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# ENHANCING PUBLIC SECTOR IT SALES IN A SOFTWARE DEVELOPMENT COMPANY.



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# ENHANCING PUBLIC SECTOR IT SALES IN A SOFTWARE DEVELOPMENT COMPANY

The public sector of Finland is constantly procuring and developing new digital services. This creates business opportunities for private consulting companies. The purpose of this thesis was to research the process of participating in public sector tendering competitions as a private software provider.

The Act on Public Procurement and Concession Contracts regulates procurements made by public sector entities. Understanding the procurement processes and regulations is vital for enhancing sales in the public sector.

For this thesis, the public sector was divided into four sectors: Education, Municipalities, Government, and Health and Social Services. All IT contract award notices from 2019 were listed into a data set and analyzed to understand the different sectors better.

A sales process was defined for outbound sales and answering requests for tenders. The purpose of the sales process is to help the commissioning company identify business opportunities and to participate in tendering competitions.

Due to the variance in the procurements, tendering can not be automated entirely, but with a well-defined process, the cost of participating in tendering competitions can be brought down significantly. Manual work and expertise are required for success in tendering competitions.

## KEYWORDS:

Public sector, Procurement, Software, Sales, Process, Consulting

Jaakko Partanen

# JULKISEN SEKTORIN IT-MYYNNIN PARANTAMINEN OHJELMISTON KEHITYSYRITYKSESSÄ

Suomen julkinen sektori investoi jatkuvasti uusien digitaalisten palveluiden kehittämiseen. Näiden palveluiden kehitys tuo liiketoimintamahdollisuuksia yksityisille yrityksille. Opinnäytetyön tarkoituksena on tutkia julkisten hankintojen kilpailutuksia sekä parantaa toimeksiantavan yrityksen julkisen sektorin myyntiprosessia.

Hankintalaki määrittelee julkisia hankintoja sekä kilpailutuksia. Hankintalain sekä julkisten hankintojen hankintamenettelyjen ymmärtäminen on avainroolissa julkisen sektorin myynnin onnistumisessa.

Opinnäytetyötä varten, julkinen sektori on jaettu neljään osaluokkaan: Koulutus-, valtio-, terveys-, ja kuntasektoriin. Kaikki vuoden 2019 hankintojen jälki-ilmoitukset kerättiin ja analysoitiin.

Opinnäytetyön lopputuloksena on määritelty myyntiprosessi, jonka tehtävänä on tunnistaa ja helpottaa yrityksen osallistumista tarjouskilpailuihin.

Hankintojen erimuotoisuudesta johtuen, tarjous prosessia ei voida täydellisesti automatisoida. Jokainen tarjous vaatii manuaalista työtä sekä erityisosaamista. Tarjouskilpailuihin osallistumisesta johtuvia kustannuksia saadaan huomattavasti alennettua myyntiprosessi uudistuksen myötä.

## ASIASANAT:

Julkinen sektori, Hankinta, Ohjelmistokehitys, Myynti, Konsultointi

# CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>6</b>
<b>1 INTRODUCTION</b>	<b>6</b>
<b>2 BACKGROUND</b>	<b>7</b>
<b>3 PROCUREMENT LEGISLATION</b>	<b>8</b>
3.1 Threshold values	8
3.2 Exclusion conditions and satisfaction of suitability requirements	9
3.3 Appeal and rectification	10
<b>4 PROCUREMENT PROCEDURES</b>	<b>11</b>
4.1 Open Procedure	11
4.2 Restricted procedures	12
4.3 Competitive Negotiation	13
4.4 Direct Procurements	15
<b>5 AREAS OF THE PUBLIC SECTOR</b>	<b>16</b>
5.1 Municipalities	17
5.2 Health and social services	18
5.3 Government	18
5.4 Education	19
<b>6 IDENTIFYING PUBLIC SECTOR IT BUSINESS OPPORTUNITIES</b>	<b>20</b>
6.1 Analyzing the areas of the public sector	20
6.2 Procurement procedures	22
<b>7 DEFINED TENDERING PROCESS</b>	<b>25</b>
7.1 Purpose of the reform	25
7.2 Reformed process	25
<b>8 OUTBOUND SALES</b>	<b>29</b>
8.1 Identifying potential customers	29
8.2 Identifying services to offer target customers	30
8.3 Procurements over the national threshold value	31

## **APPENDICES**

Appendix 1. 2019 Procurement notices

## **FIGURES**

Figure 1. 2019 Contract award notice count.	11
Figure 2 Open vs. Restricted procedure procurements.	12
Figure 3 Total procurement values by sector.	16

## **PICTURES**

Picture 1. Open procedure flow.	12
Picture 2. Competitive tendering process.	14
Picture 3. Reformed sales process.	25

## **TABLES**

Table 1. Procurement threshold values.	8
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## LIST OF ABBREVIATIONS

API	Application programming interface (Gazarov, 2019)
CPV	Common Procurement Value
DPS	Dynamic Purchasing System
Ltd	Joint-stock company
IT	Information Technology

# 1 INTRODUCTION

The purpose of this thesis is to research the process of participating in public sector tendering competitions as a private software provider. The public sector of Finland spent over a billion euros on ICT procurements in 2019 (Ministry of Finance, n.d.). The large size of the public sector IT market makes it an excellent opportunity for growth for IT companies. As the public sector has very multiform procurement needs with operations in multiple different areas, the software solution needs are also diverse. Finding the correct procurements to tender is vital for a company to be able to grow its business in the public sector.

This thesis will examine the Finnish public procurement legislation and the tendering process from the viewpoint of tendering companies. This thesis will also study the different areas of the public sector and which software technologies are prominent in each area to find the most suitable customers for the commissioning company.

The Act on Public Procurement and Concession Contracts governs all public procurements over the national threshold values. This thesis will go through the most relevant sections of the act from the perspective of the tenderer. This includes the threshold values, different procurement processes, and other relevant sections.

After establishing an understanding of the relevant legislation and the public sector IT market, a tendering process is defined for the commissioning company to ensure that the commissioning company can efficiently create tenders for public sector requests for tenders as well as find business opportunities outside the active requests for tenders.

The goal of the thesis is to enhance the commissioning company's understanding of the public sector market, define a process for tendering, and possibly find new ways to grow the public sector business.

