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WORK TIME FOLLOWING IN SOURCING PROCESS OF ACCESS PLATFORMS

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Abstract		
<p>This master's thesis aimed to find out how much work time the employees of Pekkaniska use in the sourcing process of the access platforms. The goal was to find out would it be more cost effective to source the access platforms by using EX Works delivery term in the sourcing process instead of DAP Vantaa as it was previously used. Additionally, this master's thesis aimed to challenge the decisions of the management of the commissioning company.</p>		
<p>This master's thesis was conducted as a qualitative research using action research strategy. Data of the thesis was gathered during the 22-month period from the selected employees of the commissioning company. Empirical data was collected with a simplistic time following form and it was supported by the interviews of the selected employees.</p>		
<p>The results showed that in the sourcing process conducted in EX Works-basis, the employees of Pekkaniska used together 1 783 hours of work time in the different stages of the process. The used work time was 319 hours more than in the sourcing process organized in DAP-basis. This thesis answered to the research questions placed as the total amount of the used work time was gathered and the 2% total cost savings in the sourcing process were calculated. The results of the research supported the commissioning company's decision to continue using EX Works delivery term in the sourcing process of the access platforms.</p>		
<p>From the future development perspective, an increasing cost-effectiveness in the business that requires a large amount of capital should be paid attention. By enhancing the functions in the different stages of the sourcing process releases both financial and human resources to the other business activities in Pekkaniska. Charting possible risk situations and creating a survival plan to overcome the challenges can contribute to make the sourcing process more effective.</p>		
Keywords		
Access platform, sourcing, procurement, delivery term		

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1 INTRODUCTION

Every single activity in the business has a cost associated to it and the sourcing of materials is not an exception. Modern day companies do understand the cost perspective, but it is vital to measure, capture and report all the costs with associating procuring item to see the total cost of acquisition. The purchase price of the component itself is an important element in the sourcing, but it is more vital to calculate all the elements related to the sourcing process itself. When all the elements are known and understood, it is easier for the company to evaluate the suppliers (Paquette 2004, 109).

The author of this thesis has worked as a regional sales manager in Pekkaniska Oy since October 2015. Daily based work consists tasks with the access platforms and communicating with the customer companies that are using different access equipment in their operations. Having new updated access platforms in the rental fleet plays an important role in the daily work of the author. When the amount of the rental units is as substantial as Pekkaniska has, there are significant sourcing decisions made annually. Improving processes in these annual sourcing decisions will release the capital to the other parts of the business in Pekkaniska.

Cost effectiveness and cost savings are important aspects in the business world. In the business sector that requires a great amount of sourcing and procurement, decision related to these must be made carefully. Sourcing of the access platforms requires a great amount of capital and the possible cost savings are important for the purchasing company. Important sourcing decisions requires careful planning from the persons involved and it does take a great amount of work time and resources from them. If they are doing sourcing and procurement beside their daily tasks, it is highly important to see how much they use their time related to the actual sourcing process. Rental business of the access platforms is very capital based, and the rental fleet must be updated continuously. Continuous updating of rental fleet creates regular sourcing procedures for the rental companies.

This study discusses sourcing and challenges the sourcing method decisions of the commissioning company's management in the sourcing process of the access platforms. Access platforms can be called as aerial work platforms, mobile elevating work platforms (MEWP) as well as elevating work platforms (EWP). This study uses the term access platform because the commissioning company is using that term in their rental business.

The study is organized as a part of the three-year sourcing plan of the lifting company Pekkaniska Group Oy. Rental business of the access platforms consists around 50% of the company's turnover and small and well controlled increase of the turnover has been typical for the recent years. This study contains only the sourcing process of the access platforms and the part that were sourced to the rental fleet in Finland. This study aims to give answers will it be more cost effective to organize the whole sourcing process of the access platforms by self instead of limiting the sourcing process responsibility. One key aspect in this study is to challenge the decisions of the company management about using the current delivery clause in the sourcing process.

1.1 Background of the research and research problem

The rental fleet of Pekkaniska Group consist more than 7 000 units and the fleet with high volume like this needs annual updating. The updated amounts of the new units depend largely on the previous years and numbers of the units sourced, as 10 rental years is normally a maximum length for the unit to be in the rental fleet of Pekkaniska. Units has been sourced from the different manufactures and from the different countries since the start of the rental business of access platforms in Pekkaniska (Director of the Access Platforms 2017).

Pekkaniska made in 2015 a new plan to source a large amount of access platforms. This three-year sourcing plan of Pekkaniska is replacing the units sourced to Finland between the years 2006-2008. In the previous sourcing processes, the units were sourced using DAP Vantaa delivery term. The raw purchase price of the access platforms comes significantly cheaper when units are bought in EX

Works-basis. Using EX Works delivery term bounds and creates more responsibilities to the buyer, so investigating the time used in the sourcing process became an important issue to Pekkaniska.

The data of the study was gathered during the second phase of the sourcing plan, which started in the beginning of the year 2016 and was finalized at the end of October 2017. This study focuses on the sourcing process of the access platforms, leaving out the sourcing of the cranes and fork lifts. Access platforms were sourced mainly outside Finland, but there was a small amount of equipment sourced from Dino Lift, Loimaa and from Leguan Lifts, Ylöjärvi. This sourcing process includes only the access platforms which were purchased to the rental fleet in Finland.

The subject of this master's thesis was decided together with the director of the access platform business segment of Pekkaniska. This study challenges his and the company management's decision to change the delivery term of the sourced access platforms. Director of the access platforms was interviewed few times during the study because there was a lot of unwritten data about the policies and methods concerning the sourcing process of the access platforms. With the help of this study, the company management can estimate and calculate the actual advantages and cost savings as compared to another delivery term that previously was used. In the previously used delivery term in the sourcing of the access platforms, Pekkaniska had minimalized responsibility and more limited time usage in the process.

1.2 Pekkaniska Group Oy

Pekkaniska Group Oy is privately owned Finnish company established in 1988 with the company roots based already at the end of 1950's. Since the beginning of the year 2018, Finnish based company Pekkaniska Oy has been part of the Pekkaniska Group Oy that controls different companies under the name of Pekkaniska. Ownership of all the companies under the name Pekkaniska are in Finland (Pekkaniska 2018).

Pekkaniska Group Oy is a leading company renting access platforms, cranes and forklifts in Finland, Sweden, Russia and Ukraine and it employs nearly 500 people and 7 000 machines in its different locations. Company has 30 offices around its operation area. High quality of services is the uphold matter in the Pekkaniska's business as the company was the first lifting company in the Nordic countries to have ISO 9001 quality standard received in 1997. This Certificate is covering all parts of the business of Pekkaniska. Company's headquarters is located in Vantaa and the company is still seen as family company (Pekkaniska 2018).

Pekkaniska is the market leader in Nordic countries considering the companies that are concentrating only lifting industry. Pekkaniska's foreign operations cover the Nordic markets, the Baltics and the former Soviet Union territory. In Russia, Pekkaniska is the largest lifting company (Pekkaniska 2018). Figure 1 shows the organization structure of the Pekkaniska Group Oy.

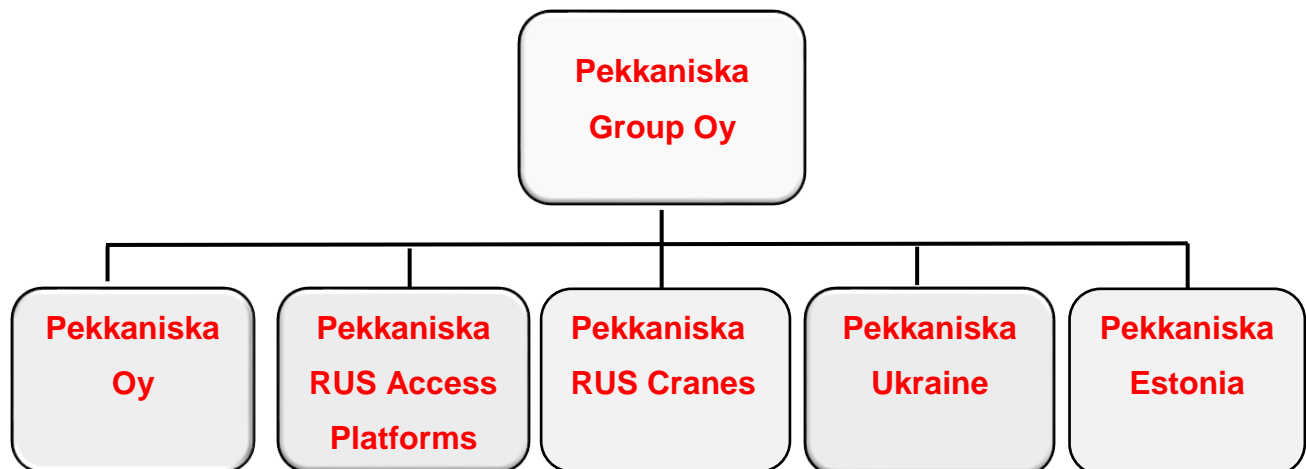


Figure 1. Organization structure of Pekkaniska Group. (Intranet Pekkaniska 2018)

Pekkaniska is known for its bonus system that encourages its employees to healthy way of living. Annually company pays average 1 000 euros to each of its employee based on this system and company has received many different awards for its efforts to motivate employees of the company to have a healthy lifestyle. Suomen Kuvalehti selected Pekkaniska as the best employer in Finland

in year 2010 (Hulkko 2010) and 2017 T-Media listed Pekkaniska to have seventh best reputation of the Finnish companies (Juvonen 2017). Besides employees are having less absence from work, this health base system aims to have better work results and contributes that employees are still healthy when they eventually retire from their work.

1.3 Research objectives and research questions

The aim of this study is to point out how much work time the employees of the Pekkaniska will use during the different stages of the sourcing process when they organize the sourcing logistics themselves instead of leaving the logistics responsibility to the manufacturers of the access platforms. This study also aims to clarify will the change of the delivery term in sourcing process save money for the commissioning company. The objective of the study is to point out how much the sourcing process ties the employees at Pekkaniska when the company will handle the sourcing logistics of the access platforms by themselves.

