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Determining Factors for Bonded Warehouse Implementation

Case study exploring the key resources in bonded warehouse implementation

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Background: Globalization has created new opportunities for firms to import and export goods across the world, international trade has gained significant importance to many. Although global trade between countries has many positive aspects, it has also demanded the right type of warehousing to store the goods as cost-efficiently as possible. Warehousing is the second largest cost within a company's logistics areas after transportation. One way of lowering logistics costs is to implement a bonded warehouse. A bonded warehouse is a storage location where companies can store imported goods where the payment of duty costs to be postponed as long as needed, which provides companies with more liquidity and yield many cost-saving benefits. However, bonded warehouse operations and implementation is more complex than that of a non-bonded warehouse because special requirements for monitoring and auditing must be followed and executed correctly. It is, therefore, vital to choose a suitable strategy and proper implementation in order not to waste valuable resources. Manufacturers and retailers could as a result benefit from a resource and implementation framework to mitigate the risk of an inadequate implementation process.

Purpose: The purpose of this study is to explore the requirements for implementing a bonded warehouse from a resource-based perspective. The aim is to derive a set of resources that are necessary for the implementation of a bonded warehouse. Further, the study will examine both tangible and intangible resources. Lastly, a framework that will illustrate the steps and requirements to implement a bonded warehouse is created.

Method: This study takes on a qualitative research method, guided by a constructionist perspective this exploratory study uses a multiple case study approach to obtain thorough knowledge on the topic. Through semi-structured interviews with several companies the topic of bonded warehouse implementation is explored. Moreover, the analysis was consistent with a grounded analysis approach where themes could emerge and provide answers to our research questions.

Conclusion: The results illustrate the ten key resources required for bonded warehouse implementation: 1) Bonded Warehouse Project Plan 2) Bonded Warehouse Administration 3) Bonded Warehouse Reporting 4) Bonded Warehouse Layout Specifications 5) Bonded Warehouse Project Team 6) Bonded Warehouse Process Knowledge 7) Customs Knowledge 8) Customs IT-system.

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List of Abbreviations

Abbreviation	*Meaning*
JU	Jönköping University
GDPR	General Data Protection Regulation
NDA	Non-Disclosure Agreement
RBV	Resource Based View
EU	European Union
3PL	Third Party Logistics Provider
EDI	Electronic Data Interchange
WMS	Warehouse Management System
ERP	Enterprise Resource System
CEO	Chief Executive Officer
SP	System Provider
C	Company
A	Authority
PO	Port Operator
EOQ	Economic Order Quantity
WTO	World Trade Organization

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1 Introduction

The introduction will give an overview of the research and its intention. To begin, an introduction to the topic of warehousing and bonded warehousing will be explored. Then, the identified problem will be discussed resulting in the research gap found and lastly, the purpose of this research will be clarified alongside the research questions.

1.1 Background

Warehousing is an integral part of any supply chain network, and it has become a vital component in competing with other actors on the market (Faber et al., 2002). Moreover, warehouses have become a strategic competence used by businesses to leverage costs and promote efficiency. It is a critical point as it links the flow of material from supplier to customer (Ramaa et al., 2012). The core activity of warehousing is storing produced items for later consumption. It is an important concept that has been used for many centuries by traders and merchants. The word warehouse was first used in the middle age as the theory of warehousing began influencing trade as merchants used to store their goods in these specific places (Smith & Tompkins, 1998). As trade between nations grew, so did the importance and use of warehouses to store commodities worldwide. In the past, warehousing was merely seen as a means of storing goods, something that incurred cost but that was unavoidable. However, in today's business environment, warehousing is, as mentioned, a critical strategic component that can provide several benefits to a business operation.

Further on, the importance of warehousing can be seen in the vast amount of literature that has been published during the last decades (Abdul Rahman et al., 2021; Lim et al., 2013; Sadowski et al., 2021; Salhieh & Alswaer, 2021; Staudt et al., 2015; Timperio et al., 2020). There is a consensus in the literature regarding the application and usage of warehousing. More specifically, warehousing allows companies to store goods at strategic locations to respond to customer demand efficiently, respond to market fluctuations and uncertainty and promote economies of scale through shipping consolidations (Amiri, 2006; Ramaa et al., 2012).

A practical and well-managed warehousing strategy can result in cost savings, rapid response during fluctuating demand, and smooth operations. Moreover, the field of warehousing is influenced by several theories that have been applied to the topic, many of which relate to the location and routing problems (Hansen et al., 1994; Perl & Daskin, 1985), cost (Pirttilä & Hautaniemi, 1995), warehouse structure (Moeller, 2011) and technology (Lim et al., 2013).

In today's environment, with new technological advances in logistics processes, warehousing operations have become more complex due to their expansion into several varieties of warehousing categories (Faber et al., 2002). As individual firms possess different resources and require specific operational processes to remain profitable, they must decide on the most suitable and cost-efficient warehouse type for their supply chain. Some warehousing options include public warehouses, private warehouses, consolidated warehouses, distribution centres, bonded warehouses, etc. (Ackerman, 1997).

Furthermore, as globalization has created new opportunities for firms to import and export goods across the world, international trade has gained significant importance to many companies (Prataviera et al., 2020). Although global trade between countries has many positive aspects, it has also demanded the correct type of warehousing to store the goods as cost-efficiently as possible (Hsu & Zhu, 2011; Kudláčková & Chocholáč, 2017; Wong et al., 2014). At times, firms are unsure when and how the imported goods will be utilized in their value chain. In those cases, using a bonded warehouse can effectively facilitate the duration of intermission (Helgadóttir, 2020). A bonded warehouse is a storage location where companies can store imported goods without immediately paying import duties (Prataviera et al., 2020; Suresh et al., 2017). The company pays the import duties once the goods have been taken out from the warehouse, and the duty paid is depended on the goods' destination. Goods that stay in the same country as the warehouse are subjected to paying duty applied between the country of origin and the warehouse's location (Prataviera et al., 2020). While if goods are further exported to another country, the duty is paid between the country of origin and the destination country (Orenstein, 2018). There are multiple reasons why a company would be interested in using a bonded warehouse. For example, it allows the payment of duty costs to be deferred as long as needed, which provides companies with more liquidity (James, 2012). Further on, investing in a bonded warehouse can yield many cost-saving benefits for companies that import and export goods between several countries (Kalinicheva et al., 2016).

1.2 Problem Discussion

Warehousing is the second-highest cost within a company's logistics areas after transportation. With the cost of carrying inventory, warehousing accounts for around 47% of the cost of sales (Logistics Cost and Service 2020, 2021). Therefore, it is vital to choose a suitable strategy and proper implementation to not waste valuable resources in terms of time and money. Moreover, warehousing is a complex matter, Faber et al. (2002) explain that as the complexity increases, it becomes more challenging to promptly provide the organisation with correct information. In the case of bonded warehouses, the complexity further increases as the process differ from a typical warehouse, and special requirements for monitoring and auditing must be followed and executed correctly (Prataviera et al., 2020).

Moreover, the cost of using a bonded warehouse is higher than that of a standard non-bonded warehouse (Prataviera et al., 2020), which increases the risk associated with implementation. The implementation of a warehouse is dependent on several factors such as the purpose of the warehouse, cost of material, processes, labour resources etc., (Kłodawski et al., 2017). It would, therefore, be beneficial for manufacturers and retailers to use a framework to mitigate the risk of a flawed implementation process.

Despite the additional cost and complexity that a bonded warehouse implies, the benefits are argued to outweigh the drawbacks in many cases. Literature has recorded benefits like logistics cost savings, customs cost savings and minimised cross-country risks (Brooks et al., 2018; Prataviera et al., 2020; Shao et al., 2021; Wong et al., 2014). They are indicating that the topic of bonded warehouses is of importance, especially in today's globalised society where raw materials, semifinished products, and finished goods often cross several country borders before reaching their destination (Prataviera et al., 2020). Xu et al. (2019) have also documented an increase in the usage of bonded warehouses in the e-commerce sector over the last decades. However, the literature on the bonded warehouse is limited compared to non-bonded warehouse literature.

The field is dominated by quantitative research, which focuses on analysing company cases (Chen et al., 2018; Hsu & Zhu, 2011; Sidorova, 2020; Suresh et al., 2017). Several of the quantitative research has been used to study the benefits (Chen et al., 2018; Hsu & Zhu, 2011; Suresh et al., 2017), location selection (Guan et al., 2021), selection of products to store (Hsu & Zhu, 2011), stock levels (Suresh et al., 2017) and technology

(Chen et al., 2018; Kao & Hung, 2009) associated with operating a bonded warehouse. The research on bonded warehouses has focused on cost and effectiveness solely. Though being two vital components, it fails to encompass what is required in terms of resources to ripe those benefits from bonded warehousing. On the other hand, in the qualitative research, a consensus is found that bonded warehouses are beneficial, further supporting the quantitative research on the topic. Moreover, they specifically touch upon the advantage of favourable import regulations (Wang et al., 2018), increased speed (Shao et al., 2021; Wang et al., 2018), and lowered logistics costs (Shao et al., 2021; Wang et al., 2018). However, Prataviera et al. (2020) contradict much of the previously mentioned literature, stating that the logistics costs are higher when using a bonded warehouse. Despite the further complexity and cost associated with a bonded warehouse that has been found in previous research, the literature fails to conclude the differences between bonded and non-bonded warehouse implementation processes. Kłodawski et al. (2017) state that the implementation of a warehouse is subjected to several factors, indicating the need to investigate further the implementation process in the case of bonded warehouses. Compared to research on the implementation of non-bonded warehouses (Pyza et al., 2017), there is a lack of literature on the particular requirements for bonded warehouse implementation and the critical resources needed to secure successful bonded operations. As the literature on bonded warehousing has demonstrated that it is possible to increase an organisation's liquidity and cost-effectiveness (Chen et al., 2018; Hsu & Zhu, 2011; Suresh et al., 2017), it would be an incentive to understand how to salvage those benefits.

1.3 Research Purpose

Based on the problem discussion, the purpose of this study is to explore the drivers for implementing a bonded warehouse from a resource-based perspective. More precisely, we aim to derive a set of resources necessary for implementing a bonded warehouse. This will enable companies to assess their managerial prerequisite and evaluate their current internal resources in relation to the identified bonded warehouse resources. Further, the study will examine both tangible and intangible resources. It will focus on the different resources a company might need to invoke a bonded warehouse. Moreover, a framework of the implementation process and bonded warehousing resources will be presented to provide practical knowledge for practitioners.

Hence, our research questions are as follows:

- What are the key resources for bonded warehouse implementation?
- How do companies differ in the way they use the key resources for bonded warehouse implementation?

Further on, the contribution of bonded warehouse implementation will be helpful for practitioners as it will provide a further understanding of what a company require in possession to implement a bonded warehouse successfully. Additionally, the authors also acknowledge that companies have different prerequisites concerning company size and possession of resources which the framework aims at encompassing. The framework will assist retail- and manufacturing companies looking to implement a bonded warehouse. Moreover, the study will contribute new insights into the bonded warehouse literature and provide a new basis for further research on bonded warehouse implementation and requirements.

1.4 Delimitations

All companies studied are based in countries that are part of the European Union and, therefore, follow the customs laws and regulations of the EU. Moreover, the study will be conducted from the perspective of retailers and manufacturers.

2 Literature Review

The Literature review lay the ground to the theoretical framework of this research. In this section the topics relating to bonded warehousing will be discussed and a thorough investigation into the literature will be conducted. To begin, globalization and warehousing functions will be explained leading into bonded warehousing and its characteristics. Following that the Resource-Based View will be presented, and lastly, project implementation, where a focus on the warehouse and supply chain context will be discussed.

2.1 Globalisation

Globalisation has, throughout the years, vastly changed the ways we conduct business, from domestic supply to fostering a world where products often cross several national borders before reaching the end customer (Prataviera et al., 2020). Its significance is also reflected in the amount of literature on the topic. Some of the earlier literature on globalisation and international trade dates to the early 80s (M. J. Baker, 1985; Galbraith & Kazanjian, 1986; Porter, 1986), and according to WTO (2021), a steady increase has been seen in both world import and export since the 40s, with Europe being the most prominent player.

Further on, favourable trading environments and transportation costs have enabled globalisation as it benefits the exchange of goods and services across borders (Bang & Markeset, 2011; Porter, 1990). Free trade agreements and economic unions have shown to drastically increase the trade between the involved parties and provide trade benefits for non-participating countries (National Board of Trade Sweden, 2018). The increase in export and import across several countries has been followed by an increase in the usage of bonded warehouses (Xu et al., 2019), where companies aim to take advantage of these favourable trading regulations (Wang et al., 2018). Moreover, as export and import have increased, so has consumption and companies' incentives for development to obtain more market share.

In turn, throughout the years, globalisation has been a critical driver for several advancements, such as the development of infrastructure, warehouse types and technologies, and distribution centres to satisfy the ever-growing demand (Bensman, 2008; Goeltz, 2014). As integration between different nations has increased, so has the political and economic complexity, and competition between different economies has opened new risks for global companies (Ponisciakova, 2000; Saberi et al., 2019). Furthermore, as globalisation has surged, the level of control of supply chain activities has become more challenging to maintain, which has increased the importance of strategically sound decisions throughout the whole supply chain, including warehousing (Saberi et al., 2019). Warehousing's effect on logistical activities has been seen in the trade-off between the cost of holding goods, demand uncertainty and product delivery (Kudláčková & Chocholáč, 2017) and has shown to play an essential role in the cost and efficiency of an operation (Hsu & Zhu, 2011; Kudláčková & Chocholáč, 2017; Wong et al., 2014).

2.2 Warehouse Functions

It has been previously established that warehousing has become a critical and essential function in the supply chain (Faber et al., 2002). The concept of warehousing can be dated back to the beginning of humanity's history, which speaks for its long historical record. During that time, the prime purpose of the warehouse was to store food and other supplies in case difficult and poorer times would come. The first documented commercial warehouse was in Venice, as it was then a central point between several trading routes (Smith & Tompkins, 1998). However, as we have moved towards the modern-day era and supply chain knowledge has continued to progress rapidly, warehousing objectives have expanded beyond their proposed function (Gwynne Richards, 2018). As the global market moves quickly and customer demand increases, companies are forced to upscale their production in conjunction with the request for significantly shorter lead times (Berg & Zijm, 1999). The primary purposes of a warehouse remain; however, as technology has advanced, it has also allowed for faster and improved warehousing processes (Richards, 2018).

The warehousing stage in the supply chain consists of crucial processes for the goods or materials to move forward in the value chain. Careful planning of processes, such as the inbound logistics flow, product-to-location, product storage, location-allocation, order-to-stock, order picking, and much more, will be deciding factors for the performance of the warehouse (Faber et al., 2013). Moreover, along with the traditional warehousing activities stated above, it is possible to witness a growing trend of alternative warehousing functionalities, such as cross-docking services, postponement manufacturing and reverse logistics of returned goods (P. Baker & Canessa, 2009; Gwynne Richards, 2018). Some warehouses have also extended their services to include value-adding processes, including assembly and packaging operations (R. B. M. de Koster et al., 2017). As warehousing facilities expand their operations into new requested activities, they consequently improve operational efficiency and customer service attributes which positively affect companies' supply chains (Autry et al., 2005; P. Baker & Canessa, 2009; R. B. M. de Koster et al., 2017).

Another critical aspect of maintaining a warehouse and its various processes regards the related costs and expenses of logistical activities. According to The Establish Davis Database (2021), which is also supported by Majercak (2019), it can be established that transportation costs are undoubtedly the highest among other logistics costs. The statistics are based upon logistics costs as a percentage of sales, and the transportation sector accounted for roughly 44%. Furthermore, warehousing and inventory carrying costs landed on 24% separately, whereas administration and supplies only accounted for roughly 4% of the cost per sale (Logistics Cost and Service 2020, 2021). However, it is important to remember that the numbers presented above present the calculated average logistics costs for companies all over the globe. There are multiple external and internal factors, including geographical location, infrastructure, technology, and administration, among others, affecting a firm's logistical expenses (Pishvaee et al., 2009). Further on, the literature states that there has been an increase in the usage of bonded warehousing as a strategic decision to lower logistics costs and avoid unnecessary import costs (Shao et al., 2021; Wang et al., 2018; Xu et al., 2019).

2.3 Bonded Warehouse

A bonded warehouse is a storage location where goods can be placed without being subjected to customs duties or tariffs. Only when the goods are moved from the bonded warehouse are duties and tariffs paid (Suresh et al., 2017) see figure 1. Helgadóttir (2020) state that the use of bonded warehouse is a way to promote international trade and facilitate companies in their export and import operations. Moreover, the special duty rules applied to bonded warehouses allow companies to take advantage of favourable import regulations (Wang et al., 2018) in which the literature has identified several benefits, in terms of avoiding costs, postponing costs, shorter lead times and managing demand uncertainties (Prataviera et al., 2020; Suresh et al., 2017; van Hoek, 2000; Wong et al., 2014).

First, a bonded warehouse can be especially beneficial for companies who import and export between different countries since a bonded warehouse enables the company to avoid paying duties on goods being re-exported. A more consolidated flow of goods can be achieved (Prataviera et al., 2020).

Second, benefits can also be seen in companies who import large quantities but do not immediately use or sell these goods by allowing them to manage cash flow and postponement costs later when the goods are used in production or sold (Suresh et al., 2017). Further on, this postponement strategy allows companies to achieve economies of scale while allowing for more liquidity as the capital for customs is not paid until the goods have received a destination (van Hoek, 2000).

Third, some have also found that using the bonded warehouse can lead to shorter lead times (Shao et al., 2021). This is due to the company's ability to store more goods in one place while avoiding tying up capital in customs costs and decreasing the distance to the customer (Shao et al., 2021; Wang et al., 2018).

Fourth, a bonded warehouse can further benefit companies in managing demand uncertainty. A company can store a more significant number of goods in a bonded warehouse without being subjected to costly duty payments and, therefore, also ensure that customer demand is met (Bartezzaghi & Verganti, 1995). Bonded warehouses have been used primarily for seasonal goods. Demand levels are highly irregular and dependent on external factors (Shi et al., 2016) or, as Okuyama (2003), demand uncertainties from sudden artificial and natural disasters.

Many of the benefits stem from a cost perspective, bonded warehouses have favourable effects on logistics, and several authors have identified a lowered logistics cost associated with the use of bonded warehouses (Kalinicheva et al., 2016; Shao et al., 2021; Wong et al., 2014), which related to the alleviation or postponement of import duties since these are often calculated as logistics costs. While some benefits such as quicker response to demand and the ability to level out uneven or unexpected demands (Shao et al., 2021; Shi et al., 2016; Wang et al., 2018).

