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How the Authorised Economic Operator -status affects a company's logistics operations

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Abstract

While expanding global markets have presented companies with opportunities to offer their products to customers located around the world, at same time a problem of vulnerability to cargo has arisen. Goods have been exposed to many threats, as they've been transported over long distances. Authorities alone haven't been able to guarantee the safety of the supply chain, so it has been up to the companies themselves, to take a more proactive approach towards security. The AEO programme was created as a voluntary security program between customs and companies, with the idea being, that if the companies were to proactively assess their own actions towards a more secure international supply chain, they would receive benefits.

The research investigated the implications, that having an AEO-status has on a company's logistics processes. Its purpose was to find out how AEO could be implemented to form part of a company's operations and to identify the challenges it may face. The research strategy was of a qualitative nature, and a single case study was performed on a globally operating case company, Valmet Technologies Inc. Data was collected by conducting structured interviews and making observations. The AEO safety and security criteria, covering the logistics operations, provided the theoretical framework for the research.

The research results suggested, that any AEO applicant's existing processes needed to be assessed first, after which they were to be set in the context of the AEO programme, in order to see how its' processes stood up to the criteria set out in the programme. The research concluded that issues related to security and trust needed defining. The research suggested, that further research conducted from a quantitive perspective on the subject of AEO, could highlight the monetary benefits, that having an AEO-status could bring.

Keywords/tags (subjects)
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Tiivistelmä

Globaalit markkinat mahdollistavat kaupankäynnin yli maiden rajojen. Samalla kun globaalisuus tarjoaa yrityksille mahdollisuuksia tavoittaa asiakkaita toiselta puolelta maailmaa, se saattaa myös altistaa kuljetettavan lastin vaaroille. Tavarat altistuvat monille vaaroille, kun niitä kuljetetaan pitkiä matkoja. Viranomaiset eivät pysty yksinään takaamaan kuljetusketjun turvallisuutta, joten myös yritysten tulee ottaa entistä aktiivisempi rooli kuljetusten turvallisuuden takaamisessa. AEO-ohjelma perustuu tullin ja yritysten vaapaaehtoiseen yhteistyöhön, jonka tarkoituksena on, että yritykset ottavat enemmän vastuuta kansainvälisen kaupankäynnin turvallisuuden takaamisessa ja samalla yritykset hyötyvät tästä myös itse omassa kaupankäynnissään.

Tutkimus tarkasteli AEO-statuksen vaikutusta yrityksen logistisiin prosesseihin. Tutkimuksen tavoitteena oli tarkastella, että miten AEO ja sen mukana tulevat vaatimukset pystyttäisiin sisältämään yrityksen olemassa oleviin prosesseihin. Tutkimus oli laadullinen, ja se toteutettin tapaustutkimuksena globaalille yritykselle Valmet Technologies Oy:lle. Tutkimuksen viitekehys perustui AEO:n turvallisuuskriteereihin, jotka koskivat logistisia toimintoja. Empiirinen aineisto kerättiin haastattelujen ja havainnointien avulla.

Tutkimuksessa tehdyt löydökset osoittivat, että AEO-statuksen hakijan piti arvioida ensin omat logistiset prosessinsa. Tämän jälkeen niitä tuli verrata AEO:n turvallisuuskriteereihin. Esitettyjen tulosten perusteella yrityksen turvallisuuteen liittyviä seikkoja tuli määrittää ja tarkentaa. AEO-status vaikutti sekä yrityksen materiaalisiin että immateriaalisiin seikkoihin. Tutkimuksen tuloksena löytyi muutamia ehdotuksia lisätutkimusaiheiksi. Yksi tällainen aihe olisi määrällinen tutkimus AEO -statukseen liittyen, jossa tutkittaisiin AEO -statuksen saamiseen liittyvät kustannukset ja sen myötä tulevat rahalliset hyödyt.

Avainsanat (asiasanat)
AEO, toimitusketjun turvallisuus, logistiset toiminnot, prosessien hallinta

Muut tiedot

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1 Introduction

Global supply chains, i.e. the routes and ways in which products and materials travel from source to plant to market are constantly at risk and under threat. The sources of these security risks vary from cyber-attacks and espionage, all the way to theft of a product and vehicle hijacking. With an increase in global competition, a forever evolving market place and customer demands for more efficient supply chains, it is now even more important than ever before, for companies to focus, on how to operate safely in the global markets.

This is highlighted by the Transported Asset Protection Association (TAPA) (2017), who in one of its' most recent reports states that threats in the security environment, among other things, will continue to rise in 2017.

Espionage, vehicle hijackings and illicit diversion of dual use of goods are at the top the list of a security related threats. These threats will cause many dilemmas for companies, varying from; how to estimate the probability of a security related incident occurring and how to estimate if its security measures in place are efficient enough, to how to prepare for a situation if a security related incident actually happens. (Security programme 2016.)

A focus on security related issues is further justified as the TAPA (2017) report goes on to state, that a total of 231 new incidents of cargo thefts were reported in November 2016. This actually translates as an increase of 56 % compared to the same month in 2015 and in financial terms, this totals at a value of 6M€ in losses. The end result of the stolen or lost cargo is that product availability is jeopardized and its integrity is also compromised. In a nutshell Palmer (2010) summarizes this well, when he says, that globalization enables raw materials to be manufactured in one part of the world, finished products to be stored somewhere else and consumption to be happening in a third place. And with all this movement of cargo, it presents an opportunity for it to be stolen at any point in between. Figure 1

highlights the increasing trend on reported cargo thefts month by month up to November 2016.

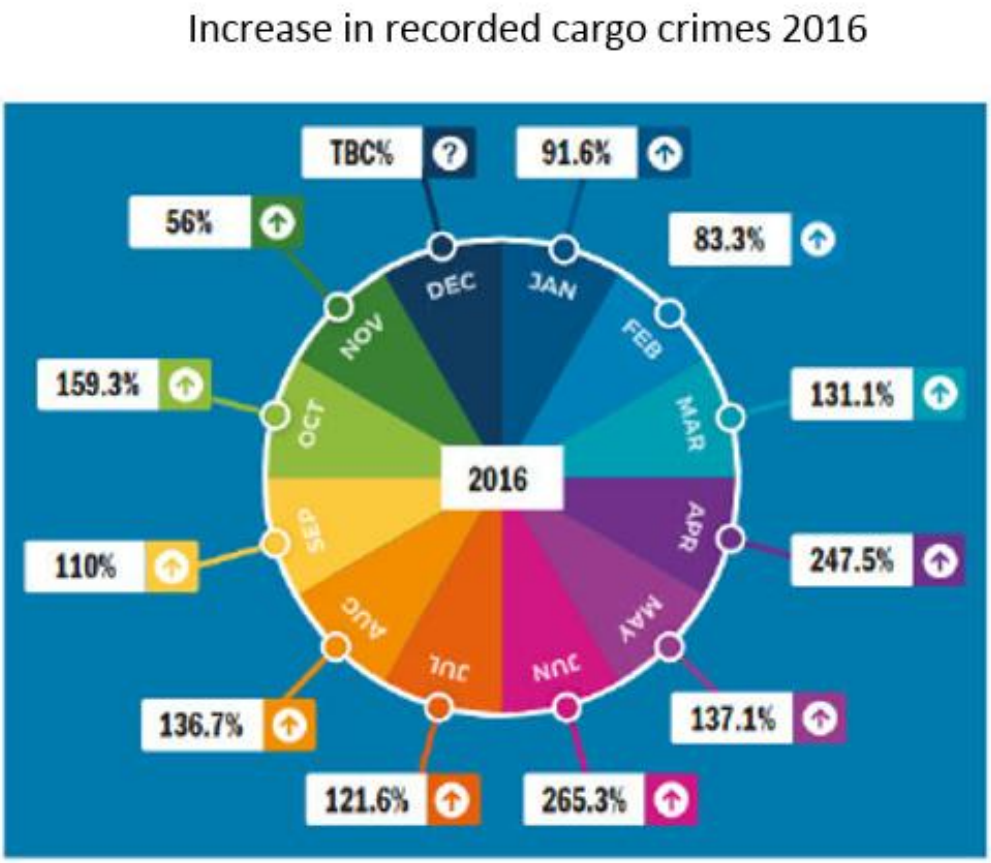

Figure 1 Increase in recorded cargo crimes 2016

(TAPA 2017.)

As seen in Figure 1 the increasing trend of cargo thefts provides for an alarming reading for manufacturers and logistics service providers alike. It also highlights the fact that global markets have a downside of also offering opportunities for the illegitimate trade of stealing goods whilst in transit. Da Cunha, Macario and Reis (2017, 118) raise a concern, that although one the biggest risks facing global supply chains is theft, the risk of having a prohibited item introduced to the cargo, is also very real. Especially when the cargo is handed-over from one mode of transport to another.

Even though none of the reported cargo theft incidents were recorded in Finland, it doesn't mean that Finnish companies are immune to these kinds of risks. Finland is a part of the EU and International trade is an important driver of the Finnish economy.

From Figure 2 it can be seen, that the most cargo thefts, that were reported during November 2016, happened in the United Kingdom, a total of 93. A total of 147M€ worth of goods were imported and a total of 198M€ were exported from and to UK during the same month of November 2016. This means, that in fact a total of 345M€ of Finnish trade and trade meant for Finnish markets, was subjected to threats, that companies in the UK face, at some stage of the supply chain. (Tavaroiden ulkomaankaupan kuukausitilasto marraskuussa. [Monthly statistics on the foreign trade of goods in November] 2016.)

Figure 2 Cargo theft by Country

(TAPA 2017.)

As seen in Figure 2, Global markets and international supply chains impose risks to suppliers, customers and trucking companies regardless of where they originate from. This means that the economies of all of the countries involved are impacted. As (Palmer 2010) states and breaks down ripple on effect, stolen cargo can impact the economy in many ways; the customer is dissatisfied when his goods fail to arrive, meaning the suppliers will need to organize a replacement shipment, and the trucking company having gets a bad reputation and an increase in its insurance

policy. These all ad cost and reduce margin for the stakeholders in the supply chain, and translate eventually to less tax revenue in the government's coffers.

The TAPA (2017) report continues, that whilst cargo related crimes continue to grow, the resources available for these incidents, unfortunately keep on diminishing. Brought on by often political and societal demands, many local, national and international law enforcement agencies need to prioritize their already tight budgets and resources towards more serious crimes. Because lost cargo is referred to often as 'just stolen cargo' and valued simply at its insured value, it is perceived as a 'not so serious issue', and therefore doesn't receive the appropriate attention or resources. If law enforcement agencies feel, that their involvement with cargo theft cases end, when they have filed a report on a crime, it is hardly a surprise, that some dishonest factions see this is as a good opportunity for making money. A lack of available resources to investigate cargo crimes, leads to a situation, where criminals see stealing and selling stolen goods as an opportunity to grow their 'business'. When this happens the integrity of the whole supply chain is jeopardized.

It's no surprise, based on the cargo crime monitoring statistics and related news, that there is a renewed interest in how companies manage risks. Global economy and the increased flow of goods, mean that the role of companies and Customs authorities need to change too. It's not possible nor purposeful for customs, to check every delivery. So companies need to step up their acts and address the challenges of risk prevention. If they had in place systematic risk prevention in their own businesses, not only would they ease the work of customs and allow them to use their time more effectively, but they would also benefit too, in terms of getting their goods and services to their customers quicker.

1.1 Background of AEO

As the previous chapter clearly highlighted, transportation may pose a risk, if its' not managed with security and safety in mind. Long-term growth in trade and volume of travel, combined with increasing uncertainty in the global trading environment, mean that both companies and various authorities need a robust risk management system. Customs authorities at both ends of the supply chain, as well as the

exporters, forwarding companies and importers, need to co-operate efficiently, so that no unauthorized access can be gained to physical goods or documentation, or any other related information at any time. (Szelp 2010; Security programme 2016.)

Many global businesses are in a situation, where they have formed subsidiaries in order to respond to their customer's requests more quickly. With subsidiaries there are operational advantages, in that subsidiaries have the advantage and benefit of local knowledge, but the downside is, that this could lead to a situation where their corporate view gets muddled. Skinnar (2015, 3) discovered, that it's challenging for an organization to manage its security related operations in a unified manner, if it has a large organization structure, operates in a global working environment and has subsidiaries and a vast subcontracting network. Bird and Park (2016, 3) continue that a complex organization structure and many physical locations can lead, over time, to a situation, where uncertainty exists with regards to; if what's been done locally, is in fact in line with the corporate view.

The security aspect has always been present with international trade and with different modes of transportation, but it rose to an even higher level of significance, when terrorists attacked the World Trade Center and the Pentagon on 11.9.2001. These horrific incidents highlighted the awful fact, that a mode of transport can be used as a weapon to cause the worst kind of damage and misery.

In order to achieve a common understanding and perception of the risks being faced by companies and regulatory bodies operating in the global supply chain, a guideline and framework was created. A set of standards and requirements where laid, as to what is demanded from all operators, if they are to be viewed as a trustworthy stakeholder in the supply chain. This laid the foundation for what we know today as the status of an Authorised Economic Operator (AEO).

AEO is a worldwide program introduced by the World Customs Organization (WCO) in order to promote safety in the supply chain, as well as to support international trade. The overall aim, is that companies conduct their operations, so that the utmost focus is on continuous improvement of security and customs related activities. (Syri 2017; Määttä 2012, 17).

As one of the key issues about AEO, is safety, any operator who is interested in obtaining the status of a reliable customs partner, needs to assess risks in its' business environment, in order to understand the possible impact that any identified risk may pose to its' business environment. (European Commission 2016; Syri, 2017; Itämäki 2014; Risk management – Post clearance control 2012).

1.2 Motivation for the research

This research came about, from the need to address the issues facing global supply chains at the moment. As explained above, supply chains face an ever increasing number of challenges and the risks associated are evolving into something that are not even known about yet. In order to prepare and pre-empt these, companies need to adapt the way they handle their supply chains. In this paper we look at one of the most prominent ways for a company to address the issue, which is AEO. In order to help companies in their AEO application processes and to gain insight of the challenges faced by Finnish exporting companies aiming to achieve the status of an AEO, it is necessary to take a closer look at the topic.

Määttä (2012, 54 -55) has identified that AEO certification has influenced Finnish importing and exporting companies positively, and that an AEO -status will bring many direct, as well as indirect benefits. One of the most important direct benefits was seen to be fewer inspections to AEO -status holder's physical goods or documents that accompany goods whilst being transported. Which leads to shorter overall delivery times. If inspections of goods are necessary, Customs are able to execute applicable controls quickly and with ease, as an AEO -status holder has a system in place, where its' commercial and transportation records can be checked. One of the most important indirect benefits of having an AEO-status was found to be, that an AEO -status will help a company to create a more risk-aware culture across the whole organization.

Annila (2012, 30) agrees with the fact, that an AEO -status is beneficial to exporting- and importing companies. The report also highlighted the fact, that despite the AEO –concept already having a relatively long history, Finnish companies still have trouble implementing it. In the EU the first AEO –status was granted to an operator on

January 1.2008 and as of 13.4.2017 the status of Authorised Economic Operator has been issued to a total of 87 operators in Finland. (European Commission 2017.) Annila (2012, 31) says that the main reason for the reluctance for the implementation is, that in order to even apply for an AEO-status, it requires intensive efforts from any company to do so.

Two studies, Skinnar (2015) and Itämäki (2014), were conducted on the AEO application process. Skinnar (2005) focused his study on the AEO criteria and required standards relating to the application process, whereas Itämäki (2014) researched about the self assessment process. Both studies conclude, that the AEO application process presents a company with a chance to review its' internal processes and instructions.

Being aware of the risks and security related issues, are important subjects for any company to address, as these will transpire positively to the company's way of operating. It's even more important for a company, that operates globally and has subsidiaries or other business units located nationally and globally. It's not always easy to estimate the occurrence or probability of security related incidents happening, which with the adherence to AEO guidelines should help solve.

Valmet Technologies Inc. (formerly known as Metso Paper) acts as the case company for this research. Valmet Technologies Inc., a part of Valmet corporation, is a leading global developer and supplier of technologies, automation and services for the pulp, paper and energy industries in 33 countries. From Figure 3 it can be seen that Valmet corporation has a strong global presence. (Valmet 2017.)

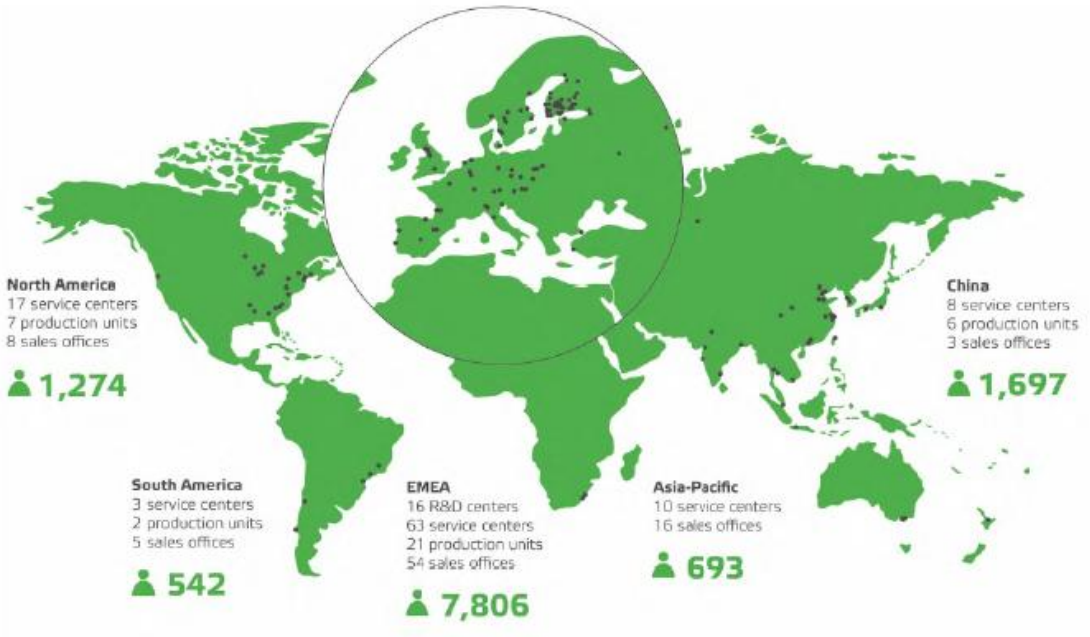

Figure 3 Global presence of Valmet corporation.