After this study, the company management will be able to calculate and compare the actual costs of the sourcing process versus the costs occurring when the access platform providers will deliver their manufactured products to Pekkaniska's headquarters in Vantaa. Actual financial figures are not used in the study, so comparing used time to financial figures was transferred to the responsibility of the company management. Percentual amounts of the possible savings are calculated in the conclusion part of the study.

Following research questions are determined:

- *How much work time the employees of Pekkaniska will use in the different stages of the sourcing process of the access platforms*
- *How much the current delivery term save money when company is sourcing the access platforms*

Considering the aim of the study, it can be argued are the research questions workable, answerable and substantially relevant. Answering to these questions was important to the author as well to the commissioning company whose management's sourcing decisions were challenged in this study. With the help of these questions, the framework for the study is set to give direction to the work.

1.4 Research methodology

This is a qualitative study conducted at the lifting company Pekkaniska. The research strategy is implemented as an action research using created time management form and the interviews of the selected employees involved in the sourcing process of the access platforms. Even the study includes numbers and calculations, this study fulfills the definition of the qualitative research as the author was participating in the actual data collection.

People are placing questions and construe things from the chosen perspective and in the way they know. The starting point of the qualitative research is describing the real life and the thought that reality is multifaceted. In this multifaceted reality the researcher needs to take into consideration that reality cannot be arbitrarily fragment in to the pieces, but instead to understand that different actions are shaping each other's. The aim of the qualitative research is to investigate the target as comprehensive as possible (Hirsijärvi et al. 2009, 160-161).

In the action research strategy, the influencing happens when the researcher is participating to the activities of the research topic. The base of influencing and development is research which the researcher is carrying in the research environment. The starting point is combining science and practicality. Action research as a research strategy consist of multiple different aspects and it can be implemented with many different analyzing methods (Jyväskylän Yliopisto 2015).

In this study, the selected employees marked their used time to the time management form. Time management form had a marking for the stage of the sourcing process, so it could be clearly seen in which stage of the process was under

the survey. This research method was selected because of the easiness and the fact that the author worked in another city than all the personnel's involved in the sourcing process. Time management form was sent to the employees that were earlier listed by the director of the access platforms to be involved the different stages of the sourcing process. The selected employees kept their own files where they added a new filled time management form always whenever they had marked participation in the sourcing process of the access platforms.

Both author and the employees involved in the sourcing process were busy in their daily jobs, so making the time management collection as easy as possible was important for everyone. After certain stage of the sourcing process was finalized, author collected together time management forms with markings which were recorded in the files by every employee participating. Information from the end of the certain stage of the sourcing stage was received from the director of the access platforms. Interviews of the selected employees supported the time management form in the data collection.

The gathered data is tabulated and presented in the figure later in the conclusion part of the study. The gathered data is compared to the used work hours of the sourcing process made DAP Vantaa-basis to understand how much more work time the current sourcing method takes than previously one did. After the work hour difference was sort, these figures are compared to sourcing price difference together with the company management to understand what the actual cost saving was when EX Works delivery term was used in the sourcing process of the access platforms.

1.5 Research project overview

The introduction part of this thesis includes briefly few sentences of the importance of cost effectiveness and sourcing following company presentation of Pekkaniska. The research methodology is examined at beginning of the thesis as well. The aim, objective and the research questions are providing guidance for configuration of theoretical part of the research.

In the theoretical part, sourcing and procurement processes are investigated, and the stages of the sourcing processes are opened. Delivery clauses are playing an important part in the sourcing and the responsibilities of the seller and the buyer are explored from the general perspective as well as from the perspective of Pekkaniska when the company is sourcing the access platforms. The theoretical part is including also guidelines of choosing the correct sourcing strategy for the sourcing decision and theory of the time management in the sourcing process.

In the empirical part of the thesis, access platform rental business is explained and the access platform providers of Pekkaniska are presented. The volumes and the production places of chosen access platform providers to this sourcing process are introduced as well as the employees of Pekkaniska who had role in the different stages of the sourcing process.

This study investigates the used work time of the employees of Pekkaniska who were involved in the sourcing process of the access platforms. The subject was decided together with director of the access platforms who had the total responsibility of the sourcing process. This investigated sourcing process was a long and time-consuming process which started in the beginning of the year 2016 and was finalized in October 2017. The used work time of the employees was gathered during this mentioned period.

Overall research structure is presented in the figure 2, which shows that the study started with selecting sourcing process what was meant to be investigated and that the focus was only to the sourcing of the access platforms. When this delimiting was decided, theoretical framework was built to support the research and the data collection was made. Like figure 2 illustrates, the interviews of the employees participating in the sourcing process supported the data collection form used as a data collection method. Collected data was analyzed and as shown by figure 2, conclusions and managerial implementations were made to finalize the study.

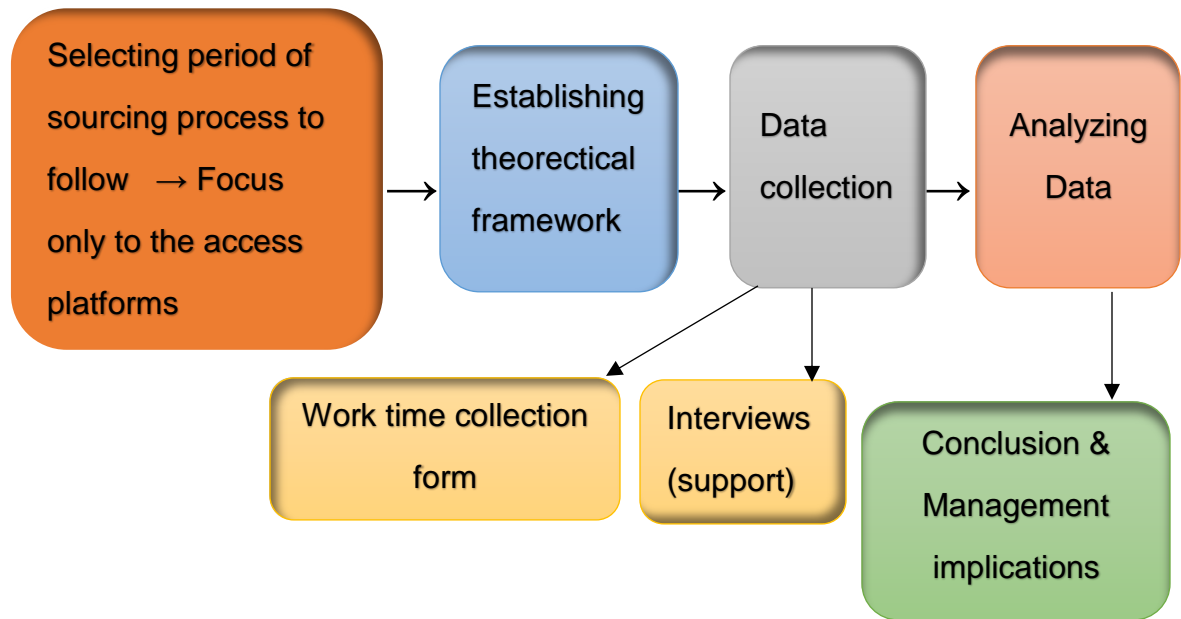


Figure 2. Research structure of the thesis

After the conclusions and the management implementations were made, possible future development and further research aspect were considered. Next chapter will visualize the theoretical framework of the study and the literature used to support it.

1.6 Theoretical framework and literature review

There were no earlier studies concerning sourcing of the access platforms, but many books of sourcing and procurement provided tools to examine the sourcing process and different phases of sourcing. Scientific articles about sourcing processes and time management in those supported the selected books. Van Weele (2014, 32-35) claims that sourcing can be presented roughly in the phases which are identifying and determining the supply needs, market research and evaluation of potential suppliers, and contract negotiations. According to Erridgen (1995, 11-12) typical sourcing process includes: 1) The actual need for sourcing or sourcing proposal, 2) Reviewing the sourcing proposal, 3) Selecting the supplier, 4) Order and 5) Delivery.

This study was also supported by the interviews of the selected employees of Pekkaniska. Interviews were very essential because a number of important factors related to the sourcing process investigated were present only in the minds of these persons. These interviews opened both to the author and Pekkaniska management that sourcing process of the access platforms had clear certain stages which are presented in the later part of the study.

2 SOURCING AND PROCUREMENT

The present chapter will concentrate to the issues relating to the sourcing and procurement which relates to sourcing process. Understanding the theoretical information of the sourcing process and its stages is important to the thesis implementation. This chapter aims to give basic information and guidelines to subject of the thesis.

Sourcing is the process of identifying, selecting and developing suppliers. Sourcing can happen in tactical and operational or in strategic levels. Tactical and operational level sourcing is considered with lower-level decisions which are relating to the high-profit, low-risk non-critical items. Strategic sourcing can be seen with top-level, longer-term decisions that are relating to high-profit, high supply risk strategic items and low profit, high supply risk bottleneck products and services (Lysons & Farrington 2006, 367). According to Paquette, sourcing is replacing the term purchasing in the twenty-first century business as it more accurately reflects to the strategies and goals in forward-thinking businesses which are planning to have a success in the global markets. Sourcing is a strategic goal, not just a functional department (Paquette 2004, 7-8). Sourcing can also be understood as a supply chain function. As its most traditional form, it can be seen to the process of locating and employing suppliers (Solish & Semanik 2011, 1).

The purpose of the sourcing has been typically the sourcing of products, with the correct numbers, from the correct provider to the correct place with the time agreed (Lysons & Farrington 2006, 6). According to Nieminen, the task of sourcing is also to improve the competitiveness and overall performance of the com-

pany. Sourcing must also secure the availability of the correct products or materials and control and minimize all the costs related to the sourcing process and secure all the risks related to the products sourced outside of company. Sourcing must continually observe the possibilities of synergy effects inside the own company as well in the supplier-customer field. The mutual factor for all the tasks and responsibilities of the sourcing is that it aims improve the competitiveness and performance which creates better overall business (Nieminen 2016, chapter 1.6.).

