement. In addition, another IT supplier even generated an idea of a standard CV-template, which, for example, a public procuring broker entity can maintain and share with all. A ready-made CV database for procurements would save suppliers a lot of time. So, experienced public procurement entities should have ready-made templates and other procurement documentation to make the process more efficient for all stakeholders.

The most critical templates are contract templates. There are general YSE and JIT contract templates, but according to the interviews they are seldom accepted straightaway. IT suppliers suggest their own contract templates and public procuring entities their own. There is no clear solution for this. When the public procuring entity has enough bargaining



power it can require suppliers to accept its own contract template, but according to the interviews this can increase the price (for example, if there are sanctions). When the supplier has the power, the public entity must accept its contract template with perhaps only minor changes. So, it depends on the market situation. Nevertheless, public procuring entities should have their own contract templates, but they must understand also their bargaining power in the market and set contract requirements accordingly.

#### **3.4.2.9 Realistic timetable for procurement**

According to the interviews of IT suppliers, the professional procuring entity plans and informs a realistic timetable for the procurement process to the suppliers. This enables suppliers to better prepare for the procurement and to plan which resources are available when the procured IT project begins. Furthermore, the IT suppliers would like public procurement entities to avoid especially these procurement deadline dates: August 1 and January 1. The number of good tenders will decrease otherwise. So, the mandatory legal waiting times of public procurement do not bother suppliers if the procurement timetable is rational and suppliers have been informed of it beforehand.

#### **3.4.2.10 Procuring resources**

To ensure professional, high-performance public procurement, the larger public procuring entities interviewed have organized an own internal procuring team. Sizes of these teams vary between 3-7 procurement specialists. In these procurement teams, there are specialists who concentrate on IT procurements because IT procurements require special knowledge. In pure legal matters, these procurement teams consult procurement lawyers when necessary. In addition, the procuring entities have also utilized external professional procurement consults for challenging procurements when needed. According to the interviews, this is essential, because to forward procurements professionally there must be enough competent resources available for the procurement. The smaller public entity had utilized especially the purchasing consultancy services of a public procuring broker entity to ensure professional public procurement and to obtain the special resources needed for the procurement.

### 3.4.3 Knowledge of new public procurement methods

A prerequisite for choosing the most suitable IT service procurement method is to know the methods allowed. Lian and Laing claimed (2004) that there is a lack of knowledge of the procurement selection possibilities which the EU directives allow in the public sector. The interviews of public procuring entities confirmed this lack of practical experiences. Only one of the ten interviewees from the public entities had used a competitive negotiated procedure and only one had used an innovation partnership. Whereas the old methods (open procedure and negotiated procedure) were well-known. So, it seems that there is not yet enough knowledge about the new possibilities in public procurement which the Act (1397/2016) allows. The interviewees from the public entities commented that knowledge sharing of these new methods within public entities would be very helpful. The interviews even suggested a web-portal for information sharing. Furthermore, two interviewees from public procuring entities gave the same tip to register for open procurement processes, for example, in Tarjouspalvelu (Cloudia 2018) to easily obtain all the information about other public entities' procurements. However, the main question is still whether the public procuring entities ultimately have the courage to try out these new methods, because only that would really reveal their suitability in practice for them.

According to the interviews, suppliers know about the specialties of public procurements even less than public procuring entities. This can decrease their interest in participating in public procurements. Furthermore, it increases their risk to make silly mistakes and become rejected in the first place. This is a challenge especially for small suppliers according to the feedback received by one procuring entity interviewed. Suppliers must invest work-time to learn how public procurements function to win competitive tenderings. Public procuring entities can help suppliers by informing them as much as possible before and during procurements and by making the electronic tendering web portal more user-friendly.

### 3.4.4 Utilizing a public procuring broker

If the public procuring entity does not have the knowledge needed or procurement specialist resources available, it can utilize a public procuring broker entity. Two procurement specialists from the public procurement broker entity were interviewed for this

thesis. Many public entities utilize public procuring broker entities. A broker offers professional public procurement services for these public entities. Brokers can get better procurement prices because they can sum the volumes of all participating public entities in a procurement. Especially, the small public entity interviewed appreciated this service. The medium-sized public entity interviewed has also utilized broker services in basic IT procurements. The large public entities interviewed analyzed that broker services do not provide enough benefit for them. They have their own procurement teams. These large public entities have also usually their special needs, which the broker's co-procurements cannot meet so well. The largest public entity interviewed estimated that using a broker service involves the same amount of work as doing procurements by themselves. So according to the interviews, the broker procuring service seems to be the most useful for small public entities and for procuring standard IT services. However, brokers can also be very useful otherwise. They can share information about public procurements and templates. According to interviews, the public entities would appreciate this kind of service.

#### 3.4.5 The leading IT service procurement method

The first research question of this thesis was, what is the leading IT service public purchasing practice in each situation from a process efficiency and long-term value perspective. In the theory part, the framework of Moe et al. (2017) was presented as a solution for the selection of procurement method for IT purchasing. However, Moe et al. analyzed only the purchase of information systems and not IT service procurement in general. The interviews showed that many public entities purchase the services of IT consultants as resources for special IT tasks which require expertise. They implement IT projects in an agile way by using different IT specialists from different suppliers working together. According to the interviews, a framework agreement and dynamic purchasing system were most recommended for this kind of IT service purchase. The following chapters present the benefits and disadvantages of these procedures. This is followed by an analysis of the usefulness of the public-private partnership (PPP) method in IT procurements and the innovation partnership method, which was not included in the research cases of Moe et al. This is followed at the end by a presentation of the framework for the selection of the IT service procurement method based on the results of interviews.