The second chapter of the thesis takes a look at the current climate of digitalization in the Finnish public sector. The third chapter explains the relevant legislation in Finland. The fourth chapter goes through the different procurement procedures and how they are used. The fifth chapter examines the different areas of the public sector. In the sixth chapter a process is defined for evaluating business opportunities. The seventh and eighth chapter go over tendering and outbound sales. The ninth and final chapter concludes and summarizes the results of the thesis.

## 2 BACKGROUND

Finland is investing heavily in digitalization all across different organizations of the public sector. These investments are made by developing new solutions and buying ready-made software solutions. In her government program, Prime minister Sanna Marin stated that all development should be open source unless there is a substantial reason not to use open source solutions. (Finnish Government, 2019). The commissioning company of this thesis is specialized in open source solutions; as such, it is a prime candidate for many public sector opensource solutions provider.

The core purpose of any procurement is to find the most cost-effective solution to a problem. The customer's goal is to balance cost and quality in order to achieve goals with minimal cost. The supplier's goal is to provide a solution to the problem while balancing the expenses. This thesis will be focusing on software and software development procurements. Public sector procurements are highly regulated by legislation in Finland, and this legislation has a profound effect on IT sales for the public sector.

In 2019 the Finnish public sector spent over 1 billion euros on ICT procurements (Ministry of Finance, n.d.). The public sector IT market is large and has excellent opportunities for small and medium-sized companies to grow their businesses. The commissioning company of this thesis, Anders Innovations Ltd, is a medium-sized software development company. The commissioning company's core business is consulting, and software development for custom made software solutions. The preferred technologies of the commissioning company are Python programming language, Django software framework, REST API framework, wagtail content management systems, among other open source technologies.

The commissioning company's number of public sector projects and clients has grown. As the number of references grows, so do the possibilities of winning tendering competitions that evaluate tenders using references. This loop gives a high possibility for growth in the public sector, and a process of handling requests for tenders is needed.



### 3 PROCUREMENT LEGISLATION

The Act on Public Procurement and Concession Contracts affects all procurements over specific threshold values. This thesis only focuses on IT procurements and the parts of the legislation that affects them. The Act on Public Procurement and Concession Contracts is a national law based on the 2014/24/EU European Parliament directive. The core aim of the act is to ensure efficient use of public funds, enhance the efficiency of procurements, and to ensure that smaller companies also have a possibility to participate in the tendering competitions.

#### 3.1 Threshold values

The Act only affects procurements over the national threshold value. If the procurement value also exceeds the European Union Threshold value, it is also subject to the European Union procurement law and practices. Threshold values are shown in Table 1. Procurement threshold values

Table 1. Procurement threshold values (Ministry of Economic Affairs and Employment, Finland, 2016).

60 000€ for IT procurements	The national legislation threshold value
139 000€ for IT procurements	EU Threshold value for Government administrative
207 000€ for IT procurements	EU Threshold value for Municipalities.

The procuring body evaluates the procurement value through the expenses of the procurement. In goods procurements and calculating the cost is straight forward. The suppliers make offers, and the buyer compares the quality and price and then makes the procurement decision that is least expensive as a whole. This might not mean the least expensive offer if, for example, better quality items have a longer lifecycle, which then translates to fewer expenses over an extended time period.

In IT procurements evaluating the procurement, value is much more complicated, though many of the same principals apply. Ready-made software licenses, SaaS- services, and other products that have a set price, are evaluated much like physical goods based on a

set price and quality. New software, however, does not have a set price, since it does not exist as of the time of the procurement. There are a few common practices of buying new software: Requesting a set-priced offer or evaluating the work needed and then requesting an hourly rate. The main difference between the two common practices is which party evaluates the amount of work needed. Evaluation of the workload requires not only a concrete idea of what the procurement goals are but also an idea of how to achieve those goals. In most IT project procurements, neither party has both, since the buyer often does not possess the technical skillset to make a proper technical specifications list of what needs to be done and how to do it. The supplier, in turn, needs to have a profound understanding of the goals of the project before making the technical specifications, which in turn requires a lot of work to obtain. This creates a challenge for both the tenderers and the procuring body. Some procurements mitigate this challenge by hiring third party consultants to evaluate the procurement needs and costs.

### 3.2 Exclusion conditions and satisfaction of suitability requirements

Based on The Act on Public Procurement and Concession Contracts, all tenderers without necessary suitability requirements can be excluded from tendering competitions. The exclusion can be made at the discretion of the procuring body if there is reason to believe that the tenderer will not be able to fill the requirements of the procurement. Discretionary exclusion criteria can be met if, for example, the tenderer is on the verge of bankruptcy. If a potential tenderer has participated in the preparation of the procurement, that potential tenderer can be excluded from the tendering competition at the discretion of the procuring body. This is not mandatory, as long as the tendering competition is not distorted in favor of the potential tenderer that has aided in the preparation of the procurement. Also, significant shortcomings in performance in earlier procurements are possible grounds for exclusion in future tendering competitions.

Mandatory exclusion conditions are met if a tendering company or a person a management position within the company has a criminal record indicating a legally final conviction in bribery, Participating in organized crime, human trafficking, tax fraud, money laundering, or an offense made in terrorist intent.

In all tendering competitions, all tenderers are asked if the mandatory exclusion criteria are met. To prove that the mandatory exclusion criteria are not met, the winning company

of tendering competitions will have to provide a transcript of criminal records from the company as well as the management of the company.

### 3.3 Appeal and rectification

If there is an error in a request for tenders or the results of a tendering competition, an appeal can be made by contacting the procuring body. If the procuring body does not fix the request for tenders, the appeal can be taken to market court. The appeal needs to be done within 14 days of a decision. Appeals to tendering competitions are not rare. All active cases of the market court are public information and can be viewed on [www.markkinaoikeus.fi](http://www.markkinaoikeus.fi). An example of an IT procurement that was taken to market court is HUS logistics Oracle products and services procurement (MAO:671/18, 2018) which acts as a good example of how costly human error can be in tendering competitions. The Market Court disqualified a tender made by Crayon Ltd to supply Oracle licenses to HUS-Logistics because Crayon Ltd had not clicked "send offer" in the tendering service [tarjouspalvelu.fi](http://tarjouspalvelu.fi). The tender was saved into the service in its final form and was accepted by the buyer as the winning tender. Since the tender was only saved to the service and not sent, the tender should have been disqualified. A competing company Dustin Finland Ltd took the matter to The Market Court, and the contract was revoked by the court. The evaluated value for the contract was 5 000 000€ to 6 000 000€ per year.