Procurement can be defined as a business management function that ensures identification, sourcing, access and management of the external resources that an organization needs or may need to accomplish its strategic objectives. Procurement exist to examine the supply market opportunities and to implement re-sourcing strategies that deliver the best results in the supply outcome to organization as well as to the stakeholders and the customers of the company. Procurement also applies the science and art of external resources and supply chain management through the frame of knowledge diverted by competent practitioners and professionals of procurement industry. (Lysons & Farrington 2016, 4)

Lysons and Farrington also propose that procurement is pro-active, strategic corporate activity to ensure a continuing supply of the products and services to enable a world-class organizational performance. According to them, procurement manages a supply chain risks through effective negotiations of contracts, costs and price models, quality and other essential supply characteristics. (Lysons & Farrington 2016, 5)

Sourcing and procurement both are critical business functions which has a significant and direct impact to the bottom-line performance. Sourcing and procurement costs can be as much as 50% of the company's annual spend and remarkable savings can accomplish by effective sourcing and procurement. Effective sourcing and procurement must be considered as end-to end-perspective which is shown in figure 3.



Figure 3. End-to end-perspective about sourcing and procurement (Centric consulting 2018)

The starting point of the end-to end-perspective of the sourcing seen figure 3 is to understand what is needed and what it takes to have it. After this has been analyzed, suitable sourcing strategy for the sourcing must be created. The third stage of end-to end-perspective of sourcing seen in the figure 3 consist the tendering process and the supplier selection. After stage three, sourcing switches into procurement activity as the sourcing decision is made. The final stage of end-to end-perspective is to manage the process and the agreed terms (Centric consulting 2018).

Sourcing and procurement can create great savings for the organizations, but there are still many challenges that occurs in the sourcing and procurement programs. According to Centric consulting (2018), organizations are facing following significant challenges in attaining and sustaining procurement savings:

- To archive an accurate and complete visibility of spend across company.
- Leveraging full scale across versatile division and operating groups (purchasing power).
- Segmenting spend and applying the suitable category management and sourcing strategy to all categories (Centralized, Central-Led, Decentralized).
- Perceive clear ownership, accountability and financial responsibility around spend management.
- Force efficiency and effectiveness of procure-to-pay processes and define the roles and responsibilities.
- Controlling the risks associated with poorly-written contracts.

- Managing spend and securing contract compliance across the organization.
- To understand benefits of past and future technology investments.
- Developing and retaining procurement skills and category expertise in the different strategic spend areas.

Sourcing is not an undivided chain that can be organized without different stages. Next chapter focuses to the different stages occurring in the typical sourcing process.

2.1 Stages of the sourcing process

Sourcing of items requires many stages, which creates costs for the seller and buyer both. Agreement of the terms in the different stages in advance will help both sides to ease the process (Railas 2012, 21). Delivery term is an abbreviation that states the operational responsibility, cost responsibility and the risk responsibility transfer from the seller to the buyer during the transaction (Railas 2012, 23-24). Operational responsibility states the responsibilities of the seller and buyer for example related to the agreement of the transportation or the customs clearance. Cost responsibility will be related to the costs of the operational responsibility in the form of who will handle the predicted and unpredictable costs. Risk responsibility states the financial responsibility during the possible destroying, reduction or harming of the bought product (Railas 2012, 23-24).

Figure 4 (Solish & Semanik 2011, 2) shows the stages of sourcing process where the process starts from the requirements and the procurement comes present after the supplier selection is made in the sourcing process:

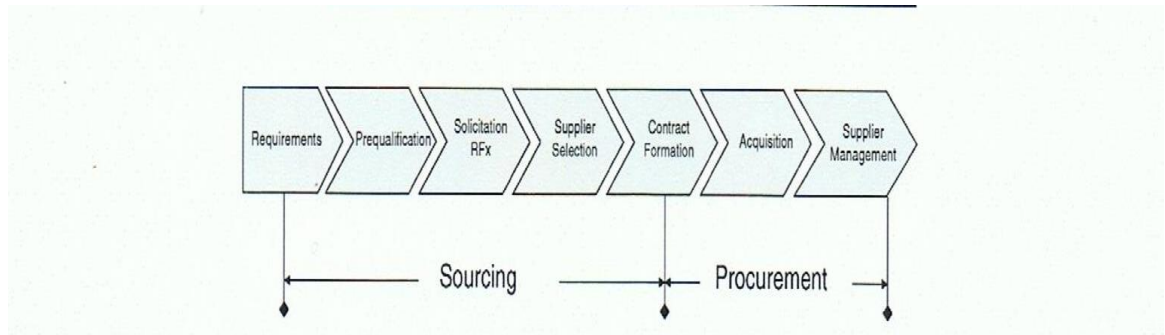


Figure 4. Sourcing and Procurement Process (Sollish & Semanik 2011, 2)

As seen in the figure 4, sourcing and procurement are close to each other. After the actual contract is made for the products that are decided to source, procurement process starts. This sourcing and procurement process of Sollish and Semanik (Sollish & Semanik 2011,2) seen in figure 4 consist seven stages and it is a typical supply chain type of sourcing process starting from the request through managing the supplier or contract (Sollish & Semanik 2011, 2)

Sourcing process can be a complicated process involving several interrelated tasks. Another typical model of the sourcing process is the 11-stage sourcing process used by Novack and Simco (Lysons & Farrington 2006, 368). This model includes following 11 stages:

Stage 1: Identify of re-evaluate needs

Stage 2: Define or evaluate users' requirements

Stage 3: Decide to make or buy

Stage 4: Identify type of purchase

Stage 5: Conduct market analysis

Stage 6: Identify possible suppliers

Stage 7: Prescreen possible suppliers

Stage 8: Evaluate the remaining supply space

Stage 9: Choose supplier

Stage 10: Deliver product/perform service

Stage 11: Post purchase/make performance evaluation

Sourcing process of the access platforms includes stages of the standard model of the sourcing process. Every sourcing process has its own specialties which are not present in the sourcing of some other industry or items and sourcing of the access platforms is not an exception to this. Next chapter of thesis will focus on the points that affect the choosing of the correct sourcing strategy.

2.2 Sourcing and purchasing strategy selection

The most suitable sourcing and purchasing strategy based on the internal and external factors known may be defined with respect to the several different attributes. The best overall sourcing strategy normally depends on the several factors that are important to the process. These factors can be ones such as vendor capabilities, demand stability and the level of trust among the supply chain parties (Sajadieh et al. 2014, 108-115).

Key factor in developing the suitable sourcing strategy is the issue of influencing the balance of power between the company and its key suppliers. The balance of power should be in favor of the buyer as in the reverse situation the buyer can be too dependable on the certain supplier who is able pass on their requirements to the final customer. When this situation is present and change in the sourcing strategy is wanted, following questions can be helpful (Van Weele 2014, 162-163):

- Does the present sourcing strategy support the overall sourcing strategy, and does it meet the company's long-term requirements?
- What is the balance of power between our company and the main suppliers?
- Are the strategic products sourced from the best possible suppliers?
- What amount of the sourced products are covered by the long-term contracts and what amount with the spot-market or short-term contracts?

- To which extent are the company's internal operations benchmarked against those of special suppliers?
- What kind of challenges in supply can be expected in the nearest future and how these challenges influence in the profit and growth of the company?
- What kind of possibilities exist for collaboration with the suppliers regarding to the product development, quality improvement, lead-time reduction and cost reduction?

When describing the role and position of the sourcing supply function in companies, the value chain model of Porter can be used as a reference. In the value chain model of the Michael E. Porter there are named primary activities and support activities. Primary activities are the ones which are required to offer the company's value proposition to its customers. Support activities are the ones that are required to support the company's these primary activities (Van Weele 2014, 5-7.) Figure 5 presents these primary and support activities according the Value chain of Michael E. Porter:

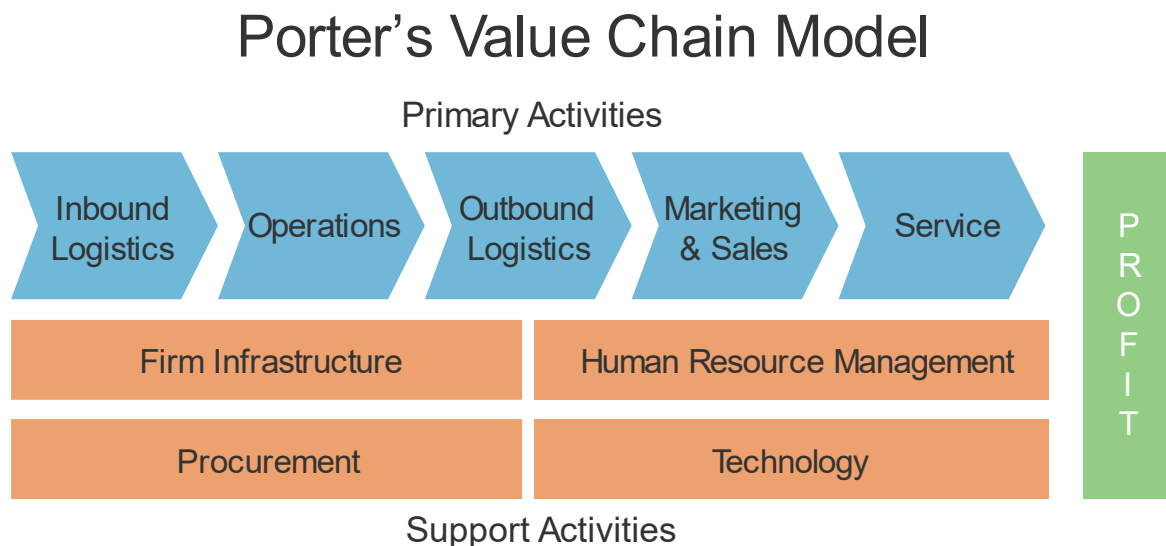


Figure 5. Porter's Value Chain Model. (Strategic Management Insight 2013)

Considering Porter's Value Chain Model seen in figure 5 from the perspective of access platform rental business in Pekkaniska, all the primary activities and support activities can be found. The primary activities are around the actual business

segment (rental, transportation and service and sales of those) and these are the back bone of the company.

The supporting activities seen in figure 5 balance the total business effectively to make it as workable as possible. Modern technology is part of the access platform rental business and good infrastructure in the work places of the employees has its effects to the mental state of the people. Even if the equipment is only rented, the people are the ones organizing the package to customers. Procurement and sourcing are important support activities as in the capital-based business area those activities require a large amount of capital. Selecting the correct sourcing method helps the company to save money for example to the primary activities and create additional value to the company.