On the other hand, operating with a bonded warehouse entails several implications that companies need to consider and facilitate. Wang et al. (2018) acknowledge the bonded and non-bonded warehouse differences in their operation. Moreover, the differences can be found in critical activities, channels, and revenue streams. They may point to a difference in the implementation between bonded and non-bonded warehouses (Hsu & Zhu, 2011; Prataviera et al., 2020; Yusup, 2022). These costs have been shown to stem from the additional administrative tasks required to operate a bonded warehouse, which could outweigh the benefits, especially if the costs saved from using a bonded warehouse are not sufficient (Hsu & Zhu, 2011; Prataviera et al., 2020).

Further on, the special duty regulation requires specific and accurate reporting; failure to do so will result in penalties according to the country of operation (DHL, n.d.; Finance Act of 2003, 2022). Therefore, it is vital to carefully address the different administrative tasks that a bonded warehouse requires compared to a non-bonded warehouse. Moreover, Prataviera et al. (2020) further explain that the regulations and administrative tasks create a more complex operation for companies where control over inventory and administrative tasks are vital. Inventory control is a core part of operating a bonded warehouse as it entails close control and traceability over all products kept in the storage (Tullverket, 2021).

Though the overall function of duty alleviation of a bonded warehouse remains the same, rules and regulations regarding ownership, import and export procedures differ between countries and types of bonded warehouses (Department of Homeland Security, 2010; HM Revenue & Customs, 2021; Tolletaten, 2020; Tullverket, 2021). Like a non-bonded warehouse, a bonded warehouse can be either private for own use or public for the use of other organisations (HM Revenue & Customs, 2021; Opoku et al., 2019; Orenstein, 2018; Манько А.А., 2021). Outsourcing bonded warehouse services to third-party logistics providers that are often already experienced in the area can provide guidance and advice while allowing the company to focus on core competencies (DB Schenker, n.d.; DHL, n.d.; Postnord, 2018). Moreover, in many cases, a third-party logistic provider can also manage goods that are not intended to be bonded, allowing companies to keep all of their goods in one place (Postnord, 2018).

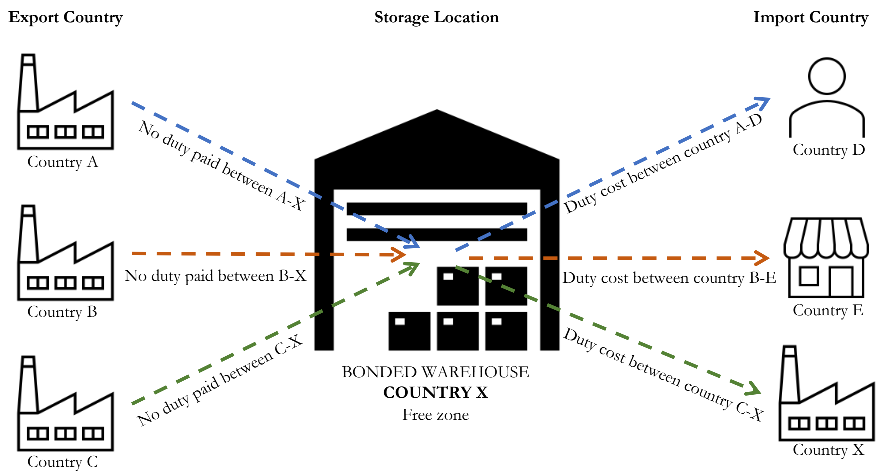

Figure 1: *Flow of goods and duties in bonded warehouse operations*

2.3.1 Private and Public Bonded Warehouse

A private bonded warehouse is used solely by specified persons who hold the permit (Манько А.А., 2021; Opoku et al., 2019; Orenstein, 2018). On the other hand, a public bonded warehouse is either owned by the government or another legal entity (Opoku et al., 2019; Манько А.А., 2021). The public warehouse sells its warehousing services to other organisations (Манько А.А., 2021).

2.3.2 EU Customs Regulations

In the European Union, some regulations govern how member states handle imports and exports and customs (The Union Customs Code, Regulation 952/2013). These regulations are legislative acts that must be enforced in all EU member states (European Union, n.d.-b). The Union Customs Code (Regulation 952/2013) informs how to determine the value of goods on which the customs value is derived; this includes regulations regarding what aspects of a product which is to be included in its prices, such as commission, container, and shipping fees and packaging. Moreover, the law also entails detailed procedures on how import and export of goods should be documented and declared, at what time, and for what purpose (The Union Customs Code, Regulation 952/2013).

Despite no direct legislation concerning the usage of bonded warehouses at the EU level, the Union Customs Code guides the operation of bonded warehouses in terms of import and export procedures. Moreover, to ease the application of the legislation to the usage of bonded warehouses, a guideline has been created to facilitate a correct application of

The Customs Union Code (European Union, n.d.-a). The guideline is not a legislative act but, as indicated, only a guide to ensure that the law is followed (European Union, n.d.-a).

Further on, each EU member state's customs authority makes sure that the laws of customs, imports and export ruled by the EU are followed at the country level. The different country's customs authorities may have different regulations regarding specific procedures, licences, and types of bonded warehouses, but they all ensure that The Union Customs Code (Regulation 952/2013) is being adhered to (Toldstyrelsen, n.d.; Tulli, n.d.; Tullverket, 2022).

2.3.3 Inventory Control

Inventory control is essential for the operation of bonded warehouses; the specific regulations pose critical criteria for the control and traceability of goods placed in such storage (Tullverket, 2021). Moreover, inventory control further encompasses a company's decision regarding storage levels, re-ordering points and the overall ability to manage one's inventory efficiently.

Inventory often accounts for a large portion of a company's cost and tied up money, and it is a part of an organisation that influences all other operations of the operation (Biswas et al., 2017; Jose et al., 2013; Kumar & Anas, 2013; Wild, 2018). It is the most important activity within the inventory management function; it deals with finding the optimal amount of inventory to supply demand while efficiently keeping costs as low as possible (Biswas et al., 2017; Jose et al., 2013). Therefore, it is a strategic competence that has been vastly researched, and several techniques and models have been developed to manage and control inventory (Biswas et al., 2017; Jose et al., 2013; Kumar & Anas, 2013; Wild, 2018). Two high costs are associated with inventory, procurement and holding costs (Jose et al., 2013). Moreover, frequent orders yield higher procurement costs, while extensive inventory results in higher holding costs. Due to this, it is essential to find synergy between these activities (Biswas et al., 2017; Jose et al., 2013; Kumar & Anas, 2013). To counteract the high holding costs, companies can use a bonded warehouse to free up liquidity that otherwise would have been paid in customs (Prataviera et al., 2020). If treated poorly, inventory can become costly, and the company may fail to meet demands, waste time on needless tasks and procure an inadequate amount of material (Joshi & Gupta, 2021).

It is often difficult for larger companies with several products to keep close control of overall inventory; it is, therefore, common to use strategies to prioritize certain types of inventories (Goonatilake, 1984). One such model is the ABC-analysis, which refers to categorizing the different inventory products into three categories, A, B and C, based on costs (Biswas et al., 2017; Jose et al., 2013; Kumar & Anas, 2013).

Similarly, to the ABC analysis, the VED analysis provides criteria for categorizing products to understand what products should be controlled more closely. However, unlike the ABC analysis, the VED strategy uses a critically based approach, meaning that the most critical products for production or operation are prioritized regardless of their cost (Joshi & Gupta, 2021). Moreover, another technique used to increase control over inventory is the Economic Order Quantity EOQ, which provides indications of which quantities of different products should be produced based on different criteria (Jose et al., 2013).

These models are commonly used in conjunction with further inventory control analysis that, for example, calculates what products to prioritize and hold (Biswas et al., 2017; Kumar & Anas, 2013), optimal order quantity (Agarwal & Mittal, 2017; Biswas et al., 2017), and inventory levels (Soorya & Mathew, 2021). These models all aim to maintain close control over inventory and optimise the strategic function, and it is a vital part of any organisation's operation.

2.4 Resource Based View

The resource-based view (RBV) has been widely researched and applied in a variety of situations and fields of studies ranging from project implementation, project selection and competitive advantage (Adebanjo et al., 2016; Barney, 1991; Barney, 2001; Kiatcharoenpol et al., 2011; Levy & Powell, 2005; Wernerfelt, 1984). Relevant application of the resource-based view can be found in outsourcing literature, where it aims at establishing what resources a company has and if outsourcing certain functions is beneficial (Holcomb & Hitt, 2007). Other papers also use the resource-based view to evaluate companies' resources during project evaluation and selection (Adebanjo et al., 2016).

A resource-based view refers to using a firm's resources to gain a competitive advantage (Barney, 1991; Barney, 2001; Levy & Powell, 2005). Moreover, the resource-based view has also been applied in determining what resources a firm might need to achieve the desired outcome (Levy & Powell, 2005). This is further supported by Barney (2001), who explains that the theory can assist managers that are underperforming or lacking in success to identify what resources they are lacking and investigate substitutes for the missing resources. However, it is essential to find synergy between current resources and the development of new ones (Wernerfelt, 1984). Among the earlier papers written on the topic, Barney (1991) identifies three categories of resources: human resources, organisational resources, and physical resources.

Human resources: refers to the knowledge and experiences of employees and managers in an organisation (Barney, 1991). *Organisational resources:* encompass the overall structure of an organisation. Moreover, organisational resources also include controlling and coordinating systems, reporting, planning and administrative systems, and internal group relations (Barney, 1991). *Physical resources:* this entails any physical asset that belongs to the organisation, such as systems or technological devices, facilities, equipment, or other tangible things (Barney, 1991). Additionally, as technology has advanced and becomes a vital component in many organisations' success, Kiatcharoenpol et al. (2011) identified *technological resources as* their separate resource. The technological resource category focuses specifically on IT systems and organisations' ability to implement and facilitate their IT infrastructure (Kiatcharoenpol et al., 2011).

2.5 Outsourcing Warehouse Services

According to the literature, many authors have agreed that firms have grown interested in outsourcing their warehousing activities (Maltz, 1994; Moberg & Speh, 2004; Razzaque & Sheng, 1998). Although firms are deciding to outsource various types of their logistics activities, including manufacturing and distribution (Razzaque & Sheng, 1998), outsourcing their warehousing activities remains the top choice for most firms (Moberg & Speh, 2004). Firms opt to enter into contracts with third-party logistics service providers mainly based on strategic decisions (M. B. M. de Koster & Warffemius, 2005). The primary incentives from contractual agreements include cost reductions (Jarzemskis, 2006), increased flexibility and quality of services (Razzaque & Sheng, 1998), and the ability to focus on the firm's core competencies (de Koster & Warffemius, 2005).

All companies must utilize a set of critical logistical functions in their value chain to ensure that product and service distribution operates efficiently. Complete elimination of these activities is unobtainable as it directly affects customer criteria and requirements (Jarzemskis, 2006). However, as most organisations' primary objective is to achieve maximum value and use minimal funds fulfilling it, taking advantage of logistics service providers to manage critical logistical functions such as warehousing is becoming a sought-after service among many firms (Razzaque & Sheng, 1998).

Regarding core competencies, some experts have recommended that firms' primary focus should be concentrated on their core activities and outsource their logistics processes to third-party providers (la Londe & Maltz, 1992). Doing so enables firms to develop better customer service management and thereby achieve a competitive advantage in the market as it will enable them to focus on customer satisfaction (Razzaque & Sheng, 1998). In this respect, outsourcing the warehousing services can significantly improve a firm's position by enabling logistics providers to provide services of their specific speciality (Hertz & Alfredsson, 2003).

As can be concluded from the literature, outsourcing some or all of your logistics functions can generate a range of strategic benefits for your company (M. B. M. de Koster & Warffemius, 2005; Kenyon & Meixell, 2014; Maltz, 1994; Razzaque & Sheng, 1998; Selviaridis et al., 2008). Some key factors that can enable a firm's outsourcing success include efficiently information-sharing between the buyer and the logistics contractor (Grahl, 2011), joint planning and regular use of performance measurement indicators (Razzaque & Sheng, 1998), and the establishment of long-term contracts between the parties (Grahl, 2011; Selviaridis et al., 2008). However, there is also an agreement in the literature that differences in objectives and conflicting perceptions of optimal performance between the buyer and the contractor can negatively affect the desired outcome (Grahl, 2011; Ishizaka & Blakiston, 2012; McIvor, 2000; Selviaridis et al., 2008). Moreover, such disagreement can lead to less inclination toward establishing long-term relationships and contracts between the parties (Grahl, 2011).

We have established that warehousing is a crucial integral part of the supply chain (Jarzemskis, 2006). The decision to outsource its processes or not should be determined based on the make-or-buy decision, which is described by Razzaque & Sheng (1998) and Maltz (1994). In connection to the outsourcing topic, the make-or-buy decision can be described as either operating the logistical processes in-house or outsourcing the functions to a logistics provider (Razzaque & Sheng 1998). Weighing the benefits contra, the disadvantages against each other, and formulating the long-term strategic objectives for the firm's future, should be included in the outsourcing decision (Razzaque & Sheng 1998).

2.5.1 Outsourcing models

Deciding to outsource a firm's logistics processes may seem simple in theory but can be tricky in practice (de Boer et al., 2006). On a general basis, the outsourcing process model can be divided into four different broad stages, including (1) the planning stage, (2) the negotiation stage, (3) the implementation stage, and (4) the assessment stage (Marshall et al., 2007; Zhu et al., 2001). The planning stage generally involves cost considerations of outsourcing and how the internal organisational structure will be affected by such a decision. The next stage will involve beginning the buyer and outsourcing service provider relationship and commitment. The negotiation stage emphasizes the importance of forming a business relationship through the agreement of the proposed contract. The contract should distinguish the anticipated contract timeline and how the communications process between the parties will be structured. The third stage, which is the implementation stage, will usually generate complex problems that will require strategic solutions. To minimize the complexity during this stage, it is wise to conduct a detailed transition plan to structure the implementation steps. The final step is designed to assess the outcome of outsourcing and investigate whether pre-set goals and objectives have been fulfilled or not (White & James, 1996; Zhu et al., 2001). In figure 2, the suggested outsourcing process model contains four different phases.

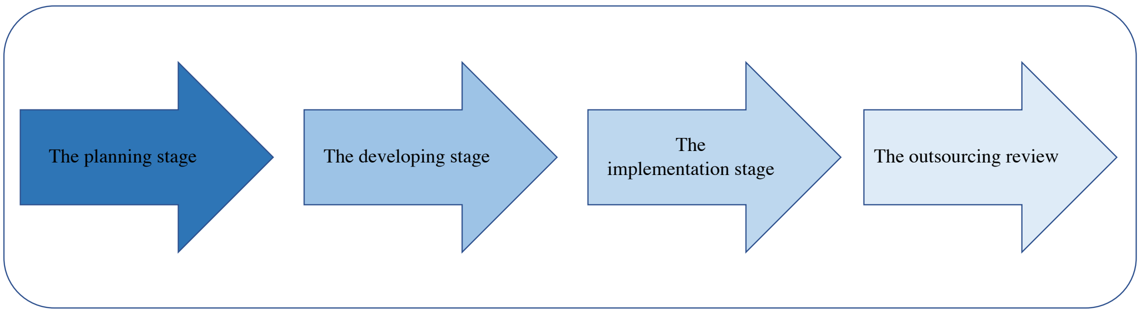

Figure 2: *Illustration of the outsourcing process*

However, as can be noted by de Boer et al. (2006), Marshall et al. (2007) and McIvor (2000), the amount of literature on models for outsourcing guidance is somewhat limited. The implementation model described above should only be used as a comprehensive guiding tool and needs to be extended and modified accordingly to fit the industry (Zhu et al., 2001). The model's limitations are also mentioned by Marshall et al. (2007), where the authors describe its failure to take environmental and social aspects into account. There are multiple factors affecting a firm's outsourcing process which need to be acknowledged before implementation. Without thorough consideration of the possible implications of outsourcing in conjunction with the inability to integrate the outsourcing strategy into the firm's supply chain, it can lead to significant problems for the company, long-term and short-term (McIvor, 2000).

In the majority of the literature on strategic sourcing, it is possible to find authors describing different frameworks and models for the outsourcing decision process, of which many discusses transaction-cost economies and the resource-based view (Handley & Benton, 2009; Holcomb & Hits, 2007; Mello et al., 2008; Yuan et al., 2020). The transaction cost economy can have its primary focus on management skills, whereas the resource-based view inspects the firm's resource possession (Silverman, 1999).

Naturally, utilizing these theories is an important aspect of the outsourcing decision process. Companies should not neglect it as it can provide firms with valuable information to base their decision (Holcomb & Hitt, 2007). However, finding an implementation model to ensure a smooth and successful transition has not been widely researched (de Boer et al., 2006; Marshall et al., 2007; McIvor, 2000). Because of that, the implementation process of outsourcing needs to be further investigated.

2.5.2 Actors and Responsibilities

To build a good foundation for optimal success in outsourcing, it is critical to establish good partnerships with the outsourcing partners. This is because both parties, the buyer, and the logistics service provider, need to collaborate on a mutual basis to form a beneficial situation for both sides of the relationship (Knemeyer & Corsi, 2003; Westergren, 2007). The importance of building solid relationships is highlighted by many authors (Ishizaka & Blakiston, 2012; Knemeyer & Corsi, 2003; Kremic et al., 2006), where the necessary factors needed to build a solid and beneficial partnership are well described.

Building successful relationships begin with formulating the anticipated goals and objectives desired from the collaboration (Knemeyer & Corsi, 2003; Zhu et al., 2001). The agreement should include clear goals and objectives (Zhu et al., 2001), emphasize the importance of trust and willingness to cooperate (Kern & Blois, 2002), measure performance consistently and use feedback loops to improve processes and results (Grahl, 2011). The criteria mentioned above should also be complemented with critical success factors, such as top management commitment, competence and consistency, which will enable a long-term sustainable outsourcing partnership. The buyer and the service provider should ensure effective two-way communication, complementary internal firm cultures, and senior management involvement (Ishizaka & Blakiston, 2012). Focusing on creating a solid relationship with the service provider will build long-term trust and support the willingness to create an advantageous situation for both parties (Holcomb & Hitt, 2007).