## 4 PROCUREMENT PROCEDURES

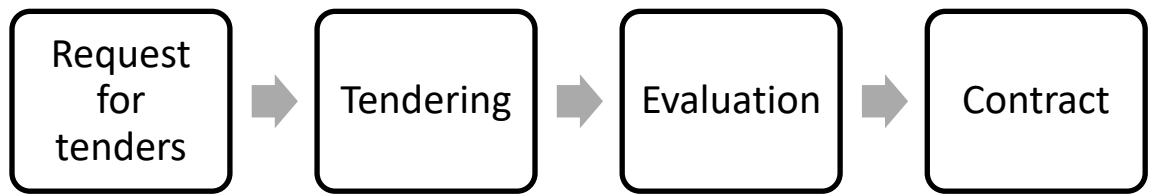
The different available procurement procedures are defined in The Act on Public Procurement and Concession Contracts. This thesis focuses on the four most common types of procurements. Restricted procedure procurements are made within a framework agreement or a dynamic purchasing system.



Figure 1. 2019 Contract award notice count.

### 4.1 Open Procedure

Competitive tendering via the open procedure is a relatively simple procurement procedure. The process starts with the buyer describing what is being procured, how the tenders are going to be evaluated, and how to take part in the tendering competition. This is called a request for tenders. The next step is for potential suppliers to create tenders based on the request for tenders. After a set deadline is reached, all tenders are opened and evaluated according to the predetermined criteria. After the winning tender is chosen, a contract is made between the supplier and the buyer.



Picture 1. Open procedure flow.

Competitive tendering is the most common method of IT procurements in Finland. Competitive tendering can be done either as an open request for tenders or within a framework agreement or a dynamic procurement system.

#### 4.2 Restricted procedures

All procurements that are made within a framework agreement or a dynamic purchasing system are restricted procedures. Framework agreements and dynamic purchasing systems are often established via an open procedure.

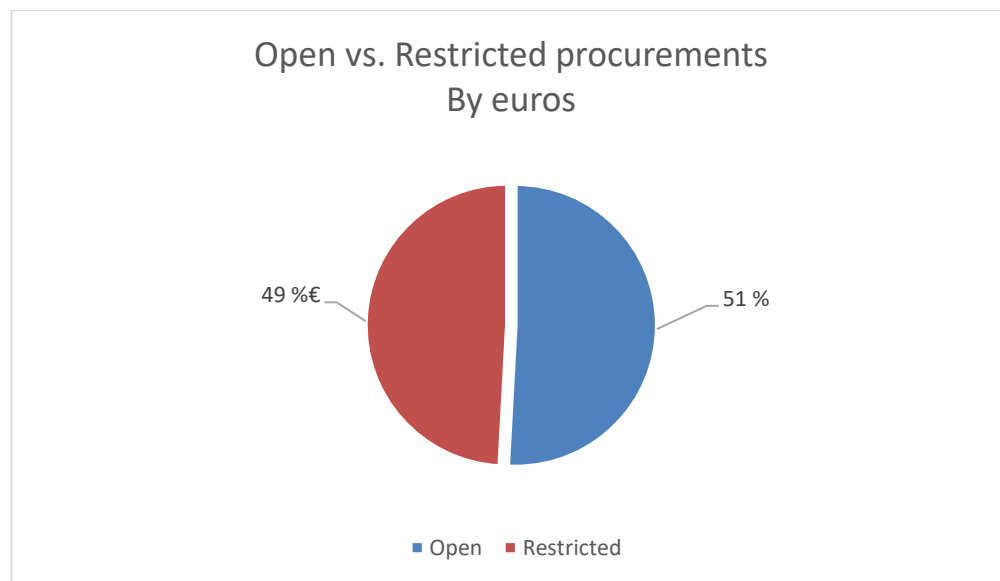


Figure 2 Open vs. Restricted procedure procurements.

## **Framework agreement**

Framework agreements are often used by public sector bodies that have significant and longer-term procurement needs. The framework contracts are used to help ease the process of procurement, especially if there are recurring similar procurement needs. Framework contracts also determine the price of the service or product provided within the contract.

The framework agreements work as a framework for multiple procurements from a set of previously selected suppliers. The suppliers are selected through a process similar to an open procedure or competitive negotiations. After the framework agreement contract has been established with one or more suppliers, procurements are made within the contract. If a framework agreement has more than one supplier, the procurements within the contract are also procured through competitive tendering. The framework agreement partners compete with each other for each contract within the said agreement.

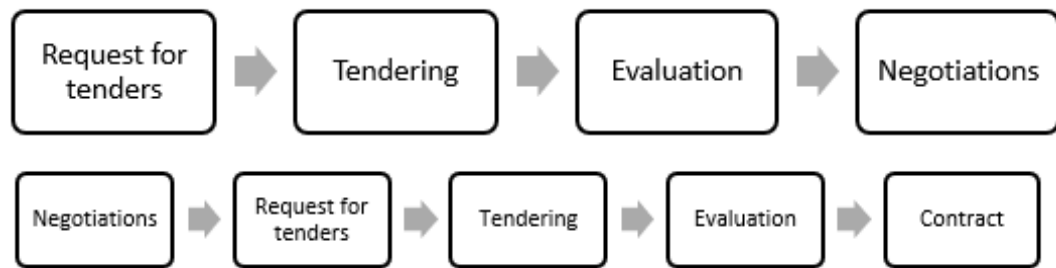
## **Dynamic Purchasing Systems**

Dynamic purchasing systems are used similarly to framework agreements but with fewer restrictions. The dynamic purchasing systems are established to limit the tenderers that can take part in the tendering competition to only qualified suppliers. The dynamic purchasing systems rarely limit the number of suppliers that are accepted into the dynamic purchasing system. Often the only limiting factor is the ability to provide services listed in the dynamic purchasing system. This can be evaluated by the references of the company, the size of the company, and the expertise of the suppliers' employees.