A well-constructed sourcing strategy should equip the company with the tools and resources to create a perfect sourcing model to its activities. When deciding the effective sourcing model, company should be able to ask the following questions (Corral 2013):

- Where are we now and how effective and efficient are our current capabilities in business?
- Where could we be and what are the incremental opportunities of ours?
- How can we get to there and what is the roadmap that allows our company to move forward?

The sourcing decision should begin with the consideration of the strategic needs of the sourcing company. Sourcing company should be able to develop its key plans and governance which are providing a sound foundation to strategy and to the leadership team responsible of it. Leadership team should actively lead the sourcing activity and their task is to recommend the most appropriate sourcing strategy to the company (Corral 2013).

Sourcing process of the access platforms is very schedule-based process where delays can cause severe problems to the rental business itself. Next chapter will focus on the time management in the sourcing process.

2.3 Time management in the sourcing process

Interruptions in the supply of the products can have a severe impact to the company's performance, no matter what industry it is operating. Selecting certain suppliers to the sourcing process can create pressure to the time management of the whole process. Possible delays during the process can create a snowball effect that influences the whole business. Decisions that affect to the time management in the sourcing process can be classified as strategic, since beside saving time, they also save money.

Frisk and Karat (2016, 93-95) suggest in their study "Examining the sourcing process at the construction company to explore improvement potentials" that shattered information, poor communication and guidelines have negative impact or duplicate work output to the time management of the sourcing process. According to them, risks related to possible supplier change can be overcome with good planning. They suggest that digital tools should be made to the company to enable e-sourcing and have all the needed supplier information in one place to save the time in early stages of the sourcing process. Their research proposes that all the physical contract signing should be made digitally (Frisk & Karat 2016, 93-95).

The tasks of the sourcing department should be set appropriately by the company management. The sourcing department should concentrate only to the things that has most impact to the overall results and could easily generate 5-10% cost savings to the company. Setting the main attention to the most important 20% of the purchases of the company could have total of 80% impact. Sourcing cycle times can be reduced 10-20% through well-thought out onboarding process (Santiago 2016).

Companies are making their supply chain leaner using method of near-sourcing. Term near-sourcing is used to describe a business placing of some sourcing operations close to where those are sold, as common and opposite trend has been outsourcing those to nations which has the lower labor costs. This does not mean that the manufacturing will be brought back to the country where the company is located but relocating manufacturing premises near is well justified. This saves significantly time in the delivery chain and effectively done it also saves money for the sourcing company. Following steps should be considered before switching to the near-sourcing (Tice 2013):

- Calculate the all the costs associated with switching to it.
- Analyze what are your delivery needs.
- Accumulate in all the potential risks of using overseas vendors.
- Consider what is the suitable pace of change at your company.
- Study your competition and current price levels.

Beside the time and money savings brought by near-sourcing, it also creates remarkable environmental benefits. According to the President of Reshoring Initiative Harry Moser, these environmental aspects are not the main motive to bring the sourcing closer to the buying company. Instead of wage or currency changes, manufacturing quality and delivery problems were main reasons to start near-sourcing operations. Total time used in the sourcing operations was reduced by using this sourcing method (Tice 2013).

Next chapter will focus on the delivery clauses which has an important role in determining the responsibilities of buyer and seller during the sourcing process. These delivery terms will be examined in the overall perspective as well as from the perspective of the commissioning company.

2.4 Incoterms 2010 delivery clauses

In the sourcing process of the access platforms, Incoterms delivery clauses have an important role in the agreements between the buyer and the manufacturers of the access platforms. The purpose of this chapter is to clarify why these delivery clauses are used and how these will influence to the sourcing of the access platforms. These effects, and responsibilities should be taken in the considerations during the examination of the empirical material provided later.

Incoterms rules explain a set of three-letter trade terms which reflects business-to-business practice in the contracts for the sale of goods. The Incoterms rules will describe mainly the tasks, costs and risks involved in the delivery of goods from the sellers to the buyers. The chosen incoterms rule must be appropriate to the goods, to the means of transport, and above everything the parties intend to put additional obligations such as the obligation to organize carriage or insurance, on the seller or on the buyer. (Incoterms 2010, 121.)

International Chamber of Commerce created these rules on 1936 and this globally accepted contractual standard has been regularly updated to keep the pace with the development of international trade. Incoterms 2010 takes account the continued spread of the of customs free zones, the increased use of electronic communications in the business transactions, highlighted concern about the security in the movement of goods and the changes in the transport practices. Incoterms 2010 reduced the number of delivery rules from 13 to 11, as it consolidates rules to make the rules much clearer and simpler. All the rules are also gender-neutral when it comes to the references of the seller and the buyer. (Incoterms 2010, 120.)

Incoterms 2010 consist 11 delivery clauses which are divided according to their purpose. Seven of these delivery clauses can be used in all the transport modes and four clauses can only be used in the sea or other water transports. In these four clauses, the delivery place and the place where the goods are transported

are both at the harbor (Railas 2012, 83-86). Figure 6 shows the responsibilities of the buyer and seller in the different delivery clauses.

INCOTERMS® 2010 RULES CHART OF RESPONSIBILITY											
	Any Transport Mode		Sea/Inland Waterway Transport				Any Transport Mode				
	EXW	FCA	FAS	FOB	CFR	CIF	CPT	CIP	DAT	DAP	DDP
Charges/Fees	Ex Works	Free Carrier	Free Alongside Ship	Free On Board	Cost & Freight	Cost Insurance & Freight	Carriage Paid To	Carriage Insurance Paid To	Delivered at Terminal	Delivered at Place	Delivered Duty Paid
Packaging	Buyer or Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Loading Charges	Buyer	Seller*	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Delivery to Port/Place	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Export Duty & Taxes	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Origin Terminal Charges	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Loading on Carriage	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Carriage Charges	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Insurance						Seller		Seller			
Destination Terminal Charges	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller
Delivery to Destination	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller	Seller
Import Duty & Taxes	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller

Figure 6. Chart of responsibility of Incoterms 2010 delivery clauses. (World class Shipping 2012)

As can be seen in the figure 6, the selected delivery term creates beside responsibilities to the buyer and seller, it creates a great deal of costs. It is highly important to understand all the costs related to the delivery, so that there would not occur unexpected difficulties and delays during the process. Figure 6 points out clearly that delivery terms EX Works and DAP have quite large difference in responsibilities which is important to understand in the investigated sourcing process of the access platforms.

Delivery term used in the sourcing process of the access platforms affects the process and responsibilities itself, but also the financial figures of the actual sourcing contract prices in agreements. It is predictable that the manufacturers of the access platforms place a significant bunker to the logistics costs when they have the responsibility of the delivery of the access platforms to the buyer's

premises. Understanding this gap is also part of the investigation of this study as management of the Pekkaniska can compare the difference of the sourcing contract price when there is added the work resources of the employees to the sourcing contracts made with the delivery term EX Works.

Prior to this three-year sourcing plan, Pekkaniska sourced all the access platforms in DAP Vantaa basis. Making the sourcing agreements in the EX Works-basis lowered the sourcing prices significantly, but simultaneously it created more responsibilities to Pekkaniska. Table 1 demonstrates the main responsibilities of the buyer and seller in the delivery terms DAP and EX Works.

Table 1. Responsibilities of the buyer and the seller in delivery terms EX Works and DAP. (Incoterms 2010, 178-183)

EX Works	Seller	Buyer
Loading the goods transport unit		x
Licenses, authorizations, security clearances and other document other formalities		x
Agreeing the place of delivery	x	x
All the risks and costs to the destination		x
Providing goods and commercial invoice	x	
Contract of carriage of the goods		x
Insurance for the carriage		x
Place the goods at the disposal of the buyer	x	
Paying the agreed price of the goods		x
Damage of the goods	x	x
Checking, packaging and marking	x	
Standard information to assistance with information and related costs	x	x
Mandatory Pre-Shipment inspection		x
Proof of taking the delivery		x
Notices to the seller		x
DAP	Seller	Buyer
Provide goods and commercial invoice to those	x	
Provide licenses, authorizations, security clearances and other formalities	x	
Contract of carriage of goods to named destination	x	
Inform to buyer about possible insurance for the delivery	x	
Delivery to agreed point (on the agreed date or within agreed period)	x	

Bears all the risks of loss or damage to the goods until they are delivered to the agreed place	x	
All the costs relating to carriage until good are delivered to the agreed place	x	
Any notices needed to allow the buyer to take measures that necessary to enable the buyer to take delivery of the goods	x	
Provide the delivery document to buyer	x	
Organize checking, packaging and marking to the goods	x	
Assistance with information and documents and reimburse all the charges and costs incurred by the buyer related to those	x	
Pay the price of the goods as provided in the agreement		x
Apply import licenses, authorizations, security clearances and other formalities		x
Taking the delivery as agreed in contract		x
Bears all the risks related to loss or damage of goods until they are delivered to agreed place		x
Must pay all the costs relating to the goods from the time they have been delivered to the destination		x
Give notices to seller (delivery time/period, named place of destination)		x
Accept the delivery document provided by seller		x
Pay the costs of any mandatory pre-shipment inspection, except the once that are made by the export authorities.		x
Inform the seller in timely manner about the possible security requirements		x
Reimburse seller about cost and charges related to obtaining documents and information.		x
Buyer must in timely manner provide or render assistance in obtaining for the seller		x

Using DAP Vantaa as the agreed delivery term, Pekkaniska communicated only with the contact persons of the access platforms providers and the forwarding company in Finland that organized import customs formalities and duties related to sourced access platforms. This gave Pekkaniska a very little control of the delivery chain after the contract was made with the access platform providers. In the present form of sourcing on EX Works based, the transport manager of Pekkaniska hold daily based data of where the sourced access platforms were located.

Changing the delivery term from the DAP Vantaa to EX Works lowered the purchasing price of the access platforms as the manufacturer was not organizing the logistics operations of the access platforms. As previous clarifications of the DAP and EX Works delivery clauses has taught, this added significantly responsibilities to Pekkaniska and especially increased the resource output to the transport manager of the company. Earlier transport manager had to put a minor output to

the process as receiving arrival schedules and amounts of access platforms to arrive, but delivery term EX Works created him a responsibility of creating effective logistics network with contracting process. It was also clearly seen that during the stage of the process where the sourced access platform manufacturers had some production delays, organizing new delivery schedules with short notice caused additional and time-consuming work. These re-organizing issues in DAP-basis would have been easier to forecast when the manufacturer handles to logistics chain. The access platforms were manufactured in the different places and in the different continents, so tendering the service providers from the different parts of the delivery chain was time consuming operation.