### **3.4.5.1 Benefits and disadvantages of a framework agreement**

According to the interviews, a framework agreement is nowadays a popular procurement method for the purchasing of IT service specialists. Especially, small and medium-size suppliers appreciate a framework agreement because it enable easier offering for them, too. Framework agreement allow co-operation between small and medium-size suppliers to implement even larger IT projects or offer IT services from many different kinds of IT specialists.

However, the interviewees emphasized that there must be very well-defined requirements and selection criteria in the framework agreement so that the most suitable suppliers will be chosen and at a realistic IT service price. According to the interviews, some framework agreements made during the recession had become impossible for suppliers. None of the chosen suppliers were interested any more in offering their experienced IT specialists at recession time prices when the upturn started.

Another problem with a framework agreement is that if suppliers miss or fail the selection phase, the next opportunity will usually be after four years because the maximum duration time of framework agreements is four years and, according to the interviews, public entities usually use this four-year period (Finlex 2016). However, service agreements which have been made under a framework agreement may have a longer duration under exceptional circumstances when the procurement justifiably so requires (Finlex 2016). This possibility for exception tries to avoid the risk of losing competent key persons too soon. This is very important according to the interviews because the framework agreement periods seldom follow information system development timetables and a new tendering can cause fatal changes during critical project tasks, where accumulated knowledge is an important factor for work efficiency and for system quality. Therefore, other procurement procedures are usually used in large IT projects. So, this four-year limit of a framework agreement influences purchasing long term value possibly negatively in large IT projects. However, a couple of the interviewees implied that there is a good chance that the same experienced supplier(s) will win also the next procurement competition if they are good and experienced.

### **3.4.5.2 Benefits and disadvantages of a dynamic purchasing system**

According to the interviews, the dynamic purchasing system is increasing in popularity. Same way as framework agreement, small and medium-size suppliers appreciate it because the method enable easier offering for them, too. Also, the dynamic purchasing system allows co-operation between small and medium-size suppliers to implement larger IT projects or offer IT services from many different kinds of IT specialists. Furthermore, in a dynamic purchasing system, there is no maximum duration limit of four years as in a framework agreement (Finlex, 2016; PTC, 2018). So, the dynamic purchasing system permits a longer period of co-operation which is essential when accumulated special knowledge is an important factor.

In a dynamic purchasing system, all interested suppliers may request permission to participate in an established dynamic purchasing system throughout the duration of the procedure (Finlex, 2016). So, a supplier cannot miss the procurement. Furthermore, if the supplier does not meet, for example, all the reference requirements in the first place, it can obtain new references during the duration of the dynamic purchasing system and participate later. The suppliers interviewed appreciate this opportunity. However, the problem is, that the number of participating suppliers can grow too high. One supplier interviewed mentioned a dynamic purchasing system where was almost all Finland's IT suppliers. In this kind of situation, the procedure does not help the purchasing by that public procuring entity at all. This confirms the importance of well-defined requirements and selection criteria which the interviewees emphasized. Also as mentioned, market researches and knowledge sharing among public entities may prevent this kind of situation. Furthermore, it is important to notice that in the dynamic purchasing system, the public procuring entity must prepare to make an acceptance checking of new participants over a very short period of time, even in holiday time. So, the public procuring entity must ensure it has enough resources for this also during the summer. However, when the requirements are appropriate the dynamic purchasing system saves time in checking the suitability of suppliers.

### **3.4.5.3 Public-private -partnership usefulness in IT procurements**

According to Roehrich et al. (2014), the public-private partnership (PPP) is best suited for medium-sized IT projects which can function as a stand-alone solution with a low-risk

profile. The interviews confirmed this. According to the interviews, PPP is not the best IT service procurement method because nowadays there are usually a lot of interfaces. Furthermore, it should be possible to define the goal of PPP precisely. According to the interviews, in the fast-changing IT sector this is a challenge in long-term contracts. Yescombe (2007) and Roehrich (2014) stated that the size and complexity of typical PPP projects discourage smaller suppliers from tendering. The interviews confirmed also this. The most interested in PPP were the interviewees from the large suppliers. Large IT suppliers have more capacity to invest. Furthermore, small and medium-sizes suppliers reminded in the interviews the need for external advisors in long-term PPP procurements. That will increase procurement costs. Also, Yescombe (2007) stated these disadvantages of PPP which decrease the number of potential PPP-suppliers.

#### ***3.4.5.4 Feasibility of an innovation partnership***

Research cases of Moe et al. (2017) did not consist of the innovation partnership method, which is one of the most recent public procurement procedures. According to the interviews, it is not a very familiar procurement procedure in the Finnish public sector either. Only one of the public procuring entities interviewed had tried it. They shared the documentation of their innovation partnership procurement for this thesis. In the interviews, they analyzed innovation partnership useful when the best way to reach the set target is not clear. As a part of the procurement, they paid to suppliers a fixed price for implementation of the same kind of proof-of-concept (POC). After POCs the procuring entity was more capable to analyze the best choice. This supports the framework of Moe et al. (2017), where the uniqueness and complexity of the IT system guide towards the choice of a more co-operative procurement procedure with suppliers. Furthermore, the payment of the POC can increase interests of suppliers.

