Digital Transformation in the Logistics Industry

An investigative analysis comparing the impact of digital transformation and consumer behavior on the business models of small & large logistics organizations
Abstract

Digital Transformation is an on-going process in the logistics industry. Every day, innovative and new technology is developed to streamline products to the customer as fast as they want it. The purpose of our study is to investigate how digital transformation and customer behaviour has affected the business model(s) of smaller companies compared to well established multinational companies in the logistics industry. The authors look and found the aspects of the business model that were impacted and if there should be adjustments made to better suite either the large or small organizations.
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1. Introduction

1.1 Background (Background of the problem)

There are many key disturbances that are challenging the livelihood and durability of logistics enterprises. From strongly funded and scrappy startups, to customers that turn to competitors and keen competitors creating completely new business models with other players, or simply acquiring them in that space (The Boston Consulting Group, 2018). The rivalries in the logistics ring is quite intense. The main purpose of logistics management is to create customer value “by utilization of a firm’s resources in order to maximize its competitiveness through its logistics chain.” (Lai, Wong, Cheng, 2008, p.274). Companies that integrate digitization into their business models are acquiring bigger pieces of market share away from traditional logistics organizations by offering more streamlined end-to-end services, and suppliers are as well digitizing their offerings and operations(The Boston Consulting Group, 2018). Adding to this difficult scenario is the fact that logistics is trailing mightily behind the digital curve compared to most other industries’ sectors such as media, telecommunication, banking, and retail (The Boston Consulting Group, 2018). The fact that the logistics industry displays poor transparency serves to exacerbate an already fragmented industry, traditional logistics companies are hounded by underutilization of assets, old and inefficient manual processes, and outdated customer interfaces that serve to decrease response times(The Boston Consulting Group, 2018). There are many key disturbances that are challenging the livelihood and durability of logistics enterprises. From strongly funded and scrappy startups, to customers that turn to competitors and keen competitors creating completely new business models with other players, or simply acquiring them in that space, which is the focus of the discussion here (The Boston Consulting Group, 2018). “The primary objective of digitizing logistics activities is to leverage the potential of IT to create customer value by delivering products to the right place at the right time in a cost-effective manner to fully satisfy customer requirements.” (Lai, Wong, Cheng, 2008, p.273).

Over the past two decades, as the internet revolution took the world by storm, everyone’s day-to-day lives have become increasingly digital. (World Economic Forum, 2016) With email streamlining passed ‘snail mail’ and digital downloads ousting physical products, this could well have dealt a devastating blow to the logistics industry. But as a matter of fact, something extraordinary has happened: more packages than ever before are now being shipped. On any given day, up to 85 million packages and documents are delivered around the world. (World Economic Forum, 2016) Logistics has brought about digital innovation at quite a slower rate compared to most other industries. This slower rate of digital adoption brings massive risks that, if left unattended, could be potentially calamitous for even the biggest established organizations in the business. As other industries with close links to logistics such as retail continue to be revolutionized by digital technology, the chances of digital disruption consuming the logistics industry continues to increase (for instance the rise of e-commerce) and has led to new digital competitors in the last-mile delivery market (World Economic Forum, 2016). Because of this, the use of information technology is helpful for “coordinating the logistics activities amongst partner firms, establishing electronic connections, and digitizing logistics activities to improve logistical coordination.” (Lai, Wong, Cheng, 2008, p.274).Digitizing logistic tasks would be considered an advantage to the stakeholders, including customers and suppliers, by providing an innovative connection to information.
This would make the chain more efficient based on cost, operations, and customer service. These types of electronic connections are beneficial for logistics management, “which requires the establishment of inter-organizational information networks and the construction of integrated logistics information systems.” (Lai, Wong, Cheng, 2008, p.274) More importantly, digital platforms will become increasingly crucial in the logistics industry, allowing smaller, more innovative companies to have a global reach and the opportunity to compete with the sector’s established giants. Over the next coming years, the race to build an effective global platform will transform the customer’s experience of logistics and will be the main issue in determining which enterprises will come out as the successors and failures in a legitimately digital logistics industry.

With the logistics industry suffering from some very significantly sloppy business models (for example, 50% of trucks travel empty on their return journey after making a delivery) digital transformation can also bring about important social and environmental benefits by increasing efficiency and cutting down in energy consumption, costs, and emissions. In the transportation and logistics industry, information management, transparency, data analytics, and the customer all play an important role. Ultimately, with each handling, shipping, and any other treatment of goods come processes, information flows, and communication. With the lines between digital and physical continually glaring, few industries are super-connected on all levels than those who are active in supply chains. In a day and age where customers want speed and have higher expectations, the transportation and logistics industry is challenged by just-in-time and near-real-time expectations. This not only because of the end customer or the many middle men, it is also because of costs, regulatory requirements, and ever-increasing competition. In today’s digital business reality, most old rules of logistics are still quite valid, but the concerns are higher than ever. It continuously moves faster and is far more assimilated with interconnected processes and data from several sources.