Another part of the outsourcing relationship regards the responsibilities when entering into a partnership. When entering an outsourcing partnership, the actors will naturally become dependent on each other, which will entail added responsibility. In most cases, dependence is necessary to generate higher benefits and results than one could achieve in solitary (Knemeyer & Corsi, 2003). However, although dependence can be beneficial in one sense, it can also negatively affect, especially firms in developing countries (Wibbels et al., 2006). As previously stated by the authors Knemeyer & Corsi (2003) and Zhu et al. (2001), establishing clear guidelines and objectives for the partnership is crucial for a successful outcome. However, partnerships lacking a detailed contractual agreement can damage responsibility disputes (Kern & Blois, 2002). Navigating professional and personal relationships can be problematic if not managed accordingly (Westergren, 2007).

2.6 Cost-Benefit Analysis

A Cost-Benefit Analysis is used to compare the costs against the benefit of a project to evaluate its profitability (Drèze & Stern, 1987). Companies must know whether it is worth dedicating resources and times large scale projects (Fawcett et al., 2008). The Cost-Benefit Analysis model has been widely researched in literature and applied in various contexts and areas (Anderson et al., 2013; Drèze & Stern, 1987; Mishan & Quah, 2020; Mori et al., 2014). Moreover, in the context of supply chain management, the Cost-

Benefit Analysis has been used to evaluate the profitability of supplier and ordering decisions (Mori et al., 2014), improvement efforts (Anderson et al., 2013) and assessing implementation issues (Msimangira & Venkatraman, 2014). When analysing the benefits and the costs of a project, it is crucial to predict as realistic costs and benefits as possible to get a possible result (Anderson et al., 2013). Fawcett et al. (2008) further support this by concluding that a thorough Cost-Benefit Analysis is critical, and it is vital for a company to quantify the expected benefits. Moreover, Anderson et al. (2013) also add that to determine the minimum desired outcome, and the revenue targets should be included in the calculations to ensure a successful project.

2.7 Critical Success Factors

The inclusion of critical success factors best executes successful project management. Critical success factors in project management have been widely researched in literature and have aided many organisations during their projects (Alias et al., 2014; Belassi & Tukel, 1996; Pinto & Prescott, 1990; Pinto & Slevin, 1987). However, as projects will reach and pass different life cycles throughout the project duration and perhaps employ different ways of measuring success, the critical success factors have to be evaluated for the specific project in question. This has been acknowledged by Pinto & Prescott (1990), whom the authors saw a distinction between the importance of planning success factors and tactical success factors for different projects managed by firms. Nevertheless, in a more general aspect of project management, researchers have found a set of critical success factors that potentially could affect the project's success rate (Alias et al., 2014). These success factors include project manager and project team competence, sufficient resources, clearly defined goals, feedback loop, effective communication and control systems (Alias et al., 2014; Belassi & Tukel, 1996; Pinto & Prescott, 1990; Pinto & Slevin, 1987). The factors mentioned above have been applied to a mixture of organisations and projects, which argues for its generalisability to other project implementations (Pinto & Prescott, 1990).

On the other hand, Frefer et al. (2018) acknowledged that the idea of a successful project for one person could be viewed as a failure from someone else's perspective. For example, one project manager may regard a project as a failure due to going over budget but still reaching the desired objectives of the project and vice versa. A project's success or failure can only be determined based on the ranked importance of each success factor (Pinto &

Prescott, 1990). However, as has been established in the literature, the inclusion of a selection of critical success factors can significantly increase the possibility of acquiring a pleasant outcome for the organisation, although it is not required to include (Frefer et al., 2018).

2.8 Personnel

When companies decide to initiate change within their organisations, it is common for their employees to feel uncertain and pessimistic about the new project initiative (Bellou & Chatzinikou, 2015; Choi, 2011; Iverson, 2006; Maheshwari & Vohra, 2015; Parish et al., 2008; Weber & Weber, 2001). Nearly two-thirds of organisational change projects fail before reaching the implementation stage (Choi, 2011). The most common reason for project failure, described by the authors Maheshwari & Vohra (2015) and Choi (2011), includes insufficient efforts to include employee perceptions and involvement in the change initiative. Engaging the personnel and allowing them to express their thoughts and ideas is of utmost importance as it is a precondition for long-term change operations within a company (Weeks et al., 2013; Choi, 2011; Jones et al., 2005).

Providing proper training and education for the personnel are many times seen by the management as an unnecessary investment as it does not guarantee satisfactory results (Daniels, 2003). However, establishing a structured educational program, and encouraging the employees to challenge themselves with rewarding incentives, has generated great strategic benefits for companies (Buchanan et al., 2005). Shifting the idea of education from a short-term tactical move to a long-term strategic move will develop a simple plan for organisational improvement (Daniels, 2003).

Possessing personnel with diverse educational backgrounds will enable the firm to have a competitive advantage. Giving the employees the possibility to acquire new knowledge will provide the firm with new skills and capabilities that can spike the profitability levels (Uma, 2013). The authors' Law (2009) and Coeurderoy et al. (2014) describe the cruciality of senior management involvement and supervisor support. Law (2009) mentions that organizational change is often quite chaotic and time-consuming and will generate a wide range of imaginary hypotheses of possible outcomes. Because of this, ensuring proper guidance and communication structures between the employees and the managers will permit them the freedom to ask questions regarding the implementation process (Coeurderoy et al., 2014; Weber & Weber, 2001).

2.9 IT-Infrastructure

Historically, the essence of a solid corporate IT infrastructure has not always been deemed as a core aspect of a firm's success (Chan, 2000). A few years ago, the usage of IT within business organisations was mainly seen as a supplementary asset to perform operational activities. However, due to new technological advances, IT has become an important and essential function for many businesses to become substantial players in the market (Chan, 2000).

As IT systems have seen continuous improvements, their perceived benefits have expanded to many parts of business operations. Nevertheless, IT has proven to be an essential component of bonded warehouse operations (Varella & Gonçalves, 2013).

During the implementation process of a bonded warehouse, a substantial part of the process regards aligning and integrating the firm's internal IT systems with the additional customs IT system needed to meet required system criteria (Garlan, 2003), such as upholding the bonded license requirement. Aligning the IT functions with the organisation's business goals is important since it enables processes to run smoother and decreases the risk of experiencing unnecessary disruptions (Croteau & Bergeron, 2001; Luftman et al., 2017). Furthermore, due to the followed responsibility of producing correct customs documents during bonded goods handling, it is wise to implement IT systems with an EDI function as it allows information-sharing to occur electronically. This lowers the risk of human manual errors (Heaver, 1992).

Most organisations need software support to perform their business operations; however, the IT requirements for each organisation will differ depending on the customer needs to be fulfilled (Gunasekaran & Nathb, 1997). As Wiegers (2005) described, requirements can be regarded as the outcome obtained at the end of implementation. Considering technological requirements can include user requirements, system requirements, and functional requirements.

Moving on to the topic of IT implementation, in comparison to other organisational implementation projects, where the prime focus lies on the pre-implementation and implementation stage, IT implementation projects require a stronger focus on the postimplementation strategies. The reason for this is that the success of the IT implementation will be evaluated based on the users of the system (Kuruppuarachchi et al., 2002). This statement is also supported by Harper & Utley (2001), where the authors emphasise the importance of providing the organisation's employees with appropriate tools and support mechanisms to execute the job correctly.

3 Methodology

The methodology chapter will provide insights of how the research study was conducted. The chapter will go over the chosen method of data collection used to answer the proposed research questions. Moreover, the methodology will first cover the research philosophy, research approach and research design, before later engaging in the more detailed aspects of research quality, analysis, data collection and ethical implications. Figure 3 illustrates our applied methodology and techniques.

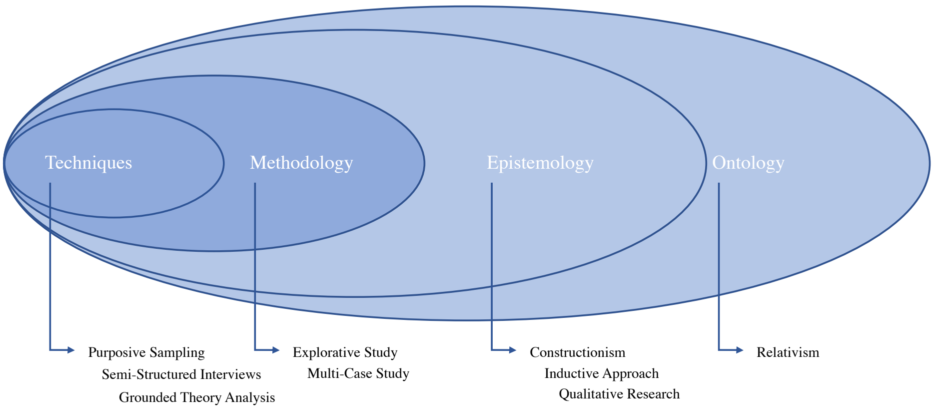

Figure 3: *Research Onion based on Easterby-Smith et al. (2018) and Saunders et al. (2007)*

3.1 Research Philosophy

The philosophy embraced in this research study can be regarded as the knowledge and understanding of the nature of reality gathered by us authors. On that premise, the study is based on our assumptions of the world and the dedication to sustaining those views (Saunders et al., 2007). We aim to develop a profound understanding of bonded warehouse implementation and develop new knowledge of the topic by answering the formulated research questions (Easterby-Smith et al., 2018; Saunders et al., 2007). It is vital to carefully formulate the research philosophy that mirrors the views of us authors as it will become the foundation of the design of the research and the generated outcome (Bell Emma et al., 2018). One part of the research philosophy regards the conceptual idea ontology, which primarily is concerned with the assumed views and ideas about reality (Easterby-Smith et al., 2018).

Furthermore, ontology can be deemed objective or subjective depending on how one sees the world. Our study will be associated with the philosophical aspect of ***relativism*** since we acknowledge that the reality of different organizations differs from each other. From the ontological perspective, relativism can be described as the knowledge and perceptions of the phenomena in which reality will vary in interpretation depending on context and situation (Easterby-Smith et al., 2018; O'Gorman & MacIntosh, 2014). The primary reason for using a relativistic point of view is because we include a great variety of different firms to gather primary data. This approach will provide us with a wide range of perspectives in the research study and allow us to evaluate the data in different contexts. However, with the notion of possible contradicting views, we stress the importance of disclosing the relativistic view, as we intend to conclude the authors' idea of reality. Another aspect of relativism regards the emphasis on differences in cultural and social perceptions (Easterby-Smith et al., 2018). Although our study is limited to the European continent and EU laws, it remains important to consider due to the involvement of international suppliers and partners.

3.2 Research Approach

The other part of research philosophy is called epistemology, which can also be referred to as the research approach (Easterby-Smith et al., 2018). Epistemology can be described as the theory of knowledge (Audi, 2010) what can be accepted as valid knowledge, the methods of acquiring the knowledge, and how one decides to present it (Tennis, 2008). There are two main branches of epistemology which are positivism and constructionism (Easterby-Smith et al., 2018). Since we are investigating 6 companies that use the same type of warehouse, we are acknowledging that the reality of these individuals is different. And therefore, the implementation process and the resources needed to implement a bonded warehouse is highly dependent on the prerequisite of the organization. Our study will take on a ***constructionist epistemological*** standpoint, which is linked to our relativist ontological view regarding the subjectivity of reality (Easterby-Smith et al., 2018). Constructionism can also be regarded as a subjectivist view due to the belief that human understating is developed based on individual perceptions of the social world (Saunders et al., 2007). The reason why our study will employ a subjectivist view is because of the belief that the interviewees' perceptions of bonded warehouses will be different from other actors. Their understanding of critical managerial- and cost resources during a bonded warehouse implementation will be the truth for their social reality. We, as authors, acknowledge that these perceptions will differ and that the answers are subjective concerning others' knowledge. Furthermore, we also realize the complexity with regards to the various organizational foundations that will impact the interviewees' perception of truth.

Finally, the research study will employ an ***inductive approach*** as opposed to a deductive approach. The inductive approach allows the researchers to derive a theory or framework based on the data collection and data analysis. Through analysis of the data, the authors can find correlations and connections which can develop into a theory (Saunders et al., 2007). Since there have not been any theories developed regarding our research topic, our intention with the study is to formulate a theory-building model based on our collected data.

3.3 Research Design

The research design aims at describing the steps, methods, and procedures that the authors have taken to obtain relevant information to answer their research questions (S. M. Smith et al., 2010). Moreover, a thorough research design is vital to delivering a good study, and each step should be evaluated and motivated. It is also important to note that the type of study undertaken influences the research design and should be designed thereafter (Easterby-Smith et al., 2018). A research design can often be categorized be of either, Exploratory, Descriptive or Casual nature (S. M. Smith et al., 2010). Since the purpose of our study is to get a better understanding of how bonded warehouses are implemented and how they change the operation of an organization, it will take on an ***exploratory design***, which aims at exploring a topic without any presupposed findings, such as testing hypothesis. Moreover, it is also said to be useful in understanding and clarifying a problem (Saunders et al., 2007), where we aim at clarifying the problems faced in the implementation process. Often an exploratory design is used to as the name suggests, explore a topic that has been given little attention in previous research. Much like the topic of bonded warehouses, where there is limited literature, but an important subject as the literature has shown to yield many benefits as well as an increase in usage among companies. In the following sections, the research design and methods will be presented.

3.4 Research Method

The nature of our study is highly subjective to the context, and one model does not fit all when it comes to a company's experience in implementing any process. However, a general understanding of what is needed in terms of resources might be agreed upon. We, therefore, decided to conduct a ***multi-case study*** based on Eisenhardt's (1989) approach to a constructionist case study, where we will be looking into several cases to generate general principles. Moreover, this method allowed us to investigate several viewpoints from different perspectives and further explore the topic of bonded warehouse implementation (Yin, 2009). The cases have the element of a bonded warehouse as a common denominator and setting, using both interviews and secondary data provided by the companies to answer our research questions (Eisenhardt, 1989). We analysed this data based on the company characteristics and the person being interviewed while considering the context. The unit of analysis is, therefore, the firms. However, as noted by the relativist and constructionist view, the context and environment are of importance and have a tangible impact on the subjective reality of these companies (Easterby-Smith et al., 2018). Aligning with our constructionist view with the acknowledgement that there are several realities and therefore need to gather information from different perspectives and cases (Easterby-Smith et al., 2018).

We decided to use a qualitative research approach to gather the primary data for our study. Our reasoning for utilising the qualitative design instead of the quantitative approach was to gather comprehensive information regarding firms contrasting perspectives and analyses of the bonded warehouse implementation process. The qualitative research method is a non-statistical method using non-numerical data (Saunders et al., 2007). Furthermore, the interview questions are designed better to understand the managerial aspect of bonded warehouse implementation. This includes the necessary competencies needed in the process. The other perspective the authors aim to understand is the cost aspect of implementation regarding the resources and assets required to be successful.

3.4.1 Literature Review

To create a thorough ground for our study, we used several ways to obtain our literature. To begin, we made a thorough search on the topic of bonded warehouses to understand the field we wanted to research. Our two first searches were done on Scopus and Web of

Science, as these were deemed to yield high-quality results and ensured that we could sort out the peer-reviewed articles. The searches terms used were “Bonded warehouse” AND/OR “Customs warehouse” AND/OR “Custom warehousing” AND/OR “Bonded warehousing” this search was further limited to journal articles in English which yielded 30 articles on Scopus and ten on Web of Science, which was all read through and assessed. To further our understanding of the research done in the field of bonded warehouses, we turned to Google Scholar and used the above search terms. The results on Google Scholar were much more, and we selected those articles that were judged to be essential for our understanding of the topic. Since the research on the topic is limited, we did not choose to select solely articles of a particular impact score as this would have limited the result and given us a less comprehensive view of the topic.

Further on, to create a background for our research, we used a funnel approach to lead the reader into the topic of a bonded warehouse (Saunders et al., 2007). The information in the literature review is based on factors found necessary during the initial scanning of the bonded warehouse literature. New topics were added as the literature opened to new important aspects. Moreover, information brought up during interviews with topic related companies was also used to create a comprehensive frame of reference. Lastly, secondary data in the form of company reports, statistics and other information was used in the analysis with the information obtained from interviews to answer our research questions.

3.4.2 Data Collection

Qualitative research allows for an array of data collection methods, from observations and written text to non-standardized interviews (Easterby-Smith et al., 2018; Saunders et al., 2007). Our purpose is to understand the implementation process of bonded warehouse, and interviews would therefore be the most suitable option for data collection. Conducting semi-structured interviews being more open and explorative (Easterby-Smith et al., 2018) would provide comprehensive information about the process from the participants' perspective. The interviews were conducted with personnel with various titles from different companies experienced with bonded warehouses and their processes.

3.4.3 Sampling Method

The sampling strategy needs to be carefully developed as it should provide the authors with information that can answer the research questions and guide the study to conclude

(Saunders et al., 2007). The strategy should be developed based upon pre-set criteria of which population selection would be most appropriate for the study. As a result, the chosen sample should permit the authors to generalize a more significant part of the population (Easterby-Smith et al., 2018). When employing a case study approach, which is the chosen approach of this study, it is very important to carefully select the most suitable sampling design to create a relevant model (Eisenhardt, 1989). Qualitative research studies use sampling methods to understand humans' perceptions and experiences (Gill, 2020). Qualitative studies' most common sampling strategies include convenience, purposive, theoretical, and snowball sampling (Koerber & Mcmichael, 2008). Each strategy has its pros and cons, and the sampling decision should be based on the objective and structure of the research (Gill, 2020).

We have chosen to employ a purposive ***sampling strategy*** for our qualitative research study. This decision is based upon the essence of purposive sampling, which entails that the researcher has a good indication of whom they need to include in the data gathering process (Easterby-Smith et al., 2018). Our research has conducted 18 semi-structured interviews with third-party logistics providers offering customs services and companies who have implemented the bonded warehouse process, either private or through outsourcing. The reason behind these chosen samples is that they, according to the researcher's assumption, possess knowledge and experience of the bonded warehouse implementation process. To provide rich and balanced data, we selected a sample consisting of 2 small, two medium and two large-sized retailers operating using a bonded warehouse. This sample allowed us to compare companies of different sizes and determine how the requirements differ in terms of implementing a bonded warehouse. We also interviewed two different IT-system providers to gather knowledge of system requirements for the bonded warehouse implementation process. This allowed us to compare and contrast the different size companies with various custom system integration options.