#### ***3.4.5.5 Framework for the selection of the IT service procurement method***

According to the interviews, from the IT service perspective, the leading public purchasing practices for procuring resource-based IT specialists seems to be the framework agreement and the dynamic purchasing system when the market freedom is high, and especially when the procuring entity prefers multiple supplier strategy. So, the market situation must be first analyzed carefully, and the procuring entity should have a clear

supplier strategy according it. Table 6 presents the framework of Moe et al. supplemented with IT service purchasing and with the framework agreement and the dynamic purchasing system methods.

According to the interviews of this thesis, the framework of Moe et al. (2017) seems to be most valid in the case of large IT project procurements and when the market freedom is low, or the public entity prefer a single supplier strategy. However, contrary to the framework of Moe et al., the main case organization had successfully used also the open procedure, together with a prior made in-depth market consultation, in the purchasing of a non-unique system with complex requirements. This alternative is added to the framework of Table 6 as a new option for a non-unique but complex information system supplier selection.

*Table 6: The framework of Moe et al. supplemented with the results of this thesis*

	<b>Non-complex requirements</b>	<b>Complex requirements</b>
<b>Non-unique system, ready-made system</b>	Appropriate procurement methods: Open or restricted procedure	Appropriate procurement methods: Negotiated procedure or open procedure with in-depth market consulting beforehand
<b>Non-unique IT service *)</b>	Appropriate procurement methods: Dynamic purchasing system or framework agreement made by broker or by oneself	Appropriate procurement methods: Dynamic purchasing system or framework agreement made by broker or by oneself
<b>Unique system, custom-made system</b>	Appropriate procurement methods: Negotiated or competitive negotiated procedure	Appropriate procurement methods: Competitive negotiated procedure or innovation partnership
<b>Unique IT service *)</b>	Appropriate procurement methods: Dynamic purchasing system made by oneself	Appropriate procurement methods: Dynamic purchasing system made by oneself

*\*)When the market freedom is high and especially when the procuring entity prefers multiple supplier strategy*

As Table 6 shows, in purchasing a non-unique IT service, it is recommended to use the dynamic purchasing system or framework agreement methods when the market freedom is high, and the procuring entity prefers multiple supplier strategy. A dynamic purchasing system is recommended especially for the procurement of a unique IT service. It guarantees longer value because it does not have same kind of four years' time limit as a framework agreement. So, this can avoid the risk of losing competent key persons too soon. Accumulated knowledge is usually an important aspect in unique IT services. Whereas for non-unique IT services, the framework agreement works well. Usually these kinds of more basic services should also be tendered out more frequently because market prices can change

quickly. So, the four-year limit in the framework agreement does not disturb in bulk IT service procurements.

According to the interviews, if a non-unique IT-service is needed and the market freedom is high, a public procuring broker entity can help and be able to offer a better price resulting from a larger volume. Whereas in the purchasing of a unique IT service, the public entity should do the purchasing by themselves because they know their special needs and it is not possible to obtain more volume from the broker for these special needs.

So, this thesis confirms that the framework of Moe et al. is quite useful for the procurement method selection of information systems and when the market freedom is low, or the public entity prefer a single supplier strategy but that other methods are needed for resource-based IT service purchasing when the market freedom is high, and especially when the procuring entity prefers multiple supplier strategy. According to the interviews, the supplemented framework created offers a more multipurpose tool for IT procurement method selection in practice.

### **3.5 Assessment of reliability and validity of the study**

In this thesis, multiple data collection sources – procurement documentation and interview data – were combined. The documentary data was used because its ability to represent the naturally occurring phenomenon directly without reacting to the study process or to the researcher's bias (Payne & Payne, 2004). This ensured the validity of the study (Yin, 2003).

The case organizations selection was conducted carefully to provide representative examples of the study area. Efforts were made to ensure the credibility of the study results by choosing very experienced interviewees. Attempts to verify the generality, transferability and dependability of the study results were made by interviewing 10 interviewees from five different kinds of public entities procuring IT services, including one public procuring broker entity and five interviewees from five different IT suppliers. The suppliers had partly different opinions in the interviews depending on their size. Therefore, interviewees were



chosen from 5 different sized suppliers to ensure that one supplier's interviewee attempt to benefit does not distort the results.

The results were audited by the representative of Aalto University and the findings were also reviewed by co-researchers and the key informant to ensure confirmability. Furthermore, the preliminary findings were offered to the interviewees during the interviews and they were asked to comment them to confirm the findings. The interviews were conducted anonymously for purposes of integrity.

## 4 Conclusions

The aim of this thesis was to determine the leading IT-service purchasing practices for public organizations which can make the selection process for the public procurement of IT services more effective and create maximum value in the long-run for public organizations and still comply with EU directives on public tendering. This study was done by using a qualitative case study method, which can provide adequate detailed data for this aim. This qualitative study consists of procurement document analysis and interviews of the selected case organizations which have experience of public procurements. First, the literature was examined to create a background for the empirical part of this study. Then the procurement document analysis of the selected case organization was made as an input for the interviews. Then 15 experienced interviewees from 5 different public procuring entities and 5 different IT suppliers were interviewed. Part four compares the achieved results of empirical document analysis and interviews to the findings of the theoretical part literature analysis. Then answers to the research questions are presented based on the results of the theoretical and the empirical parts. Finally, the limitations of this study and future research needs are analyzed.