(Valmet 2017.)

Figure 3 clearly highlights the global environment that Valmet corporation operates in. The company has 120 service centers in 33 countries on five continents, which means, that it has goods and documents constantly in transit.

According to Valmet Technologies Inc.' risk profile (2016), the company has categorized different risks that could potentially threaten its' business. The company has identified, that should an interruption to its production, processes or business occur, it has a very high possibility of hindering its ability to serve its worldwide located customers. This profile continues, that in case of something unexpected happening within its' supply chain, its' operational capability and resiliency will be put to the test. An unfortunate occurrence of fraud, misconduct or any other type crime, may also pose a threat to Valmet's compliance.

Achieving the AEO -status, will help to some extent, solve Valmet Technologies Inc. afore mentioned risk concerns. Being recognized as having the AEO -status, is highly desirable for the company, as its' interests are in getting its' goods and services quicker to its customers worldwide. Valmet Technologies Inc. has first-hand experience of unexpectedly extended delivery times on its' project related goods, especially to China. This in part, is due to the fact, that the Chinese have substantially

toughened their border controls, which has led to longer delivery times. Implementation of AEO-status associated standards, should speed up this process at the border, meaning that Valmet will achieve cost savings and benefit from shortened delivery times, enabling it in providing a better overall service for its' customers.

The benefits of being recognized as an AEO, are vast for Valmet. Amongst other things, it signals that the company is a trustworthy partner and customer in international trade. It also sends a message of being a reliable operator with a proven and clear view of its' supply chain processes. It also gives a company an opportunity to check and compare if its risk assessment is in compliance with AEO guidelines.

To benefit fully from the status, it's crucial that all of the different business units of Valmet Technologies Inc., are operating in line with the corporate view. For after all, from the perspective of its' customers and customs authorities, Valmet Technologies Inc. is seen as one company. Having implemented the processes that are required to achieve the status of an AEO will also help the company to prevent a potentially harmful 'mismatch culture', which can potentially develop, considering the organization's many different business units.

Going forward, whenever the company reviews its processes, potential development areas will be first noted and then fixed as stipulated by AEO guidelines. This will lead the company towards a situation where all units have harmonized processes, tools and practices in place. Companies that have AEO recognition, have demonstrated that they have a high level of control as well as transparency in their operations. The status also signals that the company is compliant to customs legislation and taxation rules, as well as it having a control of its' supply chain activities. Ideally the AEO - process leads to a situation where risk management actions are treated as a dynamic system typified by constant change, activity and evolution in customs inspection.

Reaching a decision to apply for an AEO-status has not come quick for Valmet Technologies. Which has been mainly due to the vast and fairly complex organization structure of Valmet Technologies. However, with increasing news about security related incidents putting global supply chains at risk, the decision to apply for the

AEO –status could not be postponed any longer. Being recognized as an AEO is highly attractive to Valmet Technologies Inc., just as it to any other global company. It will bring a competitive edge to its' business and put it on par with its' competitors who already have achieved an AEO -status.

The AEO application process was initially investigated as far back as 2010, but the final decision for Valmet Technologies to apply for the AEO was not reached until the end of 2015. The application process and AEO project kicked off at the beginning of 2016.

There are several reasons why knowledge of the processes required to achieve an AEO-status is beneficial to anybody working in a global business environment. From a forwarding and logistical operations point of view, these processes help address the risks and challenges which arise when sending goods around the world. These are typically related to different information sharing methods, operational procedures and how to build and maintain trust between different partners.

Personally the subject of AEO interests me, as I work as part of a logistics team at Valmet Technologies Inc. Services. I'm also a part of Valmet's AEO -project team so this adds to my interest of the subject. I'm interested in the security aspects, that companies need to evaluate, whilst keeping their focus on the execution of their various business plans. This study will help me gain more knowledge on security issues, as well as give me a chance of contributing towards the AEO application process. Studying the subject of AEO will enhance my understanding of logistics processes and procedures as a whole. With a clear understanding of the processes involved, I'll be able to do my part more effectively and help to contribute towards Valmet Technologies mission, of serving its' customer better and increasing their trust towards Valmet Technologies.

Although some studies have already been carried out on the subject of AEO, a systematic understanding of how implementing AEO related processes affect a company's business processes, has so far been lacking. Previous studies about the subject have concentrated on AEO as a phenemenon on it's own merits. In order to better understand the requirements needed to achieve the status of an AEO, it is crucial to put it in the context of an organization's existing processes. These previous

studies highlight the need for research about how achieving an AEO-status affects an organization's existing activities and the impact it may have on its business processes. Therefore, to bring something new and in order to gain more insight, this further research into the subject of AEO is required.

1.3 Research questions

The objective of this research is to analyze the possible implications of what having AEO-status has on a global exporting company's logistics processes.

The question this research aims to answer is:

How the Authorised Economic Operator -status affects a company's logistics operations.

Customs authorities have laid out the framework of criteria and requirements that any operator must adhere to if they are to achieve the status of an AEO. The focus of this thesis is on AEO-status related security and safety standards. A qualitative approach was chosen to be be the most appropriate one for the purpose of this study. A single case study was conducted with structured interviews and observation. The theoretical framework for the research consists of those parts of the AEO guidelines that focus on security and safety requirements related to logistics operations.

1.4 Structure of the thesis

This thesis starts with an introductory chapter. This introduction highlights the current threats that can put global supply chains at risk and introduces the case company Valmet Technologies Inc. and the challenges it faces related to this subject. The introduction is followed by the literature review. In this chapter the key concepts of the thesis are defined and explained. The chapter that follows explains the methodology, the theoretical framework of the thesis and how the methodology is applied in the research process. After this the results are analyzed and final conclusions are made. Lastly, after getting clear answers to the research question, the whole research process is evaluated with a critical mindset. Recommendations based on the research are discussed and suggestions for further research are offered.

2 Literature review

This chapter starts off with an explanation of the key concepts of this research. Then with these key concepts in mind, present literature is explored to provide a theoretical background for the research. And lastly the literature review is concluded with a submission of a theoretical framework.

2.1 Key concepts

There are three key concepts that this review will cover, they are; the supply chain risk management process, the business process management and AEO.

The supply chain risk management process starts off with risk definition and then moves on to the identification of the different risks sources. The supply chain and the various operators, or stakeholders as they are widely referred to as, are introduced in order to get a better understanding of the risks involved in a supply chain environment. But also to appreciate the aspects from which the different companies operating in the supply chains, may view and perceive these associated risks. It is the responsibility of a supply chain management team to deal with and view all these different factors that are important for the effectiveness of a supply chain.

Business process management focuses to some extent on actions related to customs process management. Business process focus will also highlight how adaptable a company is to any changes in global business environment.

AEO is a set of criterion that is described in depth and forms the concluding chapter. This plays a significant part in providing the theoretical framework for this study.

With the three key concepts defined the study can move on to the literature review.

2.2 Supply chain risk management process

Schoenherr and Tummala (2012, 474) say that a risk can be defined as an undesired outcome to what is anticipated, and that it is also almost always associated with uncertainty. They also say that sometimes risks can present opportunities, but that it

is far more usual for them to serve up an undesirable event and a very much unwanted, negative consequence.

With a risk defined, the next step is to look at the various types of risks that can affect the supply chain. Figure 4 below shows what König and Spinler (2016, 127) along with Hintsa and Urciuoli (2016, 419-420) determine what are generally perceived to be the various risk sources. And to further help understand this, over the next few paragraphs, this study will give examples of some of those different types of risks in the supply chain environment.

Figure 4 Categorization of risk sources

(König and Spinler 2016.; Hintsa and Urciuoli 2016.)

As seen in Figure 4 - Risk sources can be generally divided into two main types of risk categories. There are operational risks, which although cannot always be controlled, are usually something, that can at least to some extent, be prepared for and planned for. In fact, often if a company plans, prepares and exercises due diligence, it is able to mitigate to a great extent, the effect and impact that an operational risk has on its' supply chain.

Hintsa and Urciuoli (2016, 420) describe demand risk as an example of an operational risk. The risk is perceived to be external to the firm, and it threatens that one

criterion, such as cost or demand, will change. This is also commonly referred to as a deviation risk. The matter of addressing security risks related such misfortunes as theft and illicit trade, have increased their priority among supply chain security issues especially after the terrorist attacks of 9/11. This has brought along a whole host of new security standards and initiatives that cover international trade.

With operational risks being something that one can plan for, then on the other hand there are a far more unpredictable set of risks that fall under the umbrella of disruption risks. These risks are ones which in general, are totally out of the control of the organization and in themselves are very unpredictable. This unpredictability makes it very hard for an organization to protect itself against the risk and thus can cause a serious strain on the supply chains. Some great examples of disruption risks can be highlighted from recent newsworthy stories from around the globe.

A series of major natural disasters such as Hurricane Katrina in 2005, the European wide ash-cloud, caused by Iceland's erupted volcano in 2010, the Japanese earthquake followed by a tsunami in 2011, the flooding in parts of Europe in 2014, the wildfires in California in 2016 and the piracy attacks off the shores of Somalia in 2017, are just some examples of what form disruptive risks can take. We read about them in our daily news, how they cause misery to human life, but it is worth noting that they also cause serious headaches for supply chain management teams.

Other disruptive risks that organizations have to contend with are associated with the kind of headlines that are being made by economical turns, like the global financial crisis, the effects of Brexit or whether America's new President will withdraw from trade deals, slap hefty tariffs on U.S partners and impose import restrictions. Those newsworthy issues are perfect examples of man-made risks, that can put businesses at risk in the process.

König and Spinler (2016, 122) conclude that uncertainty is very much associated with disruptive risks whether being man-made or caused by nature. Previously mentioned risk examples can also seriously disrupt the free flow of goods and highlight the vulnerability of today's global supply chains.

As previously described risks are inevitable with many business related activities. In today's market place it is instrumental, that an organization's vision and strategy address' how risks are approached. According to Little (2013) an approach towards risk management could be on of an avoidance, control, acceptance, transfer or investigation. Whatever the approach to the risk management process is, it should be proactive and performed in a timely manner, as very often in a crisis, things and actions need to be prioritized. A company's culture can either hinder or help in this. Clearly defined organizational roles and responsibilities help, when actions are needed to be taken. Risk management planning is easier if a proper process is put in place and resources are defined, to support the whole risk management process. Catmur, Dutto, Guzman and Rogers (2013, 2) point out that whilst focusing on future opportunities a conscious decision needs to be made whether to avoid, control, accept, transfer or investigate the risk. In the high performing business model, a company's strategy and vision address the approach towards the risk management.

When an organization fulfills a customer request, it needs involvement not only from the manufacturer, suppliers and transporters, but even also from the customers themselves. Chopra and Meindl (2014, 5) have identified this indirect or direct involvement of the above mentioned parties as a supply chain. In a supply chain information, products and funds flow dynamically between different parties. KPMG (2014) point out that for a supply chain to have worked successfully, a customer's order or request, has had to have been delivered within a defined scope, within an agreed time and within a specified budget.

Kunnathur and Sindhuja (2015, 478) observed further, that modern supply chains are merely a coordinated network of dependent technology systems, that fulfil to the knowledge demand of the supply chains.

KPMG (2014) concludes that if all of the above mentioned supply chain activities are managed with a risk management mindset, the likelihood of a successful execution will be increased.

Figure 5 illustrates an example of a supply chain and is explained by Kunnathur and Sindhuja (2015, 481) as follows; a manufacturer produces the goods for export, hands it over to an exporter, which is the entity that has itself established in the

customs territory of the European Union. The exporter has a contract with the consignee located in the third country, therefore is aware of the fact, that the goods are destined outside the customs territory of the Union. It is the responsibility of the exporter to make the export declaration and he is the one, who can instruct a freight forwarder to organize a shipment from the manufacturer to a customer, or a final point of distribution. This leads to the role of the warehouse keeper, who's main responsibilities are the receiving, storing and the dispatching of the goods.

As we follow the links in Figure 5, the next link in the supply chain, is the customs authority. Belu, Marinoiu, Paraschiv and Popa (2015, 1106) state, that when goods leave or arrive in the EU, these need to be declared to customs authority. Customs authorities facilitate commercial trade, control customs and keep country's borders. Customs agents work for the government and they have an active role of enhancing national competitiveness. Their duties are versatile and they have many functions. They are responsible for collecting taxes based on the characteristics of the goods, but they are responsible for protecting the national industry and environment, and to ensure security in the whole of the logistical chain.

Once the customs authorities have cleared the consignment, it is moved on in to the care of the carrier and from there on to an importer. Kunnathur and Sindhuja (2015, 477) describe this part of the process and the role of a carrier being a company who carries the cargo. And an importer, who is also known as consignee, is the one responsible for making an import declaration. There are generally accepted, traditional responsibilities of each supply chain player, they may indeed differ from one country to another. One is also to be mindful of the fact, that they are also affected by a constantly changing world, in which on must comply with all sorts of different and very often nation or union specific logistical security standards.

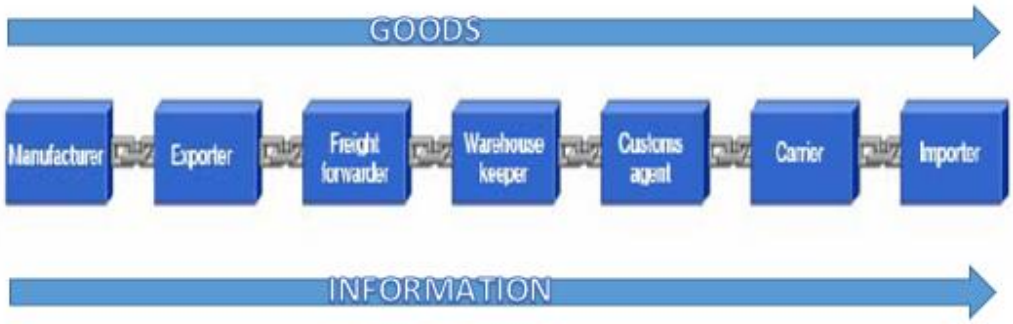

Figure 5 Sample of International supply chain

(Syri 2017.)

In summary, Figure 5 illustrates that a supply chain can be interpreted as just a simple chain of interconnected organizations. The reality of today's supply chains is, that they are often far more complex in nature and design, due to prevailing business trends such as globalization, outsourcing and complexity of product offerings. It's also important to highlight the fact, that it's not just goods that are being moved in the supply chain, but also all the related information. Alcantara and Marchesini (2016, 7) conclude that when logistics operations efficiently and effectively involve all interconnected organizations, the end results being that customer's needs and expectations can be met at the lowest possible cost.

König and Spinler (2016, 126) emphasize that when an organization considers and assesses the risks in supply chain, it not only should, but must extend its' risk management activities, to consider also those parties, that transport the physical goods, as well as those parties who prepare and handle the information accompanied with the goods. All the different parties depend on each other and therefore play an important role of addressing also the issue of security in a supply chain.

As previously identified globalization was one of the reasons why a supply chain can be exposed to serious disturbances from both within, as well as from those that arising from an external environment. Hintsa and Urciuoli (2016, 422) highlight the fact that risks are also harder to spot when supply chains are increasingly more interconnected and complex in nature. Continuous communication, which is crucial

to mutual risk identification, planning and goal setting, often gets lost in this complicated setting.

König and Spinler (2016, 128) state that there are a number of other things that need to be factored in and which test the robustness of a supply chain. One is, that transport volumes have increased due to companies opting for smaller emergency stocks and smaller stocks in general. Secondly, with the increased transport volumes comes an increase in associated risks. Both of these put the robustness of today's supply and distribution networks to the test. The reason for the disruption to the flow of goods, whether it be caused by a natural disaster, heightened border security or a failed IT system, is not nearly as important, as the way that organizations identify, assess and find a way to deal with, and recover from these disruptions.

In order for the supply chain stakeholders to eliminate potential weak points in the supply chain, they should align their strategies and have a common understanding of risks. Identification, assessment, mitigation and response towards risk, are tasks that companies in a supply chain are expected to evaluate periodically. (Hintsa & Urciuoli 2016, 420-421.)

Schoenherr and Tummala (2012, 474) have conceptualized a supply chain risk to be an event, that has an undesired effect on a company's ability to meet its chain-wide service levels, agreements and cost, therefore addressing risks is one of the most important tasks of Supply Chain Management (SCM). Carter and Rogers (2008) define a supply chain risk management to be an organization's ability to master and execute its economic, environmental and social risks in the supply chain. Oke, Olhager and Prajogo (2014, 220) link supply chain management for an organization's ability to perform successfully. SCM can be said to comprise an organization's management of its external and internal operations such as logistics and distributions processes in order to offer its goods and services successfully.

As previously explained, the occurrence of any kind of risk in a supply chain can lead to a situation where customer demand can't be fulfilled. An inability to meet customer demand could be caused by a number of reasons, ranging from, natural disasters, legal liabilities or inaccurate demand forecasts to fluctuating key raw material prices to poor or inconsistent supplier quality and performance. Very rarely

can anything be delivered without a single hitch, so it makes no sense to try to eliminate all the risks. Instead all efforts should be made to ensure that an effective risk management procedure is put in place.

The appropriate supply chain risk management actions can be considered after risks in the context of a supply chain are identified. Viewed from the point of risk management, today's supply chains are far harder to manage due to global environment of sourcing, production and sales. Other factors that make the risk management process' complex in supply chains, are that so many issues need to be considered at the same time; stakeholders, the speed at which communications and data should flow, as well as enterprise-wide integrated systems and processes. A successful risk management process considers the different issues from many angles; lifecycle, nature, objectives, delivery scope and schedule. (Arthur D. Little 2013.)

If risk management activities are identified and considered to be vital core components, it's easier to tackle possible negative events, that might jeopardize the whole project. These comprehensive activities start well before the project starts and end when the project is executed according to its specifications (KPMG 2014).