Digital business ultimately requires digital supply chains which also includes digitization of logistics. Digitization is a preeminent requirement and it is also revolutionizing the entire process (Schrauf, Bertram. 2016). Extreme digital transformation is taking place in several areas and is confronting its current position. Innovative uses of technologies in different operations such as the internet of things, data analytics, and the cloud are disrupting existing business models. Many different parties in the supply chain are accelerating at different speeds and challenging expectations and evolutions in the digital transformation economy. Although transportation and logistics management is quite a broad area, there is much progress made that applies to the sector as a whole and in truth lead to the digitization and digital transformation as an essential reaction. In turn, this requires several digital technologies to make this all possible.

Data and analytics are fundamental in speeding up processes, offering visibility to stakeholders (partners) and customers, digitizing value chains and, in a relation to digital transformation, creating new business models. In many sub-categories of transportation and logistics, it is mainly about disrupting or being disrupted with data and information at the bottom line. Thus, it immediately becomes clear which several digital technologies play a role in the industry. Most of them rotate around location, connection of devices, big data analytics, cognitive computing, and the many platforms where data is captured, processed, and leveraged.
New business models, facilitated by digital technologies and focusing on the establishment of solutions and value-added services, on top of cost reduction, are propelling digital transformations. As firms are beginning to understand that the more efficient they become due to improved logistics management (i.e. incorporating digitization) they would essentially try to continue to integrate more value added processes. “Operational and organizational structure modifications begin to be guided by asset utilization. In selected instances, firms recognize the importance of high quality customer service and seek to gain a competitive advantage by becoming highly responsive.” (Bowersox, Daughert. 1995, p.67) The transportation and logistics industry is especially information-intensive and has always been data driven. Digital capabilities and information supremacy are key to closing the existing gaps and transforming the business for better customer commitment, new business models, and facing the industry’s challenges. Transformation of an organization always begins at the top. As stated in the Digital Pulse Survey from Russell Reynolds Associates (2015), “Over a quarter of transportation and logistics companies still don’t have a digital strategy in place. Moreover, 80 percent of companies report that the CEO does not recognize the potential for digitization.” (p.4)

With the help of a good business model that organisations can understand, analyze, communicate and as well as manage strategic-oriented choices (Al-Debei & Avison 2010). The business model concept became prevalent with the advent of the internet in the mid 1990’s; this probably means the business model concept and the extensive use probably has been driven by the advent of the internet (Zott, Amit, Massa 2011). This implies that there is probably no clear understanding yet as to what the business model concept is all about especially with regards to digital or e-businesses. Since then, there has been a lot of research on the business model concept in the telecom industry (mobile technology), software industry, and e-governance but very little work has been done regards to the logistic industry (Al-Debei & Avison, 2010). Hence, the reason for the choice of the logistic industry. Al-Debai & Avison 2010 suggest that the concept of the business model is still, to date, considered a “buzz word” and the concept is underdeveloped and in many occasions has been misperceived as a substitute for corporate strategy or business process. In an attempt to define the business model, unlike previous authors who tried to give a specific or straight to the point definition of the concept, the authors adopted a slightly contrasting approach by providing different perspectives from previous definitions by other authors and leave the reader to draw a conclusion of what it is or what it is not.

There is no doubt the logistic industry and companies are transforming but the question is not if they are transforming but how fast is the transformation compared to other businesses in the same industry and outside the industry. The reason for choosing the logistics industry is challenged by just-in-time and near-real-time expectations. Both of these methods were introduced by Toyota and later adopted by Boeing which are both involved in manufacturing, aimed cutting out logistics and reducing the cost of storing the parts and equipment they use (Lai, Kee-hung.cheng, page 2 2016) This leads to a transition from ‘just in case’ which involves logistic companies to ‘just in time’ which cuts out logistic companies from the entire process Retail giants like Amazon and a lot of other companies in the retail sector are incorporating drone delivery to their services. This means a lot of retail companies who
rely on logistic companies for distribution of their good will be lost if adjustments are not made with their business models. (J. Conin, 2014, P.55)

1.2.2 Challenges within the logistic industry

The authors are looking to investigate the challenges that well established logistics companies have during digital transformation and compare them to smaller logistics companies. Because these large well established organizations have already developed digital business model, how can they use that to their advantage when new start up companies are joining in on the action and implementing these same tactics? The difference being that the large organizations had to transform while the smaller startups began digitized. There are multiple reasons, based on data gathered, that caused the large companies to withhold from transforming for quite some time. From employee pushback, to lack of expertise to lead digitization initiatives. Some companies even try to process through digital transformation without having an overall digitization strategy (Borreck, 2017).