### **4.3 Competitive Negotiation**

Competitive negotiations often start with preliminary open procedure to narrow the list of applicants down to a manageable size. The winners of the preliminary competitive tendering are invited to negotiate about the procurement. The negotiations are held in one or more rounds of negotiations. Themes of the negotiation rounds are predetermined in the preliminary request for tenders to take part in the negotiations. The negotiations can be used to describe the procurement need and to negotiate with the suppliers to

ensure that both parties understand the procurement need and the scope of the procurement. Price is also often negotiated but ultimately agreed upon after a final tender is submitted. After the negotiation rounds, a final round of competitive tendering is held to determine the contracting partner. The Competitive negotiation method is slightly more complex compared to the other procedures, but it often provides useful insight for both parties.



Picture 2. Competitive tendering process.

#### 4.4 Direct Procurements

Direct procurements are only made on procurements that cannot be purchased through any of the other procedures. These procurements might be related to national security and, due to their sensitive nature, are not regulated by The Act on Public Procurement and Concession Contracts. Another typical case of direct procurement is when the procured service or material might only be available from a particular supplier, making competitive tendering impossible. With direct procurement procedure, a contract is made with the supplier, and a contract award notice is published on [hankintailmoitukset.fi](https://hankintailmoitukset.fi)



## 5 AREAS OF THE PUBLIC SECTOR

In this thesis, the Public sector is viewed as four separate areas. This is to accommodate the commissioning company and its different business sectors. The four separated sectors are Municipalities, Government, Education, and Health and Social Services. The division is done by looking at the purchasing organization. All organizations that answer to the Ministry of Social Affairs and Health's Administrative Branch are viewed as part of Health and Social Services. The Municipality sector accounts for all Cities and municipalities directly. Organizations owned by a city may fall under either government or health and social categories. The education category mainly consists of universities and universities of applied sciences. Basic education is provided by the municipality and therefore does not fall under the education category. The Government category is by far the largest area with the most variance in technologies. In this thesis, all organizations that are not municipalities or under the Ministry of Social Affairs and Health's Administrative Branch are categorized in the government category.

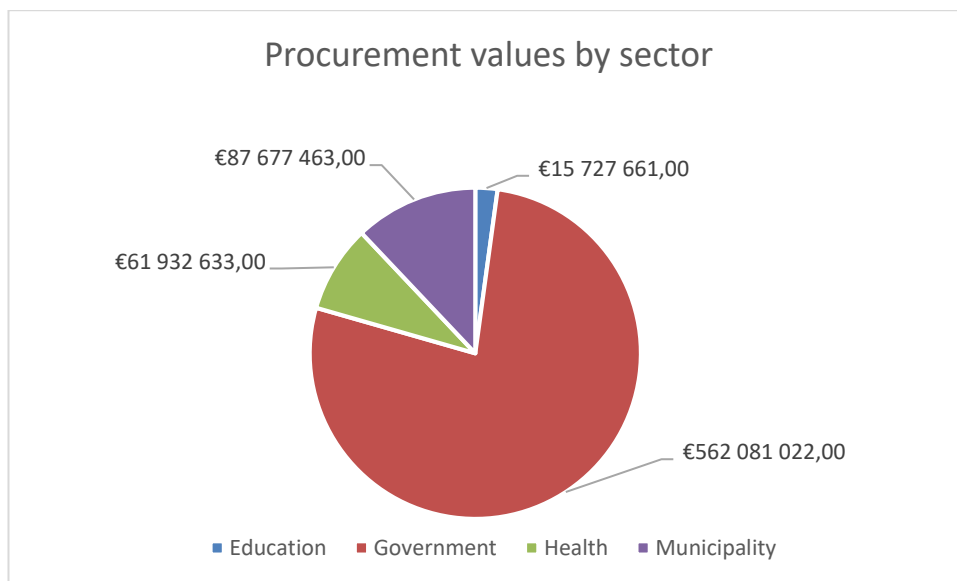


Figure 3 Total procurement values by sector.

## 5.1 Municipalities

Finland only has 7 Municipalities with a population of over 100 000 (Statistics Finland, n.d.). All those seven municipalities have invested a sizeable portion of their budgets to digitalizing services provided by the municipalities. The City of Helsinki, for example, has developed several different kinds of opensource software services such as Varaamo, Kerrokantasi, Parkkihubi, and many more to solve problems and offer better services to the citizens of Helsinki. As the services are opensource other cities and municipalities can use the same software to develop similar services with a notably smaller initial investment. While all the services are made in opensource as of 2020, none of them are SaaS- ready. This means that for a city to start using said services, some changes would be needed. As an example, the City of Turku took multiple services developed by the City of Helsinki to use from 2018 to 2020. Services Developed by the City of Helsinki have also been taken in to use in Hämeenlinna, Oulu, Espoo, Tampere, and other cities and municipalities all across Finland.

As Municipalities have many similar traits to one another, they are a perfect area to utilize opensource software development. Even though all cities and municipalities have some specific needs, the majority of the business logic is very similar across Finland. This enables all cities to utilize innovations developed by a single city. Varaamo is a great example of this.

“The objective of the cross-administrative reservation booking system is to make the use of public premises more efficient and accessible and decrease the costs related to the use of the premises by unifying the reservation booking practices of the City.” (City of Helsinki, n.d.)

The Varaamo service provided a solution to all large cities as all of them have public premises and other public resources available to the citizens. The customization required by the opensource services depends greatly on the procuring municipality or city. The most common changes made are to the frontend in the form of a new design more appropriate to the procuring body. Other common customizations are integrations to different kinds of background systems such as identification or access management systems.

## 5.2 Health and social services

Health and Social services are separated from the government sector as the commissioning company has interests to evaluate procurements related to health and social services more carefully. In this thesis, all organizations under the Ministry of Social Affairs and Health. Technology solutions used in healthcare often have higher than average quality needs and are procured through direct procurement because of that.

The Health and Social Services in Finland were planned to be reformed in 2019 under the administration of Prime minister Sipilä. The planned reform ultimately failed after multiple reschedules as the government resigned on 8.3.2019. (Toivonen, 2019) Digitalization was also a central theme of the government program of Prime Minister Sipilä. (Finnish government, 2015) Preparations for new software solution procurements were made in anticipation of the reform. Vimana Oy created a dynamic procurement system to enable easier procurements for healthcare organizations. The Vimana DPS was discontinued in January 2020 as it was not deemed unnecessary as the healthcare reform failed. (Ministry of Economic Affairs and Employment of Finland, 2018)

## 5.3 Government

The government accounts for all procurement units that do not fall into the two other categories. From the commissioning company's point of view, separating the government into smaller segments is not necessary. The Government sector is by far the largest out of the three sectors. The contracting entities of the government sector differ from the other sectors by their end-users and customers. The two other sectors make procurements to provide services for local citizens and customers, whereas the government procurements are mostly nationwide entities such as Kela, Keva, Yle, or other such public service providers.