Identification, assessment, mitigation and responsiveness to risk are different elements in the supply chain risk management process and they refer to the set of activities and tools that are used to manage risks (Besner & Hobbs 2012, 231). Now that the risk management process has been examined, it's possible to move on to consider how risks are being identified.

2.2.1 Identification of risk

Before risks can be ranked and contingencies planned they need to be identified. Potential risks, that can affect the organization, are then collected and documented. Risks are then categorized, and probabilities of these occurring, are calculated and responsibilities are assigned as required by the particular type of industry. (KPMG 2014).

Tchankova (2002, 292) describes that risk identification is a continuous process, that considers present risks, arising from the economic environment, from the political situation and from the organization's internal domain. It also looks out for potential

or new risks, emerging from when entering new markets or expanding product offering or business lines.

Moreover, Hintsa and Urciuoli (2016, 422) agrees with Tchankova (2002, 295) that risk identification is the phase where relevant stakeholders and supply chain processes are identified, and possible negative or positive forces, that may hinder the overall success of a project are addressed. Identified risks are analyzed further, in order to determine what the severities of these are for the project if they were to happen. The risk identification process extends from a company's internal environment to its external environment. External factors such as political situations and environmental changes, may also trigger a company to change or re-examine the processes.

Little (2013) continues that risk identification is a vital part of an organization's management activities. For example, if a good risk identification process is in place when planning a project, risks can be prevented and time and resources can be shifted and saved from problem solving, and put to use at a later stage to more productive activities.

Although the risk identification should always be meticulous, it doesn't necessarily mean it needs to be slow and stiff. According to Brown, Kiefer and Schlesinger (2012, 154) a great example of this is an in-depth study of 27 serial entrepreneurs. It was found, that although these serial entrepreneurs were not specifically trained in the field of risk identification, they exhibited the qualities of great project planners in an unpredictable environment. They were able to act quickly, by identifying risks, as well as opportunities, without overthinking the future, but at the same time, they were able to keep in mind the need to minimize and if necessary, cut their losses. They achieved this, because they didn't waste their time and energy on trying to score style points, overanalyze or pursue perfection.

Even though the managers working for an organization could take a few lessons from these serial entrepreneurs, the situation is more complex than it appears at first sight. Risk identification must be based on a company's strategy and the company's guidelines on risk definition and resources available to it, as well as reporting rules and overall objectives. (KPMG 2014.)

Nicholson (2015) has found out that when planning projects and the risks related to it, the focus needs to be kept also on the overall business needs of the company.

Furthermore, when assessing risks, it's vital to establish a thorough understanding of the marketplace. The process for evaluating market characteristics involves surveying your customers, competitors and vendors. Business relationships are also very often based on expectations of improved quality, cost and flexibility, as well as delivery and customer service, therefore contractual obligations and legal requirements for all parties involved need to be defined. (Nicholson 2015, 8; Ahuja, Larson & Motwani 1998, 147.)

Nicholson (2015, 9) concludes that especially big corporations should consider carefully the limitations and possibilities that their Enterprise Resource Planning (ERP) system presents. The Risk identification process should also give consideration to the fact, that often the projects can involve many different departments of an organization. This presents a further challenge to how the identified risks are managed in relation to how the project milestones are set and how they are reached. Now that the risks have been identified, it's purposeful to move on to consider how risks are being assessed.

2.2.2 Assessment of risk

Once a risk has been identified, a risk assessment exercise is conducted. This starts with qualitative and quantitative analyses, with which the aim is to discover the likelihood and impact of the risks that are being evaluated. The risk levels are prioritized as high, medium and low and different cost levels are assigned for each identified risks. Low effect risks have a high frequency, but a low severity. These are reasonably easy to predict even though they may occur infrequently. Medium effect risks have a low frequency but are accompanied with a medium severity. These occur frequently and are reasonably well predicted. High effect risks occur less often, but have a high severity and are almost impossible to predict (KPMG 2014; Hintsa & Urciuoli 2016, 420). Schoenherr and Tummala (2011, 476) have also included "trivial" as one of the characteristics consequences of high effect risk. Probability of occurrence and predictability of a trivial consequence is very high whereas it's severity is very low.

Nölling (2015, 5) argues that challenges to risk analysis and assessment could arise from the fact that sometimes there aren't any previous or similar situations that can be used as a model for the risk assessment. In these cases, for instance project managers, are faced with a difficult task, they need to be able learn "on the job" so to speak. The project progresses and they need to be able to overcome technical problems and to keep staff motivated for the entire project timeline and so on. Many decisions will also need to be made at the early stages of a project, relying on the information at hand at the beginning of the project. Whatever the scale of a project, there are a vast numbers of skills that need to be mastered. These include handling permits, finance and legal issues as well Health and safety issues. Even though risk assessment process may be time consuming and requires efforts from the company's management team, it's important that the risks have been properly assessed before consideration towards risk mitigation can be given.

2.2.3 Mitigation of risk

KPMG (2014) says that the third step in the risk management process is the mitigation of a risk. Risk mitigation considers practices or techniques, that can be applied in order to reduce the possibility and/or impact of the risk. This is the step where preventative risk strategies are reinforced and also where action plans are developed to contain and control risks. Interviews and workshops are examples of risk reduction techniques. If interviews are conducted confidentially, it's possible to find out the true needs of stakeholders from each of their own perspectives. Workshops on the other hand help to establish cross-functional essence from many different perspectives. Whatever practices are considered to be the most appropriate ones for the risk mitigation, it's important to bear in mind that risks can't be completely eliminated. With this in mind it's possible to move on to planning of responses towards risks.

2.2.4 Response planning towards risk

According to KPMG (2014) risk response planning is a phase where focus is very much on forward planning. In this phase, possible actions are designed just in case a risk does arise. If this does in fact happen, and an identified risk occurs, a person, who has been nominated beforehand (usually based on his or her capabilities to deal

with such situation) takes charge. They will then put in place one of the pre-planned action plan's which could be one of avoidance, transference, mitigation or acceptance.

The telecom industry is a great example how risk assessment is carried out with speed and efficiency. They truly are in the frontline, when it comes to bearing the impact from the ever-changing business environment. For this industry there are numerous triggers, that may force them to rethink their operations. These can be external or strategic, and operational or even stem from personnel. All the same, these telecom companies really give a clear impression of having a clear focus on any regulatory changes, as well as the ability to keep an eye on possible new market entrants. Whilst doing all this, they are still able to pay attention to their own core business activities. They also give great consideration, to what would be the best suited strategy to combat whatever challenge may lie ahead. (Bower, Debruyne, & Melton 2014, 3.)

As new products and services are being released at a faster phase by more suppliers, it has been found, that a simplification as a way of responding towards competition, is backed by these industry trends. So in order to stand out from the crowd, a number of things need to be improved. A good place to start is customer service. As well as improving the customer service level, agility is required in order to be able to reduce the time it takes to enter market. Cost reductions can also be achieved and overall efficiencies improved, if wasteful actions are eliminated from processes. (Horrocks, Lichtenau and Smith (2015, 2.)

It requires long term commitment to remove complexities, but addressing the following five dimensions; products, channels, processes, technology and governance, organization simplification could be achieved. Simplification is a continuous process and for it to work, the whole company needs to commit to it at all levels, starting from the top. (Bower et al. 2014, 4.)

Based on an ATKearney (2014) analysis about successful change, the conclusion is, that it lies with the commitment level of the leadership. This goes for nearly everything, whether it be aimed at end-to-end transformation or achieving cost reduction and gaining new market share. The company's strategy runs a parallel with

any change management activities. After top level commitment to change has been achieved, then small, specialized teams are put in place to develop these further. For the development to work, the scope of the change program needs to be appropriate. Finally, it's the job of the bigger design teams to actually execute the change. For the execution to be a success, ownership of the task and timeline need to be made clear for all. This change process requires time and is always dependent on the level of complexity.

An effective risk management process also takes into consideration how resources should be allocated appropriately and how competences are managed long-term. Challenging and questioning views could be achieved if the resources with suitable experience are brought in. Then it's left to the top level of management to organize and to oversee the risk management process, because without proper governance and monitoring, the risk management process doesn't deliver the desired results. (Bohlin, Davies, Francis, & Thuriaux-Aleman 2015, 10.) In the next chapter it'll be described what kind of actions are required in order to monitor risks effectively.

2.2.5 Monitoring of risk management process

Even if a risk management plan is good and well-designed, it goes to waste, if it's not monitored and controlled. Some of the symptoms that highlight the lack of monitoring in the risk management process are; inefficient decision making, failure in information reaching staff promptly and too rigid action plans, as well as a wasteful use of resources available and slow adjustment to market changes. (Bouchard & Maire 2015, 3.) When monitoring and controlling risks, potential risks are tracked, implementation of risk plans are inspected and risk plans are evaluated in accordance with how effective these were in practice. (KPMG 2014.)

Schedules and budgets often fail if risks aren't monitored pro-actively when delivering projects. This can jeopardize the whole project in the process. Risk management should be one of the key points of focus for the whole project team. Managers are better equipped to make informed decisions, if risks are reported and logged in an easy to maintain portal. A risk management plan made at the beginning of a project is evaluated against how well it worked in a real life situation, making it

also possible to track the effectiveness of the risk identification process, when reported risks are analyzed from risk reports. (KPMG 2014.; Oracle 2011, 2-3)

An approach of 'continuous learning' is an important part of the learning process and this applies to a successful risk management process also. If during the risk identification and risk assessment processes, certain risks aren't being mitigated as planned, the response plan needs to be adjusted. The same applies the other way around also; if during the risk identification and risk assessment processes, a certain risk is found to be insignificant at a late stage, the plan is adjusted, to re-prioritize the likelihood and consequences of the risk classification. The risk management monitoring process evaluates important milestones and learnings, and records these for the future benefit of the company. (Arthur D. Little, 2013.; KPMG 2014)

For the risk management process in a supply chain to be successful, it should be based on two principles. Firstly, supply chain members should have a common understanding of supply chain risks, and secondly their approach towards risks should be coordinated. As information systems and the internet enable organizations in a supply chain to collaborate, it also helps them to align their decision making processes, and mix people and physical processes with technical processes. (Kunnathur & Sindhuja 2015, 479)

Ahmadi and Nikravanshalmani (2016, 10) say for risk management to meet its purpose and for it to be executed successfully, it is vital that organizations not only model, analyze and manage their business processes, but do so on a regular basis. Regular and healthy business process management increases an organization's ability to respond to environmental changes, as well as its ability to approve, monitor and analyze the way its operating processes, concerning staff and operations are organized.

An effective supply chain risk management process helps people perfect processes and aim high, when they aspire to deliver defect free products and services. In the real world there's always some potential for defects, so it's crucial to know that alternative scenarios do exist for these kind of cases. In order for an organization to be able to identify and manage risks, it needs to have a clear understanding of its

operations and processes. The next chapter will highlight the fundamental concepts of business process management.

2.3 Business process management

As concluded in the previous chapter, an organization can greatly benefit if risk management is a factored in at the highest level of organizational management. But it's not only risks that can cause upheaval for businesses. Competition between companies has become intense and more aggressive than before causing organizations to face numerous challenges in order to survive, to prosper and to stay competitive. In addition to this, the structures of organizations are getting more complex and globalization pushes companies to reach for unknown territories, that they do not necessarily have a readiness, nor the internal capabilities for. Very rarely stability alone or staying inactive is the best answer in a fast-changing business world. Whatever decisions they choose to make in order to better satisfy their customers and stakeholders it all stems from understanding their own products, services and processes. After an organization reviews its capabilities it's easier to understand how adaptable these are to changes. Whatever changes are decided to be undertaken as well as the level of any change it has to be fit for the purpose and to be executed well. Globalization means that new kind of risks can arise, for instance if one county decides to leave common markets or business environment is restricted for other reasons.

Horrocks et al. (2015, 2) say that the best performing companies, are the ones that perform all the right activities, at just the right time, in the right place and get the desired results. One of the reasons, that they manage to perform well, is that their operations are streamlined and responsibilities are well defined. They have also understood the importance of working smarter and taking a more holistic approach. One way to achieve a smarter and more holistic approach, is to eliminate duplicate actions and complexities from the business, organization and all the various processes. Decision making should also be fact based, so that the end results creates value for all stakeholders. If a company's leadership sets a good example and streamlines its processes, this also puts it in a better position to identify potential over-complexities in the processes.

Tan, Tseng and Wong (2014, 604) refer to Business Process Management (BPM) as the way an organization organizes its processes to ensure continuous overall performance improvement. Business process management approach also enables the streamlining of processes, as well as the management of organizational and human change. Nicholson (2015, 7) has found that especially human change is an important issue to be considered. If people are well matched with their characteristics and psychologies to their roles, an organization can achieve an improved overall performance through people's capabilities and work enjoyment. Furthermore, de Morais, de Pádua and Kazan (2014, 412) identify BPM as one of the management themes attracting increasing attention.

Figure 6 illustrates process management as a dynamic workflow hexagon where organization's activities are linked with business processes.

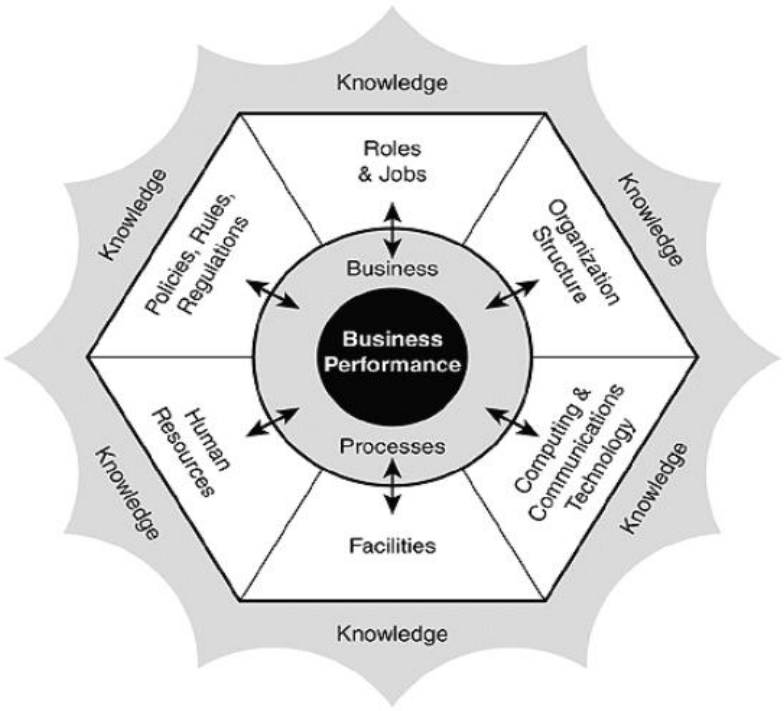

Figure 6 Process management hexagon

(Burlton 2001.)

It's the job of the process management team, to make sure, that the different elements shown in Figure 6, work together. Burlton (2001, 74) insists that it's paramount that elements work together, if improved performance is to be delivered. An organization's capabilities and resources are shown to be mobile, flowing both

from the outside in and from the inside outwards. An organization's business performance benefits from integration of multiple streams of technology with other resources and capabilities. As processes are also considered to be part of an organization's assets, managerial capabilities are needed, in order to combine management commitment together with employee empowerment. Knowledge is embedded in all the assets and embodied in human abilities. It leads the decision making process and with the use of data and information, it guides humans to obtain results.

As mentioned before, markets and customer needs change, new competitors emerge and political factors or changes in economic policies may trigger the need for an organization to re-examine or review a process to better understand, examine and challenge its fit for the purpose and appropriateness for with other processes.

de Morais et al. (2014, 425) disclosed that with the help of BPM, business processes need to be managed, improved, controlled and reviewed at regular intervals. This makes it possible for business processes to be tracked at all stages of their existence; planning, diagnostics, designing/modelling, implementation, monitoring/controlling and refinement. Ahmadi and Nikravanshalmani (2016, 11) continue that as business processes come under constant stress, they have to be examined and improved frequently. it's a never-ending task for the process management team, to plan for environmental changes to keep an organization pointed in the right direction. Da Costa, De Padua, De Souza Junior, Jabbour and Segatto (2014, 249) clarify that understanding the goals and objectives, are key at the planning stage. At the diagnostics stage, the focus is very much on how well these contribute towards the achievement of an organization's mission. At the designing/modelling stage, a new approach to processes is established and the appropriate control for the effectiveness of these new approaches is thought before implementation. The last two stages of monitoring/controlling and refinement examine if the changes to the processes are effective, and whether further alterations are needed.

Tan et al. (2014, 605) adds, that when various parts of the organization's processes are aligned and harmonized, the organization's overall performance is also enhanced. If activities are efficiently aligned, this leads to a better overall business

performance of the organization, forming also the basis for a solid competitive advantage, that will be hard for competitors to replicate. Brown et al. (2012, 155) also consider the fact that especially when operating in an unpredictable environment, knowing and using the resources you have, allows an organization to act quickly and also the most optimal way in any given situation.

Figure 7 displays the principles of process management. Business change is a constant journey and even though very much performance driven, all changes should be traced to the needs of stakeholders. Process renewal initiatives stem from the external environment and inspire shared insight. As for the business' point of view, processes need to be managed holistically and in response to changes.