3 ACCESS PLATFORMS AND ACCESS PLATFORM RENTAL BUSINESS

Access platform is a lifting device which is planned mostly only for man lifting. There are some devices that are planned to lift both man and articles, but normally access platforms should not be used for lifting the heavy articles. Some companies are using their own access platforms but renting of them has become more and more common (Rantanen 2014, 2). First access platform which had a wood-based back of the truck access equipment was used already in the 1920's and development of the different access equipment continued during the following decades (Swiftaccess 2017).

Access platforms can roughly be divided into five different categories. These categories are spider type access platforms, telescopic boom lifts, articulating boom lifts, scissor lifts and aerial lifts. All these models have its own design for performing different tasks and selecting correct one for the work to be done is important (Certifymeonline 2013).

Good work environment is safe and productive. This requires prevention of accidents and safety in every work place can be developed (Työterveyslaitos 2018). Work safety has become more and more important aspect in the work life. Avoiding work accidents is important and all the employers should be able to do their work as safely as possible. The use of the access platforms will decrease the

risks of the accidents in work and the use of the access platforms is becoming more and more common. Government decree 403/2008 14§:n 4 section issued on 1 January 2009 determines that “ the user of the fork lift or the access platform must have written license given by employer to use the equipment. The employer must secure before giving this license that the user has adequate abilities and skills to use the equipment”. To make sure that the employer can give this written license to the employee, he must be sure that the employee has received enough training for the safe use of the equipment. (Työsuojelu 2010, 3)

Access platforms are used in several different industries and sectors. Companies using the access platforms can be construction companies, building services (ie. HVAC-and electric-companies), industry maintenance and industrial installation, demolishing or real estate service companies. In addition to these, the renters and users of the access platforms can be private customers, industrial manufacturers and municipalities. It is important to select the right access platform for the operations to ensure that the planned work is safe to do. Different work unions have also their own regulations and height limits when it is necessary to use access platforms instead of ladders or scaffolds (Director of the Access platforms 2017).

Access platform rental business is not just renting the machine. The business includes transport and maintenance services and keeping the rental fleet in the perfect condition to the customers is highly important. The council of state has (Finlex 1403/1993) issued a decision concerning the responsibilities of the renter, user and the employer of the user of access platforms. These provisions state the inspection schedules of the renter of access platforms and create training as one important part of the access platform rental business (Valtioneuvoston päätös työvälineiden turvallisesta käytöstä 1403/1993). All the operations of Pekkaniska are implemented according to ISO 9001 standard and this gives additional systematic diligences to the access platform rental operations. (Pekkaniska 2018)

3.1 Access platform providers of Pekkaniska

The access platforms that Pekkaniska has in their fleet can be considered well selected. Development of the access platforms continues but adding a new provider or a model to the fleet needs to be well reasoned. With the limited number of different providers, the company will make sure that their employees are the experts with the machines and suitable spare parts are available when needed. The industry develops all the time which can give impulse to acquire some new type of equipment or even new access platform provider to the fleet of Pekkaniska.

Rental business of the access platforms includes well followed and standardized maintenance and adding new machine providers would add the amount of needed spare parts as well. Customers are listened continually to find out if they have a need for a new type of equipment. Weather conditions on the markets where Pekkaniska operates has also a great impact for the selection of access platform provider (Director of the Access Platforms 2017). Following paragraphs will present the different access platform providers of Pekkaniska.

3.1.1 Haulotte Group

French based Haulotte Goup (later Haulotte) is the third largest access platform provider in the world and the market leader in the European markets. Haulotte has more than 1 500 employees worldwide and the current form of the company was established 1995 when two French manufacturer's Haulotte and Pinguely merged. Haulotte went public in 1998, when it was listed on the Paris Exchange's secondary market (Haulotte 2018).

Company headquarters is in L'Horme, France. Company has three manufacturing plants in France, and in addition total of three manufacturing plants in China, USA and Romania and it has seven different access platform product categories and three different telehandler categories in its product range. The turnover of

Haulotte was 510 million euros in 2017 with an increase of 11% from the year 2016 (Haulotte 2018).

Pekkaniska has been one of the most important customers of Haulotte for many years. Good co-operation, effective supplier chains to the spare parts and professional technical support are key aspects to why Haulotte and Pekkaniska have been business partners for decades already. Good communication between Haulotte and Pekkaniska can also have its effects to the development of the access platforms. Access platforms sourced are manufactured in Haulotte's manufacturing premises in France and in China. The largest amount of sourced access platforms comes from Haulotte and this badge contained scissor lifts and self-propelled boom lifts (Director of the Access Platforms 2017).

3.1.2 JLG Industries, Inc.

JLG Industries Inc. (later JLG) is a USA based lifting device manufacturer and designer with long and successful history. JLG has been part of the Oshkosh Corporation since 2007 and it was established in 1969 by a true pioneer of access equipment, John L. Grove. JLG had 2017 annual sales of 1.75 billion USD. First access platform of JLG was sold in 1970. JLG is a leading designer and manufacturer of access equipment and its operations are covering the whole world (JLG 2018). The headquarters of JLG is located McConnellsburg, Pennsylvania and the company has over 4 000 employees worldwide (Bloomberg 2018).

JLG is a strategic partner of Pekkaniska and it is the second largest access platform provider to company. The access platforms sourced from the JLG came from their USA, China and Romania manufacturing facilities. The sourced access platforms from JLG contained scissor lifts, self-propelled boom lifts and special platforms. The cooperation between JLG and Pekkaniska has continued already more than 20 years. From the perspective of JLG, Pekkaniska is an important European customer, but Pekkaniska might not have so much possibilities to influence to product development as it has in case of Haulotte (Director of the Access Platforms 2017).

3.1.3 Dinolift Oy

Dinolift Oy provides high quality and ISO (International Organization for Standardization) certificated access platforms to its customers. Dinolift is a Finnish company based in Loimaa and it provides trailer mounted access platforms to Pekkaniska. Company was established in 1974 and it has over 40 years of experience in manufacturing access platforms. Equipment of Dinolift are sold to more than 40 countries around the world. Company is a strong export company as 85% of their annual production amount is going to the export. The main export destinations are in Northern Central Europe and Nordic Countries and the company has a strong dealer organization around the world. Turnover of the company was 34 million euros in year 2017. Beside the trailer mounted access platforms, Dinolift manufactures self-propelled boom lifts, spider-and crawler-type access platforms, light diesel boom lifts that have support pedestal as well as the vehicle mounted lifts that can be used with B driver's license (Dinolift 2018).

Dinolift is an innovative company which aims to develop their products constantly. From the Pekkaniska's perspective the development has been from the AC sourced trailer lifts to the units which had also the possibility to use diesel or gasoline engines as their power source. The new sourced units are all consisting engines as the amount of the units consisting only AC source are decreasing from the fleet of Pekkaniska. Having the diesel or gasoline engines as an alternative power source is designed for more professional and heavier way of use than the units that are consisting only AC power source possibility (Director of the Access Platforms 2017).

3.1.4 Bravisol D.M.S.R.L

Comparing for example to Haulotte and JLG, Bravisol (later Bravi) is much smaller company with only 40 employees. Bravi has a production capacity of 3000 machines annually in their manufacturing premises in Castelfidardo, Italy. Company was established by Pierino Bravi in 1980 and 1986 the company launched their first access platform model. Company has focused to the low-level access

platforms and their goal is to be the market leader in the lightweight and compact platforms with the emphasis on the safety, durability and maneuverability (Bravi Platforms 2016).

Italian access platform provider Bravi is a quite new equipment provider to Pekkaniska. First machines from Bravi were added to the access platform rental selection of Pekkaniska in the beginning of the year 2016. The only access platform acquired from Bravi to the fleet of Pekkaniska is a small batter mast-lift renamed as Minipekka HD (originally Bravi Leonardo HD). Minipekka HD has found its markets in Finland and the total number of units in the rental fleet of Pekkaniska is increasing steadily. With the light unit weight, Minipekka HD can replace aluminum racks in construction site where there are strict limitations for floor load capacity and can be carried even in the smaller capacity cargo lifts. To this unit sourced from the Bravi, it is possible connect a disc tray to ease the installation of the roof panels (Director of the Access Platforms 2017).

3.1.5 Leguan Lifts Oy

Leguan Lifts Oy is a Finnish based company from Ylöjärvi and it is part of the Avant Group. The company has been established on 1990 and it has been focused on developing the access platforms which have good off-road capability and maximum lifting height of 20m. In 1994, Leguan lifts brought the first support pedestal self-propelled access platform to the markets. All the machines are built in Finland and the machines are sold around the globe. The access platforms product category of Leguan Lifts consists five different spider type models and one access platform that can be attached to the spikes of the bucket loader (Leguan Lifts 2018).

Leguan Lifts provide small amount of spider type access platforms to Pekkaniska. Units sourced are either crawler type or tire type of spider lifts. These spider type products which Pekkaniska sources from Leguan Lifts are very seasonal based when it comes to their renting. This limits the number of units acquired as units are mainly used outside winter period (Director of the Access Platforms 2017).

3.1.6 ATN Platforms

ATN platforms (later ATN) was established in 2000 in Tonneis, South France. ATN had an aim to develop a new product in the access platform sector; a track mounted vertical mast called PIAF. The company founders were involved in the development of the access platform model Toucan which was the first vertical mast on wheels. Beside the vertical masts, ATN has a variety of selection of diesel scissor lifts and 2015 company launched track mounted articulated boom Mygale 23. In 2016 they launched an articulated boom lift with the stabilizers (ATN platforms 2018).

ATN is the newest access platform provider to Pekkaniska as the first units were sourced during the sourcing process in 2017. The sourced amount from the ATN is quite small, but there is a clear vision that this amount has a possibility to increase in the nearest future. This mentioned small amount of sourced access platforms included diesel scissor lifts and special access platforms (Director of the Access Platforms 2017).

3.2 Access platform providers in the 2017 sourcing process

Pekkaniska sources access platforms from the carefully selected suppliers. The suppliers of the access platforms in the investigated 2017 sourcing process were Haulotte, JLG, Dino Lift, Leguan Lift, ATN and Bravi which were all presented in the previous paragraph. Other access platform suppliers than ATN and Bravi are partners for a long time and adding a new access platform provider is unusual and must be well justified. The total amount of units in this investigated sourcing process was much larger than normal annual sourcing amount consist.