1.3 The purpose

The purpose of this study is to investigate how digital transformation and customer behavior has affected the business model of smaller companies compared to well established multinational companies in the logistics industry.

2. Theoretical Frame of Reference

Logistics is growing in importance as a result of globalization, trade growth, and worldwide deregulation of transportation. (Lianguang, Hertz 2011, p.1004) Many firms outsource logistics services to logistics firms so that they may concentrate on the main business and take advantage of cost deduction, capital deduction, and improved flexibility. According to Lianguang and Hertz (2011) “The logistics industry has been growing constantly due to the growth of logistics firms and mergers and acquisitions in the market. Some logistics firms are even among the largest firms in the world today.” (p. 1004). Although this seems as a positive aspect to the future of the industry, due to the Internet of things and the ever growing industry 4.0, logistics firms must strategize so that they may adjust to the demand of E-commerce and not lag behind.

According to Flint, Larsson, Gammelgaard, and Mentzer’s article (2011), one of the main reasons that the logistics industry is considered to have lagged behind is because “logistics research has largely ignored the concept of innovation.” (p.113) The global marketplace, that continues to innovate it’s technological and affiliation options, has compelled businesses to search for new methods of innovation. From a strategic point of view, organizations (more specifically logistics organizations) must learn better and quicker than their competitors do through “proper alignment with their environments. Some organization should also consider learning to be a strategic resource creating a differential competitive advantage.” (Flint, et al. 2011, p.118) Logistics innovation is more likely to differentiate depending on the status at which the logistics provider studies about consumers desired logistics value.
As the industrial concept was developing so too was the logistics concept. The logistics industry was emphasizing on developing its main characteristics of “constant increase in requirements of producers for greater efficiency and customers for a higher level of service” (Maslaric, Nikolicic, Mircetic 2016, p.511) The state of overall logistics efficiency is not something to brag about. There is a need to develop a new concept of logistics organizations that challenges the ongoing and future industrial practices. The solution may be in a new operational, organizational, and management standard - the physical internet. The theory was first developed by Professor Benalt Montrevil of Laval University of Quebec, Canada and the core idea is “why not organize logistics activities in an open and shared network rather than in dedicated and specialized in a new era of interconnected logistics” (Maslaric, et al. 2016, p.511) This theory points to the need for logistics organization to digitize their business models. Digitizing the business models could give logistics companies to work in tandem to reach a mutual goal.

2.1 Digital Transformation

Digital transformation is enabled by the devices that deliver mobile connectivity i.e. smart phones, tablets, etc. The creation of different social networks (Facebook, Twitter) has also been a significant element to organizations going digital. Berman (2012) states that “these types of developments have ignited an exponential explosion in data, which in turn, needs powerful business analytics to make sense of the information and take full advantage of it” (p. 16). More and more customers are connected to each other due to digitization. This has caused organizations to adapt to the demand of these customers. Berman (2012, p.17) continues to state, “To succeed in digital transformation, leading companies focus on two complimentary activities: (1) reshaping customer value propositions and (2) transforming their operations/functionality for better customer collaboration and interaction” As information about the products continues to be as important as the products themselves, more and more companies are transitioning to the business of creating and delivering content. To survive and be efficient in the digital marketplace, organizations need a strong digital strategy.

Supply chain management speaks of having the right item in the right quantity at the right place at the right price in the right condition to the right customer (Lifang, Xiaohang, Yue, Jin 2016. p.395). Butner (2010 p.22) explains that “as always, cheaper, faster, and better has been the mantra for supply chain managers”. Unfortunately, supply chains are growing to be more sophisticated, expensive, ambiguous, and exposed. To deal with the increasing challenges, supply chains must become smarter. The new version of supply chain seeks to establish a large-scale intelligent infrastructure for merging data, information, physical objects, products, and business processes together. To achieve this goal, they must take full advantage of the improvements of several areas such as: semiconductors, computer science, and other engineering technologies (Schuster, Allenb, Brock 2007). Lars Huemer discusses how management of these logistics organizations operate based on their strategies, “Mainstream supply chain management essentially builds on the strategies, structures, and resource combinations that seem appropriate for manufacturers and retailers; that is, the organizations that are traditionally the supply chains primary actors.” (Huemer, 2012. p.258) Because these retailers are constantly moving to innovation and efficiency, so too the logistics organizations. Thus the need of digital transformation.
2.2 The effects of Digital Transformation in Logistics