Full-stack developers for Yle News lab web development is a good example of government procurements (Ministry of Economic Affairs and Employment of Finland, n.d.). The procurement was one of many that were made within a software development framework agreement. The procurement was for two senior web developers to work on Yle web services. The estimated value for the procurement was 1 580 000€, and the

winners of the tendering competition were Gofore Oyj and Qvik Oy. Both companies won a contract with an estimated value of 740 000€.

The government entities that have a lot of software development needs often use a framework agreement or a dynamic purchasing system to create flexibility in their procurements. These framework agreements and dynamic purchasing systems are a good business opportunity for software development companies that are focused on consulting. The commissioning company of this thesis offers consulting services as well as full projects for its customers. The long term consulting cases like Yle News lab development offer great long term business opportunities and provide stable long term work for the company.

Forest Ministry's retkikartta.fi is an example of a government project procurement, in contrast to the developer procurement for Yle news Lab web development. The procurement was for the development and hosting of retkikartta.fi- map service. Anders Innovations Oy won the tendering competition, the estimated value of the contract was 251 000€. The value included the development project of a new version of the service, hosting, and support services. (Ministry of Economic Affairs and Employment of Finland, n.d.)

#### 5.4 Education

Education consists of Universities and universities of applied sciences. Higher education schools have different kinds of software needs, such as Webshop development, web service development, or educational software. The commissioning company has developed web-based services for Turku university of applied sciences, Turku University and Aalto University. These references enable the commissioning company to create better-suited tenders for the education sector.

References from the same or similar customer help the tenderer better understand the business logic of the customer. This is why some requests for tenders will demand references from similar customers. These reference requirements are often difficult for competitors to fulfill, which is why the education sector is separated into its own sector.

## 6 IDENTIFYING PUBLIC SECTOR IT BUSINESS OPPORTUNITIES

To better identify the best IT business opportunities of the public sector, the 2019 contract award notices are analyzed. The data is used to help identify which types of procurements from which sectors are most suitable for the commissioning company. The main characteristics that are evaluated are the technologies used in the sector, Average sizes of the procurements, and procurement procedure preferences. Technology restrictions and reference requirements are the most common obstacle for participating in a tendering competition. If the procurement is for developers, the quality is often measured by the experience of the offered developers. For project procurements, the quality is often measured by the company's references or by the offered developers' experience.

The size of the procurement might also rule the commissioning company out of the tendering competition. If the procurement is too large the

The total value of IT procurements in 2019 was 1 058 256 549€, and the total value of all contract award notices published in 2019 was 727 814 779€. Some contract award notices did not publish the value of the procurement. For the purpose of this thesis, only the contract award notices with a value are taken into consideration. The contract award notice data was gathered from [hankintailmoitukset.fi](http://hankintailmoitukset.fi). The gathered data is presented in appendix 1. The gathered data consists of 318 contract award notices.

### 6.1 Analyzing the areas of the public sector

#### **Health and social services**

Health and Social services IT procurements in 2019 were close to 62 Million euros with 38 contract award notices. Out of the 38 contract award notices, only a few were development or consultancy based. Health and social services procurement bodies also made the most direct procurements when compared to the other sectors. Most procurements were for readymade software made specifically for healthcare use.

Health and Social Services can be a good market in the future, but as of April 2020, the commissioning company does not have the readiness to focus on Health and social services sector as a first priority. This is due to the lack of references in the field and the over-representation of direct procurements for specialty software. The market research shows little to no need for opensource web-based solutions.

## **Education**

The education sector IT procurements in 2019 were 15,7 Million euros with 26 procurements. Even with the small number of procurements, there were multiple consulting and development procurements. Some of the procurements had specified a technology stack for the development. Drupal content management framework was specified in two of the web development contract award notices and WordPress in one. (Appendix 1.)

Even with the comparatively small size of the educational sector, there were multiple web development procurements. The average size of the procurements was suitable for the commissioning company. Additionally, the commissioning company has multiple references from the same sector. The educational sector is likely to yield future contracts for the commissioning company, and procurements made by the educational sector are evaluated accordingly.

## **Municipalities**

Municipality sector IT procurements in 2019 were 87,7 Million euros with 57 procurements. The average size of the procurements was 1,7 Million euros. 45,8 million euros out of the 87,7 Million was used for consulting or development procurements. Largest consulting procurement being a 30 Million euro framework agreement for consulting and development services. The rest of the procurements were either for SaaS- solutions or other services such as communications networks. (Appendix 1.)

The municipality sector is one of the main business sectors of the commissioning company. The commissioning company has multiple references and extensive experience in the field. The average size of the procurements is within a suitable range

of what the commissioning company can realistically handle. The municipalities remain a high priority sector to focus public sector sales on.

## **Government**

Municipality sector IT procurements in 2019 were 562 Million euros with 206 procurements. The average size of the procurements were 2,7 Million euros. Consulting and development procurements accumulated to 303,6 Million euros. With the largest framework agreements being 50 Million euros. The government sector has many different kinds of procuring bodies that operate with very different business models, and this is why the technologies used vary greatly. (Appendix 1.)

The commissioning company has some references from the government sector, but they only apply to a small number of government sector bodies. The average procurement sizes are slightly too large. As the majority of all Public sector, IT procurements are made by the government sector, and it is categorized as a neutral priority.

## **6.2 Procurement procedures**

Innovation partnership and contractual procedures are used only for a fraction of procurements. This thesis focuses on the four most common types of procurement.

### **Direct procurement**

Direct procurements are agreed on before they are published, the procuring body will request an offer even for direct procurements. If the opportunity rises to offer to a direct procurement, it is very likely that the offer will be accepted. For this reason, direct procurements are a high priority.