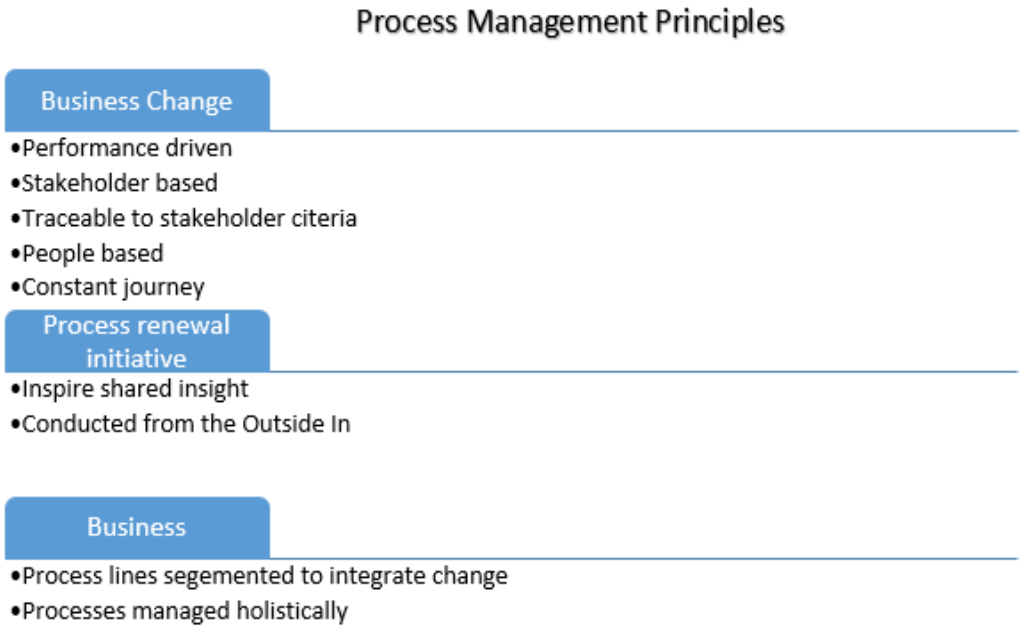

Figure 7 Process management principles

(Burlton 2001.)

As Figure 7 shows, process management answers to change. Ahmadi and Nikravanshalmani (2016, 10) agree, that one of the most important functions of BPM is to increase an organization's responsiveness to environmental changes. In addition, Rosemann (2015) states that BPM plays a vital role, in not just being a

reactive problem solving solution in business processes, but also in increasing an organization's efficiency.

2.3.1 Benefits of BPM

BPM struggles a bit in its transition from methodologically driven approach of optimizing the way processes are modelled, analyzed, implemented or monitored towards a more comprehensive approach. According to La Rosa (2015, 2), Rosemann (2015) states that the driving forces and motivators of BPM for organizations, go beyond the improvement of efficiency and quality. Motivation for BPM lies with six values that have been identified as; three internally focused and three externally focused values. Operational efficiency is the most obvious one of the internal benefits. The second one is compliance, as without it, processes that have been carefully designed and chosen, will not be executed. The third one relates to employee engagement. In order to achieve an operational efficiency, as well as compliance, task allocation should be designed in a way that it encourages an employee driven approach. If employees have greater input and can articulate job preferences, it's more likely that overall efficiency in the whole process is accomplished.

The three externally focused benefits, that can be achieved with BPM, are customer integration, agility and quality. Customer integration addresses and aligns an organizations own processes with the processes of customer's, so that these can be successfully blended. This builds a common platform and base of understanding of issues, that are important for both parties. (La Rosa 2015, 3.)

In previous chapters of this research, it has been concluded, that from the risk management point of view, an organization needs to have a crystal clear view of its operations and processes. The same goes for the other supply chain stakeholders, in order for them to be able to work efficiently, they should have a common understanding of the risks. Logistics practices are altered with continuous changes, but the overall aim of the logistics process, of meeting customers' needs at the lowest possible cost, remains the same.

Marchesini et al. (2016) have acknowledged, that logistics processes span all across the operational levels and encompass the business process level. At the same time, the logistics function performs a strategic role in an organization's success and can be also said to be part of the border-crossing function. Schlesinger et al. (2014); Horrocks et al. (2015, 3) point out, that customer integrations can be formed between an organization and its important suppliers. Grant, Holweg, Kotzab and Teller (2015, 111) continue that these kinds of key supplier relationships, can form between parties who share common business process activities and consider themselves as an extension of one another. In order to be competitive, an organization should be able to answer to any changes, or needs, that quickly arise from the external environment. When fulfilling a customer request, an involvement is also often needed from other parties in the supply chain. All these parties should have a common understanding of the risks in the supply chain.

AEO is a worldwide program, that aims to help organizations and customs authorities to identify risks and to find possible solutions to these risks, in order to keep them under control. The overall aim of AEO is to enhance security in international supply chains, by promoting security, both in supply chain and international trade. The AEO program encourages an organization to take a more proactive role towards continuous improvement of customs related operations. In doing so an organization which has been granted the status of an AEO, has assessed its' risks and processes. The next chapter will go into more detail about the AEO programme, which will also provide the theoretical framework for this thesis.

2.4 AEO

The roots of AEO can be traced back to beginning of the new millennia, as it was born largely as a consequence of the 2001 terror attacks. The World Customs Organization (WCO) needed to address concerns about supply chain security and safe trading, and they did so by creating an initiative called Framework of Standard to Secure and Facilitate Global Trade (SAFE) in 2005. The purpose of SAFE was to deter international terrorism, enable the safe collection of revenue and to help promote the facilitation of trade globally. At the very heart of this international framework is the program we know as AEO. (Authorised Economic Operator [AEO] 2016.)

An Economic operator is a someone, company or instance, whose business transactions are covered by customs legislation. And a holder of an AEO status, is one of the afore mentioned, which has been assessed and certified by Customs Authorities, to have met the criteria of having safe customs clearance procedures and logistics operations in place. An AEO status can be granted to any business, that has proven to be Customs compliant, is financially solvent and has the appropriate security and safety standards in place. A successful applicant must also show, that it has appropriate record-keeping of its' commercial and transport records, and that it allows Customs Authorities access to these. The typical AEO –status applicant is a manufacturer, freight forwarding company, exporter, importer, warehouse keeper or customs agent (European Commission 2016; Schramm 2014, 36)

At present AEO is based on a voluntary partnership between traders and customs, but even with this "voluntary" status, it comes with appealing benefits for both parties involved. As an AEO is deemed to be a reliable business partner, it's entitled to benefits. These benefits are not only applicable throughout the European Union, but also outside of the EU through mutual recognition. (AEO - valtuutettu talouden toimija 2016. *[AEO – Authorised Economic Operator]*; Jääskeläinen 2014, 44.) When it comes to certifying companies and performing their own risk management, Customs Authorities do so differently for AEOs than they do for non AEOs. As a result of being recognized as an AEO, customs are more likely to trust the operator and perform less inspections and document-based controls on goods, that are imported or exported by an AEO. And should any consignments inspections be required, they are treated as priority cases for an AEO. (Authorised Economic Operator Guidelines 2016, 11.)

This simplifying and streamlining of operations, is beneficial for both customs and companies, as duplicate evaluation and work in customs related activities is avoided. Homenuik (2015, 80) found, that an AEO -status will bring benefits for both customs authorities and operators. In order to comply with the Security and Safety criteria, the operator must embrace new principles to its' international trade business practices. This enables goods moving quicker to market and reduces the costs on transport. Saksa (2015) adds that the fact that an AEO has to pay less in guarantees as well as getting other exemptions on security collaterals, must also be considered a benefit. Companies also benefit in terms of having shorter delivery times due to

efficiency in customs procedures. Itämäki (2014) continues, that having an AEO status can help companies to more accurately predict the of flow of goods, due to less bureaucracy. Ultimately leading to a reduction in the total cost of transportation.

Out of all the WCO members, more than 170 countries have submitted letters, in which they state their intention to implement the AEO system. Among the advanced countries, such as Japan and the US, and regions such as the European Union, the system is already in use. AEO guidelines as laid out by The Taxation and Customs Union Directorate-General (Authorized Economic Operators - query page. 2017.) state, that all member states should recognize a holder of an AEO certificate, allowing them to receive the same benefits across all of its' member states.

Customs authorities benefit too, as their limited inspection resources, can be better focused on high-risk cargo. Figure 8 shows the different activities that Customs Authorities conduct. The European Commission provides an online customs tariff database called TARIC, the integrated Tariff of the European Union. This gives the Customs Authorities in all EU Member States a unified means of determining applicable customs duty on goods originating from a non-EU country. (Provisions implementing the Community Customs code directive number 1875/2006 2016.)

It also gives all member states the ability to measure agricultural components, to act as a defense against antidumping and countervailing duties, as well as giving them the ability to control imports and exports of certain good categories. (West 2011, 5.)

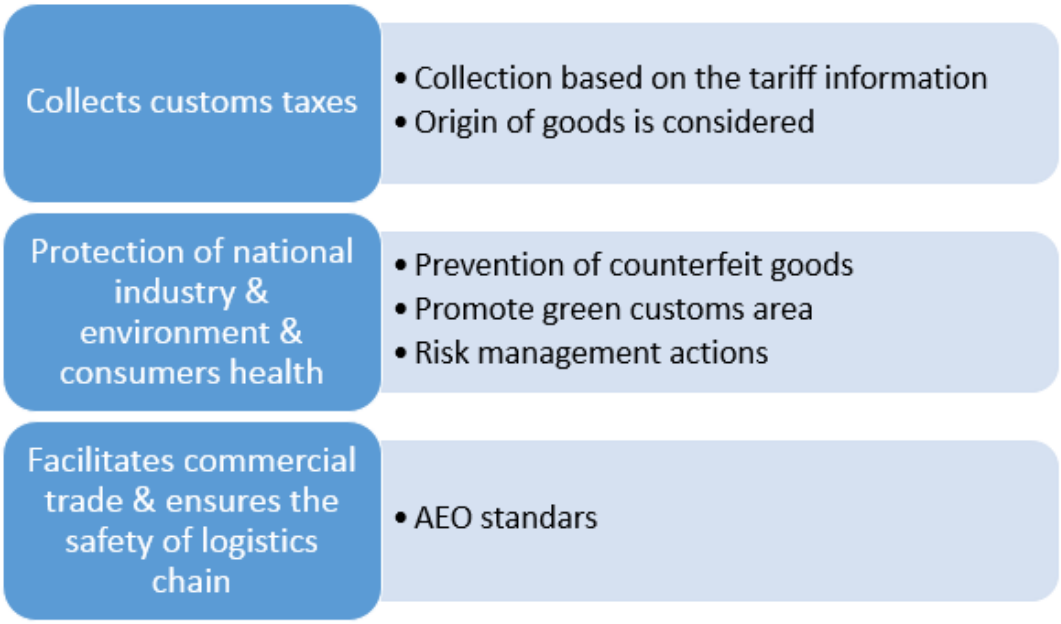

Figure 8 Functions of Customs authorities

(Belu et al. 2015.)

As can be seen from Figure 8, the duties that Customs Authorities perform are vast. So anything that helps them with the work load is welcome. Companies that have achieved an AEO status, help customs to organize their resources more efficiently. As a result, it can shift its efforts, from merely being a fiscal customs collection authority, to an authority, that oversees how international agreements are being adhered to, as well as ensuring that appropriate safety and security measures are applied in international trade (Skinnar 2015). Itämäki (2014) concludes that resources can be better directed to identifying suspicious deliveries. Belu et al. (2015, 1106) add, that the unified application of procedures in all Member States, which leads to a situation where coherent communication and training can be ensured in the Internal Markets, should also be viewed as a mutual benefit.

Since its' conception, the AEO –program has gradually evolved. The recent adaptation of the New Union Customs Code (UCC) on May 1st 2016, has strengthened the programs' position even further, as it's seen that the AEO-program has many benefits for both operators and customs authorities alike. As of 1.5.2016 new European Union wide legislation concerning the Uniform Commercial Code (UCC), came into force. This brought changes to the AEO -program itself, customs procedures and a number of other permits that are granted by customs. This change

also reduced the amount of different AEO authorization types granted, down to two; AEOC 'Authorized economic operator for customs simplifications' and AEOS 'Authorized economic operator for safety and security' (Authorised Economic Operator 2016.)

When considering the most appropriate AEO type to apply for, an organization has to first evaluate its' business environment and requirements. It is actually possible for an organization to hold both of these authorization types at the same time, by fulfilling both, the criteria of AEOC as well as that of an AEOS. In such a case, an organization will also receive all related benefits from having both of those status'. At present an organization which has both status', has an AEO authorization number which includes the abbreviation AEOF, with the letter 'F'(full), signifying this dual status. (European Commission 2017.)

Implementing AEO standards, usually influences all aspects of a company's operations. It supports an organization's corporate security measures and its' security management addresses issues that are also crucial to the AEO concept. When an organization conducts its' systematic assessments, it needs to do so keeping in mind both its internal as well as external security aspects. And it has to look at them from the viewpoints of both risk as well as process management. Figure 9 illustrates the relationship of an AEO in relation to corporate security.

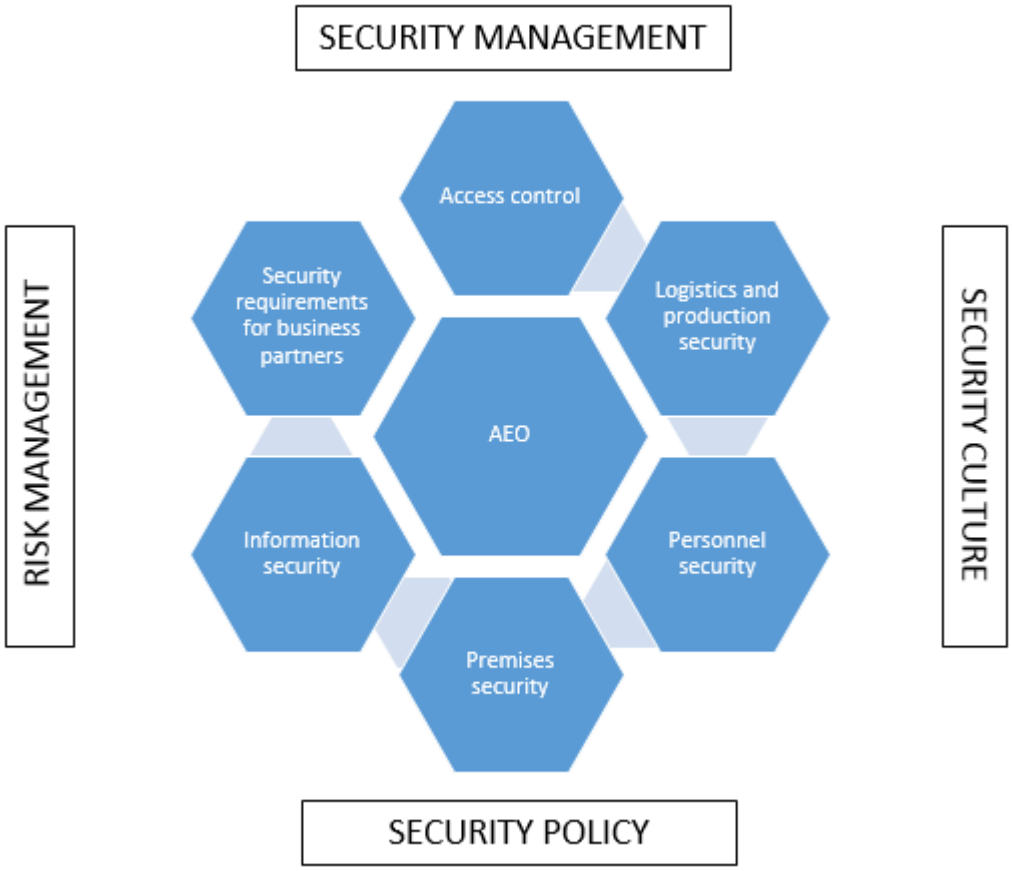

Figure 9 Relationship between AEO and corporate security.

(European Commission 2016.)

An organization's security culture, risk management, security management and security policy address how security related operations are managed. Figure 9 shows AEO being at the centre of various operational activities related to security.

2.4.1 AEO application process

The process of applying for an AEO status basically consists of three parts. In the first part, an applicant simply provides information about its' business in general. This step can be completed quickly, if the applicant fulfills all the formal conditions and criteria, that has been set to even be considered AEO eligible. Only after this does the applicant fill in an application for receiving the AEO status. In this part the applicant lists in fine detail how it will go about, meeting the criteria set forth, that a successful applicant must meet in order to be awarded with an AEO status. After this, the application process proceeds to obtain information from the different actors in the

supply chain, who then need to, in table format, submit the information on which criteria and how it is going to be applicable to them. Completing the last two parts of the process can take considerably longer, depending on how diversified the applicant's business operations are and how complex they are.

Self-assessment, provides a good base for profiling an applicant's business processes, where the main focus is on supply chain activities. Once this is done, Customs Authorities can compare this profile to the actual situation. Another way of doing it, is to use the guidelines as a basis for selecting the aspects, that will be investigated during the pre-audit. As the pre-audit can be considered a tool and being a flexible one as such, it allows one to compare national risks to common risks and thus be able to cover differences in local or regional aspects.

Risk definition in AEO context, refers to an undesirable event in connection with the movement of goods, be that exit, transit, entry or end-use of goods, between the customs territory of the community and third countries. Such undesirable events usually occur because of wrong information. The data in the documents travelling with the goods or with the handlers or freight forwarders is incorrect and does not match the itinerary of the shipment.

Risk management allows customs to evaluate how accurately the applicant has identified risks, within its' business environment, as well what kind of preventative measures it has put in place. If the customs administrator spots risks, that aren't sufficiently covered, it can better allocate its' limited resources towards those particular risks. For this approach to work successfully, Customs Authorities must be able to gain access to an applicants' business environment, including the administrative organization, as well as its internal control system. The AEO criteria is a methodology of assessment at both national, as well as international level. Figure 10 displays a risk mapping process.

Figure 10 AEO risk mapping process

(European Commission 2016.)

As Figure 10 illustrates, the risk mapping process is a continuous process. At the risk identification phase, potential risks in the applicant's business environment are evaluated. For the Customs Authorities to gain an insight in to the applicants' business environment, access to both internal and external sources have been made available to accomplish this. What can be referred to as internal sources, are previous audit reports, intrastat reports and systems where export and import information have been stored. Information, such as a companies financials, are readily available from external sources. Customs objectives are to ensure that fiscal, along with security requirements are implemented. The objectives of the applicant should be clear, so that also its' expectations are in line with AEO requirements. Risk assessment considers the risks, that have been identified through the risk identification process. These identified risks are then prioritized, taking into consideration the likelihood of the risk occurring and the impact it might have on customs objectives. (European Commission 2016.)

It is absolutely crucial, that an organization understands the safety and security issues in its' business environment and in its' international supply chain. In order to succeed in this task, it has to understand its' processes. It's the job of the risk

management team to plan, recognize and assess the risks, in order to be able to design and implement internal controls and measures. As this research concentrates on the AEOS Security and Safety standards, these requirements will be introduced next.