The concept of Industry 4.0 has caused a ripple effect in practically every industry. Before proceeding to find out its effects in the logistics industry, it is important to first introduce what Industry 4.0 is and what it is not. Industry 4.0 focuses on the establishment of intelligent products as well as production processes. Factories in the future will have to deal with rapid product development, flexible products but in a very complex environment. Industry 4.0 will enable smart factories to exist in future. This means there will be communications between humans, machines and products. Information and communication technologies are one of the main reasons the marketplace is transforming. “Companies are deploying these technologies throughout the supply chain, thereby making businesses much more efficient and enabling them to produce a more diverse set of consumer products.” (Casals, Davis, Nemet. 2001, p.4). Once you incorporate low-cost computing, adoption of corporate internet, and innovative software development it allows the organizational actors to work together efficiently so as to meet the needs of the demanding customers.

To capture the opportunities created by the boom in ecommerce and the internet of things; retailing, manufacturing, and the logistics industries have all taken steps to make their business models more customer focused (World Economic Forum, 2015) As more data is acquired and processed, tasks can be self-controlled and interacted with humans via interfaces. Smart manufacturing environments will comprise of intelligent and customised products as well as the knowledge of their manufacturing process and consumer applications. This can independently lead the way through the supply chain. The results of automation towards self controlled system could lead to an extreme amount of data, which can be extracted, visualised and used for end to end engineering. (Brettel, Friderichen, Keller, Rosenberg 2014 p. 38) Because logistics and transportation is connected, they too must develop strategies to adapt to the changing market. The concept was developed due to a boost in production computerization. This occurs when physical structures are incorporated into information networks, it includes both horizontal and vertical integration of a massive number of systems that are diversified at all levels, which then leads to end-to-end solutions (Maslaric, et al. 2016, p.512). One of the core requirements for industry 4.0 is digital transformation. Digitization has been a major force of innovation all around the value chain. Companies need to push the digital transformation of their business so that they may stay efficient and succeed in the new market.

Masleric, et al. continues to write of “Five Pillars” that are considered to be critical for a companies likelihood of digital transformation: (1) Companies ability to build digital capabilities (2) Companies needs to enable collaboration in the ecosystem (3) Managing data as a valuable business asset in the aim to secure crucial control points (4) Companies needs to manage cybersecurity (5) Companies needs to implement a two-speed systems/data architecture to differentiate quick-release cycles from mission critical applications with longer turnaround times. (Maslaric, et al. 2016, p.513) “The view of logistics has changed from being a tool for cost savings to an enhancer of a company’s entire product and offering services, and the impact of logistics and supply chain management on overall firm performance has been well established” (Sandberg, Kihlen, & Abrahamsson. 2011 p.123). This goes to show the importance of logistics companies in terms of transforming. A company’s brand name is developed by the type of logistical
service they provide. Many of the logistics companies today provide other services other than logistics service but their product performance is based on the quality of service they provide. In the logistics industry, there is a large amount of data and information technology available that would help improve the use of current capabilities. It is almost entirely unavoidable that soon logistical transformation will take place in the relation of changing the manner of realizing the logistics processes so that these organizations may respond to the requirements needed of them. Maslaric, et al. (2016) then begins to introduce the concept of Logistics 4.0. They write that the drive towards logistics 4.0 as a base of industry 4.0 gives capabilities for new business models. The concept was developed due to constant information exchange, automated solutions and real-time big data analysis are among the attributes of logistics 4.0. It paves the way for new business models. (p.5)

Logistics 4.0 requires supply chain actors to work together simultaneously. Strandhagen, Fragapane, and Sharma (2017) expressed that sharing more strategic information between supply chain actors can improve the logistics performance for companies. Digitization of the supply chain industry has led to customer-oriented, individualized, and a more active logistics and supply chain. (Strandhagen, et al. 2017 p. 2) That is, the networking of people and things and the merging of the real and virtual worlds that is enabled by information and communication technology. It will be considered the most powerful driver of innovation in every industry, especially in logistics. Digitization has also enabled logistics companies to cooperate more but also, at the same time, to be a lot more efficient. These recent advances in information and communication technology plus the increasing pressure put on the manufacturing industry to digitize and automate has created many opportunities for logistics advancement. Production continues to become autonomous by connecting manufacturing, information technology, and telecommunications. This type of development paves a way for smart factories, in which machines and delivery chains will automatically assemble and organize themselves and each other (Strandhagen, et al. 2017 p.7) Furthermore, smart factories will convert information and orders into production plans and a type of flow for these processes. This cannot take place without implementation in their business model.