### **Framework agreements and dynamic purchasing systems.**

Framework agreements and dynamic procurement systems rarely require a commitment to deliver a certain amount of services or development, but they often have the potential for large amounts of work over a long period of time. Longterm stable contracts are easy

to plan resources for, and they provide a steady income for the company. 49% of total money used in 2019, according to the gathered contract award notice data, was used within a dynamic purchasing system or a framework agreement.

Framework agreements and Dynamic purchasing systems are often low risk and high reward contracts and are high priority when evaluating cases.

### **Open procedure**

The majority of IT procurements are made with an open procedure. In addition to single procurements, the open procedure is also often used to establish framework agreements and dynamic purchasing systems. Participating in a tendering competition via an open procedure is the standard process. Open procedure procurements are a neutral priority when evaluating cases.

### **Competitive negotiations**

Competitive negotiations are similar to requests for tenders but much more labor-intensive to participate in. They are often used for large projects, but the negotiations often require a lot of preparation work and expertise. Competitive negotiations are often high risk and high reward. They are prioritized as low, with the exception of very suitable projects being a high priority to tender to.

### **Request for Information**

Requests for Information are used for market research by the procuring bodies. Answering a request for Information may affect the procurement. For example, if the results of the market research show that there are multiple suppliers for python-based solutions and only one supplier for PHP based solutions, the procuring body could be inclined to restrict the tenders to only python-based solutions in order to ensure continuity for the project, even if the first contracting partner can not deliver the project. Requests for information are made in the early stages of procurements, and in some cases, the results of the information requests halt the procurement process entirely. As the Requests for information have a low probability of ending in a procurement contract, they



are a low priority and are answered only when the subject of procurement one of the core business areas of the commissioning company.

## 7 DEFINED TENDERING PROCESS

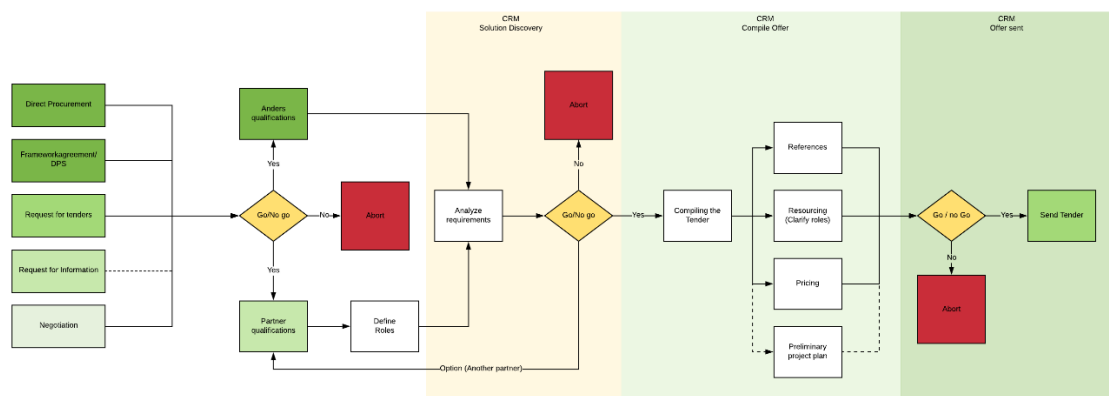
### 7.1 Purpose of the reform

The process before the reform was working, and public sector sales in the commissioning company were rising. The purpose of the reform is to streamline processes of the commissioning company to further enhance public sector sales and to create a structure for the organization as the public sector sales grow. The suggested processes create a foundation for growth if more employees are needed to handle incoming requests for tenders. The process also clarifies the handover of a contract from the sales team to the production team.

Process before the reform was not documented or planned. The process relied on one or two employees, which was suitable for a small number of projects, but as the number of projects grows, so does the need for management and well-defined processes to handle the projects.

### 7.2 Reformed process

The first step of reforming the public sector sales process is to define and plan the tasks that are similar in most tendering competitions. After the common tasks are identified, a process is created to ease completing them as a part of a routine process rather than as individual tasks for each tendering competition.



Picture 3. Reformed sales process.

### **Evaluating each procurement notice.**

The first step of the process is to evaluate each procurement notice that could fit the commissioning company or a partner company's qualifications. The Requests for tenders may be published on HILMA website, sent directly via email, or be a result of a conversation with a potential customer. After the initial evaluation of each procurement notice, a decision is made whether or not the commissioning company will create a tender. The majority of all cases are not tendered to since creating a losing offer costs the commissioning company time and money. Balancing the potential loss of profit by not participating in a tendering competition and the loss of time and money by participating in a competition that results in a losing offer is largely done in the first phase. The procurement notices are filtered down to IT procurements using the appropriate CPV codes. The CPV codes are used with varying accuracy, which limits the filtering to only a very high level. Using more specific CPV codes has a high risk of missing suitable cases due to inaccurate categorization of the procurement notice by the procuring body.

### **Choosing possible subcontractors**

If the procurement fits the qualifications of the commissioning company or a subcontractor / Partner company, the tendering process continues to the next phase. If the tender is to be divided between the commissioning company and a subcontractor, roles have to be defined for each party. This is the case if some part of the project is done by a subcontractor. If the project requires some specific expertise, such as experience with a specific system that is part of the project, and the commissioning company does not have the required experience, the subcontractors' experience can be used to fill requirements. At this stage, the main contractor is also decided.

An example of the defined roles could be that the commissioning company provides a project manager and two backend developers, and a subcontractor provides two front-end developers. In some cases, the subcontractor can provide all services offered in the tender, and the main contractor only enables the subcontractor to work in a framework agreement that the subcontractor would otherwise not be able to work in.

## Analyzing requirements

After a request for tenders is identified as a possible business opportunity, the requirements of the tendering competition are analyzed and evaluated. At this stage, the evaluation criteria and the type of procurement are evaluated thoroughly. If the procurement is not for a framework agreement for large amounts of development, the evaluation has to be extremely thorough. The most important factors that affect the suitability of the case are technology reference requirements and price.

The procurement price can be determined in different ways, and it can be a fixed price, where the tenderers evaluate the amount of work needed for the project and give one total price for the whole project. Or the procurement can be bought as consulting or development work on an hourly basis. From the commissioning company's perspective, a project that is billed by the hour is preferred over fixed-price contracts, because the risk of exceeding the project budget is split between the supplier and the procuring body. Hourly based consulting is also more suitable for agile development projects, whereas fixed priced contracts are more suited for waterfall development projects.