2.4.2 AEO Safety and Security criteria

AEO Safety and security requirements consist of thirteen different subsections. These subsections can be seen in Figure 11 and they comprehensively list the activities, that an AEO applicant must consider in its' supply chain and in its' way of operating. With regards to the accounting and logistics operations, the key issues are how the accounting system, goods, information flow and audit trail chain with third countries are managed. The applicant also needs to answer to how the internal control system, flow of goods, customs procedures, protection of computer systems and protection and backups of the documents, are being taken care of. (European Commission 2016, 52-62)

1. **Self-assessment**
2. **Entry and access to premises**
3. **Physical security**
4. **Cargo units**
5. **Logistical processes**
6. **Non-fiscal requirements**
7. **Incoming goods**
8. **Storage of goods**
9. **Production of goods**
10. **Loading of goods**
11. **Security business partners**
12. **Personnel security**
13. **External services**

Figure 11 AEO Safety and Security criteria

Previously, the general AEO criteria was introduced, but here in Figure 11, can be seen, what criteria must be met, in order to comply with the AEO security and safety requirements. To do so, an AEO applicant must demonstrate, that it's range of business areas are covered with the appropriate measures. (Finnish customs 2015.)

This is to ensure that the security and safety of its' international supply chain is maintained at all times. As risks are inevitable in a business environment, it's not possible or meaningful to try to eliminate all risks, so the aim is to reduce the risks to an acceptable level. The purpose of these requirements are, that an AEO applicant demonstrates how well it fulfills these as a whole, so by demonstrating strengths in one condition, it may overcome a minor shortcoming under another. (European Commission 2016.)

1. Self-assessment

The self-assessment of an AEOS status applicant, is about demonstrating how well the operator's safety and security policies measure against the appropriate AEO security and safety standards criterion. It's about being aware of ones' business environment, having the appropriate security measures in place and proving that its' control measures are adequate. An applicant's knowledge of its own business environment is demonstrated, when it not only identifies the possible risks and threats relevant to that particular environment and nature of the goods being imported or exported, but when they have been analyzed and appropriate measures have been put in place to minimize those risks. An applicant must also consider safety and security issues concerning its' clients, suppliers, external service providers and business partners. In order to achieve this, a company should have a named person, whose function is to take on the responsibility for coordinating security and safety related issues. (European Commission 2016.)

As a part of the internal control system, security routines should be communicated both internally as well as to any visitors. Internal control procedures demonstrate that risks have been identified, recorded and corrective actions have been put in place. A company's security and safety measurements must also be, cross referenced by others. Examples of this being, security requirements imposed by an insurance company or threats assessed by a security company. (ibid.)

2. Entry and access to premises

Security of its' premises, means that buildings and facilities are protected and oversight of safety is being taken care of. It also means that no unlawful access is granted to any person, vehicle or goods, and that all access that is authorized, is properly monitored and can be identified with the use of badges. All movement on the premises must be actively monitored and any suspicious movement must be reported showing a preventative action towards intrusions. (Authorised Economic Operators Guidelines 2016, 54.)

3. Physical security

External boundaries, gates and gateways, adequate locking, lighting and in place processes for obtaining keys or other unlocking devices, are measures that address physical security and safety of the premises. No parking of private vehicles should be allowed near secured areas of the buildings and maintenance of external buildings and premises must carried out by a specified person, who knows the procedure for reporting any deviations. (Authorised Economic Operators Guidelines 2016, 55.)

4. Cargo units

Cargo units and any related information, as well as related documentation should be stored and handled, so that only authorized persons can have access to them. Tampering with cargo can be prevented, if appropriate processes are in place for the safekeeping, accessing, inspecting, sealing, ownership and maintenance issues related to the cargo. If any licenses are needed for exporting or importing goods, due to prohibitions or restrictions, processes must be in place in order to distinguish between those and normal deliveries. (Authorised Economic Operators Guidelines 2016, 56.)

5. Logistical process

The logistics process should address the issues, that are paramount for the overall control of goods that are being transported. If transportation is outsourced to an external forwarding company or a carrier, there should be a selection process in place for this. It's the responsibility of the AEO -status holder to make contracts with an external forwarding company or a carrier, so that the contracts address and cover issues related to developing the supply chain towards a more secure and safe way of

operating. When making long-term contracts, where duties and responsibilities are defined for all parties, this can be achieved. If necessary, all parties are required to submit proofs of compliance and with security and safety related issues. ((Authorised Economic Operators Guidelines 2016, 129.)

6. Non-fiscal requirements

An applicant must prove, that goods, that are not subjected to fiscal requirements, can be identified by processes it has put in place. This means that any goods needing licenses, are singled out from the ones that don't need them, and that current legislation is being followed when operating. The applicant must also have in place procedures to identify any goods that are traded, that fall under the dual-use or embargo restrictions. (Authorised Economic Operators Guidelines 2016, 197.)

7. Incoming goods

Any goods that are being received by the AEO –applicant, should be checked in an orderly manner. In the process of checking the goods, attention should be paid to the following points; receiving of the driver and goods, checking the documentation accompanying the goods, checking and registering the goods and information about the arrival of the goods passed onto the customs authorities, purchasing department and administration. With the previously mentioned processes in place, a situation where goods are left unsupervised or incorrect goods are being received and or goods are being stored in an undesignated area can be avoided. Separate functions should exist between purchasing, warehousing and administration, so that irregularities and discrepancies in the receiving of the goods, can be spotted. (Authorised Economic Operators Guidelines 2016, 206-207.)

8. Storage of goods

When storing goods, there are several things to consider. The main point is, that a specific storage area is assigned to the goods, so that any unauthorized entry to the area is and can be prevented. Only authorized persons can have access to the goods and the information related to them. This can be achieved by giving authorized access only to designated people. Whenever possible, the storage areas must be designed, so that there are designated areas for different types of goods depending on their classifications, requirements and what their final destination is. In order to

spot irregularities or other discrepancies, internal control procedures, such as stocktaking, receiving and recording of incoming goods must be in place. (Authorised Economic Operators Guidelines 2016, 208.)

9. Production of goods

An overall control of the production process is shown, when there is a designated production area and the access to it is restricted. If the final product is being packed by an external service provider, security arrangements should be put in place with the party responsible for that function. (Authorised Economic Operators Guidelines 2016, 173.)

10. Loading of goods

The same kind of procedure, but in reverse, applies to the loading of goods and to incoming goods. Routines need to be in place for checking all outgoing transportations. Loading needs to be done under proper supervision and attention must be paid to proper sealing and marking, as well as, weighting and counting of the outgoing goods. Finally, information about the departure of the goods must be passed onto the Customs Authorities, sales department and administration. A registration process should be in place, incase irregularities and discrepancies are discovered. (Authorised Economic Operators Guidelines 2016, 209.)

11. Business partner security

An AEO applicant must also consider the role of its' business partners in the international supply chain, as all parties involved are responsible for the security issues whilst the goods are in their guardianship. Risk analysis and contractual agreements are a good way of establishing a mutually responsible way of operating, taking into consideration the relevant business environment. (Authorised Economic Operators Guidelines 2016, 57-58.)

12. Personnel security

European Commission (2012) states that it's important from the personnel security point of view, that an applicant has ensured, that its' personnel dealing with security sensitive duties have been checked to be reliable, by conducting appropriate background and security clearance procedures. Permanent and also temporary personnel should be made aware of the potential risks associated with the

movement of goods in the international supply chain. They should also have the capabilities of spotting suspicious cargo, goods that have been tampered with and have awareness towards internal safety threats and access controls. Persons leaving the company have to have their employment terminated in a manner, that they have can't access to the premises or information systems after their departure. (Authorised Economic Operators Guidelines 2016, 44-45.)

13. External services

If the applicant has chosen to outsource any of the services, such as transportation, security or maintenance, it's up to the applicant to ensure through contractual agreements, that all parties adhere to the security demands stipulated by AEO. (Authorised Economic Operators Guidelines 2016, 213.)

These thirteen, different criteria, offer a strong understanding for the AEO Safety and Security requirements. Based on the afore mentioned and the criteria, it's possible to scrutinize, what are the possible implications for an organization's existing logistics process when obtaining AEO -status.

3 Methodology

As it is apparent from the literature, it's impossible to create a risk free environment. Different kinds of risks can arise both from the external and internal environments of organizations. Effective risk management is based on the knowledge of an organization's processes. All companies have their own business models and need to consider their own business environment, therefore guidance is needed in order to implement the appropriate security and safety measures that is required of an AEO.

The European Commission (2016) AEO guidelines allow customs to assess an economic operator's administrative organization and its' internal control systems. It is the responsibility of the organization itself, to assess its' internal control systems by using the criteria set forth in the AEO safety and security requirements.

It also provides a framework for the Customs Authorities to facilitate an audit. This is done to ensure, that the information an operator has given in its' self-assessment questionnaire, is in line with the risks it has identified, but that also the possible

solutions it has come up with to overcome these risks, are indeed efficient. European Commission's AEO Safety and Security requirements (2016) which are included in the AEO guidelines, provide a framework for this study.

3.1 Research approach

The chosen approach for this reseach was a qualitative one. As Silverman (2005, 7) assures, a more thorough understanding of a social phenomenon in its natural surraundings can be gained with a qualitative approach. Also, when a qualitative approach is applied with critical standards, a situation is allowed to be studied in detail to provide insight, which is hard to achieve with a quantitative approach. A case study, as part of the research strategy, together with data collection from interviews and through observation, were selected as the most appropriate data collection methods.

Yin (2014, 3) found that a case study is useful, as it allows in depth examination of a single event or an instance, in a setting where it could be presented in an easy to understand format. A case study is also a useful strategy as it allows the researcher to take a contemplative approach towards understanding the topic. This is useful when determining the factors, that are crucial to the implementation of a programme, and linking and analyzing actual events between them. It is also useful when exploring a process of change by interpreting events as they unfold in real-life, whilst at the same time determining aspects that are vital in the implementation of the programme.

Eriksson & Kovalainen (2008, 115) continue, that a case study is where the researcher's questions are related to the chosen case. A case can be a customer, an employee or a manager, and the questions are used to try to solve and understand the case. Silverman (2005, 113-114) adds, that the case study research design can be used to test, if scientific theories and models actually work in the real world in a realistic simulation. A case study allows one to interpret processes, slightly more complex matters or a phenomenon. Simons (2009, 28) agrees, that for instance a process, could be understood better in a 'real-life' context. The case could be an organization, a system or an institution. Therefore, a case study approach allows a

specific occurrence in a particular environment to be explored. A case study is led by evidence seeking and is a comprehensive research strategy, where real life phenomena is investigated, by specific data collection and analytical approaches. The primary purpose is to gain an in-depth understanding of a chosen topic, in order to produce insight and to inform professional utilities. (23-28.)

Simons (2009, 25) argues, that findings from case studies can be transferred to other situations, or can be generalized, in order to be used by others. It has been found, that there have been many different ways of generalizing, and especially process generalization is applicable to many organizations.

In order to apply the chosen methodology properly, a critical examination of the AEO Safety and Security requirements criteria was also needed. As not all of the thirteen subsections of AEO Safety and Security requirements comprise of logistics processes, the point of focus was limited to those subsections that involve logistical processes. Those subsections were identified to be; logistical processes, incoming goods, storage of goods and loading of goods. Figure 12 highlights, the chosen subsections of the AEO safety and security requirement criteria.

Figure 12 The subsections of the AEO safety and security requirements related to logistics operations.

As the purpose of this research was to find out, what the possible implications for a AEO certified, global exporting company's logistical processes were (as identified in Figure 12), a case study was carried out.

3.2 Research context

The research topic, needed to be put in the context of a case company. It was also important and purposeful, that qualitative evidence was obtained both from theoretical and empirical data.

The most appropriate research strategy for the purpose of this study was to conduct a single case study on Valmet Technologies Inc. Valmet is a global company that specializes in developing and supplying technologies for the pulp, paper and energy industries. Valmet's turnover was roughly EUR 2.9 billion in 2016, and the company employs approximately 12 000 people globally. The company expenditure on shipping and freight was approximately EUR 60 M during 2016, making up a considerable proportion of its' overall expenditure. (About us 2017.)

There are two reasons why Valmet Technologies was selected as a case company for this research. One was the fact, that an AEO application process was ongoing in the company, and the other was the researcher's ability to access company data along with gaining an insight into the application process, due to the fact that the researcher worked for the case company. Added to this, Valmet Technologies Inc. has an extensive and quite complex business environment, it has identified delivery, a logistical process, as one of its' key processes and as Annila (2012, 36) concluded, the researcher would need to be able to access sensitive company information to conduct research properly. Considering this, it would have been far harder to access the information and to examine another company's processes in such detail. All of this added value to choosing Valmet technologies Inc. as the case company. Valmet Technologies Inc. operations are vast, but this research focuses on the logistics processes and operations at Valmet Technologies Incs' Jyväskylä Paper and Board plant. Figure 13 highlights the context in which the research is set.

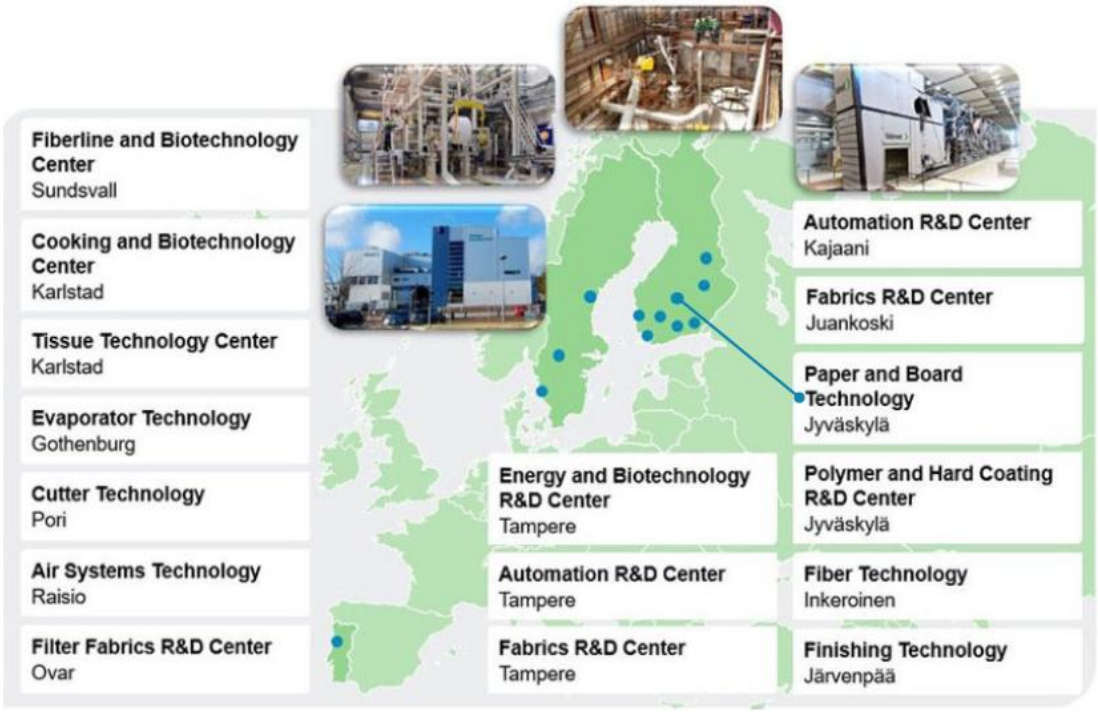

Figure 13 Research context of Valmet Technologies Inc., Jyväskylä

Valmet corporation has operations in 161 locations in 33 countries. Valmet Technologies Inc. operates in 30 different locations in Finland and Figure 13 shows Jyväskylä as it's one of the key production areas for Paper and Board technologies.

3.3 Data collection

Eriksson & Kovalainen (2008) say, that for any research, it is important that empirical data is collected. Interviews are a useful way of collecting empirical data in a qualitative research. There are different types of interview studies to conduct, and when choosing the most appropriate type of interview to conduct, focus needs to be on what type of research questions to present. Interview studies can be positivist, emotionalist or constructionist. Positivist, also known as realist, is a good approach when the aim of the interview is on finding facts. When the aim and interest of the interview is to find out the participants' accurate experiences, an emotionalist approach is the most appropriate type to choose. For the constructionist approach, the interaction between the interviewee and interviewer is important and the aim of the interview should be on 'how' a finding was reached. (78-79.)

Eriksson & Kovalainen (2008) continue that as well as considering the type of the interview to conduct, there are also different types of qualitative interviews to consider. Data collection can be conducted in structured, semi-structured or unstructured ways. Conducting a structured or standardized interview is a very popular data collection method in qualitative research and in these situations all questions are the same for all participants. Questions start mostly with a question of 'what' but could also include other type of questions. Qualitative interviews can be conducted either face-to-face, over the phone or by utilizing computer aided technologies. Whether the interview questions have been carefully prepared beforehand, or are more like that of a spontaneous conversation in nature, the main point is, that the interview questions provide the kind of material that is needed to answer the question set forth in the research. (80-83.) Lastly, the interview questions are analyzed and reported in a predetermined way.

For the purpose of this research, the most appropriate type of interview study to conduct, was chosen to be a positivist one. This was chosen because accurate information needed to be collected about how a particular process unfolds. The person who was interviewed, was also a participant in the matter of interest, so she was likely to know about the process. Questions were formed, so that it was possible to find out how the process unfolded in practice.

In order to collect information about facts and to be able to verify information provided by the two different interviewees in a methodical way, it was chosen that the most appropriate type of interview to be conducted was a structured interview. This also enabled a preplanned script to be followed. This was important for the sake of getting the research questions answered thorough interview questions.

It was considered that people with a vast amount of knowledge on the subject were the best suited people to be interviewed. For the purpose of this research, the case company's AEO project coordinator was interviewed together with a stakeholder of the case company's international supply chain. This way the researcher was able to ensure that the empirical data acquired was both accurate and trustworthy.