Moreover, two 3PLs were also interviewed to complement further the information obtained from retail/manufacturing companies and provide knowledge regarding outsourcing procedures. Finally, we contacted the Swedish Customs Authority and a port terminal in Gothenburg to get a deeper insight into the rules and regulations that bonded warehousing requires. The interviewees were all working primarily in customs with bonded warehousing and, therefore, able to provide rich and valuable information. Furthermore, the chosen sampling strategy should also be decided on the chosen qualitative research method (Gill, 2020). In that sense, our sampling method further supports using a grounded theory analysis approach (Saunders et al., 2007). When the research objective was established, we acknowledged that the study would require samples with specific criteria fulfilled to collect valuable data. As a result, using a purposive sampling strategy enabled us to select samples that were most valuable to us. In figure 4, the criteria used for sample selection are presented, and figure 5 shows the overview of our interview structure.

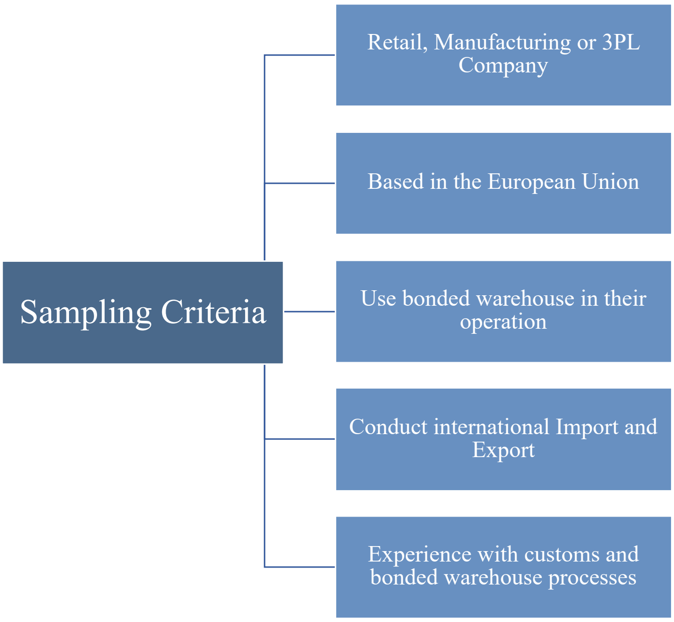

Figure 4: *Sampling criteria for participants*

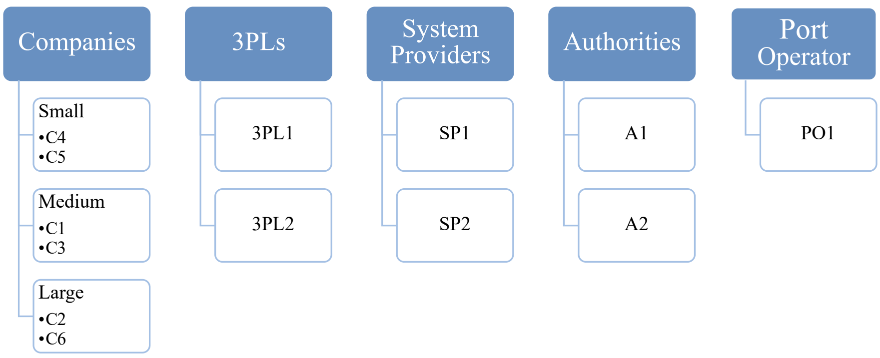

Figure 5: *Overview of interview participants*

3.4.4 Company descriptions

Company 1

Company 1 is a medium-sized company that operates within the textile industry and produces clothing for the industrial sector. The company was founded in 1959 in Sweden and has roughly 330 employees worldwide. They have a turnover of 103,6 million euros per year and continue to expand its market presence in Europe and other parts of the world. Their product portfolio consists of a large variety of functional workwear suitable for people of many industrial professions.

Company 2

Company 2 is a large multi-industry company founded back in 1980 in Sweden. The company is divided into three product segments: clothing, shoes, and home interior. The firm is listed on the Stockholm stock exchange and has 70 subsidiaries worldwide that sell products of the company's many acquired brands. They have around 2500 employees and a turnover of 609,9 million euros a year.

Company 3

Company 3 was founded in 1949 in Sweden and is a medium-sized company that specializes in developing and producing protective garments. They have roughly 300 employees in their organisations and a yearly turnover of 125,3 million euros. The company's business concept is to ensure that workers are provided with unique safety products on the market.

Company 4

Company 4 is a small family-owned company specialising in electric vehicles' tribology. The company was founded in 1991 in Sweden and has 12 employees. Despite its small size, they have grown significantly in the Swedish market and is today one of the leading firms in maintenance technology and tribology. The firm has a turnover of 2,5 million euros a year.

Company 5

Company 5 is a small firm founded in 1939 in Sweden. The firm operates in the textile production industry and offers bonded warehousing services to external customers. Their expertise in 3PL services has enabled them to expand their business offerings to more customers and increase profit. The company has around ten employees and a yearly turnover of 1,0 million euros.

Company 6

Company 6 is a large company specialising in outdoor products. The company dates to 1689 and has, since its start, produced a wide range of different products before settling on the outdoor manufacturing products. The company has subsidiaries all over the globe and over 12 000 employees, and a turnover of 2,5 million euros a year.

3.4.5 Primary Data

Primary data provides the opportunity to obtain relevant information for the research's specific study, and its primary goal is to answer the research questions explored. Moreover, a ***semi-structured interview*** method is advised in exploratory studies as it allows the topic to be thoroughly investigated (Saunders et al., 2007) and is suitable for the multiple case study approach we are taking. We aim to explore the different requirements when implementing a bonded warehouse. This experience is evidently, subjective to the company's prerequisite and its employees. Therefore, we use interviews to collect information from different perspectives to create a generalized framework that can further guide companies in this process.

The semi-structured interview style allowed us to ask open-ended questions and spontaneous follow-up questions when relevant. The aim was to get a discussion started in which the participant felt comfortable (Easterby-Smith et al., 2018). However, to ensure that we obtained answers relevant to our research, we constructed an interview guide based on the topics explored in the frame of reference, **Appendix-1:** Interview Guide. Most of the questions were open-ended, with a couple of more direct follow-up questions to probe more information from the interviewee (Hannabuss, 1997). To further align with the exploratory research style, we divided the interview guide into different topics. This also provided a clear structure and coherent picture when talking with the interviewees (Easterby-Smith et al., 2018). To build rapport with the respondents, we started the interview with an introduction of us and our research and the opportunity for the respondents to introduce themselves (Hannabuss, 1997). Where we saw fit, we explain why we ask specific questions and how it plays a role in our research to allow the participant to understand our study better.

Further on, the initial contact with the participations contained an explanation of the purpose of our study and the role the participants would play in our research. After interest was shown, a Non-Disclosure Agreement, GDPR form, and the interview guide were sent to each participant, enabling them to get acquainted with the questions and build rapport (Hannabuss, 1997), **Appendix-1:** *Interview Guide* and **Appendix-2:** *NDA & GDPR Consent Form.* The Non-Disclosure Agreement ensured that the participants knew how their contribution would be used and stored and at what time it would be deleted unless early termination was desired. Though face-to-face interviews are preferred to understand and observe non-verbal cues (Easterby-Smith et al., 2018), we conducted only one such interview. 17 out of 18 interviews were conducted online over Microsoft Teams upon the participants' wishes. We deemed that adhering to the participants' wishes of having remote interviews was more important than forgoing that person's knowledge.

Moreover, all online interviews were held using a video camera to ensure that the interviewee's ability to read carefully and their social cues were decreased as little as possible (Wilson, 2012). Despite that recording the interviews might cause reluctance among the participants, we deemed it essential to be able to transcribe and go back to what the interviewees said to avoid misinformation (Easterby-Smith et al., 2018). An overview of the participants in our study is shown in table 1.

Interviewee	Type of Company	Code	Company Turnover (Million €)	# of Emplyees	Title	Date of Interview	Time	
INT1	Manufacturer	C1	103,60	330	Logistics Manager	2022-03-02	57	min
INT2	Manufacturer	C1	103,60	330	Customs Coordinator	2022-03-03	38	min
INT3	Retailer	C2	609,90	2500	Customs Operation Coordinat	2022-03-07	49	min
INT4	Manufacturer	C3	125,30	300	Global Logistics Manager	2022-03-08	43	min
INT5	Retailer	C4	2,50	12	CEO	2022-03-10	58	min
INT6	Retailer	C4	2,50	12	Customs Coordinator	2022-03-11	75	min
INT7	Manufacturer	C5	1,00	10	Customs administrator	2022-03-15	86	min
INT8	Authority	A1	Authority	23000	Customs Specialist	2022-03-18	64	min
INT9	Authority	A2	Authority	23000	Customs Specialist	2022-04-01	50	min
INT10	Manufacturer	C6	4196,90	12000	Import & Customs Manager	2022-01-28 - 2022-05-20	120	min
INT11	Manufacturer	C6	4196,90	12000	Warehouse Manager	2022-04-08	35	min
INT12	Manufacturer	C6	4196,90	12000	Logistics Manager	2022-04-08	39	min
INT13	Port Operator	PO1	92,40	500	Customs Specialist	2022-03-25	46	min
INT14	System Provider	SP2	4,80	50	Customs Manager	2022-04-05	94	min
INT15	Third Party Logistics Provider	3PL1	16400,00	74000	Customs Specialist	2022-03-23	82	min
INT16	Third Party Logistics Provider	3PL2	4165,00	28000	Customs Manager	2022-04-06	52	min
INT17	System Provider	SP1	0,20	3	IT Specialist	2022-04-06	43	min
INT18	System Provider	SP1	0,20	3	IT Specialist	2022-04-06	38	min
						Total Time	1069	

Table 1: *Participant Overview*

3.5 Data Analysis

The data obtained in the interview part and secondary sources from the companies are analysed using a ***grounded analysis approach.*** Since the information given by the interviewees is subjective to the environment in which they operate, we find that using a more open approach would allow us to analyse the data in its contexts and, from there, derive the meaning of the words. The grounded analysis provided us with the ability to analyse the data openly and intuitively, without any predefined frameworks or ideas, unlike other qualitative analysis approaches such as content analysis, which aims at testing theory and following predetermined categories for analysis (Easterby-Smith et al., 2018). Since the literature on the bonded warehouse is scarce, no predefined resources or requirements for bonded warehouse implementation were selected. Easterby-Smith et al. (2018) have comprised a list of steps to a grounded analysis based on Charmaz's (2014) standpoint of the analysis. We followed these seven steps to analyse our data and generate a theoretical framework. (1) We transcribed and translated each interview after it was conducted to ***familiarise*** ourselves with the information obtained. At this stage, themes and categories were beginning to take place. (2) After familiarising ourselves with the data, we began comparing the different data sets and ***reflecting*** on the meaning of the information. We started highlighting quotes and parts that we could directly connect to our research questions at this stage. **(3)** Based on the reflection of the data, we started the process of ***open coding*** by summarising the information into smaller sections and descriptions. **(4)** We continued to code the data into more precise words further and, in that way, ***conceptualise*** the previous descriptions. After that, we searched for both similarities and differences in the sections. Since our participants were all knowledgeable in the area, they used similar language and descriptions, making it easier to find groups of categories. **(5)** The initial coding process was done separately by the two authors to avoid biases or influencing each other's interpretations. This separation was also done to keep our perspective and insight when analysing the data, enhance the richness of the data further, and capitalise on unique ideas (Eisenhardt, 1989). To further understand the information, we went through the other person's categories and codes and did a ***secondary cycling coding***. After that was done, we compared the results and established six categories on which we agreed. We decided to keep a short description of each code or a memo to avoid forgetting what exactly was meant with the word, as suggested by Charmaz (2014). **(6)** In the next step, we started conceptualising the final framework by ***linking*** the codes and understanding how they relate, as shown in figure 6. We had a clear picture of the results and what the framework would look like at this stage. However, we asked our participants to evaluate our results to ensure that we understood the information correctly and that our results made sense. We contacted every participant for feedback but only received feedback from 12 out of 18 interviewees. **(7)** After discussion with some of the participants, we ***re-evaluated*** the framework and results and decided to reword two codes to represent the findings better.

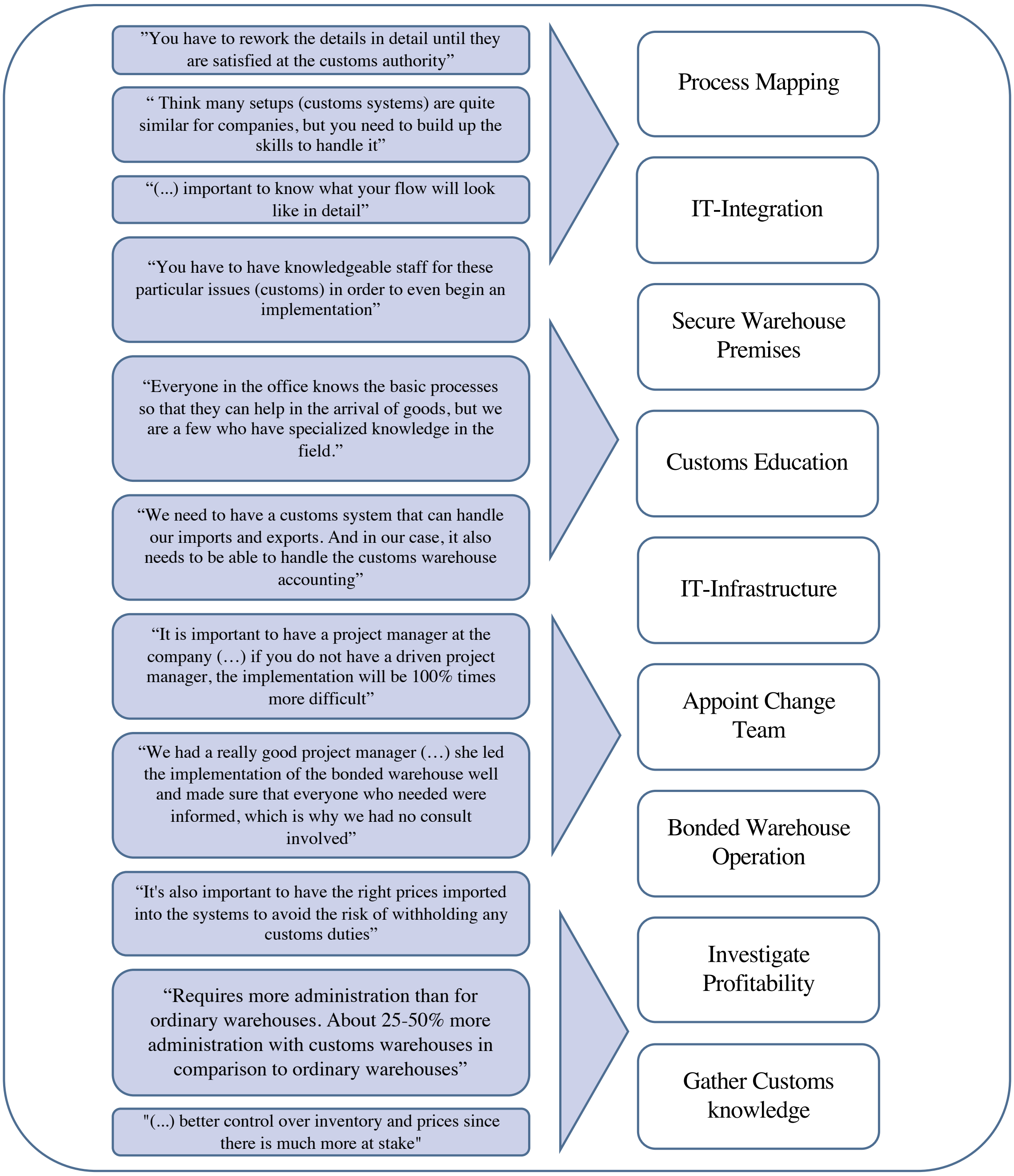

Figure 6: *Sample of Coding procedure*

3.6 Data Quality

3.6.1 Credibility

Data credibility in qualitative research can be referred to as the trustworthiness and interpretation of the data collected by the researchers. The level of credibility can be amplified by the authors' experiences of the research topic and through information validation by the participants in the interviews (Casey & Murphy, 2009). To enhance the credibility of our research study, we made sure to pre-establish parameters and criteria before engaging in the primary data collection activities. The process began with determining which companies and actors would suit our interview sample. The participants were chosen based on pre-set criteria by the researchers. During the interviews, we made sure to ask the participants open-ended questions to allow them to elaborate on their answers. We also asked follow-up questions in cases where we saw the possibility of exploring the topic further to increase the researcher's knowledge and understanding. This helped us gain clarification of the participants' answers and understand the subject from their perspectives (Saunders et al., 2007). To avoid any misinterpretation and bias, both the researchers were equally involved in the interviews with the participants and involved in the latter stage of analysing the data. Lastly, the researchers were attentive and perceptive to the feedback given by the student peers and the tutor during the closed seminars. Allowing others to assess your research and listening to their constructive criticism enhances the level of credibility (Easterby-Smith et al., 2018).

3.6.2 Transferability

Transferability refers to how the research study's findings can be transferred to a different context and still retain a high level of applicability (Krefting, 1991). To enhance transferability, it is possible to use thick descriptions which allow the phenomenon researched to be evaluated against various externalities (Guba & Lincoln, 1985). Our study used thick descriptions to assess the critical resources needed for bonded warehouse implementation in different types of firms and how these factors vary in importance depending on industry, prerequisites, and company size. The inclusion of thick descriptions permitted us to develop an implementation framework that can be applicable in a wide range of company settings. Establishing the generalizability of our findings also enables other researchers to apply our results to different contexts and settings, which could potentially accentuate their research topic.

Furthermore, when conducting interviews for the study, the researchers expect different types of generalization – internal generalization and external generalization. Internal generalization can be described as the extent to which the researchers assume the interviewees' answers can be generalized to their general understanding of other contexts. The latter is more concerned with how the findings from the interviews can conclude reality in other situations and demographics (Flick, 2007). We took these perceptions of generalizations into account when conducting the interviews and during the analysis stage of our research.

3.6.3 Dependability

In theory, a dependable study aims at, if the study were to be replicated based on the steps taken in the research, the result would be similar (Shenton, 2004). To provide this, Korstjens & Moser (2018) advise using an audit trail to ensure dependability. The audit trail refers to the ability to provide a trail of all the decisions taken during the research process (Shenton, 2004). In accordance with this, we documented all steps taken in our research. The methodology section provides a detailed guide on how we conducted our research, focusing on sampling and analysis approaches. We further followed the seven steps of grounded analysis described by (Easterby-Smith et al., 2018) to analyse our data to ensure that the process would be clear and dependable. Moreover, documents with notes and ideas, as well as recordings, were stored up until the finishing of the thesis.