### 4.1 Comparison of theoretical and empirical findings

According to the literature, there is no single mechanism that fits all IT service procurement selection situations. Flexibility and adaptability to different environments are the key to the successful and efficient procurement of complex services like IT services. So, the procuring entity should always first properly analyze its situation. The interviews confirmed this. The most appropriate procurement method depends strongly on the situation.

According to the literature, ill-defined scope/requirements and the highly complex nature of producing IT services where technology is changing rapidly increase the risks of cost escalation, delays and final products that do not perform as expected. So, a precise scope/requirement specification is a very important part of the procurement selection process. The IT suppliers and experienced public procurement specialists interviewed also emphasized this importance of the need specification as a prerequisite for successful procurement.

The theory part highlighted that the processing of complex issues improves when actors with different experiences and perspectives, and forms of knowledge are brought together. So, procuring entities should use help from peers (Peers can also be private organizations), consultants and/or negotiate, if necessary, as much as possible with suppliers before and/or during the formal procurement selection process. The public entities interviewed analyzed this experience sharing to be very useful, especially for finding good practices and for warning about pitfalls. The IT suppliers interviewed suggested that procuring entities should carry out dialogue with suppliers as much as possible especially before the formal procurement process when it is still possible more freely to influence the solution, and also during the formal procurement process when the chosen procurement method allows it. So, theory part results and empirical part results support each other. With an open dialogue, public procuring entities and suppliers can together develop the most successful procurement process for both parties.

According to the literature, both short- and long-term monetary outcomes should be measured in public procurement when selecting suppliers, because many of the benefits and costs incurred will be realized over a long period of time. According to the interviews of public entities, this kind of analysis is not commonly and systematically used. However, public entities have a mutual understanding that this short- and long-term value depends on the IT service needed and the market situation. According to the interviews, long-term contracts are usually more valuable with unique information systems or IT services. Whereas in basic information systems or in bulk IT services where, for example, market prices change quickly, long contracts are not justifiable and more frequent efficient competitive tendering is needed.

The theory part emphasized that cost should be a main factor in consideration only when the procuring product is non-complex and market freedom is high. In long-term partnership sourcing, the technical expertise of the potential supplier should be ensured first. The interviewees from IT suppliers confirmed this. Some good IT suppliers do not even offer when price is the only criterion, or when its share in scoring is too big, especially during an upturn. The document analysis of the thesis shows that this has been understood in the main case organization Keva. The main share of the scorings of Keva's procurements in the research period was based also on criteria other than price only. Furthermore, weightings of

quality were higher than price in 71% of the cases in Keva's procurements. However, according to the interviews, some other public entities are using price as a main criterion or even as the only criterion in resource-based IT procurements and are therefore suffering the consequences when market freedom is not high.

According to the literature, it is important to get the incentive structure in a procurement contract right to avoid vendor-lock and to ensure quality and innovativeness also in changing situations in a long partnership. Some of the public entities interviewed have solved this challenge by a multi-supplier strategy, where different IT suppliers work together for the same public entity and spar each other. However, the public entity needs to have enough resources to manage and control these different IT suppliers. So according to the interviews, there is no easy solution to this and suitable procedure depends on the situation. Sometimes a new party is needed to get an innovative vision out-of-the box. So, changing, for example, the key IT specialist, which public entities sometimes try to avoid by sanction contracts for quality reasons, can also be very valuable and create new innovations, although it can, in the short-term lower quality during the learning period.

Despite the popularity and many advantages of public-private partnerships (PPP), the literature suggests these are best suited only for medium-sized projects which can function as a stand-alone solution with a low-risk profile. So, PPP is not so suitable for IT projects, where technology is changing rapidly and where there are lot of dependencies. Like in the literature, PPP was analyzed in the interviews to be more suitable for the construction industry, where the target is clearer and more stable than in IT procurements. So, the interviews confirmed the findings of the literature. The interviewees from large suppliers were more interested in this PPP method. Whereas the interviewees from medium and small-sized suppliers were more tentative because they do not have a possibility to invest in these kinds of PPP projects alone and the administrative work was assumed to be significant.

In summary, it can be stated that the empirical part mainly confirms all the findings in the theoretical part. In addition, the empirical part presented also new aspects for the theoretical framework which especially considered the possibilities of the new Act on Public Procurement and Concession Contracts (1379/2016). These possibilities have not yet been

examined much because the Act only entered into force on January 1, 2017. The new aspects are presented next in the answers to the research questions chapter.

## 4.2 Answers to the research questions

The first research question was what is the leading IT-service public purchasing practice in each situation from a process efficiency and a long-term value perspective. In the theory part, the framework of Moe et al. (2017) was presented as a solution for the selection of the most suitable public procurement method. The end results of this thesis confirm mainly the IT procurement method selection framework of Moe et al., but supplement it especially by certain aspects of IT-service purchasing. Moe et al. did not examine IT service purchasing in general and their framework did not include the framework agreement and dynamic purchasing system methods at all. According to the interview results of this thesis, these two procedures seem to be the most recommended procurement methods for the purchase of resource-based IT service when the market freedom is high, and especially when the procuring entity prefers multiple supplier strategy.