First, data was collected by interviewing the case company's AEO project coordinator at the time. This person had been working in the position of project coordinator for

just over a year. It was seen that the person who was assigned the role of project coordinator at Valmet Technologies Inc., had to have received considerable orientation on the subject and have a comprehensive understanding of the requirements. Even though she didn't work for Valmet Technologies Inc. at the time the interview was conducted, her knowledge of the subject was extensive and covered the time from the beginning to almost the very end of the AEO application process. Her insight of the matter enabled her professional knowledge to be utilized for this research.

It was seen to be purposeful to send the interview questions by email in advance to the interviewee, in order to give the interviewee a chance of familiarize herself to the subject matter and to also give her a chance, to think back on the issues relevant to the case. This was also seen to be beneficial for the purpose of strictly following the list of questions. This also enabled the interviewee to prepare for the interview, as she didn't work for the case company at the time the interview took place. Interview questions were prepared in Finnish and the interview was conducted in the same language. The hour-long interview took place on 23rd February 2017 and an audio recorder was used to record the answers. Permission to do so was received from the interviewee. This also made it possible to make a word-for-word transcription at a later date adding further credibility. This transcription was later translated into English. By recording the interview, it was less likely that the interviewer's own preconceptions or possibly biased notes were able to affect the integrity of the data.

The second interview was conducted; as additional expert knowledge was seen to add credibility to the research and also Valmet Technologies Inc., did not have the status of an AEO at the time. It was also felt, that with the case company being new to the AEO -status requirements, it wouldn't necessarily have the extended knowledge on the subject, that can be gained in practice and over time. It was considered necessary that the other interviewee should be someone who is considered to be an expert with a company that was already a holder of the status of an AEO. The opportunity for this second interview arose, when the case company's supply chain stakeholder was contacted, in order to get some advice with regards to the AEO application process. The company that this interviewee represents, is an important stakeholder within the Valmet Technologies Inc. supply chain, and

therefore not only has a deep understanding of the subject of AEO, but is as well very familiar with the case company's logistics operations. The company the interviewee represents, requested to remain anonymous.

The second interview was conducted, employing the same principles as in the first one, but this time due to differing and conflicting schedules and with the stakeholder being located far away, it was chosen, that computer-aided technology would be utilized. The interview took place on 17th March and lasted for approximately an hour. This interview was also conducted in Finnish, and recorded and then translated to English. The interview questions are shared in the appendix.

The interview questions were formed with the help of AEO safety and security requirements, focusing on the processes relating to logistical processes, incoming goods, storage of goods and the loading of goods. Issues relating to the supply chain risk management process and business process management were also considered when forming questions.

According to Simons (2009, 55) and Eriksson & Kovalainen (2008, 86), observation is another empirical data collecting method, and is a useful method particularly, when used alongside another data collecting method. Observation helps to gain an understanding for the data gained by other methods and is effective in case study research. Simons (2009, 55) has found there to be five reasons why formal observation, used together with interviews, is fruitful in case study research. The first point is, that an exhaustive impression of the situation can be gained. The second is, that it enables one to gain an insight of the situation, helping further interpretation of the data collected by interviewing. The third and fourth points are, that through observation an insight for the organization's culture can be gained and that it enables data collection from those who aren't verbally skillful (their experience can be captured better by observation). The fifth and final point is, that observation helps to check the validity of data collected by interviewing.

Eriksson & Kovalainen (2009, 87) continue, that observation can be done in a number of ways. There is a participant or non-participant observation way, depending whether researcher takes part in the research study or not. Observation can also be

classified into obtrusive vs. non-obtrusive or disguised vs. non-disguised ways of collecting data.

As the purpose of the observation was to help with the interpretation of the data collected by interviewing, it was chosen, that the most appropriate place to conduct the observation was to do so in a place that allowed logistical processes to be scrutinized in a real-life setting. In order to make sure that the observation generated the most valid and reliable data, it was chosen to be conducted at the same time as an external company was doing their audit on security related issues. Another reason for choosing an expert company to be a present at the time of observation, was the fact, that this way the case company would be able to utilize both data; one generated by observation and the other generated by auditing its' AEO -status application process. The expert company, that performed this audit, was Centry Oy, a security risk management, compliance and investigative services provider.

Observation took place on the 9th of December, in one of the case company's business locations. Although detailed and descriptive notes of the situation observed were made, due to the fact that the data collected and disclosed at the time of observation contained information relating to safety and security issues, it was decided, that this data is to be kept secret. It can however, be used in parts, to further analyze and to verify the data obtained by interviewing, for the benefit of this research.

3.4 Data analysis

Yin (2014, 134) has found, that in order to produce findings from case study evidence, an analytic strategy is needed. Computer-assisted tools can be reliable and software can assist in the process of analyzing, but no tool can do analyzing on its' own, or automatically. It's the responsibility of the researcher to define the relevant codes and interpret the patterns observed. Simons (2009, 119) continues on the subject of data analysis by saying, that coding techniques can be used to reduce the data into subsections according to preassigned names or abbreviations. Codes can be anything from descriptive ones to more explanatory ones. And with the help of the use of coding, even a large amount of data can be categorized at a more theoretical level, helping to eventually build an understanding of the data gathered. Yin (2014,

136) goes on to say, that in the research strategy, the general strategy is important, in order to develop a systematic sense as well as to reduce analytical difficulties. There are four strategies; theoretical propositions, a “ground up” approach, case description and a rival explanation. After a decision has been made about the general strategy, an analytic technique should be applied, to give the case study its’ quality.

Case description was the most suitable research strategy for this study, as this allowed the case to be organized according to the definitive framework. Before it was possible to apply the case description strategy, the whole data document was prepared. This meant, that the recorded interview was carefully made into a word for word transcript.

After the transcript was ready, a pattern matching technique was applied. Pattern matching was the most appropriate analytic technique, as it’s useful for a single case, where the focus is on study effects of an instance. The AEO safety and security requirement criteria relating to logistics operations guided together with the literature that was reviewed in this process.

As the interviews that were conducted for the purpose of this study, were focused on the logistics processes, the questions presented were also specific to those processes. With the AEO providing the general guidelines, the more specific criteria were related to security and safety. Interview questions were formed strictly in accordance with these guidelines. This also meant, that with the researcher having to familiarize herself with the criteria, she also had an understanding of the concepts and what to search for in the data. Those concepts that were predetermined by the AEO guidelines, where logistics process, incoming goods, storage of goods and loading of goods. Processes were each given a short code. After the coding was ready, the different codes were each given a different color, enabling systematic analysis of the data to be done.

The literature review gave further guidance the coding process. As it was disclosed in the reviewed literature, processes could and should be improved and reviewed regularly. This could be done for instance in order to check if the processes are fit for their purpose, at any stage of their existence. The way raw data was organized can be seen in Figure 14. Data was broken down into smaller parts, allowing a line by

line analysis to be done. Different key processes were given specific codes, representing and summarizing the essence of verbal information gathered. By the color-coding of themes, it was easy to scan the text and to spot occurrences of different processes in relation to actions. Different actions categories were also given valid headings and finally, data was reassembled, so that all the meaningful parts related to each other could be grouped together.

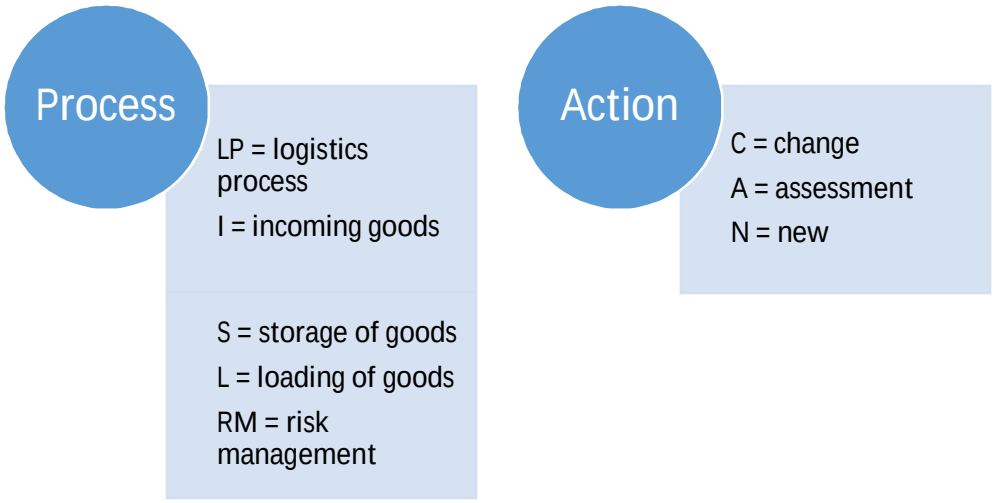

Figure 14 Codes used in data analysis

From Figure 14, the processes that were identified for analysis from the empirical data, can be seen on the left. On the right, one can see the actions related to these processes.

Once the data, or in this case, the answers were gathered, they were all transferred from the interview transcripts to Microsoft Word. Once they were all written out, they were analyzed in the following manner: firstly, an occurrence of one of the identified processes was highlighted and then a related action to that process was marked to the side of the sheet. This process was repeated for each answer. After all the answers had been systematically vetted, the data collected from the answers was transferred to a spreadsheet in Microsoft Excel. With the help of Excel, it was possible to filter the data, so that a particular process could be analyzed in relation to the actions identified, with the following categorization; change, assessment or new.

An example page of analysis by coding is shared in the appendix.

3.5 Verification of results

Reliability and validity of results, give the research its' quality. In order to offer consistency and truth of the instance and how widely the research represents the phenomenon, a critical interrelated way of qualitative data analysis is needed. Yin (2014) says, that there are four tests frequently used to provide the quality for empirical research. These four design tests are construct validity, internal validity, external validity and reliability. If multiple sources of evidence are used, this is a good way of giving the research its' constructional validity. Its' internal validity can be tested, by finding matching patterns from the research. External validity for the research findings can be tested by comparing them in an environment outside of the case study. The objective of the reliability design test is that someone else than the researcher repeats the case study undertaken and arrives to the same findings. (45-49.)

Simons (2009) argues that internal and external validity tests are best suited for the qualitative case study researches. There is also a strategy of respondent validation that is a useful approach to check the accuracy of the research results. The respondent can be either a participant i.e. the person who provided the empirical data or another person who has interest in the issue that was being investigated. (127-131.)

One of the main purposes of this research, was to portray a specific case unfolding in practice, in a single setting. Another purpose was to add a new perspective, and to gain additional knowledge on the topic in the form of particularization. The results and findings of this research were checked and verified by a member of management involved in the logistical processes of the case company. The researcher is confident that the findings made, and the results that were arrived at, are valid. This statement is based on the undisputed facts, that both sets of answers from the interviewed subjects were corroborated by each other and that the third person verified the findings to be accurate. The aforementioned points reduced any concerns, that the

researcher may have had about her impartiality, which could've been compromised, because of her own involvement in the subject matter throughout the research.

4 Results

The results of this research are presented in this chapter. The main focus for this chapter is to answers the research question:

How the Authorised Economic Operator -status affects a company's logistics operations.

First it will be described, the current logistics operations of Valmet Technologies Inc. Then the findings from the interviews conducted, together with data obtained through observation, are reviewed in line with the AEO requirements related to logistics operations and how those contribute towards what it's required to achieve the status of an AEO.

4.1 Logistical process review

In this chapter the logistics process will be analyzed in detail. According to the case company's AEO project coordinator, the question regarding the logistics process, highlighted the fact, that the existing process needed some improvements. The process that Valmet Technologies Inc. had in place, was in itself quite comprehensive, but there weren't any systematic controls in place for checking and monitoring non-fiscal requirements. One example of non-fiscal requirement is that some goods are subjected to export restrictions, meaning that export licenses might be needed for the purpose of exporting. Another example on non-fiscal requirement is that for some goods could be seen to have two functions, to be so called dual-use goods. These kind of goods are normally used for civilian use but could also be used for military applications. That's why a license may be required for the exporting purposes to certain countries. Whatever reasons there might be behind the need for licenses, these kinds of good should been distinguished in a systematic way from other goods. (Hyvärinen 2017.)

AEO project coordinator of the case company pointed out that in order to distinguish if any goods are subject to special handling conditions or are subject to restrictions, such conditions requiring any special attention, need to be highlighted in more automatic way. This kind of information relating to items, needed updating and maintaining in the item master database and Enterprise Resource Planning system. This management of item data is also important for the sake of maintaining the information relating to county of origin of items. (ibid.)

One other interesting fact that was highlighted, was the issue with regards of storing of seals. Even though seals were kept in secure place before, but now with AEO requirements, seals were moved to a locked cabinet. (ibid.)

AEO project coordinator of the case company continued that also a systematic approach towards checking of the export declaration was missing. This meant that the information on the declaration should be checked to match the shipping information, mainly the data on the commercial invoice. (ibid.)

A systematic approach towards the checking of the correctness of the data given on the declaration was solved with a creation of a new instruction. The end result was that a reminder was set in the operating system for forwarding teams; both import and export, in order for them to check the correctness of the data systematically. This checking comprises that once a month the following data on the randomly chosen declaration needs to be checked if it matches with the information given on the commercial invoice:

- Terms of delivery
- Number of packages in the consignment
- Commodity code of the item
- Net weight of the item
- Statistics value of the consignment

If any differences are noted, these will be listed along with a summary of the measures taken to reduce the probability of them occurring again. If necessary, the forwarding company is contacted for clarification regarding data interpretation, at

which point any other kind of feedback relating to declaration should also be given. If the data is found to be correct, this also is noted on the excel list. (ibid.)

According to the AEO project coordinator of the case company's experience, risk management actions were not conducted consistently. Forthcoming audits done by insurance companies, were occasionally possible triggers for the case company to examine whether it's risk management actions in practice were sufficient, but if was limited to that. However, the fact that the logistics' risk management actions were now embraced at all levels of management, would in the future bring in more measures to prevent risk measures and more unified operating instructions. (ibid.)

With regards to the Logistics process, the AEO project coordinator for the case company stated, that the selection process of the case company's business partners, did not properly address the issues relating to safety and security. In order for the AEO -status applicant to demonstrate that the transportation of its' goods is controlled, a need was spotted with regards to checking the identity of each driver entering the premises of the AEO -status holder. (ibid.)

When asked about the logistical process, the stakeholder stated, that the focus on safety and security related issues had changed. The whole logistical process had to be re-assessed. In the past, before becoming an AEO, logistics risks were considered to arise from various actions, usually aimed at either the transportation process or the transportation itself. Now, with the requirements brought about by AEO, a need to add measures for all the business partners was recognized, in order to cover and guarantee their security compliance in the supply chain. This also brought about a need to allocate more resources to the logistics process as a whole. In order to maintain high security standards, an increase of resources was required towards employee security training, physical safety measures, and the selection and approval process of employees and partners. In addition, when selecting any new employees, the focus has changed. It now needs to be on information integrity, as well as making sure the background information and work history is consistent and covered the past five years. It was also noted that the maintaining of document revisions, needed more resources.

AEO safety and security requirements with regards to the logistical process, addresses the overall movement of goods, from the exporter's premises to frontiers beyond the borders of the EU. Procedures should be in place to cover the whole international supply chain process, beginning with the ordering, right down to the delivering of the goods. This means that all transportation modes involved, are listed and acknowledged. Non-fiscal requirements related to goods, need to be observed and this means that goods requiring any special attention, need to be distinguished from ordinary goods. In order to comply with AEO logistical process regulations, responsibilities need defining, so that the person who bears the overall responsibility, has both the required skills and authority to act accordingly. (Authorised Economic Operators Guidelines 2016, 129.)

Figure 15 shows in red, the adjustments that needed to be made to the existing logistics process. Although the process itself was sufficient, new instructions to existing working practices needed to be created.

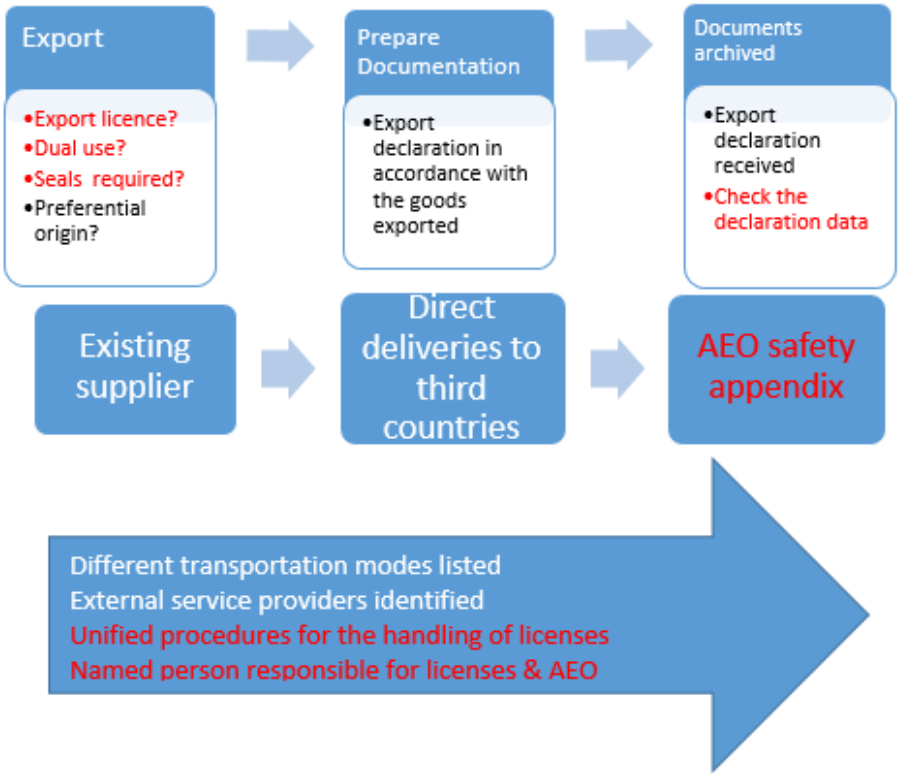

Figure 15 Logistical process

Figure 15 illustrates the logistics process with the new focus points brought in by AEO requirements highlighted in red. In order to maintain the integrity of the international supply chain and to adhere to AEO requirements, logistics process was assessed thoroughly. New instructions were needed for the handling of seals. Responsibilities were defined so that a named person was responsible for the process of handling licenses and overall issues relating to AEO requirements. All external companies that the case company has outsourced responsibilities relating to transportation of its' goods destined to third countries, are required to sign the AEO safety appendix.