3.6.4 Confirmability

Confirmability refers to the researchers' neutrality (Korstjens & Moser, 2018). The findings should be solely derived from the data and separated from the researchers' own biases. The study can comply with confirmability by following the previous aspects of data quality, credibility, transformability, and dependability. The reader can follow the logistics and reasoning behind the researcher's analysis (Nowell et al., 2017). Moreover, to ensure that we took an unbiased approach, both researchers were present during the interviews and avoided asking steering questions to allow the respondent to speak freely. Further on, the data analysis was done by both researchers, and the transcripts and codes were discussed and analysed by the researchers. Lastly, we made sure that we carefully followed the appropriate methodology that laid the base for our research.

3.7 Ethical consideration

Ethical consideration is critical of any research; it deals with the study's ability to be ethically sound. Moreover, ethics needs to be considered in all stages of the research, from how the purpose is formulated to data collection and analysis (Saunders et al., 2007). Moreover, Easterby-Smith et al. (2018) further state ten fundamental principles to ensure ethical research is followed throughout this research.

When approaching relevant personnel for our study, we made sure to clearly state the purpose of our study, how we deemed their participation valuable, and the desired extent of their participation. After a positive response, an outline of our questions was sent to inform further the potential participant of what information we were seeking. This ensured that the interviewees could determine if they felt that their participation would be valuable for both them and us. This also ensured that the participants were aware of our purpose and study to avoid the participants feeling pressure to adjust their information as we proceeded with the interviews (Saunders et al., 2007). Moreover, A Non-disclosure agreement and GDPR form was used and signed by the researchers and participants interviewed (Flick, 2007), **Appendix-2:** *NDA & GDPR Consent Form*. We provided the Non-Disclosure Agreement and GDPR forms to all of our participants before the interview so that they had time to read and understand the nature of our study and the extent of their participation. The Non-Disclosure Agreement clearly stated how we would store, use, and treat the information that is given by the interviewees before, during and after the study has been concluded.

Moreover, the Non-Disclosure Agreement also stated that the interviewees and companies are anonymous. The data presented in our research would not be able to be traced back and further protect the participants (Saunders et al., 2007). Further on, the GDPR agreement was further drafted to ensure that we are following the regulations regarding personal information and make sure that the interviewees feel confident in how the information they provide will be used.

Lastly, in the stage of coding and analysing the obtained information, the two authors decoded and analysed all the information obtained to avoid possible biases from any of the authors affected the data (Saunders et al., 2007). Moreover, transparency was maintained throughout the whole decoding and analysing process and documents and notes were kept ensuring that the process could be followed (Easterby-Smith et al., 2018).

4 Empirical Findings

The empirical findings will provide a rigid overview of the data collected during the research. In accordance with the grounded analysis approach, we did not use any predefined codes when analysing the data, but instead worked with emerging codes and themes. In this chapter we will present our empirical findings based on this coding process.

4.1 Bonded Warehouse Implementation Stages

From the coding process, we distinguished between three different stages in the bonded warehouse implementation process. We named the phases accordingly: the planning stage, the preparing stage, and the executing stage, referring to stages in the implementation process. Moreover, within each stage, we distinguished between different phases to give a clearer picture of the implementation process.

4.1.1 Stage 1; Plan

In this stage, the companies began to assess the overall validity of a bonded warehouse implementation by first appointing a change team to investigate whether a bonded warehouse would be profitable. A certain degree of customs knowledge was required to conduct the profitability analysis, which is illustrated in the sections.

4.1.1.1 Appoint Change Team

The first stage of the planning phase is selecting the right project team responsible for carrying through the bonded warehouse project. At the start of a project, it is necessary to put together a team of people that can mutually push the project forward in the desired direction. Bonded warehouses pose implementation challenges in different organisations due to the complexity of their operation as bonded warehouses pose more regulatory constraints, which in turn require a team that can adequately assess its benefits in all parts of the organisation. Therefore, it is beneficial to gather a project team with representatives from different departments.

Company 2 and 6 had teams that consisted of personnel from different departments within the organisation. More specifically, they were a part of the financial, warehouse, purchasing and logistics departments. The two companies explained that this was done to ensure that the proposed implementation plan would be suitable for all organisation departments. On the other hand, company four did not appoint a project team; instead, two employees led the implementation. They argued that this was due to their smaller size, and both employees had a thorough understanding of the organisation and its processes. One of the system providers further emphasised that when working with organisations to create and implement customs systems, they deemed it critical to have a project team that understands and knows what they are doing.

> *"Must have internal resources and team to lead and run the implementation process and acquire the right skills, supervisors, staff and internal resources to be successful"* – System provider 1, Interviewee 17

Furthermore, diverging results showed the need for the project team to appoint a project manager that can effectively steer the group and motivate and encourage them to stay on track and hold set deadlines. However, as we selected companies of varying sizes and organisational structures for our research study, it was possible to distinguish the different conjunctions of project teams and the use of a project manager. Companies 2, 3, and 4 appointed the traditional form of a project team at the beginning of the implementation project. Additionally, they also selected a project manager to lead the process forward. In all three companies, the project manager had previous knowledge about customs procedures, either through their current role or previous experience. However, company 5 had a small group of people who shared the characteristics of a project team but without a specific project manager in charge. Company 4, on the other hand, did not establish a project team due to the limited number of employees within the company, and the two project team members equally shared the responsibility of the project.

> *"It is important to have a project manager at the company who understands bonded warehouses and that can drive the change in the companies and all their different departments. If you do not have a driven project manager, the implementation will be 100% times more difficult*" – System Provider 2, Interviewee 14

> *"We had a really good project manager who really had an effect on the people around her (...) she led the implementation of the bonded warehouse well and made sure that everyone who needed were informed, which is why we had no consult involved"* – Company 4, Interviewee 5

In conclusion, the empirical findings indicate a strong need to appoint a project team, and in some circumstances, a project manager, to be in charge of the bonded warehouse implementation process.

4.1.1.2 Investigate Profitability

The next stage in the planning phase regards a thorough investigation of the potential profitability generated from bonded warehouse implementation. Naturally, the main incentive with a bonded warehouse is to reduce customs costs, either through postponement or re-exports to countries outside the European Union. The company needs to assess which of its articles have the highest customs percentages and level of import- and export frequencies outside the European Union. The cost incentive should be calculated based on the potential costs-savings from avoiding customs duties (or postponement of duties which affect the cash flow) in comparison to the cost of operating the bonded warehouse and support functions. If the cost savings exceed the costs of the warehouse, then it would be possible to move forward with the project.

> *"Most importantly, you need to conduct a profitability investigation to make sure that you can profit from the bonded warehouse, and that the savings you can make from it can cover the costs. Also, making sure that you see a return on investment within 2-3 years otherwise the bonded warehouse can be difficult to justify implementing"* – System provider, Interviewee 14

Many of the companies that participated in the study were very adamant about the necessity of investigating the potential profitability that could be generated from using a bonded warehouse for some or all of their goods. Company 4 explained that without a proper assessment of the costs and savings, the project could become a costly mistake for a company. Concerning whom conducted the profitability analysis, we found that Companies 2, 3, 5 and 6 all appointed the project team to conduct the analysis, where personnel from especially the warehousing, purchasing and logistics departments used their expertise to assess profitability. On the other hand, company 4 did not have a defined project team; instead, the CEO and another employee analysed the potential with a bonded warehouse.

> *"We had thought about the benefits with using a bonded warehouse, where we could store goods until we knew what we were going to do with them. But before even thinking about getting it, we did an analysis of the potentials winnings it would generate. That was the most important for us"* – Company 4, Interviewee 6

The process of conducting the analysis was similar in all six companies interviewed. They all based their estimated cost and benefit on a plan or project description. While the larger companies did have a more rigid plan regarding the goal and preceding steps, both the two smaller companies, similar to the unofficial project team of company 4, followed a sketched-out plan that resembled the larger ones. Moreover, all interviewees disclosed that customs knowledge was required to some extent. In Companies 2 and 6, the project team already held customs knowledge due to its current operations. While on the other hand, Company 4 was new to the scene of customs and all its regulations and further explained that they did spend quite some time before analysing the project profitability learning about customs and bonded warehouse operations. After reviewing the benefits of using bonded warehouse and making a final decision on implementation, the two employees, a part of the project team of company 4, went through official customs training from the customs authorities.

On the other hand, company 6 mentioned that they did not have to obtain any specific customs knowledge before conducting the analysis, but important to note is that they had prior customs knowledge due to their operation. Similarly, company 2 supported company 6 in stating that no knowledge needed to be obtained before the profitability analysis. However, the project manager had previous experience working with customs and bonded warehouses and already held the required knowledge.

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> *"You have to have knowledgeable staff for these particular issues [customs related issues] in order to even begin an implementation"* – Company 3, Interviewee 4

When conducting the profitability analysis, if you have the time and money to do it, it is also wise to investigate the country of origin of imported goods, as trade agreements between countries can differ significantly. By analysing the trade incentives between EU and non-EU countries, it is possible to find new ways of lowering the payment of customs duties when importing and exporting goods across the globe. This type of investigation, if conducted as a thorough investigation, can notably positively impact an organisation's expenditure. However, it requires extensive research, which may be too time-consuming for a company.

"It is also important to know the country of origin. For example, if it is the same article has been manufactured in both China and in India. There are many times different trade agreements between countries. Then it may be most profitable to import the China-article to Norway and India-article to Sweden" – System provider 2, Interviewee 2

4.1.1.3 Gather Customs Knowledge

The third stage in this phase involves acquiring substantial knowledge of customs procedures, the bonded warehouse application process, and customs rules and regulations. A prerequisite of acquiring the customs license is to prove to the customs authorities that you have the competence and capability to operate a bonded warehouse. How lengthy this process will be is much dependent on the starting point for the organisation going through the bonded warehouse implementation process. For organisations with personnel with good customs knowledge and expertise, gathering the required knowledge may not be very difficult. However, companies that do not possess the required competence internally within the company may experience this part of the implementation process to be rather time-consuming and complex. From the empirical findings, it was apparent that larger firms, especially companies 2 and 6, had internal personnel that occupied expert customs knowledge. In turn, these companies conducted training that was more specific to the company's routine and the unique characteristics of their needs. Though it was not official training from an agency, the companies showed that their internal training was adequate for implementing the bonded warehouse. The possession of internal customs expertise would, in turn, aid the project team during the subsequent steps in the implementation process, which will be described in the coming sections.

"Our personnel with customs knowledge can help when things go wrong or when other and new problems arise" – Company 3, Interviewee 4

Moreover, the smaller companies, including companies 4 and 5, did not have anyone within their organisation that had previous experience in customs handling or bonded warehousing operations. Since they started from scratch without any relevant experience, they had to resort to different ways of acquiring customs knowledge. Both companies 4 and 5 stated that they had ventured to the Swedish customs authority website to understand the customs rules and regulations, license requirements and warehouse premise requirements. Both companies also utilized various free and for purchase tests to ensure they understood the information acquired adequately. The knowledge that they obtained was less company-specific and instead concerned with the overall rules and regulations regarding bonded warehouse operations.

> *"The Swedish customs authority's website is very informative"... "They also have courses which are free, but also courses that cost, well not super expensive"* – Company 4, Interviewee 5

In addition, company 4 was also in contact with an advisor at the customs authority that helped them guide their way to acquire the correct information to establish a bonded warehouse. They stated that this complimented their official training by being able to apply the knowledge to their specific needs. From the participants' answers, external training seems the most common in companies that do not obtain personnel who have previous knowledge in bonded warehouse operations. This type of training provided the participants with knowledge regarding the whole bonded warehouse and customs process.

> *"I had training in customs and bonded warehousing before I started working here, (...) I would not have been able to do my work right if they did not offer me training"* – Port operator, Interviewee 13

Moreover, If the personnel are not adequately educated in customs, the bonded warehouse might become implemented but wrongly executed. An inaccurate execution is associated with heavy fines from the customs authority and other financial losses. This problem was mentioned by some of the companies interviewed and was regarded as an incentive to ensure proper training is in place.

"The consequences of inadequate knowledge can lead to a mismanaged bonded warehouse and then to immense money problems, and eventually cause the company to even go bankrupt. Not at least due to the penalties." – System Provider 2, Interviewee 14

4.1.2 Stage 2; Prepare

After relevant information has been gathered and the profitability of the bonded warehouse has been investigated, the preparation phase is entered. This stage is related to all the preparation required to start the implementation process.

4.1.2.1 Process Mapping

Firstly, a process map or description of the company's logistical flows needs to be made. More specifically, the bonded warehouse licence acquisition requires that the company processes be explained in detail and adhere to the specific bonded warehouse regulations. This, in turn, requires extensive understanding of the organisation's processes and knowledge of how goods and information flow. In the larger companies, the project team all assisted in ensuring that each department could support the future bonded warehouse process. Moreover, the knowledge of the company's processes is used to create this hypothetical process of the bonded warehouse. Several companies mentioned that this process could become lengthy and tedious since specific details regarding handling and documentation need to be mentioned. In all companies, they had to revise the initial process plan and adjust according to the customs authorities' feedback. Company 4 further explained that the knowledge they acquired from their advisor at the customs authority was able to help them create a process map that did not need a significant amount of configuration. While on the other hand, Company 3 had to revise and adjust their process proposal several times before getting it approved by the customs authorities.

Further on, these processes need to describe everything that happens during the receival of goods, during storage and departure, what documents are needed, who will receive them, what type of information will be stored, etc. If the goods are damaged or the wrong quantity has been received, the company needs to create a process that ensures that these deviations follow the customs laws. And only after upholding these descriptions will the customs authorities award them with the bonded warehouse license.

> *"Must explain the steps following the arrival of goods, the storage place, the time of withdrawal, in case of re-export, in case of destruction of goods occurs etc."* – System Provider 2, Interviewee 14

To get the license, companies must submit the bonded warehouse process description, so the project manager needs to set up this flow before implementation. To create this hypothetical process for the bonded warehouse, a company must have experienced personnel who can visualize and create a process before it has been realized. This has posed a challenge but is further easily overcome if adequate control over inventory and understanding of the company's information flow is obtained. It was further shown that the process description became more complex in the two larger companies, 2 and 6. Both companies explained that many people needed to be involved since not one person understood the company's process, which is what the bonded warehouse description required. Moreover, the process, in turn, also became more complex, with several flows and partners involved. While on the other hand, in company 4 the CEO was able to describe the company's whole bonded warehouse process in detail and overall, less complexity was shown in their value chain due to its smaller operation.

> *"There is one thing to describe a process you already have in the works. But it is difficult to describe a process that you don't have yet"* – Company 4, Interviewee 6

The results showed that rigorous customs knowledge was required to create a bonded warehouse process map. All interviewees stressed the importance of understanding the specific customs laws and bonded warehouse regulations to write their process map correctly. Since the laws regarding how you are allowed to handle bonded goods differ significantly from non-bonded goods, there must be people in the organisation who understand this. Moreover, especially when mapping the process, the description of the flow of goods and information must be compliant with the customs rules. However, companies 2 and 4 stated that only the persons working directly with the bonded warehouse process needed to have customs knowledge. While personnel working with re-packing inventory or loading etc., did not need any specific customs knowledge, but instead carefully crafted routines to follow were enough.

It is, therefore, evident that to adequality create and describe the bonded warehouse process, a thorough understanding of the company's current processes, documentation and flow of goods is needed. In accordance with that, the personnel responsible for creating this process also needs to have a thorough knowledge of customs operations. Further on, some organisations gathered the knowledge from several members in different departments to fully understand the processes which the bonded warehouse would affect.

4.1.2.2 Secure Warehouse Premises

Further on, more than explaining the processes and flow of information, the companies also need to uphold specific requirements concerning their warehouse facility. To get the bonded warehouse license, the warehouse premise and facility need to be explained clearly. More precisely, a blueprint, address and safety features must be documented and ensured. All companies explained that the customs authority would send someone out to the facility to check so that the warehouse has proper shell protection, which entails an area specifically dedicated to the bonded warehouse that is protected with locked doors so that no unauthorized people can access the area.

> *"You must have the right safety requirements, such as shell protection which is a secluded area with locks"* – Port Operator 1, Interviewee 13

Moreover, for companies who share warehouses with other firms, the shell protection requirements still stand, and the storage location of the bonded warehouse needs to be separated from the rest of the warehouse. When a warehouse is shared among several companies, it is essential to consider that no address can hold more than one bonded warehouse license. Therefore, 3PLs do not often allow other companies to have a bonded warehouse permit when they store goods in their facilities since it would mean that the 3PL themselves would not be allowed to have a bonded warehouse.

Further on, depending on the type of bonded warehouse license that a company is trying to acquire, the requirements for keeping bonded goods and non-bonded goods separate in terms of floor space in the warehouse vary. One type of bonded warehouse license entails that the license encompasses the whole warehouse facility, and the company can place both bonded and non-bonded goods anywhere in the warehouse. While another type of bonded warehouse license entails that the bonded and non-bonded goods are separated, and bonded goods are only allowed to be kept on the specific floor space which has been awarded a bonded warehouse license. Only one of our companies operated using the second-mentioned license, which means that they were only able to keep their bonded goods within a specific area; this part of their warehouse where a separate room with locks, so only authorized people could access it.

> *"We need to divide our warehouse, so that bonded warehouse is separate from ordinary warehouse due to requirements from the Customs Authority"* – Company 7, Interviewee 7

The other five companies had licenses that made the whole warehouse into a bonded warehouse. The distinction between bonded and non-bonded goods could only be seen in their customs IT system. However, in these instances, the companies emphasized the need for customs systems to separate bonded and non-bonded goods.

> "*We do not distinguish between the goods that are sent into the warehouse. They can be both duty-paid and non-duty paid, the only difference is that they are separated in the system"* – Company 3, Interviewee 4

4.1.2.3 IT-Infrastructure

When the process and warehouse layout has been secured and decided on, the planning of the IT infrastructure can start. In this stage, the IT systems and integrations required for the bonded warehouse are assessed and evaluated. At this stage, the company decides what bonded warehouse system to use, what functions are needed and how it should be integrated with its other system(s). This process ensures that the planned IT infrastructure of the company covers the critical area, supports all processes, and follows the bonded warehouse regulations. Additionally, during this step, it is of utmost importance that the project team understand the logistics- and warehouse processes within the organisation.

It is possible to accurately develop the essential IT infrastructure needed for the customs operations by ensuring that the company understand how the internal processes flow.

In terms of the bonded warehouse regulations, the companies operating such a warehouse must show sufficient reporting and traceability of everything related to the bonded goods. Moreover, certain documents must also be upheld and sent to various actors, such as bonded goods requests to the customs authority and customs procedure document (T1) when receiving and shipping bonded goods. This process of tracing and creating documentation could be done manually, but it is often unrealistic for companies of larger size.