Total amount of 863 new access platforms were bought in the 2017 and every single one of these units was tailored with the color form of Pekkaniska. The breakdown between different access platform suppliers is presented in the figure 7.

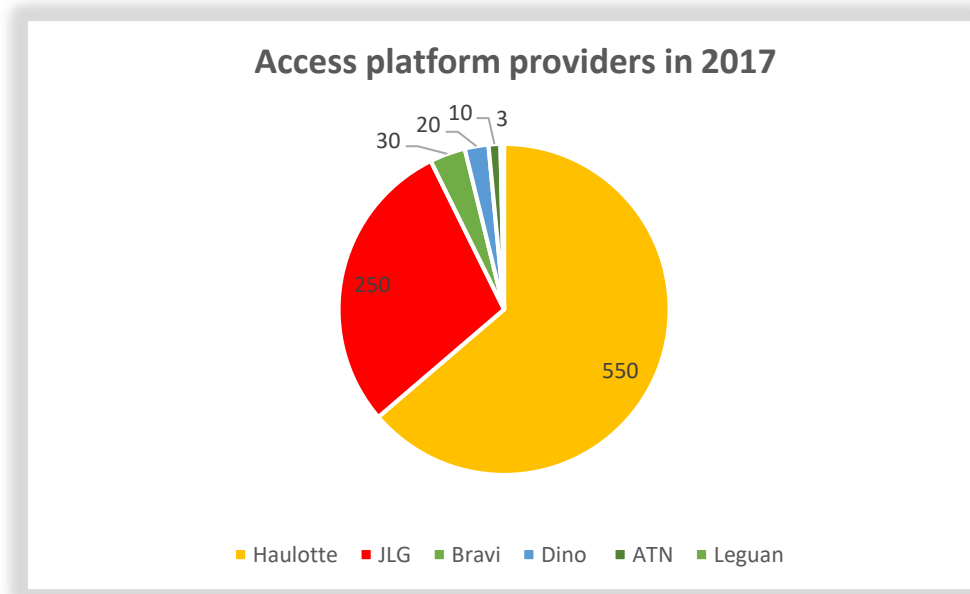


Figure 7. Access platform providers in the 2017 sourcing process.

As can be seen from the figure 7, the French access platform manufacturer Haulotte is the largest supplier of the access platforms of Pekkaniska. The total amount of access platforms sourced from them was 550 units. These units consisted battery scissor lifts, diesel scissor lifts, battery self-propelled boom lifts and diesel self-propelled boom lifts. 440 of these units were manufactured in Haulotte's production facilities in France and 110 in their production facilities in China (Director of the Access Platforms & Transport Manager 2017).

Figure 7 shows that USA based JLG is the second largest supplier of access platforms in this monitored sourcing process. The total amount sourced consisted 250 units and 185 of these were manufactured in China, 40 in Romania and 25 in the JLG's United States production facilities. Small amount of access platforms which were manufactured in China were bought in EX Works JLG Sweden-basis, where JLG has its dealer facilities. These 250 units included battery and diesel scissor lifts, diesel self-propelled boom lifts and special platforms (Director of the Access Platforms 2017).

As figure 7 points out, four other suppliers are providing much less units comparing to the two main suppliers. Bravi is a quite new supplier for Pekkaniska, but it

has a growth potential from the sourced amount of 30 units. The units from Bravi were manufactured in their Italian production facilities and all of those were small scissor lifts and one model only. The 20 units from Dinolift were produced in their production facilities in Loimaa. The first units from ATN was sourced during 2017 with the total amount of 10 units. These units were manufactured in France and those included diesel scissor lifts, self-propelled boom lifts and one special platform. Three units were sourced from Leguan lift. These three units were spider form access platforms which were manufactured in their premises in Ylöjärvi (Director of the Access Platforms & Transport Manager 2017).

The selection of units bought from the certain suppliers is based on present markets, customer needs as well as the good experience of the equipment of access platform suppliers. The small number of selected suppliers is seen as a strength in the rental business of Pekkaniska. The employees of the company are educated for the machine properties and this makes it much easier to control the spare parts stock of rental fleet. The amounts sourced from the two main suppliers can cause also challenges due to the large amounts. This can bring delays in manufacturing and supply chains and especially to the dates when these units have been budgeted to be part of the rental fleet of Pekkaniska.

3.3 Stages of the sourcing process of the access platforms

Before the year 2015, all the new access platforms which Pekkaniska acquired were sourced so that the machine manufacturer delivered those to Pekkaniska's headquarters in Vantaa. The access platforms were previously sourced according to a delivery term of DAP Vantaa (Delivered at place in Vantaa) and currently the company's management has decided to use delivery term EX Works from the manufacturer's premises. This change of the delivery term increased the responsibilities of Pekkaniska in the total sourcing process. According to director of the access platforms (Director of the Access Platforms & Transport Manager 2016), sourcing process of the access platforms in EX Works basis included following eight stages:

- 1) *Need for the access platform sourcing*
- 2) *Tendering the access platform suppliers*
- 3) *Request for the quotation of the access platforms*
- 4) *Request for the quotation of the logistics suppliers*
- 5) *Logistics contracting*
- 6) *Transport phase one (from the manufacturing site to the headquarters of Pekkaniska)*
- 7) *Equipping and testing of the access platforms*
- 8) *Transport phase two (from the headquarters to the regional depots of Pekkaniska)*

It was predictable that taking a larger responsibility in the sourcing process will save direct money. Financial figures were not be presented in this study but gathering the used work time of the employees involved in the different stages of the sourcing process will help the company management see the financial aspects differently and to find out the actual cost savings.

All the employees involved in the different stages of the sourcing process are doing it beside their daily work, so handling the sourcing in the mentioned way also takes the capacity away from their normal work day. The personnel who are involved in the sourcing process will gather the used work time to time following documents. Sales assistants of the regional depots had a minor role in the stage eight of the sourcing process, but their participation could be seen to be part of their normal work instead clearly part of the process investigated. The study also presented important information for the company management of how much the personnel will be committed to the sourcing process.

3.4 Employees involved in the different stages of the sourcing process

The sourcing process of the access platforms required participation of the selected employees of Pekkaniska. All these employees were not present in all the

stages of the sourcing process. Sourcing process included participation of following employees which had different types of responsibilities before it was finalized:

- Managing Director
- Director of the Access Platforms
- Transport Manager
- Office Manager
- Maintenance Manager
- Maintenance Foreman's and their Team

All the selected employees were not involved in all the stages of the sourcing process. Table 2 shows in which stages the different employees were involved during the process:

Table 2. Pekkaniska's employees' involvement during the sourcing process

Stage of the process	1	2	3	4	5	6	7	8
Personnel								
Managing Director								
Director of the Access Platforms								
Transport Manager								
Office Manager								
Maintenance Manager								
Foreman's and team								

Table 2 clearly points that the transport manager of the company was involved significantly in the sourcing process when the access platforms were sourced in EX Works-basis. The first stages of the sourcing process required the same amount of involvement from the company management even the sourcing would be handled in DAP Vantaa-basis as earlier did. Next chapter will clarify the time frame that the investigated sourcing process took from the company.

3.5 Time frame of the sourcing process of the access platforms

The investigated sourcing process took altogether nearly two years. Certain stages were taken through simultaneously in the process which started at the beginning of the year 2016 and came to its end in the October 2017. The time frame illustrates also one full month break in the process which occurred during August-September 2016. Table 3 presents the time frame of the process of the studied sourcing process:

Table 3. Time frame of the sourcing process of access platforms.

Schedule	1 /16	2/ 16	3/ 16	4/ 16	5/ 16	6/ 16	7/ 16	8/ 16	9/ 16	10/ 16	11/ 16	12/ 16	1/ 17	2/ 17	3/ 17	4/ 17	5/ 17	6/ 17	7/ 17	8/ 17	9/ 17	10/ 17	
Stage																							
Stage 1	█	█	█																				
Stage 2			█																				
Stage 3				█	█	█	█	█															
Stage 4										█	█	█											
Stage 5												█											
Stage 6													█	█	█	█	█	█	█	█	█	█	█
Stage 7													█	█	█	█	█	█	█	█	█	█	█
Stage 8													█	█	█	█	█	█	█	█	█	█	█

The first stage and the need for the sourcing of the new access platforms and types that were required was started during the first quarter of the year 2016. The start of the sourcing process was 11th of January 2016. Big reason for the large sourcing process was related to the fact that the large amount used assets (old access platforms) sales happened in year 2017. During the process minor fine adjustments were made, but the major lines to what were sourced was decided during the first months of the year 2016. The final decision of the sourcing process was finalized on 18th of March 2016 when the managing director represented it to the board of the company to be accepted.

Second stage of the sourcing process started on March 2016 when the tendering of the access platforms was made. Third stage started already in April when the requests of quotations were sent to the selected access platform suppliers. This

third stage included also negotiations with the suppliers which started during the week 25 on year 2016. These negotiations included finalizing the actual needs of the access platforms for Pekkaniska and the contract and delivery terms agreements. This stage was finalized during the week 33 in the mentioned year.

Fourth stage of the sourcing process started in October 2016. This important stage took three months and was finalized at the end of the year 2016 when the transport agreements were negotiated with the potential logistics operators. Besides just transporting the access platforms from the manufacturing sites to Pekkaniska's headquarters' in Vantaa, these transport agreements included the needed customs formalities based on the decision of using EX Works delivery term in sourcing. Fifth stage of the sourcing was handled during December 2016 when transport manager made the agreements with selected logistics suppliers.

The sourced access platforms came from many different production facilities and countries. This sixth stage of the sourcing process started in the beginning of the year 2017 when the first equipment started their journey from the Haulotte's production facilities to the Pekkaniska's headquarters in Vantaa. The last access platform in this investigated sourcing process arrived to the Pekkaniska Vantaa in the mid October 2017.

The equipping of the sourced access platforms was made nearly simultaneously with the fifth stage of the sourcing process. This equipping included bar-coding, registration, taping and numbering of the arrived access platforms. This stage included also the final testing of the access platform before the equipment was ready to be placed in the rental fleet of Pekkaniska. Some of the units arrived with minor defects and those were sent back to the manufacturer as a warranty return.