Looking at comparing a smaller company, or a startup, to a larger well established companies, it is noticeable that one has an easier time transitioning compared to the other. In this tech-enabled day and age, almost everything can be ordered from anywhere in the entire world. Nonetheless, traditional logistics services struggle to catch up. The smaller startups begin operations in an already digital era. They start off as digital so they basically only understand digital. The well-established MNC’s struggle due to the fact that they’ve lived an analog lifestyle for so long and they practically could owe their success to it. Unfortunately, it was never meant to last. These well-established MNCs are learning that to stay competitive, they must digitize. Though it can be quite the daunting task, it is a necessary one. The reason why the smaller logistic companies have been able to take advantage of the transformation so fast is because of their ability to establish the us E- logistics faster than the larger corporations. E-Logistics can be defined as the transfer of good and services using internet communications such as the world wide web or electronic data interchange, EDI (Gunasekaran and Ngai 2003 p.3) The author came up with a model that is composed of three components which enables logistic companies, big or small, to take advantage of the digital transformation process. This includes logistic structure, logistic processes and related activities, and information reporting systems.
Logistic structure includes participants in the logistic process, inventory storage points, distribution centers and warehouses. The process and related activities includes good customer relationship management, customer service procurement and demand management. The information report system drives information based on data collected and stored which include designing planning of information system, control and coordination as well as cross organizational coordination. Technologies involved here are intranet, extranet, internet world wide web, and EDI. These technologies will help both big and small logistic companies to facilitate integration of activities in the supply chain of logistic companies.

2.3 The changing customer demand & behavior

Besides information technologies and the process of digitization, consumer demands and behavior is one of the core reasons of the transformation of logistics companies. Rapidly changing customer demands, expectations, and behaviors has made it a full time job for companies that are trying to keep up the pace. These organizations must adapt and respond to the customer requirements or consider forking them over to their competitors. The initiator of the trend is a consumer who wants everything from cars, to computers, to clothing, to food whenever they want it-or as soon as possible.

Because globalization made it much easier for companies to enter new markets and conversely enable consumers to shop the world through online channels, logistic organizations had to learn to be more malleable. More and more companies today focus on developing their logistical process to better enable far improved customer service. By concentrating on manufacturing and suppliers, companies may yield more profit. Investments in manufacturing and supply-lines can generally drive substantial improvements in the shopping experience for much of their customer base.

Intensifying the challenge is a consumer experience that’s become incredibly personalized and specialized. This in turn translates into more customized orders, shorter delivery times, stricter compliance standards, and a complete intolerance for any shipment that’s delayed, wrong, destroyed/damaged, or any other cases that cause dissatisfaction. Today’s logistics network is moving closer and closer to the customer. The logistics company DB Schenker wrote a paper on how logistics companies are adapting to changing consumer demands. They wrote that shortening time from order to delivery is critical to a growing segment(125,782),(978,805) of the population. These days many consumers want their packages next day, same day, or even within an hour (DB Schenker, 2016). As the customers inclination continues to change, and as the difficulty connected to those changes continues to grow, the end-to-end supply chain has become principal for any company looking for operational efficiencies and other related improvements. Within the supply chain, the transportation segment is a focal point in making sure that the customers requirements and expectations are met, or better yet, exceeded.

While still somewhat small in scale, these solutions aren’t being brought about without need. Today’s customer demands complete control over their experiences. Brandon Johnson, a UPS Access Point Network Manager for the United States, wrote in the World Economic Forum (2015) that “no longer will third-party logistics providers be able to dictate when and where every package is delivered. The delivery experience will soon enough focus much more on the consumer and their unique needs for each individual
package.” (Johnson, 2015) Logistic organizations must prioritize to implement a new strategy into their business model(s).

2.4 Introduction to Business Model

Enabling digital transformation are devices like mobile connectivity such as smartphones and tablets as well as social networks platforms like Facebook, Twitter and Instagram. These platforms has had tremendous impacts on the amount of data being generated and which in turn requires powerful business analytics to help make sense of all this data and take full advantage of it (Berman 2012 p. 16) consumers range if choices have gone beyond the influence of traditional marketing. Decisions about where to buy are increasingly being shaped by social networks and new technologies. the end of 2011 saw a tremendous raise in smart phones and tablets. As well as downloads of apps surged from 11 billion in 2010 to 77 billion in 2014 (Berman 2012 p. 16). With social media connectivity growing by the day, business needs to get ahead of the widespread forces for change in this digital age. Key areas according to the author include configuring consumer value proposition that is what is being offered which is one of the most important components of the business model as well as the operational model which is how it is delivered. Most logistics companies are faced with the challenge about how to reshape their product and services. Information and consumer engagement have also been reshaped as a result of mobility, interactivity and information access. Furthermore the challenge most companies face is their ability to monetize these new customer value propositions as a result of digitisation (Berman 2012 p. 17) Based on previous research, and industry experience strategic routes to transform can be summarized into three categories: (1) Focusing on consumer value proposition (2) Transforming the operating model (3) combining those two approaches by simultaneously transforming the customer value proposition and organising operations for delivery.