The framework agreement and dynamic purchasing system methods recommended enable small and medium-size suppliers to offer for even larger IT projects or IT services of many different kinds of IT specialists. However, this kind of multi-supplier working has its own benefits and disadvantages. The benefit of this is that it enables different IT suppliers spar each other when they are working together. Furthermore, it prevents a vendor-lock situation. On the other hand, controlling many IT suppliers requires more resources from the public procuring entity. Furthermore, the responsibility aspects are more challenging in a multi-supplier situation. According to the literature, in the private sector, companies try to minimize the number of tenderers to avoid risks and instead create partnerships with a few suppliers (Arlbjørn and Freytag, 2012; Parker and Hartley, 1997). So, a public entity should have a supplier strategy which considers its ability to control and manage different suppliers. The appropriate supplier strategy depends on market freedom (Parniangtong, 2016). When market freedom is high, a public entity can choose whether it prefers a multi-supplier or single supplier partnership strategy. Whereas when market freedom is low, a single supplier

partnership strategy is the most appropriate. The supplier strategy influences the procurement method and requirements.

The first research question emphasized the IT procurement process efficiency and long-term value perspectives. The interview results of the empirical part introduced many practical tips for this to improve the public procurement process - starting from specialized IT procuring teams. However, from an efficiency point of view public entities can most easily improve their IT procurements by utilizing the new higher national legal threshold value of 60.000€ and by using formal tendering only for procurements higher than this threshold value. This enables the agile experiments essential in IT procurements. Many unproductive procurement actions can be avoided in this way. From long-term value point of view, knowledge sharing with peers and close dialogue with suppliers and an appropriate supplier strategy were recognized as most important factors to ensure long-term value.

The second research question was, which aspects influence the selection of the most appropriate public procurement procedure. The framework of Moe et al. (2017) concentrated only on the features of the information system in the selection of appropriate procuring procedure. It did not consider market situation nor supplier strategy aspects, which were analyzed to be essential in procurement procedure selection in this thesis. According to the theory and empirical parts, for successful IT procurement, all these aspects need to be considered in selecting procurement method:

- Uniqueness and complexity of the information system or IT-service
- The market situation
- The chosen supplier strategy.

According to the interviews, the anticipated amount of time to spend in the procurement process, which Lawther and Martin (2005) introduced as an essential aspect, would not seem to be such an important selection factor in the procurement method. More important is a rational procurement timetable notified in advance to the suppliers.

### 4.3 Limitations and future research

This thesis recommends the framework agreement and the new dynamic purchasing system for resource-based IT service procurements when the market freedom is high, and especially when the procuring entity prefers multiple supplier strategy. The recommendation was based on interviews of 15 interviewees from five different Finnish public procuring entities and from five different sized Finnish IT suppliers. Although the study has been made in Finland the results can be utilized everywhere in EU where public procuring entities must comply with EU directives on public procurement. According to the literature, by beginning in this way on a small case, new ways of understanding can provide a framework for further research (Payne and Payne, 2001).

The framework agreement was quite well-known among the interviewees. Whereas the dynamic purchasing system was less known. Only some of the interviewees had actually participated in the dynamic purchasing system. So, some interviewees analyzed only theoretically its suitability for resource-based IT service procurement and its ability to avoid current problems which they have had with, for example, the framework agreement. The reason for the lower utilization rate of the dynamic purchasing system is a lack of practical knowledge. The dynamic purchasing system just entered into force on January 1, 2017. This means there has not yet been much time to acquire this knowledge. Therefore, this suitability of the dynamic purchasing system should be confirmed in future research after some time has elapsed and more public entities have used the dynamic purchasing system in practice in IT service procurements.

The interviews revealed that some public procuring entities have very low internal threshold values even as low as 10.000€ or 20.000€ compared to the legal national threshold value of 60.000€. It would be very interesting to examine more widely how many public procuring entities are still using these kinds of lower internal threshold values and how low these internal threshold values are because these internal threshold values render pointless the new higher national threshold value provided by law. This future research would reveal how much unproductive extra work these unnecessary procurement actions cause public entities when the main goal of the public sector is to obtain more out of the public budget and simultaneously obtain more value for the money spent.

## 5 Implications for practice

The main aim of this thesis was to provide best practices for the public procurement selection process of IT services. The first research question was, what is the leading IT service public purchasing practice in each situation from a process efficiency and long-term value perspective, and the second research question was, which aspects influence the selection of the most appropriate public procurement procedure.

Both theoretical and empirical parts confirmed that the leading method depends on the circumstances. Everything begins from the need detection, which is a fundamental prerequisite for successful procurement. Furthermore, public entities must be familiar with the market situation to understand opportunities to achieve the best solution for their needs. They should also have a supplier strategy because this significantly influences the procurement and the long-term value of the procurement. A suitable supplier strategy depends on the complexity of the product and the market freedom situation.

The end results of this thesis confirm mainly the procurement method selection framework of Moe et al., but supplement it with special aspects of purchasing IT services. Moe et al.'s selection of procurement method according to the product's uniqueness and complexity is quite suitable for information systems. However, Moe et al. did not consider purchasing IT services in general and their framework did not include the framework agreement and dynamic purchasing system methods at all. According to the interviews for this thesis, these two procedures seem to be the most recommended procurement methods for purchasing IT services when the market freedom is high, and especially when the procuring entity prefers multiple supplier strategy.

The most recent Act on Public Procurement and Concession Contracts (1397/2016) entered into force on January 1, 2017. The new Act allows public procuring entities closer co-operation with suppliers. The importance of co-operation was emphasized in the literature and in the interviews for this thesis because it ensures higher long-term value for the procurement. Still only couple of the public entities interviewed have actually used the new more co-operative procurement methods. According to this study, the main reason for this was a lack of practical knowledge of these procurement selection possibilities. Sharing of



this knowledge among public entities would make it easier for others to utilize these new possibilities. Furthermore, it is essential that there are specialists who focus on IT procurements. Otherwise, the special knowledge required does not accumulate, and procurement will be inefficient. However, knowledge accumulation depends also on the courage of the public entity to try these new procedures allowed under the new Act because only in that way can they get a real experience and benefit of them.