The final stage of the sourcing process did not concern all the sourced access platforms. This stage was carried out basically together with the stages five and six as the equipped access platforms were delivered to the regional depots of Pekkaniska in Finland. Pekkaniska has rental depots in Hämeenlinna, Joensuu,

Jyväskylä, Kokkola, Kotka, Kuopio, Kouvola, Lappeenranta, Lahti, Oulu, Pori, Rovaniemi, Seinäjoki, Tampere, Tornio, Turku and Vaasa. This stage included about 50% of the sourced equipment and it was finalized in October 2017. The final stage of the sourcing process would have been similar as it would have been in the DAP Vantaa-basis and this stage included large amount of organizing (Director of the access platforms & Transport manager 2017).

4 WORK TIME FOLLOWING DURING THE SOURCING PROCESS

Work time of the employees has its own expense. In the sourcing process of the access platforms the people participating to the process are doing all the important support functions before the new arriving access platforms are ready to be part of the rental fleet. It is important to follow how much time certain work or task is taking from them. When the employees are doing some additional work that is not part of their daily tasks, time following has even higher importance as it takes their personal efforts away from doing something else. During the sourcing process of the access platforms, sourcing with delivery clause EX Works bounds selected employees to give their work resources to the process.

This study challenged the sourcing strategy decisions of the company management in the sourcing process of the access platforms. Using DAP Vantaa delivery term in the sourcing process of the access platforms did not require as much work time from the employees as using EX Works delivery term would do. In the sourcing process organized in the DAP Vantaa-basis, the stages four and five were not included in the sourcing process and stage six had much less involvement from the perspective of the transport manager of Pekkaniska. Figure 8 points out the used work time of the sourcing process of the access platforms by using DAP Vantaa delivery term:

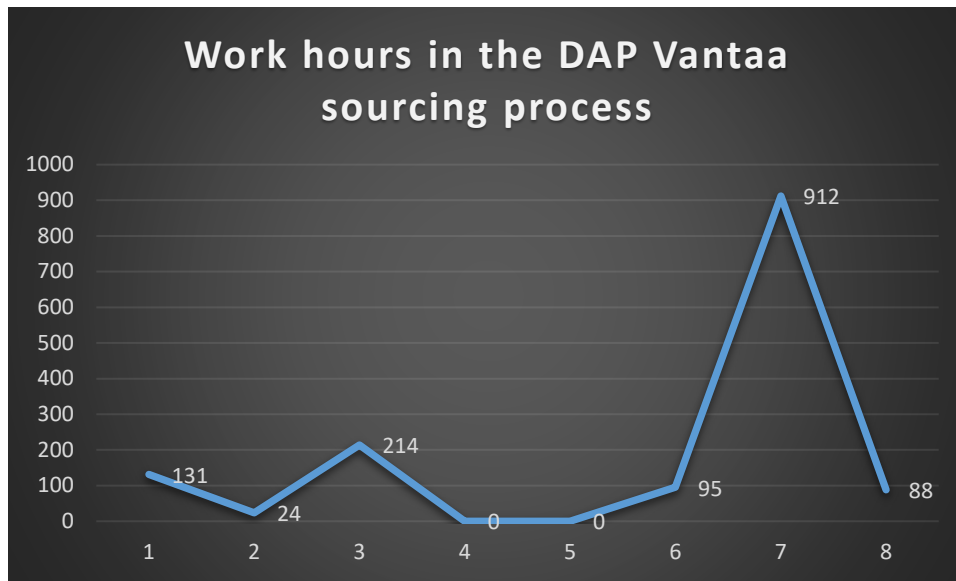


Figure 8. Used work in the different stages of the sourcing process in DAP Vantaa-basis

As figure 8 clarifies, previously used delivery term DAP Vantaa does not include the stages four and five in the sourcing process. This research aimed to find out will it actually save money for the commissioning company when they are involved more in the sourcing process of the access platforms. The total output of the used work hours using DAP Vantaa as a delivery term of the access platforms was 1 464 work hours.

The present chapter later presents the results of the work time of the selected employees in the different stages of the sourcing process when access platforms were sourced using EX Works delivery term. The aim of the study was to gather all the used time together to understand how much time the process takes and will the current sourcing method save more money. Understanding the possible future development aspects to the process was present as well. This data was gathered between January 2016 to October 2017 by marking the used work time to the time following form. Marking was made as easy as possible so that the employees could concentrate to the task without thinking their tasks would be part of the research. After the total amount of used time used during the sourcing process was gathered, it could be also calculated the actual cost savings of current sourcing method.

4.1 First stage of the sourcing process

During the first stage of the sourcing process of the access platforms, managing director (later MD) and director of the access platforms (later director) used a lot of their daily work time to launch the sourcing process. Both the employees involved in the first stage of the sourcing process used 1-3 hours daily, five days in week during the three-month period finalize the actual amounts of the needed access platforms. Director had a more calculative work hours to the sourcing process than MD. Director's work output to the first stage of the sourcing process peaked in the mid-section of the stage.

The used work time of the MD increased a little bit before the end of the first stage as he presented the amounts and budgets of the sourced access platforms to the board of the Pekkaniska. Total amounts of the work time used were 74 hours from the perspective of the director and 57 hours from the perspective of the MD. The time frame of the first stage of the sourcing process of access platforms was during 11th of January to 18th of March 2016. This period included 50 working days for both employees involved in the process, so MD used averagely little bit more than one hour daily for the process and director nearly 1.5 hours. Total work time used in stage one by the employees involved in the sourcing process was 131 hours.

4.2 Second and the third stages of the sourcing process

The second and the third stages of the sourcing process involved only labor output from the director. The second stage lasted only two weeks but included 2-4 hours daily work output from the director. There was only eight work days included during these two weeks due to the Easter holidays. Total amount of the used work time in the second stage of the sourcing process was 24 hours.

After this tendering process was ready, the actual requests of quotations were sent to the selected suppliers. Third stage of the process involved daily based communication about the terms and the specialties for the requested access plat-

forms. This stage included days that consisted negotiations in the supplier's premises as well as the days when only some emails was send. Work time used in this stage of the sourcing process varied between 1-24 hours in a day, when travelling to the negotiations is calculated to be part of the used work time. This stage was ready on the week 33 when the agreements were signed with the suppliers.

The total work time used by the director in the stage three of the sourcing process was 214 hours. The standard day included 1-2 hours of work relating to the sourcing process, but there were clear peak times which required more than average output from the director. These peak periods included preparations for negotiations, contractual finalizing and especially the meetings with the manufacturers in their premises.

4.3 Fourth stage of the sourcing process

The time frame of the sourcing process pointed earlier that there was a break of more than month in the sourcing process during August-September 2016. When the fourth stage of the process started, the transport manager of Pekkaniska started his task in the sourcing process of the access platforms. During the fourth stage of this process, transport manager used average one-hour of his work daily relating to the process. This period took nine weeks from the beginning of the October. This stage would not be included in the sourcing process if the access platforms would be sourced in DAP Vantaa-basis as those were previously.

After four weeks, the amount of the logistics suppliers that were still under the consideration of becoming a service provider were chosen and the negotiations continued with these selected ones. At the beginning of the December 2016, transport manager's task with the stage four was finalized when the service providers for the logistics were selected. This nine-week period which started on 10th of October 2016 and ended in the 9th of December 2016 took totally 44 hours of his work time.

4.4 Fifth stage of the sourcing process

The fifth stage of the sourcing process started immediately after the fourth stage was finalized. Contracting the logistics suppliers was a two-week task for the transport manager and the time he used for this varied between 0-2 hours daily. This contracting played an important part in the sourcing process as making agreements with the trustable logistics suppliers gave security for the deliveries and helped to receive the new equipment in rental fleet as planned. The information of the logistics suppliers that were involved in the previous EX Works deliveries, expedited this selecting process.

The fifth stage was finalized in 23th of December of 2016 and it took 10 working days. This stage of the process included finalizing the contract terms and setting the planned schedules for the transportations. Total amount of the used work output was 11 hours.

4.5 Sixth stage of the sourcing process

The transport contracts were finalized in December 2016 and the actual transports from the manufacturing facilities to the headquarters of Pekkaniska started in January 2017. The first units from the manufacturers premises in France was send in 9th of January. The sixth stage of the sourcing process of the access platforms lasted altogether 10 months as the last unit sourced arrived to Pekkaniska headquarters in Vantaa on 10th of October 2017.

This stage of the sourcing process had a varied organizing need from the transport manager. The used work time of the transport manager varied from the 0 hours to three hours daily. The average work time weekly were normally from nine to 10 hours and considering the length of stage this stage, total time together was significant. Even the logistics suppliers organized the actual transportations, the communicating and agreeing matters took remarkable participation from the transport manager of Pekkaniska. Logistics suppliers sent daily based location data where the sourced equipment was currently located, and transport

manager gave them the needed information about the possible changes in the delivery schedules and delivery lot sizes.

During the 38-week period, transport manager kept a five-week holiday and during those weeks his fill-in kept record of the time he used for sourcing process. The total amount of the work time used by the transport manager and the person substituting him was 359 hours during the sixth stage of the sourcing process of access platforms.

4.6 Seventh stage of the sourcing process

The seventh stage of the of the sourcing process took a remarkable participation from the employees of Pekkaniska. Considering the amount of the employees that were present during the total sourcing process, the seventh stage took most numeral human resource output.

Equipping and testing the sourced access platforms included work resources from the office manager, maintenance manager, maintenance foreman and from the two maintenance workers that were selected to the testing team of the new access platforms. The used work time varied a lot between the days, as the arriving access platforms did not arrive evenly and regularly. This irregularity could be seen clearly in the daily used time to the sourcing as there were a lot of days when the selected employees had zero hours of used work time and days when they used 5-6 hours for completing the tasks in the sourcing process. Occurred irregularity resulted a lot of important coordination and bookkeeping to keep the process in balance. Effective coordinating and information flow between transport manager, office manager and maintenance manager played the crucial part in the seventh stage of the sourcing process of the access platforms. There were six employees altogether involved in the seventh stage of the process and calculated total work time used to this stage totaled to 912 hours.