> *"If you have a large number of shipments to handle, then you need a [automatic] system"* – Company 4, Interviewee 6

Further on, companies can choose between different system providers or create their own system that provides the correct documentation and traceability required when operating a bonded warehouse. One of the system providers explained that they could help develop a customized customs system to companies who are implementing a bonded warehouse. However, most of the companies operating with a bonded warehouse showed that they used more standardized systems to complement their current ERP and WMS systems. The bonded warehouse system is as explained oftentimes separated from the other ERP and WMS systems that a company might use, since most ERPs and WMS systems do not support a so called "customs system". The reason for this is that the customs system acquires and shares very specific information that several participants further stated that their WMS and ERP systems did not. However, according to the system providers some WMS and ERP system have additional customs modules that supports the bonded warehouse operation.

> *"However, the customs module is not in our ERP system but in a separate system, but we have integration between the different systems"* – Company 1, Interviewee 2

Besides producing specific customs documents for the receipt and release of bonded goods, the customs system further allows for a thorough data history and traceability, which are two requirements for implementing a bonded warehouse. This means that companies can trace back all events, and detailed information and relating documents can be found for each step in the bonded warehouse process. Further on, for customs reporting, information such as country of origin, weight, quantity etc., are required and must be correct for the bonded goods to be accepted and released. Company 4 and 3PL 2 also explained that the master data and inputs must be correct; otherwise, there will be a ripple effect which can cause false documents to be produced and sent to the customs authority.

Further on, the customs system can be adapted to the organisations and their needs with different functions and integrations. Despite not being a part of the WMS or the ERP system, integration between a company's customs system can provide significant benefits. A well-integrated IT system can decrease administrative work time by automatically communicating information between a company's different systems, which decreases the risk of miscommunication, according to system provider 2. The four larger companies also stated that they had integrated their customs system with their others and subscribed to EDI connection to the customs authority. The companies did almost no manual creating of documents. However, in company 4, personnel created the request for releasing and receiving bonded goods manually on the customs authority's webpage; they explained that since they only had a couple of shipments a week, there was no need for EDI nor any advanced systems to support their operations.

> *"If you have a good integration and a lot of automation, human error decreases and it usually becomes much safer [for the company] because you follow all the rules and laws"* – System Provider 2, Interviewee 14

Moreover, further customization can also be done, and companies have implemented blocks and different routes in which the system processes the data to ease the critical documentation and reporting process. Blocks have also been used to avoid making steps without having adequate information. Both system providers interviewed explained that the customs system blocks were used when documents would be sent automatically to the customs authorities for approval. The block stopped the documents from sending unless the bonded goods had arrived and been confirmed to avoid sending inaccurate information. In many ways, the goal is to make the system so robust and safe that it becomes person independent and, in turn, does not rely on specific personnel to execute certain tasks. However, despite innovative and efficient IT solutions, the master data must be submitted correctly to the system. It is, therefore, vital that the basic information about quantity, weight and country of origin is entered correctly; otherwise, there will be a ripple effect causing costly delays in the process.

A customs system also requires resources in terms of money, which entails that such a system can be costly. The cost varies depending on the type of functions, amount of automation, and integration with other systems. Moreover, the company's current IT systems further play a role in the ease of implementing a new bonded warehouse system. However, a system that can provide adequate traceability and reporting is a requirement for obtaining the customs license, and it is, therefore, an important investment for companies to make.

> *"(...) high costs of implementing a new customs IT system, and we already have a lot in place already. It costs around 1,3 or 4 hundred thousand SEK"* – Company 2, Interviewee 3

> *"We put in a lot of money and time [into system update & mergers] and we also had to hire consults and system suppliers (...) that part was the most expensive during the implementation. Adaptation and integration"* – 3PL 2, Interviewee 15

4.1.3 Stage 3; Execute

In this stage, the focus is shifted to finalizing the bonded warehouse implementation project. The organisation should secure IT-system integration and provide employees with information about the new operations. Moreover, it is time to test-run the customs processes and ensure complete customs administration comprehension.

4.1.3.1 IT-Integration

When the customs license is acquired, it is time to enter the third and last phase. The last phase of the implementation process is the execution phase, and the first stage of the executing phase regards IT integration. Integrating the various IT systems of the firm is of utmost importance to ensure smooth data transfers between the systems. The customs authority requires organisations to uphold robust traceability in their customs processes. This ensures and validates that the organisations using bonded warehouses follow the laws and regulations set to sustain the customs license. Because of this, the people in charge of integrating the systems must have good knowledge of the internal organisational processes and ensure these processes stay intact.

> "*You also have to have traceability and with us you can track and see history for as long as one want, can choose how long the documents should be saved, 5-10 years and then they are deleted"* – System provider 1, Interviewee 17

Depending on the organisation's current IT systems, the integration process can vary in length. For example, if the firm has various IT suppliers, integrating the system with the bonded warehouse system may require more time and effort since more actors are required to cooperate.

> "*If you have many different business systems within the company, the integration of bonded warehouses becomes more complicated and takes longer"* – System provider 2, Interviewee 14

Companies that have a variety of system providers may find the integration process a bit more complex than companies that use the same provider for their IT systems. This is because it requires all the separate system providers to work collaboratively to figure out how each system should be connected to another. The more system providers part of this process, the longer it may take due to the complexity of developing suitable solutions and, naturally the possibility of disputes and disagreements regarding the best system integration option.

"The integration with multiple systems makes the process more complicated and time-consuming when you have to adapt the integration to different interfaces and connectors" – System provider 1, Interviewee 18

During the integration phase, it is crucial to have personnel within the company who have good knowledge of IT-system to uphold integrations when collaborating with the system providers. The complexity of connecting external IT systems can often generate problems further down the road when the systems may start to experience disruptions. During those instances, it is therefore critical to ensure your organisation possesses an IT department with the ability and capacity to solve those issues when they arise unexpectedly. Our empirical findings could distinguish that the level of IT integration between the companies' systems varied significantly. The larger-sized companies had fully equipped IT departments with personnel educated in the area. They commonly collaborated with external system providers to integrate their current systems with the new customs system during their implementation processes. On the other hand, the smaller-sized companies did not fully integrate their system and mainly resorted to only connecting the systems where it was required to ensure full functionality. Their main reasoning behind this lies in the additional cost that system integration would incur and lacking the internal competence to combat IT issues when the systems may experience integration problems.

"The customer must have sufficient resources and staff to be able to maintain an implementation of an IT system" – System provider 1, Interviewee 18

Once the organisation feels satisfied with the system IT integration, it is wise to test-run the connections to ensure they work accordingly. It is often possible that one step in the process may be underdeveloped for its purpose. To avoid any mishaps in real life, it is always wise to test run the customs process in the bonded warehouse before the actual execution.

"The system is only as strong as the weakest IT-solution, so it is important to do tests over time and even simulations with ordinary goods to see how the flow works before you start for real" – System provider 2, Interviewee 2

By utilizing a test run or a simulation trial, the organisation can make necessary adjustments where they seem fit. Companies can run the simulation as often as the organisation needs to make critical alterations and ensure that the entire process will work accordingly. Company 4 described how they spent substantial time test-running the systems with fictitious flows of goods. By setting off enough time to practice the new routines and procedures that will be part of the new customs operations, the organisations were able to ensure that they did all steps according to the customs regulations. Moreover, this was also supported by medium-sized company 3, who explained that the simulation trials might have to be run several times before all is working correctly. Since there are many different steps in the customs sequence that needs to function correctly, it is rather unlikely that all will fall into place from the start.

> *"Yes, an education day was included. I think it was half a day where they showed us the system. And then me and (CEO) has spent a few hours test using the program. We did our first import in a test environment"* – Company 4, Interviewee 6

> *" [IT] integration has to work well, it's a journey to get right and you usually have to do several tests to get all the macros right"* – Company 3, Interviewee 4

4.1.3.2 Customs Education

When IT systems have been integrated, it is possible to move forward with the implementation process. The next stage in the execution phase is providing training and education for the personnel responsible for the company's bonded warehouse activities. Once the bonded warehouse is implemented, the organisation needs to see it as an integral part of its daily business operations. Companies should provide personnel with education to ensure that the bonded warehouse function as smoothly and efficiently as possible without increasing the possibility of breaking customs regulations. The company's education could either be provided internally or by hiring a consultant who works as a customs specialist. Allowing the employees enough time to learn the new rules to obey and how the processes should proceed will pave the way for the best possible outcome when the bonded warehouse is set in action.

> *"Customs is not something you can sort of learn on your own, you have to get proper training or have worked with it extensively for a while"* – Company 3, Interviewee 4

> *"(...) also need very knowledgeable personnel and sometimes you need to educate them so that they know how a customs warehouse works"* – Company 1, Interviewee 2

Some companies possess the capacity internally to provide its employees with the required training to navigate customs procedures. In other instances, the organisation may lack the necessary pedagogical capabilities, or they do not have an abundance of time to spare to engage in training sessions for the employees. It may be wise to hire an external consultant to help with the training in those circumstances. Determining what is suitable for your organisation should be based upon internal competence and the budgeted costs for new hires.

> *"(...) it requires knowledge when new employees arrive, but then the question is who should be responsible for training the new staff. Person X in the company or someone else? "* – Company 1, Interviewee 1

Moreover, besides providing proper education for your employees, it is also vital to establish good routines for training when a new person is hired into the company. Company 5 described that they provide individual training to newly hired people. Because of their smaller size and the low number of employees in the company, they had the opportunity and the means to provide the new employee with personal and unstructured training in the customs procedures.

We hired a new person last summer, and taught them about customs information and then made sure we had detailed procedures for people to look back on – Company 5, Interviewee 7

However, as has been distinguished from the findings, it seems to be more common for the larger and medium-sized companies to have established rigid training routines for new hires. Usually, the training is composed of supervised training and individual training where the new employees are provided with independent study material.

"Yes, I had training in customs and customs warehousing before I started working here. I would not have been able to do my work right if it were not for the training I had" – Port operator, Interviewee 13

4.1.3.3 Bonded Warehouse Operation

Once everything is in place, including the customs license, IT systems integrations, bonded warehouse premise and shell protections, educated personnel and process descriptions and routines for bonded goods handling, the initial operation starts. In this phase, the companies deemed it essential to have acquired adequate knowledge and groundwork for the operation to start.

It is critical to ensure that the administrative tasks are working correctly for the employees in charge and that you have constructed the IT systems to report each step of the customs procedures. Moreover, there is a consensus among the participants that the administrative workload is heavier for a bonded warehouse operation. However, to what degree it is heavier varies between the companies. The customs authorities require that bonded goods are tracked and traced during transit and that each step in the process is documented. Organisations that operate a bonded warehouse are obligated to fill in customs declarations when goods arrive at the country border and ensure that the customs bookkeeping is done accordingly. Import- and export declarations can be rather time-consuming and something that company needs to take into consideration since it may require them to hire more personnel to combat the extra administrative workload.

> *"Requires more administration than for ordinary warehouses. About 25-50% more administration with customs warehouses in comparison to ordinary warehouses"* – Port Operator 1, Interviewee 13

The need to hire extra personnel for the administration department can result in higher costs for the company, but additional administrative costs are also considered. Companies must follow the laws and regulations that comply with the customs authority to uphold the customs license. When the declarations are faulty, or a step in the customs procedure is done incorrectly, there is a high risk of getting fined.

> *"Our logistics costs are not a lot higher than before. It is only the extra work with the administrative tasks that costs extra for the daily operations"* – Company 1, Interviewee 2

Further on, many of the participants in the interviews acknowledged the vitality of respecting the customs rules and regulations, which they achieved by carefully reporting each step of the customs process. Adequate reporting control is a prerequisite to being granted the license during the application process. The customs authority should have the possibility to conduct a spot-check at any time desired and receive a complete overview of a specifically chosen article's customs journey.

> *"Every activity that occurs, incoming deliveries and outgoing deliveries, anything that has a balance impact against the inventory balance itself need to be reported. As well as archiving all customs events. These things are incredibly important to register when operating a bonded warehouse"* – System Provider 2, Interviewee 14

The importance of correct customs reporting may be something organisations are not entirely aware of at the start of the bonded warehouse application process. The need for complete reporting accuracy will require more time devoted by the personnel to ensure this is obtained. Naturally, most organisations have implemented system support to limit the need for manual labour. However, some human control is necessary to detect system information fails.

> *"Must control all the goods in the imports to make sure that the numbers are correct, and also control the weight so that it is correct too"* – Company 5, Interviewee 7

> *"(...) puts a little bit higher demands on us, which means that we have to keep track of what we have in stock and what we do and where we move goods and so on. "* – Company 1, Interviewee 2

Depending on the customs license you apply for, the Swedish customs authority will conduct random spot-checks at your company to ensure that you keep track of each event happening to the bonded goods. Disregarding the possible fines when the reporting control is insufficient to the standard, it also demands the firm spend extra time filling in the missing information. This was especially highlighted by companies 5 and 4, which did not possess IT systems that automatically reported each event in the customs procedure, but instead kept sufficient information for tracing in excel to support the information found in their WMS and ERP.

> *"All documents must be correct and make sure the entire process is reported. If something goes wrong, for instance some numbers are incorrect, it can sometimes take a long time to fix"* – Company 5, Interviewee 7

4.2 Outsourcing of Bonded Warehouse

Another strategic decision could be outsourcing a bonded warehouse operation to a 3PL. This option alleviates the company from many of the requirements mentioned above but, in turn, entails other implications. The decision to outsource a bonded warehouse operation mainly stems from a company's internal abilities. Moreover, companies might focus on their core competencies rather than implementing a new process. In turn, the amount of knowledge required drastically decreases. Further on, the IT-system requirements and education of staff, which are two time-consuming and expensive resources, are not required to the same extent.

> *"If you are choosing between outsourcing the bonded warehouse or having private bonded warehouse, I think it is important to first evaluate your core competencies are in your company and focus on that primarily."* – Company 5, Interviewee 7

The amount of customs knowledge a company needs when outsourcing the process is inconclusive. Some argue that the company still need a basic understanding of customs laws and the requirements, while others argue that no knowledge is necessary. The knowledge needed points toward the desire to minimize mistakes, as incorrect information given to the 3PL will have a ripple effect and result in wasted time and money like a private bonded warehouse. On the other hand, those who answered that their customers do not require any customs competence further explained that they provide detailed descriptions of what information they require, and that this information is enough.

> *"If you outsource, you still need to have some bonded warehousing knowledge, so you know what information is needed and that it is correct and what time aspect they entail"* – Company 5, Interviewee 7

> *"No [don't require customers to have customs competence] (...) Our customers hire us because we are good at bonded warehousing"* – 3PL 1, Interviewee 15

Further on, the IT aspects of outsourcing to a 3PL vary. Companies can send information manually and through EDI or create a direct connection with the customers' system. However, like a private bonded warehouse, the usage of EDI or other automation is preferred. Some 3PLs also offer EDI connections to the customer so that information to the company is directly transmitted when something happens.

“Communication with customs to facilitate the process, integration with EDI” – System Provider 1, Interviewee 18

Lastly, much like implementing a private bonded warehouse, the company needs to thoroughly investigate whether the option is viable in terms of costs vs savings from outsourcing a bonded warehouse. Outsourcing a bonded warehouse to a 3PL requires resources, and the cost savings from re-export, postponement of costs and other benefits must outweigh the service costs. Moreover, the selection of a 3PL also needs careful consideration and the company’s demands in terms of service. Do the products need to be repacked, split, or adjusted in any way needs to be considered.

"(...) Costs a lot to outsource the bonded warehousing process but you don't need to have the same knowledge or control over warehouses that you need when you have a private one" – Company 1, Interviewee 2

5 Analysis

The next chapter provides a thorough analysis of the empirical findings. The empirical findings are connected to the literature review in chapter 2, to compare and contrast existing literature with our findings. The analysis of the empirical findings will generate the foundation for our discussion in the following chapter.

5.1 Resources for bonded warehouse implementation

Based on the empirical findings, we derived essential resources by analysing the stages in the implementation process. These resources are now categorised into the four resources established by the Resource-Based View: organisational resources, physical resources, human resources, and technological resources in figure 7.

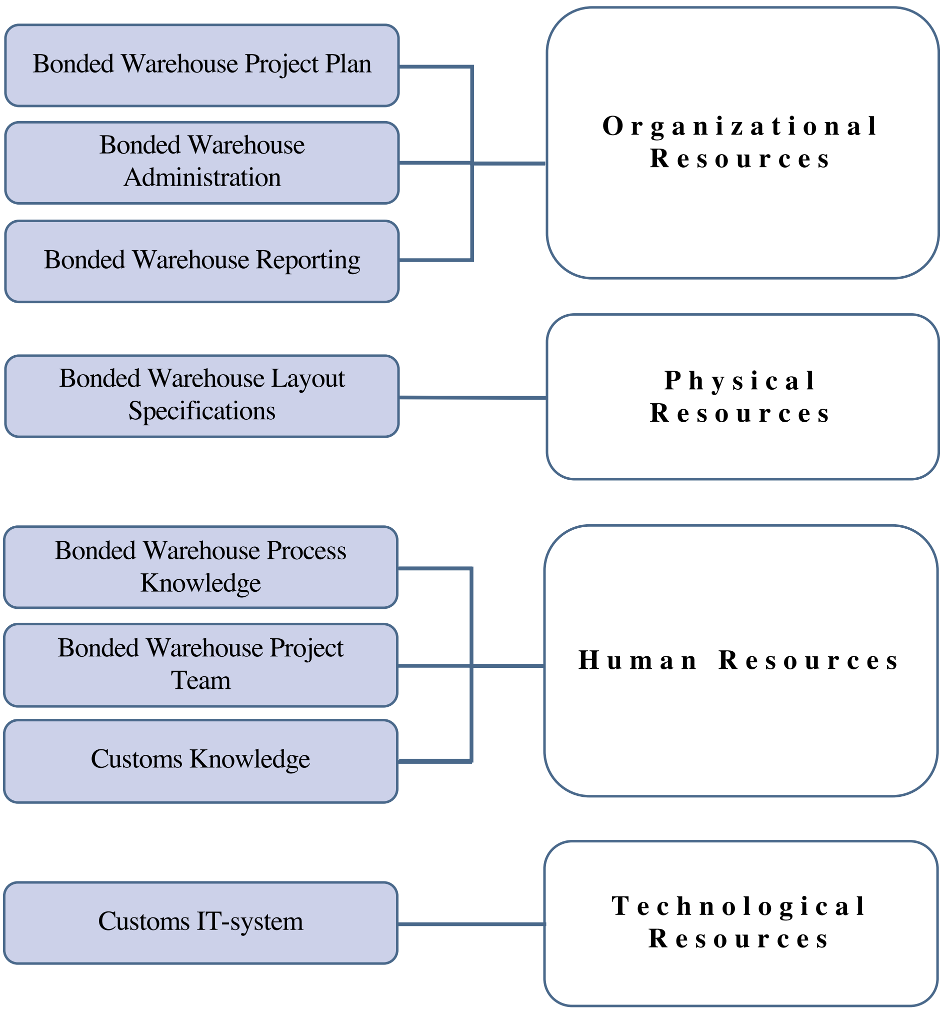

Figure 7: *Derived resources and connection to RBV*

5.1.1 Organisational Resources

The organisational resources are related to the organisation's structure; functions such as reporting, controlling, coordinating and administrative tasks are included (Barney, 1991). This section will disclose and analyse the organisational resources derived from the empirical findings.