Companies that existed way before the digital transformation began, will not begin from zero instead they will just try to build on top and try to transition like finding ways to use digital information to provide interactive websites improve customer services as well as improve customer experience and satisfaction

2.4.1 The Business Model Concept

Many businesses go beyond improving products, services as well as production processes. Digital transformation also changes the economic characteristics of organizations, and most importantly, businesses get affected. It is obvious that the business models will be affected but what is not so apparent is how this is going to happen and as well as understanding the features driving business model innovation as a result of digitisation. The second part of the theoretical frame of reference is aimed at giving the reader a background of what digital modeling is all about.

That being said, the business model is a fundamental part of every organisational strategy. It is considered a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm (Sandberg, Kihlen, Abrahamsson 2011) It is a description of the value a company can bring to one or many sections of customers and of the architecture of the organization and its chain of partners
for creating, marketing, and delivering this value and relationship capital, to create profitable and sustainable revenue streams (Sandberg, et al. 2011). The business model is further explained in depth with the statement “It is a set of activities a firm performs, how it performs them, and when it performs them as it uses its resources to perform activities to become profitable, given its industry, to create superior customer value and put itself in a position to appropriate value (Sandberg, et al. 2011). This is as a result of the fact that it is only with the help of a good business model that organisations can understand, analyze, communicate and as well as manage strategic-oriented choices (Al-Debiei & Avison 2010) The business model concept became prevalent with the advent of the internet in the mid 1990’s; this probably means the business model concept and the extensive use probably has been driven by the advent of the internet (Zott, Amit, Massa 2011)This implies that there is probably no clear understanding yet as to what the business model concept is all about especially with regards to digital or e-businesses.Since then, there has been a lot of research on the business model concept in the telecom industry (mobile technology), software industry, and e-governance but very little work has been done regards to the logistic industry (Al-Debei & Avison 2010). Thus, the reason for the choice of the logistic industry. Al-Debai & Avison 2010 suggest that the concept of the business model is still, to date, considered a “Buzz word”and the concept is underdeveloped and in many occasions has been misperceived as a substitute for corporate strategy or business process.In an attempt to define the business model, unlike previous authors who tried to give a specific or straight to the point definition of the concept, the authors adopted a slightly contrasting approach by providing different perspectives from previous definitions by other authors and leave the reader to draw a conclusion of what it is or what it is not.

According to (Amit & Zott 2001) and (Zott & Amid 2010), “the Business model concept portrays the content, structure and governance of transactions designed to create through exploitation of business opportunities” Furthermore, Timmers (1998) defines business model in a digital context as “an architecture of the product services and information flows including a description of the potential benefits for the various business actors, a description of the sources of revenue.” While Magaratta (2002) defines business models as “stories that explain how enterprises work.A good business model answers the Peter Drucker’s age old question of: who is the customer? What does the customer value, also answers the fundamental question every manager must ask that is: How do we make money in this business? How can we deliver value to customers at an appropriate cost? 

Tooboom (2016) in his article identified four business model dimension common with digital businesses. These elements are: value proposition, value architecture, value finance, and value network. Value proposition tires to answer the questions ‘what services and products is the organization in question going to offer its customers?’ what is the intended value incorporated in the offering? Who are the target segments or customers most likely to consume the product or services (Heje at al 2010) (Timmers 1998). Value Network consist of actor, role, relationships, flow-communication, channel, and governance. This has to do with the organisation collaboration with customers, suppliers, partners, third parties and other intermediaries (Heje at al 2010) (Timmers 1998). Value Architecture includes core resources, value configuration and core-competencies. Value architecture provides a broad plan that specifies all necessary arrangements that enables organisations to operate efficiently and effectively. This
includes organisational infrastructural mindset needed by organisations to provide desired services (Heje at al 2010) (Timmers 1998) (Al Debai and Fitzgerald 2010) Value Finance is composed of three main design concepts which are: total cost of ownership, pricing-methods, and revenue-structure. This is also a description of the most important arrangements needed to ensure the economic viability of the offering which involves costing and pricing methods. This is also about how revenue is generated and its distributed.