In all requests for tenders, the evaluation criteria are predetermined. The evaluation criteria are often split into points that are awarded to the tenders if certain criteria are met. The procuring body can decide how to give out points, and the only restriction is that evaluation criteria can not be exclusive towards any suppliers. All requirements and evaluation criteria have to be functional and reasonable. The measures that award points can be, for example, references, well thought out project plans, or the experience of offered consultants.

The requirements are analyzed to determine if the commissioning company has a good chance of winning the tendering competition. Only cases with a good chance of winning will be tendered to.

## Compiling the tender

Most requests for tenders use [tarjouspalvelu.fi](https://tarjouspalvelu.fi) service for managing tenders and tendering competitions. The service requires all tenderers to fill required fields before a tender can be submitted. This makes it easy to ensure the correct format of the tender and helps the procuring bodies to evaluate all tenders as equals.

The evaluation criteria determine what type of tender is compiled. As references, consultant experience, and project plans are commonly required documents, and templates were made to minimize the manual work needed for each tender. The ready-made templates are filled to match the requirements of the tendering competition. If the templates are not suitable for some reason, for example, a length limit of 1000 words, a new document has to be made. All new documents that depict processes, technologies, references, or consultant experience are stored with the templates so that they can be used in future tendering competitions.

### **Final decision**

Once the tender is compiled, and all necessary information is submitted to the tendering service, a final tendering decision is made by the commissioning company management. Scope, required resources, and risks of the tender are presented to the management team so that an informed decision can be made. The final step of the process ensures that the tender is read through carefully and that the risks of the tender are evaluated and accepted.

After the commissioning company management accepts the tender for sending, it is sent for evaluation by the procuring body.

## 8 OUTBOUND SALES

Outbound sales are cases where the supplier contacts the customer before a customer has requested tenders or even started market research. While requests for tenders remain the main focus for finding business opportunities, outbound sales schedules are not only dictated by the customer but also the supplier. If no new suitable requests for tenders are published, sales resources can be used for outbound sales.

With the commissioning company's experience in opensource software made for municipalities, the focus of outbound sales is on smart city developers and municipalities. The Challenge of outbound sales in the public sector is that The Act on Public Procurement and Concession Contract forces all procurements of over 60 000€ to go through a competitive tendering process. As the commissioning company offers no services without competitors, direct procurement is often not an option.

### 8.1 Identifying potential customers

The first step of outbound sales is to identify potential customers. This is done by looking at the commissioning company's references and finding customers that have similar characteristics. The evaluated characteristics can be related to technology, a process, or business understanding.

For example, the city of Helsinki, the city of Tampere, and the city of Turku are customers of the commissioning company. All similarly sized cities are identified as target customers. In this example, all three references have the same business needs, use the same processes, and use the same technology stack. The business needs are to provide services to citizens of the municipality or city. The process is defined by the procured software. Technology stack is Django framework based opensource software products developed in Python programming language. If three cities in Finland have the same needs, it is safe to assume that other cities might have the same needs as well, making them target customers.

## 8.2 Identifying services to offer target customers

The commissioning company offers mainly consulting, and development services specialized in developing opensource software solutions. These services are suitable for answering requests for tenders where the procuring body has a development need defining. When the target customer has no development need, these services are not needed. To remedy this, services were redefined to be more suitable for outbound sales.

### **Opensource software solutions**

The commissioning company has been a part of the development of multiple opensource software solutions. These opensource solutions are made for the specific needs of a customer. If another customer has similar needs, the same software can be taken in to use with the help of the commissioning company. The opensource software solutions are opensource software code that is published, in order for a customer to take them in to use, they require some customization and operational consulting. The required customization development and operational consulting, such as deploying the services to servers, are core business of the commissioning company.

For example, the city of Helsinki developed the “kerrokantasi” service for citizens to be able to voice their opinions on matters related to them (City of Helsinki, n.d.). The service was developed largely by the commissioning company under a framework agreement. The same service was taken in to use by the city of Turku with the help of the commissioning company developers, the design of the service was altered, and data sources were developed to fit the city of Turku. (City of Turku, n.d.) “Kerrokantasi”-service is identified as a service that can be offered to other cities and municipalities. The service is offered through consultancy and development, and this enables the customer to continue the development of the service through contractors, such as the commissioning company. The initial set-up costs of the opensource services rarely exceed the national procurement value threshold. This enables the commissioning company to offer the initial set-up services and minor changes to the systems without a competitive tendering process.

### 8.3 Procurements over the national threshold value

If an outbound sales case is closed and the initial project is continued so that the value exceeds the national threshold value, it has to be put up for competitive tendering. The procuring body decides the evaluation criteria and the procurement procedure. If the procuring body sets a high value on quality, the contractor who supplied the initial project has a good chance of winning the tendering competition.

The goal of public sector outbound IT sales is to provide good development and consulting services to customers, so that if the initial project is continued and put up for competitive tendering where the commissioning company has a good chance to win the tendering competition.



## 9 CONCLUSION

The fundamental purpose of the public sector is to provide taxpayers services. The services vary greatly from necessary services such as infrastructure and education to quality of life, enhancing non-essential services like cultural services. Those services are being digitalized by developing new software to fit the exact needs of the public sector. This creates vast business opportunities for private IT companies. The purpose of the thesis was to examine the public sector market and to create refined processes for Public sector IT sales in an software development company.

Knowledge of the procurement procedures and the legislation that governs the procurements are important for creating a functioning process for tendering to the public sector. Creating tenders requires great attention to detail by the potential suppliers, since even small mistakes or only slightly delayed tenders can be disqualified from the competition.

In order to succeed in public sector IT sales, understanding of software and software development is key. Understanding the technical requirements of procurements and being able to analyze cases is necessary. The sales process created as part of this thesis work only works with personnel with sufficient technical understanding of IT technologies. Creating tenders also requires a deep understanding of what is being offered to the customer company. In consultancy cases, this requires the knowledge of the used programming languages, frameworks, and principles, to ensure that the offered consultants are suitable for the procured work. In project or software procurement cases, tendering might require knowledge of server platforms or cloud services, possibilities of integrating procured software with other software.