5.1.1.1 Bonded Warehouse Project Plan

During stage 1, in which the companies investigated the profitability of implementing a bonded warehouse, it became evident that a plan describing the required steps and desired outcomes was vital to provide a realistic analysis. At this phase, the organisations use the project plan to assess what type of bonded warehouse to make a profit investigation for. The importance of establishing a project plan has been acknowledged by many authors in literature where they all argue for a higher success rate if project goals are clearly defined systems (Alias et al., 2014; Belassi & Tukel, 1996; Pinto & Prescott, 1990; Pinto & Slevin, 1987). Furthermore, all companies interviewed had created a project plan, with some differences between the larger and smaller companies. The smaller companies 4 and 5 conducted a more unstructured and less thorough plan. Their project consisted of a rough draft of what they wanted to achieve and the forecasted costs and implications. While on the other hand, both the two larger companies, 2 and 6 and the medium-sized company 1 have created a thorough investigation with detailed calculations and a process map to implement their bonded warehouse. Therefore, our findings could identify the correlation between the size and the number of people and departments involved and the thoroughness of the plan. This is argued to be due to the complexity that follows the larger organisations. It requires a more significant number of people to assess a bonded warehouse's impact adequately. Another contributing factor to conducting a project plan was the complexity and additional regulations and rules that follow bonded warehouse operations. Our findings show that due to the strict regulations, it was vital to create a plan specifically for the bonded warehouse implementation to ensure that the companies followed all rules before they could make any investments. Prataviera et al. (2020) support these findings by concluding that the additional regulations related to bonded warehousing yield a more complex situation that requires a different execution than standard warehousing.

On the other hand, as demonstrated by the CEO from company 4, within a small company, there is often someone who can adequality understand and assess the project plan's impact on all parts of the organisation. The project plan was further shown to be a vital component in the execution of the implementation of a bonded warehouse. Since the laws closely govern the bonded warehouse operation, it is crucial to ensure that these are followed before initiating the implementation. As described in the literature, failure to adhere to the EU constitution's rules and regulations and local customs authorities can result in hefty fines (DHL, n.d.; Finance Act of 2003, 2022). This was also evident among several of our interviewees, who mentioned the strict rules they needed to follow and the expensive consequences of failing to do so.

5.1.1.2 Bonded Warehouse Administration

In the later stage of the bonded warehouse implementation process, it became evident that administration is a critical component that requires specific attention. From the empirical findings, the bonded warehouse administration is most prominent during the last operational phase, which is related to the start of the bonded warehouse operation. Our findings suggest that the administration will increase after implementing a bonded warehouse. This is shown due to the documentation and tracing requirements for obtaining a licence to operate a bonded warehouse. The amount of documentation and paper that needs to be upheld and sent to different parties significantly increases compared to a non-bonded operation, Wang et al. (2018) explain that the bonded and non-bonded warehouse differences in their operation, which can be a contributing factor.

Additionally, The Union Customs Code (Regulation 952/2013) also provides the license holders with strict regulations of the specific documents and declarations needed for imports and exports, significantly increasing the administrative workload. Moreover, the participant emphasised that adhering to the rules and regulations regarding reporting, tracking, and recording information can be challenging and requires more time. On the other hand, we found that the participant from company 2 had worked in the field for a long time and did not deem that the documentation or administrative load was challenging or significantly time-consuming. However, this is argued to be because of their long experience and accustom to the bonded warhouse operation.

It was further found that companies 4 and 1 were said to have control over their inventory and found the administrative tasks less significant but still higher than for non-bonded warehousing. Company 4 is a small company with a small inventory and few flows in their operation, which is one reason for their perception of the low administrative load of bonded warehouse operations. Supporting this is Prataviera et al. (2020) explain that the complexity added to administration can be challenging, and well-managed inventory and processes are needed to support this complexity. Therefore, the results found no clear consensus regarding the amount of extra work. Still, it was difficult for the companies to judge to what extent the administration would increase before the implementation. The difficulty in estimating the potential administrative load could be due to the large variety of companies' prior prerequisites. However, the findings still conclude that administration will increase, but to what degree depends on several other factors.

Moreover, the literature found that administration accounted for the most significant cost of bonded warehouse operation (Hsu & Zhu, 2011). However, in our findings, this cost was overshadowed by the significant investment required for IT systems. On the other hand, administrative costs will continue as long as the warehouse runs. At the same time, the initial investment in IT will decrease to a much smaller support cost. In connection to IT systems, the findings also showed that the administration level depended on the IT systems and their integration. The more automation used by the company; the less administration is needed. A more automated system also caught human errors more efficiently, making the administration process more efficient.

5.1.1.3 Bonded Warehouse Reporting

Another vital resource that has been identified is a company's reporting abilities. Reporting refers to the comprehensive documentation of anything related to the bonded warehouse operation. Having adequate reporting mechanisms and processes is vital to operating the bonded warehouse. Therefore, this resource is most prominent in the last phase, operation, as it is similar to administration, the phase in which it is first tested and applied.

Moreover, our findings further found that being able to supply the correct information to the system and store events and adjustments can be challenging. This is because of differences between standard reporting and bonded warehouse reporting procedures. The laws and regulations governing the bonded warehouse operation forced companies to adhere to specific reporting processes. Companies should document detailed information following every event (Tullverket, 2021; The Union Customs Code (Regulation

952/20130). Moreover, our findings show that, more specifically, companies should record information such as correct weight, value, and country of origin. This information also lays the ground for the documents sent to the customs authorities, which will decide whether to accept the incoming goods to the bonded warehouse; it is then vital that the information is correct. However, if the company cannot supply the correct information, it could be fined or subjected to time-consuming adjustments (Prataviera et al., 2020). Companies operating with a bonded warehouse must dedicate time and resources towards creating processes that can uphold correct reporting and, in some cases, educate personnel. One way to improve the companies' accuracy when reporting was through the help of integrated IT systems. Heaver (1992) explained that good IT integration and connections significantly lower the risk of human reporting errors. For example, IT systems and blockers can improve reporting; both providers explained that they provide "blockers" to avoid information or documents being sent before certain information is confirmed and supplied. These help systems can create more accuracy when reporting bonded warehouse events and avoid costly mistakes. The findings did not find the level of reporting to be different between the companies, only how it was conducted. This is argued to be because the bonded warehouse operation by law requires this type of reporting, and a company's size or complexity does not affect to what extent the reporting is required.

5.1.2 Physical Resources

According to the Resource-Based View, the physical resources relate to any tangible resources that the company owns (Barney, 1991). This section will not include IT systems or other IT architecture since the literature later identified a category compassing only the IT infrastructure (Kiatcharoenpol et al., 2011).

5.1.2.1 Bonded Warehouse Layout Specifications

The nation's customs authority decides the specific regulations regarding bonded warehouse operations described in the literature. The European Union sets the overarching rules governing these country-specific regulations to adhere to its customs union (The Union Customs Code, Regulation 952/2013). The warehouse itself being a physical resource, our findings also showed that adequate shell protection is required to receive a bonded warehouse license. Because of the regulations, companies could not compromise this shell protection, but all companies had to ensure that the facility was closed off from unauthorised personnel.

Moreover, only one bonded warehouse license per address. This is an essential aspect for companies that share warehouse space with other companies. Yielding a bonded warehouse license to one of the companies in that warehouse would, in turn, entail that no other company could obtain one. Our interviewee in 3PL 2 emphasised that they would not allow customers who rented their storage in shared facilities to obtain a bonded warehouse licence. On the other hand, if the company is allowed by the facility's owner to apply for a bonded warehouse in a shared facility, the specific area meant to be for bonded goods needs to have the same shell protection as any other bonded goods warehouse. This would then mean that companies would have to create a separate storage area closed off from the rest of the facility. When analysing the findings, we found that companies 4 and 5 did not have a large enough warehouse to put all their product in a bonded facility but instead used bonded and non-bonded warehouses. In these instances, the products that yielded the highest customs costs or had a large portion of re-export were chosen for the bonded warehouse. For them, this was a way of categorising their products to assess which ones were deemed critical specifically for bonded warehouse operations. These findings align with Goonatilake's (1984) findings, who introduced the ABC analysis for inventory and argued that companies should prioritise them differently depending on their criticality. By dividing the goods into three categories of A, B and C based on the cost of the products (Biswas et al., 2017; Jose et al., 2013; Kumar & Anas, 2013), the company can easily see which goods are more suitable for the bonded warehouse.

5.1.3 Human resources

Human resources can be regarded as the personnel part of an organisation and how their unique skills and capabilities actively contribute to the company's success and development (Barney, 1991). This section will present and analyse the human resources derived from the empirical findings.

5.1.3.1 Bonded Warehouse Project Team

It was possible to detect a reoccurrence of project team involvement during the first stage of the implementation process. The criticality of establishing a carefully selected project team to carry through the implementation process enabled us to extract the bonded warehouse team as an essential resource. It was established that the personnel and the project manager within the project management team were critical in stage 1 during the phases appoint change team and investigate profitability. As indicated by the name, the appoint change team phase is closely related to the bonded warehouse project team resource. It is essential first to establish a team that can lead the change and implementation throughout the entire organisation.

Further on, the authors Pinto & Slevin (1987) acknowledged the importance of establishing a project team as one of the key critical success factors in project management. They state that it needs to be assured that the project group and the project manager possess the required competence needed to execute the project, which further aligns with our findings regarding the bonded warehouse implementation.

By examining the empirical findings, we can see that the project team formations in the companies were somewhat different from each other. It is believed that the project team's shape and construction will depend on the organisational size. Companies 2, 3 and 6 were medium and large companies with integrated routines for project creations and had sufficient resources to establish a team of people with complementary competencies. It can argue the requirement for an official project team with personnel from different departments is due to the significant effect that the bonded warehouse implementation will have on a company's operation. Whereas company 5, a smaller company, had a less formal project team but acquired good routines and competence during its many years as an active business. Company 4 was a small family-owned firm where the employees' primary work tasks were rather fluid due to the few workers. This naturally affected the project team formation since each employee had different areas of responsibility from time to time. One common denominator for all companies was the project team's customs knowledge. Our findings show that having some customs knowledge was an important characteristic for the project team members, whether this knowledge was previously held or acquired during the project team formation stage. By beginning with a formulation of the anticipated outcome, it is possible to distinguish which team members within the organisation would play a vital role in taking the project forward in the desired direction. Moreover, during the team formation phase, the authors Kern & Blois (2002) have acknowledged the importance that each team members understand the significance of good cooperative efforts, trust and commitment for the road to reach satisfactory results.

Besides the project team's critical involvement in the implementation process, it is also evident that allowing the rest of the firm's personnel be a part of the change process allows for better long-term results (Weeks et al., 2013; Choi, 2011; Jones et al., 2005).

Further, as part of the project management team, it was also apparent that companies needed a skilled and motivated project manager. Knemeyer & Corsi (2003) explains that it is vital that a project manager oversees the project and that they should begin by developing the desired goals and objectives for the project. In the bonded warehouse implementation team, it became evident that the project manager was the one who held on to most customs' knowledge. The project manager was the person to check if the bonded warehouse processes created in the company's departments followed the customs authority's laws and then gave the green light to implement these processes. Moreover, the literature on project management has been widely researched. Many authors have concluded that establishing a good project manager in an organisation has many benefits, including clear project plans and goals, good team collaboration and communication, efficient budget management and utilisation of resources in possession (Pinto & Prescott, 1990).

Furthermore, all companies that have implemented a bonded warehouse appointed a project manager and deemed this vital for the implementation. For instance, this has been supported by Alias et al. (2014), who explains that essentially all projects, no matter size or scope, require a project manager. Moreover, both the 3PLs and system providers emphasised the importance of driven and skilled project management, which can push the project forward. One of our interviewees said that the implementation would take significantly longer without competent project management. Alias et al. (2014) continue to explain that running projects without good project management skills can have a detrimental impact on the project's outcome and, essentially, the organisation's continued success. The larger sized firms, who had possession of personnel with an education in project management, had fully established routines of how they executed their projects from the beginning which laid the foundation of how the implementation process would proceed. In contrast to the smaller firms, who perhaps knew scarcely about the utter basics of project management but were not actively aiming at using those specified characteristics, also inevitably ended up having someone who led the bonded warehouse implementation.

Despite the company's differences, the key takeaways we found in the findings were the need for substantial efforts toward working collaboratively with each other in the team. It became evident that it would have been extremely challenging to endure the project by oneself since every step of progress in the project as a result of collective performance by the team members. Companies should compile the project team of people with diverse positions within the organisations to allow each department to see the project from their perspective. The contribution from different departments also ensured that the project worked in accordance with each department's operation and the bonded warehouse regulations. By carefully forming the project group, companies can develop the most optimal solutions for their organisations.

5.1.3.2 Bonded Warehouse Process Knowledge

When applying for a bonded warehouse the customs authority requires a description of the proposed logistical flow of the bonded goods. To have the ability to do so, you need to have a good understanding of the company's internal processes. Furthermore, the vitality of process knowledge is also evident when securing the warehouse premise during the development of IT infrastructure and integration of IT-system in stage 3. Due to its importance in many of the steps in the implementation process, we have deemed Bonded Warehouse Process knowledge a critical resource.

According to literature, Prataviera et al. (2020) have previously stated that bonded warehousing operations are complex due to the criticality of accurate inventory control and the requirement of administrative work on numerous occasions during the customs process. In connection to our empirical findings, companies 4 and 5 had similar experiences, thoughts, and views regarding the topic of process knowledge. They explained that they initially struggled with the parts of the license application that demanded thorough knowledge of the internal processes. However, as they acquired this knowledge, the application process became more manageable, and in addition, it enabled them to see other areas of improvement for their business logistics. Interestingly, it is possible to connect the literature on employee training and our findings on process knowledge. Uma (2013) states that allowing your employees to acquire new knowledge will provide the organisation with new skills and capabilities that can increase the profitability and success of the firm. Through the possession of process knowledge, companies 4 and 5 stated that it allowed them to see new ways of improving their organisations.

Moreover, in the findings, we also distinguished the significance of company size in regard to process knowledge. Baker & Canessa (2009) have described how many firms are expanding their businesses by including additional functionalities and value-adding services. As businesses continue to grow, the network of logistics processes within the organisations becomes more complex, something that is also supported by Prataviera et al. (2020). Companies 2 and 6, which were larger, experienced this as an obstacle during their licence application since their internal processes are much more complex due to their size. They explained that the need for process knowledge was utterly critical and significantly helped speed up the development of the process maps. This implies that the size and shape of the license applying firm will affect the process mapping and IT integration activities, but that the need for possession of process knowledge is the same for all companies.

5.1.3.3 Customs Knowledge

One main criterion to be granted the bonded warehouse license is to prove to the customs authorities that you understand the laws and regulations surrounding the management of bonded goods. In that sense, it becomes evident that customs knowledge is a critical resource that the organisation needs to acquire during the implementation process. In our findings, all companies argued that having customs knowledge is vital in almost all steps of the bonded warehouse implementation and operations. Differences in how companies acquired customs knowledge could be seen. Companies 2,3, and 6 already held extensive customs knowledge and merely had to supplement this with bonded warehouse knowledge, while on the other hand, companies 1, 4 and 5 had to obtain both.

Going back to the literature in chapter 2, Prataviera et al. (2020) explain the importance of reasonable control over one's inventory handling and customs administration. However, the author further explains that the required control also produces a higher complexity of operations and that it inevitably demands the organisation to acquire significant knowledge. Moreover, as our research study is concerned with the legislation within the European Union, The Union Customs Code applies to organisations we have investigated. The Union Customs Code is a set of guidelines to ensure that each member state's laws are being adhered to, including regulations of customs procedures and licenses (Toldstyrelsen, n.d.; Tulli, n.d.; Tullverket, 2022). The rules are many and demand the company to acquire, if not already in internal possession, the necessary information and knowledge of the regulations to ensure no law is broken during bonded operations. So, when setting up the processes of the bonded warehouse, companies must use correct information. Here it is essential to stay up to date on changes in regulations and how companies can interpret the regulations in their processes.

Additionally, Kalinicheva et al. (2016) mention that an investment in a bonded warehouse can lead to many ways to obtain significant cost savings. From the findings, we have found that there are many ways how an organisation can utilise trade agreements between countries to lower or avoid costs. However, to take advantage of those cost-saving strategies, there is a need for possession of customs knowledge for an understanding of how to make use of it. Furthermore, the project team cannot do a solid profitability or cost analysis if they do not have adequate bonded warehouse knowledge simply because the implications on a business for implementing a bonded warehouse differ significantly from that of a standard warehouse.

The criticality of customs knowledge has been distinguished; however, another critical driver that significantly affects the level of acquired knowledge is training. Whenever a new function is implemented in a company, it usually requires the management to provide the concerned employees with proper training. Concerning the bonded warehouse implementation process, we acknowledge that the need for customs training was apparent both during stage 1 and stage 3. During stage 1, the project team needed to acquire customs knowledge to investigate whether implementing a bonded warehouse would be profitable for them. Obtaining customs knowledge is vital to ensure that the correct analysis is done, and the right decisions are made. In stage 3, the employees who are expected to govern the customs operation also need training to gain the ability to perform their work. Due to that notion, we have found that customs training is a critical component of the customs knowledge resource.

We saw a consensus among the participants that proper customs training was essential for the project duration. Due to the company's initial conditions, the training structure differed. Companies 4 and 5 taught their employees when they could find spare time, and the training structure was relatively flexible. On The other hand, companies 1, 2, 3 and 6 offered their personnel structured training sessions and viewed this to be effective. However, it is essential to note that the scope of the training was similar for all companies.