4.2 Review of incoming goods process

In this chapter, the process of how incoming goods are handled, will be reviewed. The AEO project coordinator for the case company stated, that even though the process for receiving goods was comprehensive, not all of the operational procedures were documented. In the assessment of the incoming goods process, a need to add more specific instructions to the existing process was recognized, along with the need to add completely new ones. The handling of sealed goods served as good example; there wasn't a clear procedure in place on how to proceed with receiving the goods in a systematic way. As a result, a new instruction was created for handling imported goods with a seal on them. The same instructions also addressed issues related to missing, or wrongly documented seals. (Hyvärinen 2017.)

The stakeholder from Valmet's supply chain said that from its perspective there was really no need to change the incoming goods process. The process was assessed, and it was found to adhere to the rules and regulations relating to a storekeeper's license, as well as fully complying with all AEO requirements.

AEO safety and security requirements in relation to incoming goods, are in place to prevent any unauthorized access to those goods, that are part of the international supply chain. An adherence to these requirements covers all those parties, that are involved with the handling of goods destined outside of the EU. The process for receiving goods aims to maintain the schedule for receiving goods. And the whole process for receiving goods, needs to be conducted in such a manor, that everyone involved in the process is made aware of the security related issues, at regular

intervals. Transportation documents accompanying the goods, should be checked and recorded. Because by comparing the transportation documentation to customs papers, the need to inform Customs Authorities of possible discrepancies, or the need for them to perform some necessary controls, will be highlighted. (AEO Guidelines 2016, 130.)

In Figure 16, highlighted in red, are the actions that needed to be added to the process of incoming goods.

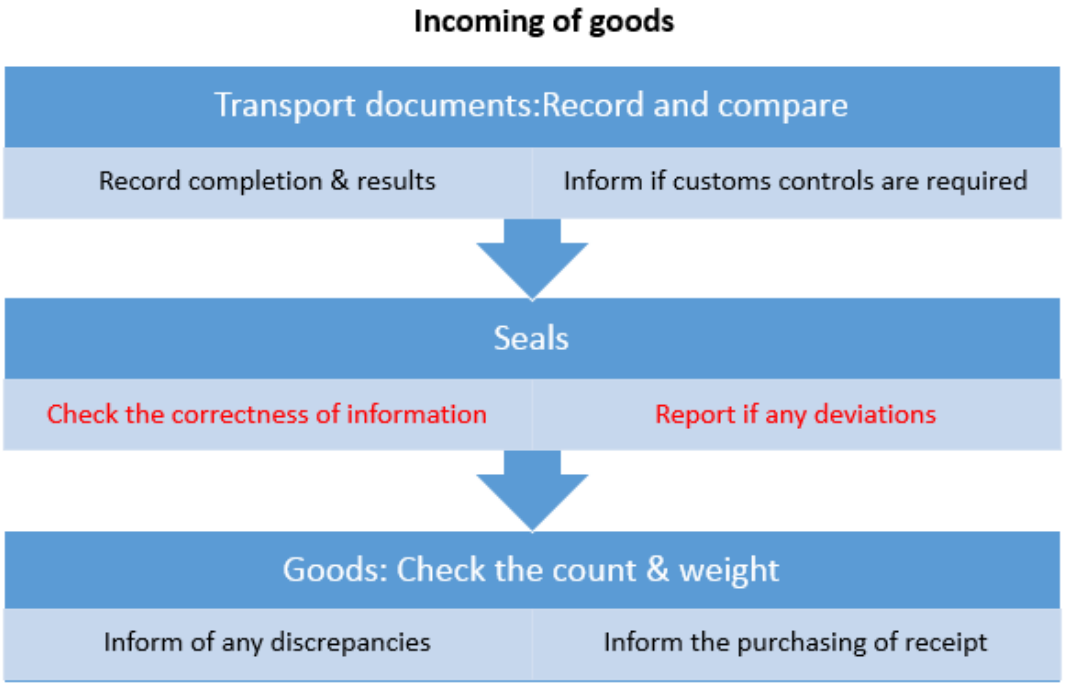

Figure 16 Incoming of goods process

As seen in Figure 16, there was a need to create an instruction for checking seals when accompanying imported goods. This instruction was divided into two parts. The first part described the actions relating to information checking, i.e. the information on the seal, should match the accompanying documents of the goods being received. The second part of the instruction, addressed what actions to take with regards to reporting, should some deviations be found.

4.3 Review of storage of goods process

The process of storing goods will be reviewed in this chapter. The AEO project coordinator for the case company disclosed, that the assessment of the storage of goods process, highlighted the need to remodel the process. Those goods, that are part of the international supply chain, need to be stored in such a way, that they are separated from goods that are heading to a destination within the EU. The same requirement has also been communicated and extended to cover so called 'direct suppliers'. The term; direct supplier, is used for a supplier, from whom a product is shipped directly to the customer, without it ever passing through the case company's warehouse. Now a unified process has been created, to ensure, that all warehouses, from which any of the case company's goods are destined to be a part of the international supply chain, are stored with the same considerations in mind. These considerations include assuring appropriate fencing around the storage area and or, making sure that locks are placed on the doors of the storage space itself. (Hyvärinen 2017.)

Based on the information that was obtained by interviewing Valmet Technologies Inc.'s supply chain stakeholder, the storage of goods process was assessed and found to be in most parts in compliance with the AEO safety and security requirements. Processes were in place, to separate goods destined within the EU, from those goods that were a part of the international supply chain. Issues relating to security on premises, were treated with the utmost importance. It was seen that any unauthorized access, to any parts of the storage, could not be granted to anyone who didn't have the appropriate security clearance or permission. It was also identified, that actions related to risk assessments, should be done at regular intervals, in order to maintain a high level of security. This would also help respond to any situations, where measures in place were found to be insufficient.

One of the key issues of AEO safety and security requirements for the storage of goods, is that the goods that are destined to be a part of the international supply chain, are identified and stored in accordance to their requirements. All actions and measures need to be covered in the storage procedures, in order to maintain the absolute integrity of the goods. Therefore, access to the storage area should be

controlled. This means that only authorized personnel are allowed to access, handle the goods and execute regular stock takes. (AEO Guidelines, 131.)

From Figure 17 it can be seen the requirements brought in by AEO.

Figure 17 Storage of goods process

Figure 17 highlights in red the changes brought about by AEO requirements. It was identified that goods, that are a part of the international supply chain, need storing apart from those goods, that have a destination within the EU. Before the AEO safety and security requirements were in place, all goods would have been stored in accordance with goods specific requirements, i.e. no specific consideration was given to were those goods were destined to.

4.4 Review of Loading of goods process

This chapter describes the loading of goods process. The case company's existing process for loading of goods was dived into two parts. The first part listed down actions that were required to be undertaken before the loading was to take place. The second part addressed actions that were needed to be checked after the loading

of goods had been completed. Before loading could be started, the empty freight unit needed checking. This was to ensure that there weren't any holes on the walls or in the ceiling. Also the floor and doors needed checking to make sure that these were found to be in working order. Also the locking mechanisms on the door needed checking to make sure that this was in working order. If there were any visible signs that indicated to the previous transportation, these sings should be removed. After these actions, the freight unit's worthiness for transportation should be ensured whatever other means possible. Visual inspection could be used to spot if there were any signs of repairing that's been done to the container or if there were signs of moisture being evident in the freight unit. Also at this point it was necessary to make sure that the freight unit was found to be clean and that no other goods had been tried to hide inside of it. If there were any concerns relating to any of the aforementioned points, these should be reported to forwarding department. It was the responsibility of the forwarding department to inform the freight forwarding company as well as the customs of any concerns. All deviations to the aforementioned criteria should be both noted and reported.

After the loading had been completed, it must have been ensured that the goods had been loaded with consideration given to the type of transportation selected for the goods. Any movement of the cargo inside any cargo unit must have been avoided with adequate lashings. Before the cargo unit was closed and locked, it must have been ensured that the container list matched up with the contents of the freight unit. For the locking of full container unit, it was mandatory to use resistant seals.

AEO project coordinator for the case company stated that there has been a need to assess the process with regards of inspection of the freight unit. The process for loading of goods was in place but there wasn't a consistent documentation in place to support the process that was in place. Also there were different versions of work instructions depending on where goods were loaded from. With this it was meant that the different warehouses where case company's goods were loaded from had their own loading instructions as well as working practices. (Hyvärinen 2017.)

From the stakeholder's perspective the loading process had remained untouched by the AEO safety and security requirements. The main purpose of the loading of goods

process was that the right amount of goods was being handed over to the right consignee. One aspect of the process that needed modelling was that the restrictions for the drivers to access the goods whilst being loaded were toughened.

AEO safety and security requirements for the loading of goods process address the facts that preventative actions should be in place to avoid a situation where goods are left unsupervised or that the goods aren't loaded at all, when subject to loading operations. An AEO should have contracts between those business partners that have access to goods that are subject to international supply chain. If contractual agreements in place also address that goods are packed, marked, sealed and labeled in a unified manner, also any security related risks arising from poor quality of handling of the goods could be minimized. (AEO Guidelines 2016, 132.)

Figure 18 highlights in red the changes that were brought by AEO requirement to loading process.

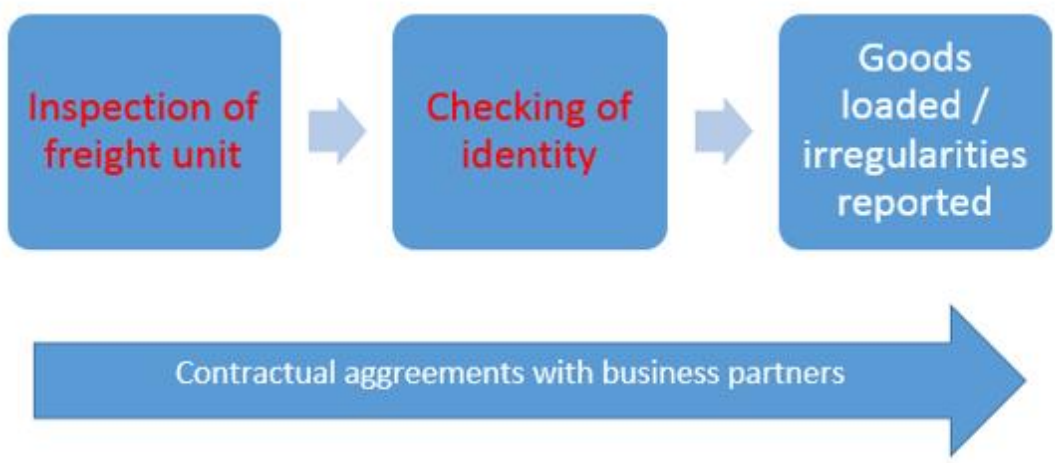

Figure 18 Loading of goods process

As seen in Figure 18 the AEO safety and security requirement brought a need of inspecting the empty freight unit. It was also necessary to make sure that the identity of a driver responsible for the transportation of the goods was checked.

Data obtained through observation, confirmed some of the points that were highlighted in the interviews. One was that, when observing the process of loading

of the goods, the empty freight unit that arrived for loading wasn't checked systematically before the goods were loaded into it. Nor was the drivers' identity verified.

When observing the storage of goods process, it was noted that the goods that were destined to be a part of the international supply chain, were stored in the same area as those that were destined to EU.

Together these highlight the factors, that need to be considered in logistical operations in order to comply with the AEO program. The information that was gathered both through this observation as well as the interviews, complemented each other, thus giving validity to the research.

5 Discussion

The main aim of this study was to establish what are the effects, that achieving an AEO (AEO is a voluntary security program of Customs and organizations, brought by the need of addressing the overall safety and security of the international trade) status can have on a company's processes and more specifically, the effects it has on its risk and business process management. The study starts off with an overlook of the main topic of AEO and other literature that was reviewed; mainly Risk management and Business process management. The reviewed literature revealed, organizations are faced with many security related dilemmas. The most prominent of these being, how to estimate and manage risks, as well as how to prioritize risk management activities and budget towards expenditure arising from security related needs. If an organization is unable to understand the risks or is lacking of internal control processes, it can potentially lead to a situation, where risks materialize and affect the organization's ability to serve its' customers. It is vitally important to address these concerns, because it is easier for an organization to recuperate from possible security related incidents, if security issues are recognized. From looking at the risk perspective the study moves on to the processes, and starts by claiming that as processes are based on an organizations know-how, it is fair to say, that these processes should be considered to be an important part of an organization's assets. The possible reason, for why an organization's processes may come under scrutiny, is

that the lifecycle of most products and services is a lot shorter, due to a fast-changing business world. And because everything is connected, thanks to rapidly advancing technologies, organizations must be able to adapt their processes in order to keep up with their business partners as well as with their competitors. Sometimes, it could even be regulatory or environmental changes, that trigger a company to re-examine its' processes. AEO is seen as one of these triggers.

One of the main reasons the study focused on AEO, is because it has been proven, that having an AEO status will bring many direct as well as indirect benefits, and yet in Finland the number of AEO status holders, pales in comparison to its' European counterparts. Why was this so? What was known, was that any organization that had been granted the status of an AEO has assessed its' risks and processes fairly intensively. With the AEO program as a whole, covering such a vast amount of operational areas, it was decided that it would be more productive to focus the research on one specific operation. With this in mind the research context was limited to cover the logistics processes of Valmet Technologies Inc. and the question that needed to be answered was:

How the Authorised Economic Operator -status affects a company's logistics operations.

To answer the research question, a qualitative approach to the study was considered to be the most appropriate method. A single case study was conducted and empirical data was collected through observation and by conducting two structured interviews. By collecting data through different means, the consistency and internal and external validity was achieved. As the focus was on a company's logistics operations, the theoretical framework for the research was set in such a way, that the focus on AEO guidelines was limited to those that covered security and safety requirements related to the logistics operations.

Results revealed, that existing processes needed new instructions and responsibilities needed to be defined. The next section will cover these in more detail.

5.1 Answer to the research question

This chapter will go into detail, about how having an AEO -status affects a company's logistics operations.

First, it can be said, that the effects of AEO requirements on a company's existing processes can be roughly divided into two categories; effects on physical things and effects on humans. Secondly, there were two clear themes, that could be seen from the empirical data. The first one was, issues relating to trust, and the other one was, issues relating to security.

The results of this research highlighted the fact, that it's a balancing act of improving issues paramount to security with issues that are crucial to the building of trust. On the one side, there are issues, that are crucial to increasing the overall security of the organization, whereas on the other side, there are issues that are important in order to maintain and increase the trust towards other stakeholders. And thus ensuring the integrity of the data and information received from them.

These findings are highlighted in Figure 19, in the context of the aforementioned categories of effects on physical things and humans, and the themes of trust and security.

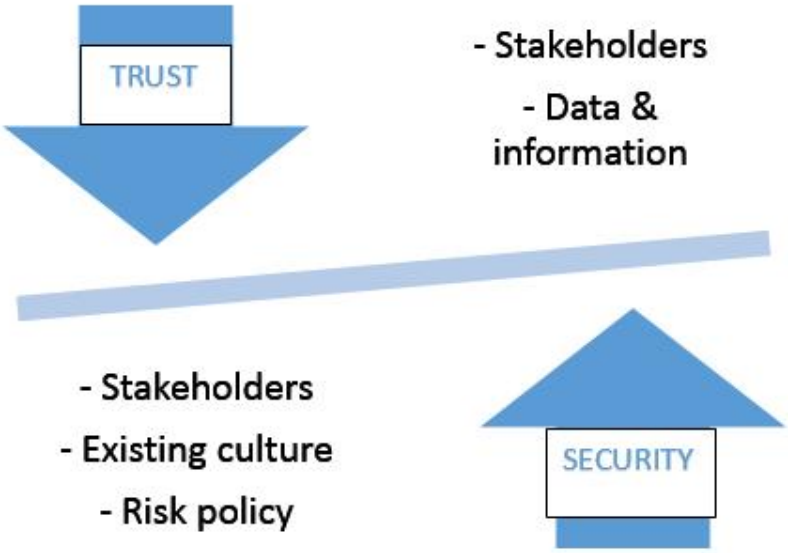

Figure 19 Relationship between trust and security in logistics operations

On the security side, there is a need of addressing the responsibilities related to security related issues. There must be preventative measures in place, relating to maintaining the overall security and safety of the international supply chain. These measures need to be extended to cover the activities of business partner's activities as well. One example of guaranteeing safety, is to carry out identity checks on all external stakeholders, who are entering the premises of an AEO.

Security issues can't be seen as 'one off' operations. In order to comply with AEO requirements, employees should be provided with training on security related issues on a regular basis, so that adherence towards security related issues crucial to the AEO program is achieved and maintained. It is quite possible, that there could be work environments, where the whole meaning of a security needs re-defining. Security should be seen to cover a far greater amount of issues, than just those related to health and safety. Sometimes the whole process needs remodeling. An example of this would be a recruitment process, where background checks need to be conducted on all those employees who handle sensitive data or have security related duties. The same principle applies when an employees work history needs to be checked to cover the previous five years.

A good example of how trust can be effected, comes from the subcontracting network. When a company's operations are vast, the subcontracting network will reflect that also. Some operations have been subcontracted either gradually over the years, but sometimes, the subcontractor has been involved with product development right from the beginning. This early involvement of a subcontractor with the production process, combined with the fact, that the subcontractor is often geographically located close to the case company, has resulted in a special relationship forming. This type of relationship is based on mutual trust. However, this trust can be placed under threat, when the subcontractor opposes the demands that the AEO applicant starts to present to it. Therefore, safety and security related issues should be addressed and assessed as an ongoing part, of a business relationship. Because adding AEO security and safety requirements to contracts, doesn't alone cover or prove that subcontractors' operations are secure and safe. Even if all stakeholders in an international supply chain adhere to a secure and safe operational

mode, the ultimate responsibility lies with the holder of the AEO -status to submit the proofs of compliance.