The new Act (1397/2016) seeks to enhance especially efficiency in the use of public funds. Therefore, the national threshold value has been increased to 60.000€ to ensure that small procurements can be made effectively without the bureaucracy. However, some public entities do not utilize this possibility of efficiency. They have their own internal threshold values which limit the possibility to procure effectively. This is significant especially in IT service procurements, where agility is essential. There is always something new in IT markets which should be able to be tested without bureaucratic competitive tendering. So, public entities should not use these lower internal threshold values in IT service procurements.

Public entities have a possibility to considerably improve the efficiency of public procurement of IT services by sharing good practices and by listening to feedback from different IT suppliers. To achieve the best results requires lots of sufficiently accurate information from the public procuring entity for the IT-suppliers and even the advertising of IT procurements. Close dialogue with IT suppliers will enable public procuring entities to achieve the best IT solution for them in the long-run. Successful IT service procurement must ultimately be a win-win -situation for both sides in practice.

## References

Anderson, J. Narus, J. and van Rossum, W. (2006), “Customer Value Propositions in Business Markets”, *Harvard Business Review*. March 2006, pp. 1-9.

Arlbjørn, J. and Freytag, P. (2012), “Public procurement vs private purchasing”, *International Journal of Public Sector Management*, Vol. 25 No. 3, pp. 203-220.

Burnett, M. (2015). “The rules for competitive Dialogue and the Competitive procedure with Negotiation in Directive 2014/24 – What Might They Mean for PPP?”. *The New Rules for Competitive Dialogue*. *EPPPL*, Vol. 2/2015, pp. 62-71.

Cloudia (2018). Online. Available at: [Hanki.tarjouspalvelu.fi](http://Hanki.tarjouspalvelu.fi),  
<https://hanki.tarjouspalvelu.fi/tarjouspyynnnot.aspx?p=279&g=d6c89433-9a6d-4947-924f-f882c44c6ec4> [25.11.2018]

Cloudia (2018). Online. Available at: [Tarjouspalvelu.fi](http://Tarjouspalvelu.fi),  
<https://tarjouspalvelu.fi/default.aspx?p=303&g=5878122f-53e8-45bc-8d85-7e5200d07968&lg=1> [4.8.2018].

Corcoran, J. and McLean, F. (1998), “The selection of management consultants. How are governments dealing with this difficult decision? An exploratory study”, *International Journal of Public Sector Management*, Vol. 11 No. 1, pp. 37-54.

Creswell, J. (2009) *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage Publications Ltd., UK, pp. 246.

Eisenhardt K. (1989) Building Theories from Case Study Research. *Academy of Management Review*, Vol. 14(4), pp. 532–550.

European Commission (2018). ESPD. Online. Available at:  
<https://ec.europa.eu/tools/espd/filter?lang=fi> [3.8.2018]

Finlex 1397/2016 (2018). Laki julkisista hankinnoista ja käyttöoikeussopimuksista. Online. Available at: <https://www.finlex.fi/fi/laki/alkup/2016/20161397> [16.6.2018]

Finlex 1397/2016 (2018). Act on Public Procurement and Concession Contracts. Online. Available at: <https://www.finlex.fi/en/laki/kaannokset/2016/en20161397.pdf> [16.6.2018]

Gelderman, C., Semeijn, J. and Bruijn, A. (2015). “Dynamics of service definitions – An explorative case study of the purchasing process of professional ICT-services”. *Journal of Purchasing & Supply Management*. Vol. 21 (2015), pp. 220-227.

Grimsey, D. and Lewis, M. (2007). Public Private Partnerships and Public procurement. *Agenda*, Vol. 14 No 2, pp. 171-188.

Halvorsen, Thomas, Johan Hauknes, Ian Miles, and Rannveig Røste. 2005. On the Differences between Public and Private Sector Innovation. Oslo: Nordic Institute for Studies in Innovation, Research and Education. *Publin Report*, No. D9, pp. 1-64.

Hankinnat.fi (2018). Uudet hankintalait voimaan 1.1.2017. Online. Available at: <https://www.hankinnat.fi/ajankohtaista/2016/uudet-hankintalait-voimaan-112017> [27.7.2018]

Hartley, J., Sørensen, E. and Torfing, J. (2013). Collaborative innovation: A viable alternative to market competition and organizational entrepreneurship. *Public Administration Review*, 73(6), pp. 821–830.

Hilma (2017). Online. Available at: <https://www.hankintailmoitukset.fi/fi/docs/tilastot/> [10.12.2018]

Hilma (2018). Online. Available at: [https://www.hankintailmoitukset.fi/fi/news/espd\\_ohjeita](https://www.hankintailmoitukset.fi/fi/news/espd_ohjeita) [25.11.2018]

Hoppe, E., Kusterer, D., Schmitz, P. (2013), “Public–private partnerships versus traditional procurement: An experimental investigation”, *Journal of Economic Behavior & Organization*. Vol. 89 (2013), pp. 145–166.