In contrast to our findings, Daniels (2003) expressed that some organisations perceive education and training as unnecessary and a waste of time as it does not automatically promise or guarantee good results. This contradicts our findings which indicate the importance of training. Something that is also supported by Buchanan et al. (2005), who state that providing educational programs for an organisation's employees has proven to produce great operational benefits. Uma (2013) argues that proper education will successively result in higher profitability levels for the company. Our findings also support this, which conclude that training was a critical aspect for all organisations. The type of training, e.g., official customs training from the customs authority or internally from the company, did not differ in the implementation process. The contradicting assumptions could result from the level of quality of the education provided and the level of guidance from the organisation's senior management. Law (2009) states that companies can perceive organisational change as quite chaotic as it is difficult to predict its success rate. However, as Law (2009) and Coeurderoy et al. (2014) further explain, the involvement of the firm's senior management can mitigate the perception of doubt and scepticism. In that sense, it can be understood that some studies may have found contrasting views on this topic.

5.1.4 Technological Resources

Technological resources can be described as a firm’s ability to manage and facilitate its IT systems and IT infrastructure (Kiatcharoenpol et al., 2011). This section will present and analyse the technological resources derived from the empirical findings.

5.1.4.1 Customs IT-system

In step 2 and 3 of the implementation stages, we distinguish a clear emphasis on IT infrastructure and IT integration. Naturally, the common denominator of these two concepts is the customs IT system which strongly indicates that the system is a critical resource needed in the implementation process.

Nowadays, it is almost impossible to run an organisation without using technology and IT systems. As technology has advanced and allowed for better, faster, and more efficient processes, more companies are turning to technology to gain a competitive advantage in the market (Chan, 2000). In regard to the topic of this research, IT utilisation in bonded warehousing is no different. From the findings, it is possible to see a distinct theme of the benefits captured from using an efficient customs IT system within the organisation.

Moreover, the advantages of IT utilisation in bonded warehousing has also been acknowledged in the literature. The authors Varella & Gonçalves (2013) explain that IT takes on a unique role in bonded warehousing as it helps the company keep track of customs handling and documentation for import and exports of bonded goods. Garlan (2003) also acknowledged that significant efforts need to be attained to integrate the customs system with the organisation's system currently in place.

By comparing the case companies, we explore the problems arising from underdeveloped IT integration of IT-system. Company 4 relied on using Excel as their primary tool to keep track of the customs activities, which exposed them to a higher possible risk of human errors. According to literature, Heaver (1992) states that integrated IT systems and EDI functions can significantly lower the risk of manual errors, which was also emphasised by one of the system providers. Allowing data to be electronically transferred between systems eases the danger of displacement of vital information. In line with Heavers (1992) statement on EDI as a safety precaution, Croteau & Bergeron, (2001) & Luftman et al., (2017) also emphasise that IT-system alignment with the company's objectives furthermore will secure the processes and inevitably smoothen the operations by limiting technological disruptions.

In contrast to company 4, the other companies had a well-developed IT infrastructure and competent personnel who could facilitate the customs IT-system integration. Our findings also show that the IT-integration can become very time-consuming and expensive, especially where several systems require integration and communication setups. This, in turn, can be related to the complexity of bonded warehouse operations, as explained by Prataviera et al., (2020).

6 Conclusion

In this chapter we will conclude our findings from the conducted analysis and present our research questions and their proposed answers. Additionally, two frameworks of the result are presented to further emphasise the findings from research.

To conclude, our research was guided by the two research questions derived from the gap found in the bonded warehouse literature. Firstly, we studied the resources required for bonded warehouse implementation by interviewing six companies using bonded warehouses. An additional six organisations working with bonded warehousing operations in some ways were interviewed to get a deeper understanding of the topic. Moreover, eight resources critical for bonded warehouse implementation could be derived and further analysed *1) Bonded Warehouse Project Plan 2) Bonded Warehouse Administration 3) Bonded Warehouse Reporting 4) Bonded Warehouse Layout Specifications 5) Bonded Warehouse Project Team 6) Bonded Warehouse Process Knowledge 7) Customs Knowledge 8) Customs IT-system.* Based on the analysis figure 8 was created to illustrate the bonded warehouse implementation, including each stage and phase that companies must go through and their related resources.

Secondly, during the analysis specific differences in the extent to which the companies use the key resources was identified. For example, the smaller companies tend to use less it-integration and a more informal structure for the project management team and project plan. In contrast, the opposite can be seen in the larger companies, with high IT integration and formal project teams with clear roles and a thorough project plan. These differences and the extent to which each company has implemented or utilised the resource are presented in figure 9. The resources *Bonded Warehouse Reporting* and *Bonded Warehouse Layout Specifications* were excluded from the figure as no differences between the companies could be seen and instead the degree to which the resource was utilised is guided by the law.

Lastly, the results show that these eight resources were deemed critical in the different stages of bonded warehouse implementation. More specifically, human resources and organisational resources are the most prominent categories encompassing most of the identified resources. During the analysis, strong correlations between the different resources could be seen, where one and the other were either highly related or impacted the other. Moreover, as indicated by the resource-based view, companies who do not possess these resources or deem them too costly to acquire will, in turn, opt for an outsourcing option of the bonded warehouse operation.

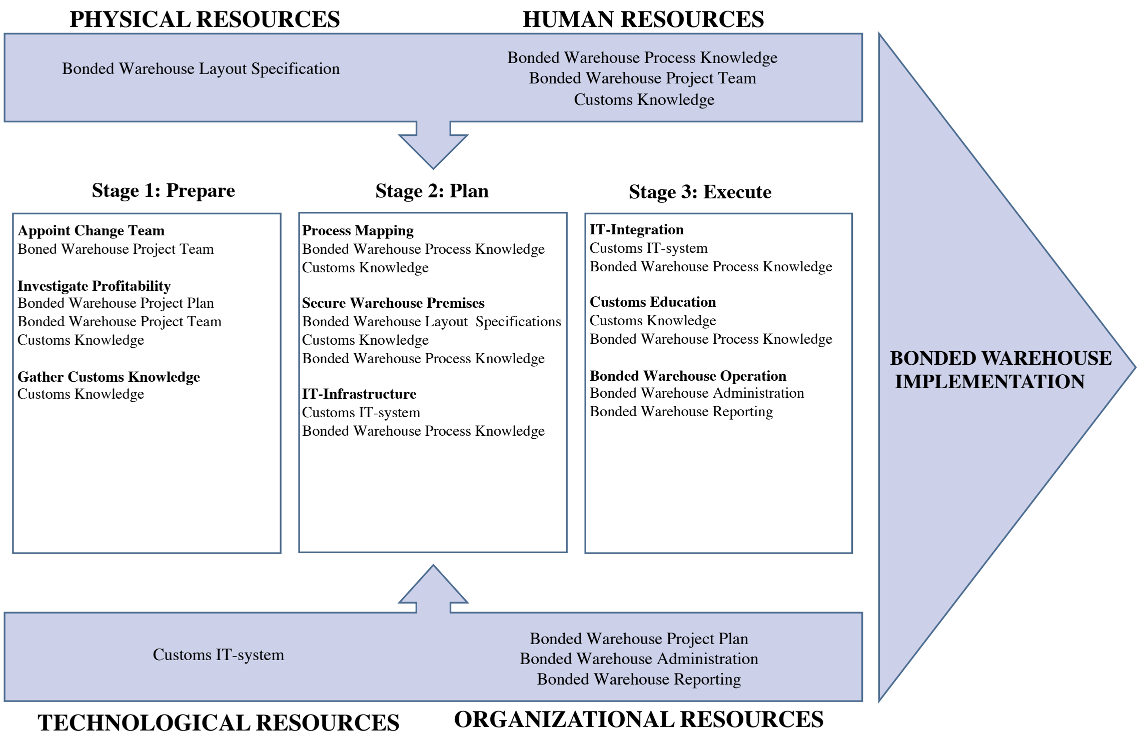

Figure 8: *Framework for Bonded Warehouse Implementation*

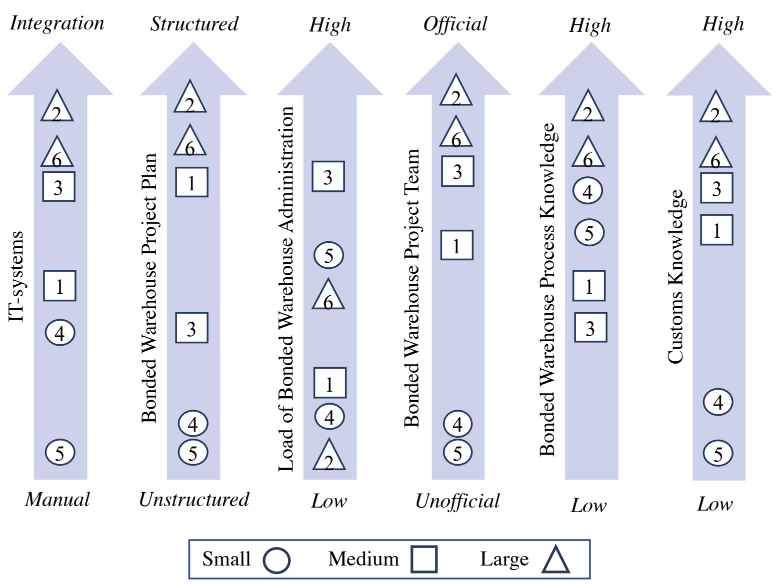

Figure 9: *Framework for Bonded Warehouse Resource Significance*

7 Discussion

In this chapter the theoretical implications as well as managerial implications of this study research will be discussed. Thereafter the limitations of the study will be explored and lastly, possible areas for future research on the topic of bonded warehousing will be presented.

7.1 Theoretical Contribution

Through literature, this study argues that bonded warehousing affects many parts of a company's internal and external operations (Prataviera et al., 2020). Nevertheless, the context of our study can be derived from several research areas, including logistics, operations, and supply chain management. In this regard, our findings contribute to an increased understanding of the theoretical implications of these fields.

As has been noted previously, the literature on the bonded warehouse is scarce, and the literature that does exist primarily focuses on the cost incentives a bonded warehouse can generate (Prataviera et al., 2020; Suresh et al., 2017; van Hoek, 2000; Wong et al., 2014). However, as promising as the benefits may appear in the text, literature has failed to address how to ripe those benefits bonded warehousing can provide to companies. Nevertheless, it has not been investigated how companies successfully implement a bonded warehouse, nor what steps and resources are necessary when undertaking such projects.

To further expand on that topic, a distinction between the critical drivers between contrasting firms, in particular company sizes, the research will contribute to a greater awareness of vital firm necessities to successfully implement a bonded warehouse.

As literature has failed to address these issues, our research adds to the literature on bonded warehouses in the sphere of the Resource-based view by deriving resources that are vital for bonded warehouse implementation. Furthermore, the inclusion of the Resource-based view further enrichens theory by connecting the findings to an existing theoretical framework.

7.2 Managerial Implications

This research addresses what resources are essential when implementing a bonded warehouse to guide companies in their implementation process. More specifically, the findings in this research comply with resources managed in the literature, such as administration (Prataviera et al., 2020) and technology (Varella & Gonçalves, 2013), but further expand on this area by adding bonded warehouse specific resources like warehouse layout, reporting control, customs knowledge etc.

Further on, our study contributes to understanding the critical components in the implementation process of bonded warehouses. The final model in figure 8 shows the different stages of warehouse implementation and the related resources necessary to assist as a guide for companies. Moreover, in figure 9, a distinction has been made between resource use and significance in the different companies researched. The figure allows companies to assess the current state of their firm in conjunction with the proposed need for the critical drivers in bonded warehouse implementation.

The result of the study allows companies to make a thorough assessment in accordance with the Resource-based view, to distinguish what resources they have, and which need to be obtained for a successful implementation. Moreover, it can further guide companies in the outsourcing decision by allowing them to address the critical resources required and their fit to the implementation process framework.

7.3 Limitations

During our research, some limitations were identified, stemming primarily from our chosen delimitations, methodology and current state of literature.

First, we chose to delimit our study to the scope of companies based in the EU and, therefore, the customs regulations applicable in the EU. It was deemed too complex to consider several geographical jurisdictions considering the scope of this research. However, the result might not be transferable to companies that operate outside of the EU.

Second, our study is qualitative, which can be argued to pose another limitation. When conducting interviews with individuals from several different companies, the participants risk being biased or giving an untruthful picture of their implementation process. We tried to mitigate this risk by ensuring anonymity for all participants.

Third, in line with our qualitative study methodology, we identified eight resources that were deemed essential during the bonded warehouse implementation process. However, the extent to which the resources influence the implementation process is not assessed, and there might be resources that are more critical for the implementation success than others.

Fourth, the literature on bonded warehouse operations is limited and therefore obscured the process of comparing our findings to the literature. The results were compared to relating topics such as critical success factors, outsourcing models, personnel, and IT infrastructure to analyse the empirical findings.

Fifth, our study focuses on deriving a set of resources necessary for implementing a bonded warehouse primarily based on six companies. However, no distinction was made between the different industries in which they operate. In that sense, the result might vary regarding different industries' needs and regulations. Similarly, our data set consisted of both retailers and manufacturers, but no separation was done in the analysis between the two.

7.4 Future Research

This research aims to fill the gap identified in the bonded warehouse literature, and with our contribution, new areas for future research also arise. We conducted qualitative research to determine the resources needed to implement a bonded warehouse. However, this does not allow us to assess the criticality of each resource. Therefore, future research could focus on categorizing and ranking the different resources to enrich the literature and bring valuable information to companies. Moreover, building on this, research investigating to what extent the resources contribute to a bonded warehouse success could also be an area for future research.

In relation to our limitations, there is room to explore how bonded warehouse operations differ between countries or other economic areas where the laws and regulations are different, which may lead to varying drivers for running and implementing a bonded warehouse. Furthermore, another area for future research could be including another theoretical framework. As our research study is connected to the resource-based view, it restricts the findings and results to solely evaluating strategic resources for the bonded warehouse implementation process. Incorporating a different framework, for instance, the Transaction Cost Economics, which assesses the optimal organisation structure for economic efficiency, could further expand the scope of research in bonded warehousing.

Lastly, as identified in our findings, our research mentioned strategic decisions utilizing free trade agreements to lower customs costs. Future research could further explore this topic, leading to exciting results to expand literature and increase managerial implications.

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9 Appendices

9.1 Appendix-1: NDA & GDPR Consent Form

GDPR and NDA Thesis Consent Form

Required by European Union General Data Protection Regulation 2016/679 ***Title of Study:*** Implementation process of bonded warehouse; benefits and perils

Purpose of Study: The study aims at investigating the implementation process of bonded warehouse, to understand what they requirements are in terms of managerial capabilities and cost of resources. We intend on interviewing experts at several companies who use bonded warehouse in their operation, both outsourced from 3PL and privately owned. From the result a framework will be created that prepares new organizations in implementing a bonded warehouse, informs in which processes changes are required and how the process map will change.

Confidentiality: The information provided during the interview will be kept ***confidential***, names or any other indication that can identify the organization will be avoided, so the keep the participating organizations and people ***anonymous***. The interview will be ***recorded*** so to ensure that the translation and information used in the report is accurate to what has been said during the interview. As soon as the study has been concluded the recorded interviews, notes and transcribes will be ***deleted***.

Voluntary participation: Your participation in this study is voluntary, you have the right to at any point in time withdraw your participation and all information if obtained will be deleted.

Under GDPR you have the following rights over your personal data:

● ***The right to be informed:*** You must be informed if your personal data is being used.

● ***The right of access:*** You can ask for a copy of your data by making a 'subject access request'.

● ***The right to rectification:*** You can ask for your data held to be corrected.

● ***The right to erasure:*** You can ask for your data to be deleted.

● ***The right to restrict processing:*** You can limit the way an organization uses your personal data if you are
concerned about the accuracy of the data or how it is being used.

● ***The right to data portability:*** You have the right to get your personal data from an organization in a way that is accessible and machine-readable. You also have the right to ask an organization to transfer your data to another organization.

● ***The right to object:*** You have the right to object to the use of your personal data in some circumstances. You have an absolute right to object to an organization using your data for direct marketing.

● ***How your data is processed using automated decision making and profiling:*** You have the right not to be subject to a decision that is based solely on automated processing if the decision affects your legal rights or other equally important matters; to understand the reasons behind decisions made about you by automated processing and the possible consequences of the decisions, and to object to profiling in certain situations, including for direct marketing purposes.

You should also know that you may contact the data protection officer if you are unhappy about the way your data or your participation in this study are being treated at dpo@ju.se .

By giving your signature below you agree to voluntary participate in this research, and that you have read and understood the information given above about your rights and data use.

Participant's Name & Signature: ________________________________ Date: 25/3-22

Agnes Olsson Löwerot Date: 25/3-22

Linnéa Nilsson Date: 25/3-22

9.2 Appendix-2: Interview Guide

Interview Guide

Introduction

Can you tell us about yourself?

What is your position & responsibilities? How long you've worked for X

About the company?

Does the company have a bonded warehouse?

Privately owned bonded warehouse

Outsourcing of bonded warehouse

For how long has the company used its bonded warehouse?

What types of products are placed in bonded warehouse? > why those?

Bonded Warehouse Motivation

Why did you decide to implement a bonded warehouse?

What were the main driving factors? (EX. Postponing payments? Exports?) Why did you

choose to outsource the bonded warehouse from a 3PL?
Why did you choose to implement a private bonded warehouse?

Bonded Warehouse Preparation

How did you choose the 3PL to outsource to?
How did you choose the location of the bonded warehouse? How did you plan for the implementation of the new process? Targets? Goals? Check points? Identified risks? Educate staff? Update software system?

Bonded Warehouse Implementation

How did you implement the bonded warehouse into your processes? What changes was made in administrative tasks? invoicing, EDI How did the processes change? customs clearance, transportation? How did you adapt IT and computer systems to the new process? How did the roles change? employ new personnel?

How did you train staff? (New rules/regulations, processes etc.) In which parts of the process did you see the biggest changes? How did the change to bonded warehouse effect suppliers?

Bonded Warehouse Evaluation

What benefits have you seen using a bonded warehouse? What have been the biggest and most important benefits?

What negative effects have you experienced using a bonded warehouse?
How long did it take until you saw any results? (Cost-savings etc.)
What have been the biggest challenges during the implementation of the bonded warehouse, and after?

Other

What would your suggestion be for companies who are looking to implement a bonded warehouse? Is there anything you would have done differently during this process?
What is something you wish you knew before implementing the bonded warehouse?