Automating the tendering process is not possible due to the large variance in the procurements and their procurement procedures, descriptions, evaluation criteria. Minimizing the costs of participating in tendering competitions can, however, be achieved by a well planned and well thought out process and employee education.

## 10 REFERENCES

City of Helsinki, n.d. *City of Helsinki Kerrokantasi Github repository*. [Online]  
Available at: <https://github.com/City-of-Helsinki/kerrokantasi/graphs/contributors>  
[Accessed 16 April 2020].

City of Helsinki, n.d. *Varaamo*. [Online]  
Available at: <https://varaamo.hel.fi/about>  
[Accessed 5 March 2020].

City of Turku, n.d. *City of turku Kerrokantasi github repository*. [Online]  
Available at: <https://github.com/City-of-Turku/kerrokantasi-ui-turku>  
[Accessed 16 April 2020].

Finnish government, 2015. *Finnish Government*. [Online]  
Available at: [https://valtioneuvosto.fi/documents/10184/1427398/Ratkaisujen+Suomi\\_FI\\_YHDISTETTY\\_netti.pdf](https://valtioneuvosto.fi/documents/10184/1427398/Ratkaisujen+Suomi_FI_YHDISTETTY_netti.pdf)  
[Accessed 25 March 2020].

Finnish Government, 2019. *Prime Minister Sanna Marin's Government program 2019*. [Online]  
Available at: [http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/161931/VN\\_2019\\_31.pdf?sequence=1&isAllowed=y](http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/161931/VN_2019_31.pdf?sequence=1&isAllowed=y)  
[Accessed 7 February 2020].

Gazarov, P., 2019. *freeCodeCamp.org*. [Online]  
Available at: <https://www.freecodecamp.org/news/what-is-an-api-in-english-please-b880a3214a82/>  
[Accessed 19 April 2020].

MAO:671/18 (2018) Market Court.

Ministry of Economic Affairs and Employment of Finland, 2018. *HILMA Ohjelmistokehitykseen liittyvät asiantuntijapalvelut*. [Online]  
Available at:

<https://www.hankintailmoitukset.fi/fi/public/procurement/28882/notice/35964/overview>  
[Accessed 26 January 2020].

Ministry of Economic Affairs and Employment of Finland, n.d. *HILMA Retkikartta.fi-karttapalvelun toteutus ja käyttöpalvelu.* [Online]  
Available at:  
<https://www.hankintailmoitukset.fi/fi/public/procurement/10184/notice/32282/overview>  
[Accessed 3 February 2020].

Ministry of Economic Affairs and Employment, Finland, 2016. *Finlex.* [Online]  
Available at: <https://www.finlex.fi/en/laki/kaannokset/2016/en20161397>  
[Accessed 26 January 2020].

Ministry of Finance, n.d. *EXPLORE PUBLIC SPENDING.* [Online]  
Available at: <https://tutkihankintoja.fi/procurement-categories/ICT%20procurement?lang=en>  
[Accessed 14 March 2020].

Statistics Finland, n.d. *Statistics Finland's PxWeb databases.* [Online]  
Available at:  
[http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin\\_Passiivi/StatFin\\_Passiivi\\_vrm\\_vaerak/statfinpas\\_vaerak\\_pxt\\_024\\_201700.px/](http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin_Passiivi/StatFin_Passiivi_vrm_vaerak/statfinpas_vaerak_pxt_024_201700.px/)  
[Accessed 22 February 2020].

Toivonen, T., 2019. *Yle.* [Online]  
Available at: <https://yle.fi/uutiset/3-10679239>  
[Accessed 25 March 2020].

**2019 Contract award notices**

Row Labels	Procedure by count	Sum of Value	Average of Sum	Percentage of procedure
Open procedure	185	453 429 384,00 €	2 491 370,24 €	58 %
Innovation partnership	3	386 000,00 €	128 666,67 €	1 %
Competitive negotiation	46	92 950 900,00 €	2 655 740,00 €	14 %
Restricted procedure	57	166 767 655,00 €	3 146 559,53 €	18 %
Contractual procedure	2	2 000 000,00 €	1 000 000,00 €	1 %
Direct procurement	25	11 884 840,00 €	625 517,89 €	8 %
<b>Total</b>	<b>318</b>	<b>727 418 779,00 €</b>	<b>2 474 213,53 €</b>	<b>100%</b>

Table 1 2019 contract award notices by procurement method.

Row Labels	Count of Sector	Sum of procurements	Average of Sum
Education	26	15 727 661,00 €	629106,44€
Government	206	562 081 022,00 €	2958321,168€
Health	38	61 932 633,00 €	2211879,75€
Municipality	57	87 677 463,00 €	1719165,941€
<b>Total</b>	<b>327</b>	<b>727 418 779,00 €</b>	<b>2474213,534€</b>

Table 2 2019 Contract award notices by areas of the public sector.

Restricted	Sum of Sum	Count of Name
NO	369917979	248
YES	357500800	79
<b>Total</b>	<b>727418779</b>	<b>327</b>

Table 3 2019 Contract award notices Restricted versus open procedures.

Technology	Count	Value
<b>Education</b>	<b>25</b>	<b>15727661</b>
Consulting	1	627750
Developer	1	1450000
Development	3	1028710
Drupal	2	1207803
Microsoft	1	368550
Other	8	8882884
SaaS	6	1547889
Update	2	506075
Wordpress	1	108000
<b>Government</b>	<b>190</b>	<b>562081022</b>
Consulting	31	232890653
Developer	15	28960000
Development	20	41752475
Java	1	24000000
License	6	3143296
Microsoft	5	4132527
Oracle	4	6611846
Other	52	123973058
SaaS	48	52925788
SAP	2	4041879
Software	1	4900000
Support	4	29249500
Testing	1	5500000
<b>Health</b>	<b>28</b>	<b>61932633</b>
Consulting	2	22087941
Development	1	375600
IBM	1	5000000
License	1	165640
Oracle	1	18000000
SaaS	9	4773856
Support	1	2980789
(blank)	12	8548807
<b>Municipality</b>	<b>51</b>	<b>87677463</b>
Consulting	4	31754000
Developer	1	2500000
Development	4	11590000
Other	9	9975244
SaaS	30	30048219
Software	1	300000
Support	2	1510000
<b>Total</b>	<b>294</b>	<b>727418779</b>

Table 4 2019 Contract award notices by sector and procured service.