2.4.2 Business Model Innovation

In times of great transformation of industries from analogue to digital, executives, managers and entrepreneurs are looking for new opportunities of competitive advantage that is different from that which is already existing (Eksell and Harenstam 2017 p.7). Business model innovation consist of two elements, value proposition and operational model. Value proposition answers the following question: what is the business offering? and to whom? This leads to three dimensions. Target segments that is which customers does the business choose to serve and which of their needs do we seek to address? Product or service offering what is the business offering to the customers to satisfy their needs? And for the revenue model, how does the business get compensated for their offerings? For the operating model, it seeks to answer the question how can products and services be offered profitably and this looks at business choices in the following domain.

Value chain: how is the business configured to deliver

Customers demand: What is it to be done in-house and what is to be outsourced?

Cost Model: How does the business configure their assets and cost to deliver on their value proposition profitably. And for organisation how does the business deploy and develop their employees to sustain and enhance their competitive advantage (Lindgardt, Reeves, Stalk and Deimler 2009 p. 2 and 3). Business model innovation can further be divided into two parts, business reconfiguration and business model design. Reconfiguration is the modification of the existing company’s business model. This applies to companies that are in the process of transitioning from analogue to digital while the business model design refers to creating a new business model for newly formed organisations. This for the study would apply more to smaller businesses.

2.4.3 Business model Framework

Within the studies of business models, there are frameworks which help design business models for organisations. In addition to the above mentioned elements, value proposition, value architecture, value network, and value finance, all form a framework called VISOR, will be the first framework to be examined.

VISOR Business Model Framework
Designed for networks and digital companies, it helps develop IT intensive business models consisting of five different elements: Value proposition, interface experience, platforms organisational model and the revenue and cost model (Tolboom 2016)

2.4.4 Business Model Canvas

Aimed at guiding business designers through creating, delivering and capturing value. The canvas can also be viewed as a pre-structured conceptual map intended to guide businesses through a structured conceptualisation for evaluation and contains 9 building blocks. Can be applied to a wide variety of organisations and industries. The business model canvas is made of the customer segments, value proposition, channels, customer relationships, Revenue streams, key resources, key activities, key partnerships, and cost structure (Osterwalder & Pigneur 2010)

The business model canvas is the main criteria in this study for comparing how businesses have transitioned has nine building blocks. This nine blocks can be broken down into two essential elements that is value proposition and operating model. (Lindgardt, Reeves Stalk and Deumler, 2009 page 2)The value proposition model involves; target segments this is aimed at finding out which customers the business is out to serve? And which of the customers’ needs does the business seek to address. Product or service offering is another aspect of the value proposition which defines what product or service the business is offering to the customers to satisfy their needs and the last aspect of the value proposition is the revenue model which answers how to get compensated for the offerings. For the operating model, its aimed at addressing how profitable the business is going to deliver on the goods and services. it contains three critical areas as well. First the value
chain, this is how businesses are designed to deliver on customer demand it goes further to answer the question what is being done in house and what's being outsourced. Furthermore the cost model strives to answer how the assets are configured and at what cost does the business deliver on their value proposition profitably. Finally the organisation itself has to deploy and develop their employee to be able to sustain and enhance competitive advantage. (Lindtgard et al 2009 p2)

2.4.5 The entrepreneur's business model

An entrepreneur's business model contains three building blocks. The first is the fundamental level, describing basic components of the business model. The second describes the different ways its operates as well as create unique combination of products and services for an organisation. And the third is just the basic set of operating rules. The Model is comprised of value proposition, customer segment, internal capabilities, competitive strategy, finance architecture, strategic positioning.

2.4.6 C-Soft/STOF

C-SOFT is an extension STOF so they are somewhat similar. The model is mostly used by service, technological, and financial organizations. Referencing the technological aspect, this can also be used for ICT related services and platforms. The model is made
up of customer relationships, service domain, and technological domain, organizational domain and finance.

Some of the technologies that are responsible for digital transformation are the rise of social media, mobile technology and cloud technology. This technologies are responsible for the disruption of most business models in different industries. A good framework should be one which is able to measure the effects of every kind of digital business regardless of the industry to ensure all potential effects are under measured and control. According to Tolboom (2016), VISOR and C-SOFT are designed specifically for networking, digital platforms and ICT services therefore, VISOR and C-SOFT would not be very appropriate for measuring the effects of digital transformation for businesses out of the above mentioned domain.