4.7 Eight stage of the sourcing process

Eight and the last stage of the sourcing process was completed simultaneously with the stages six and seven. This included only work output of the transport manager and handling a new equipment to regional depots was part of his daily tasks. Communicating with the contract drivers and company's own drivers as well as with the sales assistants of the regional depots was also involved. This stage consisted around 50% of the total volume of the sourced access platforms in the investigated process.

Organizing the new equipment from the headquarters to the regional depots would have been included in the sourcing process of the access platforms regardless of what the delivery term would be. This stage did not take as much work output from the transport manager as the inside house communication was included already in the seventh stage of the process. Total amount of gathered work time in this stage of the sourcing process was 88 hours.

5 CONCLUSIONS

After analysing the used time in the sourcing process of access platforms, it can be noted that sourcing of the new access platforms will require a great amount of work time from the participating employees. Figure 9 demonstrates the total used work for each of the stages in the sourcing process:

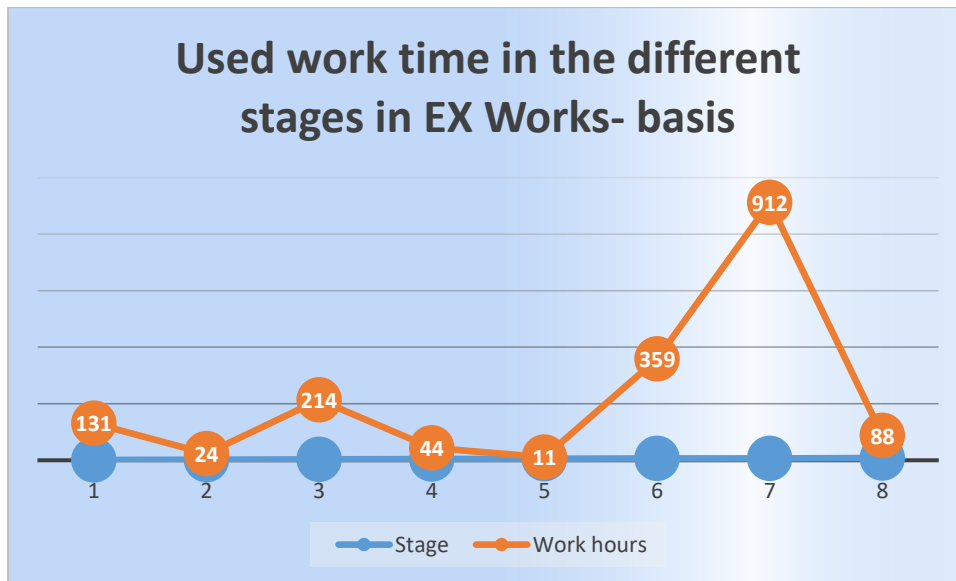


Figure 9. Used work in the different stages of the sourcing process in EX Works- basis

It can be clearly seen from the figure 9 that the stages six and seven required most of work output from the participating employees as the total collected hours were 359 and 912 hours. It can be noted from the figure 9 that the output given in the first stage and third stage from the employees participating was 131 and 214 hours. Stage two included 24 work hours, stage four 44 work hours, stage five 11 hours and the final eight stage 88 hours together. The used work time of the employees of Pekkaniska in the different stages of the sourcing process of access platforms was 1 783 work hours.

The sourcing process bonds these selected employees to process beside their daily tasks and the work hours totalled became significant. Every employee participating the process has 37.5 hours work time every week, so total amount 1 783 work hours for employees of Pekkaniska used in the sourcing process in EX Works-basis is 47.5 human work weeks. With this way calculated it could be seen that sourcing process of the access platforms bonds the employees of Pekkaniska the same amount as one employee has work hours in a year.

Using EX Works delivery term in the sourcing process of the access platforms bonds the participating employees more to the process than previously used DAP Vantaa delivery term does. As the total used time in the sourcing process using

DAP Vantaa was 1 464 hours from the employees participating the sourcing process, EX Works-basis sourcing process took nearly 22% and 319 work hours more participation from the them. Figure 10 highlights where this used work hour difference appeared when DAP and EX Works- based sourcing methods were compared:

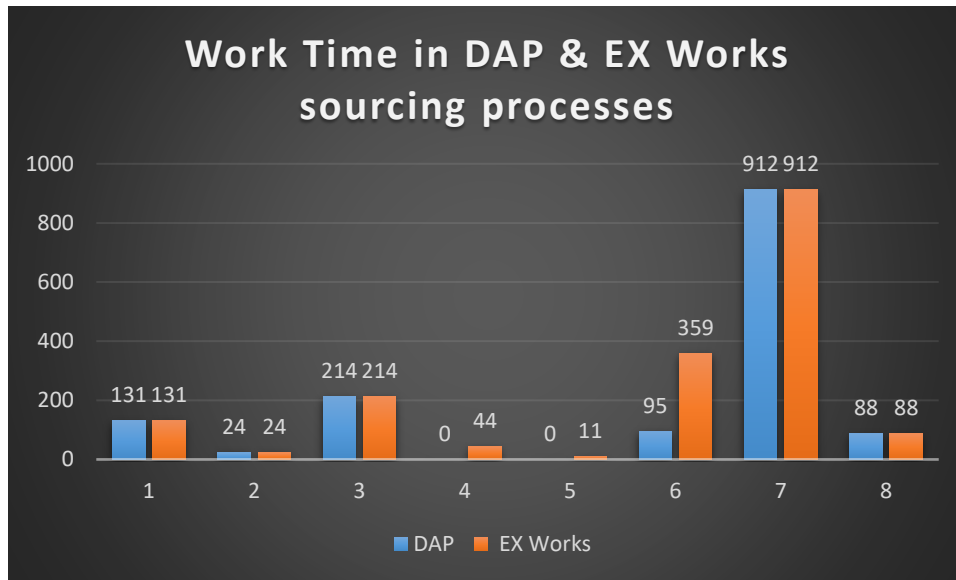


Figure 10. Comparison of the sourcing processes of the access platforms in DAP & EX Works-basis

It can be clearly seen from the figure 10 that the main work output differences come in the stages four, five and six. Other stages have the similar output apart of which sourcing method would be used. Figure 10 clearly points the work output difference given by the transport manager in the stage six of the process when the access platforms are sourced using EX Works delivery clause.

According to director the access platforms (Director of the Access Platforms 2018), the total saving received in the sourcing process of the access platforms with delivery term EX Works was 2% when compared additional used work hours in current sourcing method to the lower purchasing prices of the sourced access platforms.

Using EX-Works delivery term in sourcing of the access platforms gave some important aspects to the total control of the sourcing process. Beside understanding that the total costs of the whole sourcing process became much less expensive, the employees of the Pekkaniska have much better knowledge and control of the actual deliveries of the access platforms from the manufacture's premises to headquarters of Pekkaniska. It could be seen that in this case it is wiser to handle the sourcing process itself instead of focusing only to the own key business area. When the knowledge and control of the stages of the sourcing process were well known in daily basis, it was easy to plan the tasks of the other stages of the sourcing process. This was a major concern during the previously used DAP Vantaa delivery term as the lack of communication created delays and caused uncertainty for the employees.

5.1 Evaluation of the research

This study answered to the adjusted research questions. It can be questioned whether the results of the study are truly accurate and reliable as the author was not present in the premises where the target group of the selected participants were working. Even the author actively reminded constantly the target group of the study to mark daily basis and accordingly the used work time, some lack of active following was unfortunately notified. Understanding the benefits of sourcing in EX Works-basis was more important to the commissioning company than the punctual truth, so the study archived the goals that were set.

There were several stages and issues related in the sourcing process that would have been present also in the previously used sourcing form DAP Vantaa. The most important part of the study was to understand the work output that the transport manager of Pekkaniska must place to the process when he must do all the necessary preparations in logistics field for the equipment manufactured in the different parts of the world. Developing the overall sourcing process will decrease the work hour numbers certainly for the future sourcing processes.

5.2 Pekkaniska management implications

From the author's perspective, this study was valuable. It helped to understand better what stages and particularity the sourcing process of access platforms included. As working in the commissioning company, this study gave the author deeper knowledge about company itself as well.

There were no previous studies of the sourcing of the access platforms made before and Pekkaniska's management considered this study to be valuable. This study helped the management of the company to see the work output that the employees which are taking part of the sourcing process of access platforms needs to give to succeed the process. Even this study will not change the company's decision to get back to the DAP Vantaa delivery term in the sourcing process, it was important to challenge the decision of the company management. The purchasing prize of the new access platform difference is remarkable comparing DAP and EX Works delivery clauses, so sourcing in EX Works-basis saves a lot of capital of the company.

Comparing used work time and the benefits received from the lower purchasing prices of the access platforms, Pekkaniska saved nearly 2% of money in the total sourcing process when the company decided to use EX Works delivery term in the sourcing. This 2% saving released a six-number figure to other business areas of Pekkaniska, so current sourcing method is well justified for the future sourcing processes as well. This study answered to the research questions placed as the actual financial savings could be calculated after the used work time used in the sourcing process was calculated.

The management of Pekkaniska was pleased to see that this study supported their decisions in the selected sourcing strategy used for the sourcing of access platforms. Considering this perspective with the findings received, it can be clearly seen that this study reached the goals set in the beginning and answered to the two research questions placed.

5.3 Possible future development aspect in the sourcing of access platforms

New sourcing processes for the access platforms will be made according to a yearly based plan. The manufacturing places of the new access platforms can variate, and this creates deviance to the previous sourcing processes. Developing the entire process creates possible cost savings and contributes company to do profitable business. Effective operations in the different stages of the sourcing process releases the capital and human resources to other parts of the business.

Learning from the possible problem situations during the process increases the readiness to overcome those. Charting all the possible risk situations and creating survival plan for those could be an important study in the sourcing process of the access platforms.

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TIME FOLLOWING FORM

The form for time usage during the sourcing process						
Name _____						
Week _____	Monday	Tuesday	Wednesday	Thursday	Friday	
Time used/day						
Stage of the sourcing process (circle the stage)	A	B	C	D	E	F
	Need for machine sourcing	Tendering machine suppliers	Request for quotation of machines	Request for quotation of logistic suppliers	Logistics contracting	Transport phase 1. (manufacturing site-Pekkaniska Vantaa)
						G
						Equipping of access platforms
						H
						Transport phase 2. (Pekkaniska Vantaa-regional depots of Pekkaniska)
PEKKANISKA						