Hoppe, E. I., & Schmitz, P. W. (2013). Public-private partnerships versus traditional procurement: Innovation incentives and information gathering. *RAND Journal of Economics*, 44(1), pp. 56–74

Keva (2018). Online. Available at: <https://www.keva.fi/en/this-is-keva/keva/> [3.6.2018]

Larsson, P. (2009), “Public vs. private sector perspectives on supply chain management”, *Journal of public procurement*, Vol. 9, issue 2, pp. 222-247.

Lawther, W. and Martin, L. (2005). Innovative practices in public procurement partnerships: The case of the United States. *Journal of Purchasing and Supply Management*, Vol. 11(5–6), pp. 212–220.

Lewis, M., n.d. Risk Management in Public Private Partnerships. University of South Australia, Adelaide

Lian, P. and Laing, A. (2004), “Public sector purchasing of health services: A comparison with private sector purchasing”, *Journal of Purchasing & Supply Management*, Vol. 10, pp. 247-256.

Ministry of Finance (2017), Valtion hankintakäsikirja 2017. Online. Available at: [https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80095/29\\_2017\\_Valtion\\_hankintak%C3%A4sikirja\\_2017.pdf?sequence=5&isAllowed=y](https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80095/29_2017_Valtion_hankintak%C3%A4sikirja_2017.pdf?sequence=5&isAllowed=y). pp. 1-336. [26.7.2017]

Moe, C., Newman, M. and Sein, M. (2017). “The public procurement of information systems: dialectics in requirements specification”. *European Journal of Information Systems* 2017. Vol. 26, pp. 143-163.

Moore, Mark, and Jean Hartley. 2008. Innovations in Governance. *Public Management Review*, Vol. 10(1): 3–20.

Ng, S. T., Wong, J. M. W., & Wong, K. K. W. (2013). A public private people partnerships (P4) process framework for infrastructure development in Hong Kong. *Cities*, Vol. 31, pp. 370–381.

Nicolaidis, P. and Schoenmaekers, S. (2014). “Public Procurement, Public Private Partnerships and State Aid Rules: A Symbiotic Relationship”. *EPPPL*, Vol. 1(2014), pp. 50-69.

Ohjelmistoyrittäjät ry, Pro Growth Consulting, TIVIA (2018). Myynti kasvun veturina – Tutkimus myynnin esteitä ja parhaista keinoista 2018. Online. Available at: [https://ohjelmistoyrittajat.fi/wp-content/uploads/2018/06/myynnin\\_kasvu\\_veturina\\_esite\\_vedos\\_v7.pdf](https://ohjelmistoyrittajat.fi/wp-content/uploads/2018/06/myynnin_kasvu_veturina_esite_vedos_v7.pdf) [15.6.2018]

Osborne, David, and Ted Gaebler. 1992. *Reinventing Government: How the Entrepreneurial Spirit Is Transforming the Public Sector*. Reading, MA: Addison-Wesley.

Pajarinen, M., Rouvinen, P. and Ylä-Anttila, P. (2013), “Services: A New Source of Value”, *ETLA Briefs*, Vol. 11. 7 May 2013. pp. 1-8.

Parker, D. and Hartley, K. (1997), “The economics of partnership sourcing versus adversarial competition: a critique”, *European Journal of Purchasing & Supply Management*, Vol. 3 No. 2, pp. 115-25.

Parniangtong, S. (2016), “Supply Management - Strategic Sourcing”, Springer Science+Business Media Singapore 2016. Online. Available at: <https://link.springer-com.libproxy.aalto.fi/content/pdf/10.1007%2F978-981-10-1723-0.pdf>, pp. 1-102.

Payne, G., & Payne, J. (2004). *Key concepts in social research*. London: Sage. Online. Available at: <http://methods.sagepub.com.libproxy.aalto.fi/book/key-concepts-in-social-research>

Powell, Walter W., and Stine Grodal. 2004. Networks of Innovators. In Oxford Handbook of Innovation, edited by Jan Fagerberg, David Mowery, and Richard Nelson, 56–85. Oxford: Oxford University Press.

PTC (06.03.2018). Dynaaminen hankintajärjestelmä – varteenotettava vaihtoehto puitejärjestelylle. Online. Available at <https://ptcs.fi/dynaaminen-hankintajarjestelma-varteenotettava-vaihtoehto-puitejarjestelylle/> [4.11.2018]

Rakennusteollisuus (2018), Online. Available at:

<https://www.rakennusteollisuus.fi/Rakennusteollisuus-RT/Elinkeinoasiat/Elinkaarimallit/>  
[7.10.2018]

Rashman, Lyndsay, Erin Withers, and Jean Hartley. 2009. Organizational Learning and Knowledge in Public Service Organizations: A Systematic Review of the Literature. *International Journal of Management Reviews*, Vol. 10(3): 463–94.

Roodhooft, F. and Van den Abbeele, A. (2006), “Public procurement of consulting services, Evidence and comparison with private companies”, *International Journal of Public Sector Management*, Vol. 19, No. 5, pp. 490-512.

Roehrich, J., Lewis, M. and George, G. (2014), “Are public-private partnerships a healthy option? A systematic literature review”. *Social Science & Medicine*. Vol. 113 (2014), pp. 110-119.

Scheded, K., 2003. Cross-sector partnerships as a new form of local governance. In: Abrahamson, P., Raynard, P. (Eds.), *Local Partnerships in Europe: An Action Research Report*. The Copenhagen Center, Copenhagen, DN.