The most challenging task related to security will be, maintaining it in situations where something isn't the responsibility of an AEO. As an example, this type of situation can arise, when the customer is responsible for arranging the transport. When this happens, the selection of the transportation mode as well as the task of selecting the forwarding company i.e. stakeholder in the international supply chain, is totally up to the customer and thus out of the AEO's sphere of influence. In these kinds of situations, the AEO has no control, over who the stakeholder in the international supply chain. In a case like this, it is so much harder to address the safety and security criteria of a business partner.

In order to build a security-aware organization, one of the most important points, is that the security operations and risk management actions are based on a company's risk policy. The risk policy gives the base for all processes and procedures, as well as providing guidelines for the employees. Potential investment needs in security related solutions, are also easier to justify, if they are based on the risk policy. Above all, all areas of operations in the company, as well as, all levels of management in the company, need to be on board with the risk policy. Any change in a process, is far easier to implement, if the requirement for it, comes from the top down i.e. from the management to the employees. It is guaranteed, that challenges will arise, if changes to processes are implemented, without all employees being aware of what the changes are in relation to. Security related issues should be embraced by all employees and not just the team of logistics people.

What may also have an impact in the implementation of security matters is the culture that exists within the organization. A strong influence of an industrial environment may lead to a situation, where security related issues are perceived to be those that cover health and safety at workplace. A risk awareness culture needs to be in place first, and the importance of it, has to be one of the main strategic priorities for top management. In order for the risk and security practices to be coherent, they need the support of top management and the implementation needs to be from top management down.

On the trust side, the issue of trust is evident in supplier relationships. It's not easy to question whether a stakeholder is trustworthy or not, or imagine that any business partner may pose a risk towards an AEO's business, especially intentionally. Questioning this is even harder, if the business relationship has been formed over a long period of time and involves a long history of cooperation. The AEO program and its' security requirements can help to address these security issues with business partners. It's not a question of not trusting the existing business partners, but more that there's evidence to show, that criminals have intelligent systems in place to spot any weak points in the international supply chain. The merchandise of some Global companies is more desirable than others, therefore criminals will target their supplier network for any weak points, in the hope it may present them with a chance of gaining access to their goods or information.

A freight arriving for loading, that is subsequently checked systematically, shouldn't been seen as an act of mistrust. The same applies when the correctness of data and information given on the transport documentation is checked, or attention is paid to the nature of the goods, or where they are destined to. The existing security culture may influence how data and information is handled.

When selecting new business partners, having or not having an AEO -status is an additional issue, that needs addressing each time, before a new business contract is made. The safety appendix of the AEO program, usually needs to be added to existing contracts.

5.2 Implications and managerial recommendations of the research

The uniqueness and varying business environments, bring challenges to how to implement the required change and to what extent those changes need to be implemented. What is also apparent, is that quite substantial organizational challenges arise, when juggling with the need of building business relationships with other organizations whilst dealing with the demands and requirements set out by the authorities as well. A couple of the major questions that any company should consider are; How to communicate security issues in a global business environment in way that these are understood congruently? And; How to share and grant system

access privileges to business sensitive data, in a way, that is just enough to facilitate the movement of goods and services from suppliers to end consumers, and so that all players in the supply chain acquire their own economic benefits. As well as creating value to the end consumer in the process. These organizational challenges need assessing together with how system complexities and vulnerabilities in existing systems are managed.

Another matter that cannot be stressed enough, is that business processes and security objectives need to be aligned within and throughout the company. If this is not the case, the application for an AEO –status, is easily seen to only concern the logistics team, not as something that affects the whole of the business. Management also need to decide on how to distribute resources and to assign responsibilities to employees across different operations. Everything should be geared up to building and creating an improved common security culture. This is no easy task. To organize and maintain sufficient security training for all employees is a challenge.

If it was necessary, for the company as whole, to be on board with regards to aligning its business processes and security objectives, it is even more important, that all of the company's various operations are committed to assessing the existing processes. Before implementing any changes to existing processes, it's important that the appropriate control for the effectiveness of these new approaches is also thought out. The AEO application process shouldn't be treated as a one off, stand alone, separate project, but as a process that will be built into the applicant's existing processes. Being an AEO, should be treated as a continuous process, in which self-monitoring plays a key role. For an AEO to properly function, the requirements need to be extended to cover those of its business partners also. It is therefore hardly a surprise, that an AEO is more likely to select someone with an AEO -status in mind as a key partner.

During this research, it was noted that the benefits of being an AEO, go beyond those considered to be direct benefits. This meant that when internal processes, not just those that relate to logistics processes, as well as other operating instructions were reviewed, the overall awareness towards risks was raised and increased as a consequence. This means that the company is more aware of its operations.

One of the most important contribution of this research is that Valmet Technologies Inc. was granted AEO status 22.3.2017. Even though granting of an AEO -status was an end-result of a long and extensive project and it required hundreds of hours of work from many different people, this research and the researcher's involvement in the project played an important role.

The second major outcome of this research is that the findings of this research play an important part when a-depth analyses of present situations are being evaluated in other locations of the case company's. This will add to the value of this research. These findings could be used as model when auditing other locations for the compliance for the AEO requirements. Gives an insight of possible challenges are being faced locally.

Thirdly, process assessment done as a part of this research will help towards the case company's next major task of implementation a new Enterprise Resource system (ERP) system.

Other companies are expected find these results useful as these results give a basis for a-depth analysis of present status of logistics operations to be done. These results help in some way of removing obstacles from the AEO application process and can be used a helpful tool when contemplating of applying for AEO.

5.3 Limitations, verification and validity of the research

As with all researches, this too comes with limitations. One of these limitations, is the difficulty in recalling exactly what the starting situation with the processes were prior to beginning the application process. The main reason for this being, that the application process for the case company was very long, which allowed for many of the existing processes to have changes made to them along the way. This research endeavored to address the issue, by collecting empirical data from different sources as well as relying on the AEO guidelines.

Another fact that could be seen as a limitation, is that logistics processes are just one part of the AEO Customs program. This said though, the importance and relevance of the logistics processes to the AEO program should not be overlooked. Logistics operations form an important part, even when applying for the most sought after

status of an AEOS, which is the abbreviation signifying, that an AEO has also achieved the necessary safety and security requirements.

There are different design tests that can be conducted throughout the case study process to establish and build the quality of the research. Validation, both internal and external are important for the sake of gaining generalization for the research results beyond the immediate study. (Yin 2014, 47-48.) The validity of the research was The interview questions were formed, so that the state of logistics operations could be both described and explained, in a way that supports the external validity. In addition, empirical data was collected from an external stakeholder in the case company's supply chain, again further strengthening the external validity. Constructive validity was achieved by collecting empirical data and evidence from multiple sources, through interviews and observation. Internal validity was attained, by involving a member of the case company's logistics management team, to check and verify the results and findings of this research. And finally, the reliability of the research will be put the test, when internal audits are conducted and or, when subsidiaries, such as Valmet China are being advised.

When conducting a case study, the actual part of the case study analysis is by far the most demanding stage of the research process. This in mind, it was appropriate to choose a case, where it was not only possible to obtain data from various sources, but to as well be able to check the accuracy of the data these sources provided. The researcher also had pre-knowledge of the topic and was very much involved with the processes of the project. This issue of personal involvement, subjectivity and objectivity of the researcher could be seen as a possible weakness, but it was in fact turned into a strength, by having the appropriate monitoring and disciplining in place when the case was interpreted. Data obtained through observation was cross referenced to that of an external security company's data.

5.4 Recommendations for future research

In the case of the case company Valmet Technologies Inc., the application process to achieve the AEO -status took over a year. To achieve it, it required extensive efforts from many individuals to assess existing processes. The time and effort considered, the investment from the company was considerable. With this in mind and knowing

that having an AEO-status clearly brings many direct as well as indirect benefits, it would be highly beneficial, if these benefits could be measured in some way. Previous studies have concluded that the benefits of an AEO -status lies with shortened delivery times due to fewer inspections carried out on AEO goods and related information. But what are the actual savings calculations in weeks and days, and what is the actual saving in monetary terms? A comparison on the above, measured before a company starts the application process and after it has been recognized as an AEO, would be of extreme benefit to those companies about to embark on the process. Having concrete and definable benefits, in terms of time and money, would give a far clearer view on a company's potential return of investment (ROI). And thus help the decision making especially in the upper management echelons of a company. This research suggests that a research of this nature could be done by e.g. approaching the subject of AEO from a quantitative perspective.

Another useful avenue of further research on the topic, would be to change the focus of it. All the previous researches on the subject of AEO have concentrated on the perspective of an economic operator. This research suggests, it would be useful to have an in-depth Customs perspective to the matter as well. It is quite evident that, the assessment of an organizations logistics process, that has a very large and complex business environment must be challenging for Customs too. But again, how challenging is it? What are the actual savings, that the time and effort invested in vetting a company's logistics process brings? And how long does it take to get a return on this investment? This would help evaluate how effective the programme has been in allowing Customs to re-focus their resources on more pressing matters and to possibly quantify the success of the programme. Either a qualitative or quantitative research could be carried out on the subject from this perspective.

Finally, this research recommends, that a research should be conducted, on what the effects of having achieved the status of an AEO can have retrospectively on a company. There is no doubt, that the intense scrutiny that a company puts its processes under during the assessment stage of the application process, throws up many questions and brings about a lot of changes. So the question is, what possibilities if any, have these changes in the processes enabled, that were not possible prior to being an AEO? Knowing what other possibilities and possible

benefits could be brought to a company, by the related effects that becoming an AEO has on its Business Process Management, would again, this researcher feels, be highly beneficial to a company considering applying to become a recognized AEO.

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Appendices

Appendix 1. Interview questions

1. Now that you know what AEO entails what sort of concrete impact can you see it having on the way logistical risks are being managed?

2. Has AEO standards brought about a need to rethink your allocation of resources within your logistics processes?

3. Logistics process: How has the carrier selection process changed?

4. Incoming goods: Have you seen the change in process of receiving / in how you receive of goods since adopting AEO standards?

5. Storage of goods: Could you briefly explain the main differences between storage of goods before AEO standards and after AEO standards?

6. Loading of goods: In your opinion would you say that there's been a major change in Valmet's loading process?

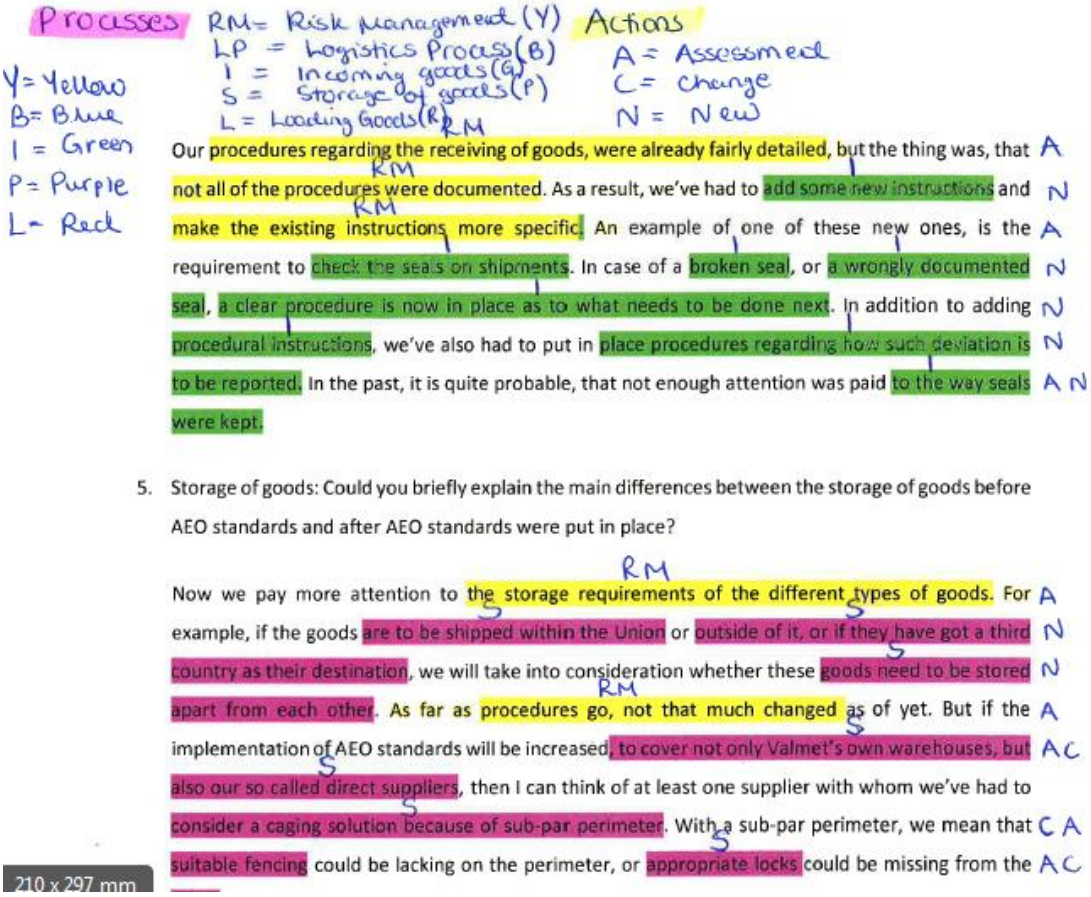
7. Have AEO standards alerted you to weaknesses in your supply chain that you weren't aware of before?

8. How other stakeholders within your supply chain have reacted to AEO application process?

9. Do you feel that the needs and requirements to implement AEO have been fully understood by all levels of management?

10. Knowing what you know now, what do you feel, would have been useful to know about the AEO process before you started assessing the transition?

Appendix 2. Sample of the data Analysis



	A	B	C	D	E	F	G	H	I	J
1	RM	C	behaviour / viewpoint							
2	RM	N	process / check authenticity of declaration							
3	RM	N	process / check data of declaration							
4	RM	A	occasionally					Actions	Process modelling/designing	
5	RM	A	at regular interval					RM = Risk management	C = Change	
6	RM	A	level					LP = Logistics operations	N = New	
7	RM	A/C	level/unified process					I = Incoming goods	A = Assessment	
8	RM	N	process / unified operating instructions					S = Storage of goods		
9	RM	N	process / preventative actions					L = Loading of goods		
10	LP	C	resource increase							
11										
12	LP	C	resorce centralization							
13	LP	N	process / AEO safety appendix							
14										
15	LP	A/C	existing partner/compliance process							
16	LP	N	process / AEO safety appendix							
17	LP	A	operation mode							
18	LP	A	compliance requirement							
19	LP	N	process / identity check							
20										
21	I	A	instructions							
22	I	A/C	instructions							
23	I	A/C	specify instructions							
24	I	N	process / checking of seals							

6.5.	**Logistical processes** *(AEO Guidelines Part 2 Section V, Subsection 4)*
6.5.1.	a) Which means of transport are normally used by your company? b) Does your company carry out all its own transport, or does it also use external service providers (e.g. freight forwarders/carriers)? c) How do you establish whether the freight forwarder/carrier meets the required security standards (e.g. by means of a security certificate, declarations or agreements)? d) Do you take other measures for outsourced transport activities with a view to meeting security standards?

6.6.	**Incoming goods** *(AEO Guidelines Part 2 Section V, Subsection 4)*
6.6.1.	a) Describe briefly the procedure for ensuring the security and safety of incoming goods? b) Describe briefly how the compliance with these procedures is checked?
6.6.2.	Are your employees informed about security arrangements with suppliers, and how is compliance ensured?
6.6.3.	a) Describe briefly how checks on the integrity of the seals on incoming goods are conducted? b) Are incoming goods sealed if appropriate? Yes/No c) Does your company deal with specific types of goods requiring specific security measures (e.g. air cargo/air mail)? If Yes, what routines/measures are in place?
6.6.4.	Are the incoming goods marked and if yes, how?
6.6.5.	Describe briefly the process for counting and weighing incoming goods?
6.6.6.	Describe briefly how, when and by whom incoming goods are checked against the accompanying documents and entered in your records?
6.6.7.	a) Are the sections responsible for the purchase of goods, the receipt of goods and general administration clearly separated? Yes/No b) Do integrated internal control mechanisms exist between the sections? Yes/No. If yes, how are they executed?

6.7.	**Storage of goods** *(AEO Guidelines Part 2 Section V, Subsection 4)*
6.7.1.	Please describe at which locations you have set aside areas for the storage of goods?

6.7.2.	a) Please describe briefly the routine for allocating a storage position for incoming goods. b) Do you have outdoor storage locations? Yes/No. If yes, please describe them briefly.
6.7.3.	Do you have documented procedures for stock-taking and dealing with irregularities detected during stock-taking? Yes/No If yes, please describe your arrangements in brief.
6.7.4.	Are goods of different risk levels stored separately? Yes/No a) Please describe the criteria for any separate storage (e.g. hazardous goods, high-value goods, chemicals, weapons, air cargo/air mail)? b) Please describe how you ensure that the goods are immediately recorded in the logistical accounts/stock records?
6.7.5.	a) Describe briefly how goods are protected against unauthorised access to the warehousing premises? b) Describe briefly how compliance with these procedures is checked?
6.7.6	If storage of goods is outsourced to a third party please describe briefly how and where the goods are stored and your control measures you use to supervise the handling of goods.

6.9.	**Loading of goods** *(AEO Guidelines Part 2 Section V, Subsection 4)*

6.9.1.	a) Describe briefly how loading of goods is managed in your company (e.g. allocation of responsibilities, checks on goods, and means of transport, recording of results, provision of information, etc.)? b) Are there any written instructions on how the process should be organised? Yes/No
6.9.2.	a) Are outgoing goods or vehicles sealed? Yes/No? If yes, how, by whom and what sort of seals do you use? b) Are any seal numbers mentioned in the documents accompanying the goods? Yes/No c) How do you keep a record of your seals?
6.9.3.	Describe briefly how compliance with customers' security requirements for loading is guaranteed?
6.9.4.	Describe briefly the arrangements that are in place which ensure that goods to be loaded and the loading process itself are not left unsupervised
6.9.5.	Are the outgoing goods checked for completeness (e.g. counted, weighed)? Yes/No If yes, how and by whom?
6.9.6.	Describe briefly how, when and by whom departing goods are checked against orders and loading lists and recorded out of the stock records?
6.9.7.	Describe briefly what control mechanisms you have in place for detecting irregularities concerning the loading of goods?