Taponen, S. (2017), “Improving the Efficiency of Public Service Delivery through Outsourcing and Management”, Aalto University publication series, *Doctoral Dissertations*, 36/2017, pp. 1-50.

Taponen, S. and Kauppi, K. (2017), “Forget Blind Leading the Seeing – Improving Public Service Management”, *International Journal of Public Administration*, Vol. 40, No. 13, pp. 1114-1128.

Torvinen, H. and Ulkuniemi, P. (2016), “End-user engagement within innovative public procurement practices: A case study on public–private partnership procurement”, *Industrial Marketing Management*, Vol. 58 (2016), pp. 58–68.

Töytäri, P. and Rajala, R. (2015), “Value-based selling: An organizational capability perspective”, *Industrial Marketing Management*, Vol. 45, pp. 101-112.

Yescombe, E. R. (2007). *Public-private Partnerships: Principles of Policy and Finance*. Amsterdam: Elsevier, pp. 1-350.

Yin, R. (2003) *Case Study Research: Design and Methods* (3th ed). Sage Publications Ltd., Thousand Oaks, California, USA. pp. 219.

## **Interviews**

IT-manager, Keva – medium-sized, Helsinki, 24.8.2018.

IT-procurement specialist, Keva – medium-sized, Helsinki, 3.9.2018

Procurement lawyer, Keva – medium-sized, Helsinki, 7.9.2018

CIO, Keva – medium-sized, 24.9.2018

Development manager, Customer 2 - small, 10.9.2018

Leading procurement specialist, Customer 3 – large, 4.10.2018

Director of development and ICT, customer 4 - large, 21.9.2018

Procurement manager, customer 4 - large, 21.9.2018

Procurement specialist 1, public procuring broker, 11.10.2018

Procurement specialist 2, public procuring broker, 11.10.2018

Head of Technology Advisory, supplier 1 – large, 5.10.2018

Customer executive, supplier 2 - large, 10.9.2018

Business unit director, supplier 3 – medium-size, 21.9.2018

Sales director, supplier 4 – small, 4.10.2018

CEO, supplier 5 – small, 14.9.2018



**Appendix A: Questions to public organizations**

1. How have you participated in public IT procurements? (role, tasks, EU or national procurements)
2. Which of these public procurement processes have you participated in IT purchasing: open, restricted, negotiated or/and competitive negotiated procedure, innovative partnership, framework agreement, other?
3. How many times have you used each and when?
4. Do you have templates for all allowed public procurement procedures?
5. Do you tender out also IT procurements which are under the national threshold value?
6. How do you choose the IT procurement method?
7. How do you analyze the required workload between EU, national and under threshold value IT procurements compared to each other?
8. What kind of IT product/services have you procured with these public procedures? (ready-made products/custom-made products, size, complexity, uniqueness, number of requirements, stability, value, length of the contract)
9. What kind of IT product or IT service procurement situation you think each of these procedures, which you have used, are appropriate?
10. What have been the main benefits/disadvantages of each of the procedures you have used in practice.
11. How many tenders have you usually got to your contract notice from each of these different procedures?
12. What aspects do you think influences the number of tenders?
13. How much worktime has each of these procedures taken from you compared to each other?
14. How could you make the procurement process more efficient from your perspective/from supplier perspective?
15. How have you made co-operation with peers?
16. If so, what kind of co-operation have you had with peers?
17. How have you considered short- and long-term value in your IT procurements?
18. How could you ensure the long-term value of IT procurements?
19. How long contracts have you made?

20. Have you considered different incentives which ensure quality and innovativeness in your IT contracts?
21. Have you used Public-private partnership in your IT procurements?
22. If so, in what kind of IT procurements have you used it?
23. If not, after an explanation what kind of IT procurements you think it is appropriate for?
24. What have been its benefits and disadvantages according to your experience, if you have used it?
25. What actions do you think public entities should take to improve IT service public procurement selection?

**Appendix B: Questions to IT suppliers**

1. How have you participated in public procurements? (role, tasks, EU or national -procurements)
2. How do you analyze the required workload between EU, national and under threshold value procurements?
3. Which of these public procurement processes have you participated in: open, restricted, negotiated or/and competitive negotiated procedure, innovative partnership, framework agreement, other?
4. How many times have you participated in each and when?
5. Have you participated in the market consultation phase of a public organization?
6. If so, how do you analyze its benefits and disadvantages?
7. If not, would you be interested in and how do you analyze its potential benefits and disadvantages?
8. How do you choose the call for tenders in which you decide to participate?
9. What kind of IT product/services have you offered in these public procedures? (ready-made products/custom-made products, size, complexity, uniqueness, number of requirements, stability, value, length of contract)
10. What kind of IT product or IT service procurement situation do you think each of the procedures in which you have participated are appropriate?
11. What have been main benefits/disadvantages of each of the procedures which you have used in practice.
12. What aspect do you think influences the number of tenders per procurement?
13. How much worktime has each of these procedures taken from you?
14. How can we make the procurement process more efficient?
15. How have you considered short- and long-term value in these procurements?
16. How could you ensure the long-term value of the procurements?
17. How long contracts have you made?
18. Have you considered different incentives which ensure the quality and innovativeness of contracts?
19. Have you participated in Public-private partnerships?
20. If so, what kind of procurements they have been?

21. If not, after an explanation what kind of procurements you think it is appropriate for?
22. What have been its benefits and disadvantages according to your experience, if you have participated in PPP?
23. What actions do you think public entities should take to improve IT service public procurement selection?