The value proposition for the visor model explains why the customer would value a company product and services and will be willing to pay for them this not very different from the function of value proposition on the business model canvas. The Visor differs from the business model canvas in that it has an interface which plays a vital role in guiding businesses that use it in successfully delivery of products and services. User interface refers to ways customers interact with the company as well as value delivery methods. Visor suggest that interface for value delivery for between customers and companies should be accessible, easy to use, simple and convenient. (Sharma and Gutierrez 2010 p. 36 and 37) Services platforms support and improve value proposition facilitates and helps shape business processes as well as relationships needed to create value and deliver products. Revenue and cost sharing for the visor framework, revenue must exceed the investment and all partners draw a reasonable return on investment to stay involved in the value chain (Sharma and Gutierrez 2010 p. 36 and 37)

2.4.7 Choice of model
The business model canvas has more building blocks which has clear and distinct building blocks and represents more organisational aspects. The entrepreneur's business canvas has many similarities with the business model canvas; such as the value proposition and customer segments, but the business model canvas has more elements and explains how value is delivered and established in the process. Comparing with entrepreneur’s model, it doesn't explain much especially on key resources and partnerships needed to deliver as well as value propositions. Therefore the business model canvas emerges as the best framework to be used.

2.5 Research Question

- What aspects of the business model has been affected by digital transformation for both the small and large organisations?
- How has the role of the customer affected the transition to digitisation?
- Is there a difference between how large and small logistics companies strategize to embrace a digitised business model?

3. Methods

3.1 Research Philosophy

Interpretivist believe reality is not objectively determined. By placing people in social context there is a greater opportunity to understand their perceptions. Interpretivism promotes qualitative data (Kelliher 2011 p. 123) Interpretivist argue for the uniqueness of human enquiries (Schwundt 1998 p.223), (Kelliher 2011 p. 123) supports this claim when he said Interpretivism is concerned with the uniqueness of a particular situation which contributes to the underlying pursuit of contextual depth. This research philosophy fits in perfectly in the context of digital transformation with regards business model in that a lot of businesses and startups are not quite sure about how to transform especially in the logistic industry and neither are they sure about which aspects of the business model will be affected. The interpretivist approach helped the researchers to get the right results for every interview that has been conducted From an interpretive perspective, the authors wouldn’t benefit from working with large data sets, since this would inspire a positivist mentality towards conducting and analysing interviews. “It would be thought out to be too simplistic to present very short decontextualized extracts from interviews instead of how the interviewees understand their activities in any sense” (Travers, 2001). This cannot be fully comprehended gathering and analysing objective data. This leads to Interpretivism which will be more suitable for research philosophy for this paper compared to positivism because it helped the authors gain more insight on the effects of digital transformation on business models of the organisation’s that were interviewed.

Furthermore, the nature of the research involving small businesses such as JUNE Express and Transcord AB is best suited for an interpretive qualitative approach. This resulted in a good understanding of key issues by reducing the gap between the researcher and the managers or decision makers in the organisation. The researchers
involvement enabled them to develop practical and theoretical understanding as well as generate new theories and concepts. Also, social aspects as well as the continuous interactions with respect to business modeling and digitization in organisations. This is an approach to which Interpretivism is ideally suited. The researchers were interested in gathering several responses in regards to digitisation of business models and this required the authors to make use of subjective data (Ponelis, 2015 p.538)

3.2 Trustworthiness

For validity and credibility, Lincoln and Guba (1985) had implored qualitative researchers to “Be in the setting for a long period of time (prolonged engagement); share data and interpretations with participants (member checks); triangulate by gathering data from multiple sources, through multiple methods, and using multiple theoretical lenses.” (Marshall, Rossman 2016 p. 7)

Internal validity is one of the key criteria addressed by positivist researchers. Qualitative researchers deal with the question how do the findings agree with the reality? According to Guba and Lincoln, credibility is one of the most pertinent factors in establishing trustworthiness. The researchers gave participants the opportunity to reflect on situations where they needed help understanding the questions. The researchers were very familiar with the culture of the companies they took part in the research for instance on of the researchers actually works for one of the companies that’s DSV AB. This helped to build understanding about the culture all four organisations that took part. Furthermore, in order to ensure the validity of the information the participants give the authors willingly, the interviewees are given the option to reject in case they have a reason, and to uncover deliberate lies, and get detailed data. The researchers made extensive use of iterative questioning. By doing so, the researchers were able to detect information that did not correspond.

As concerns to reliability/ Confirmability, this refers to consistency or stability of a measure. Multiple and independent methods, even though unique, should reach the same conclusion. This could increase the reliability (Kelliher 2011 p. 123). This thesis was made up of several cases with 10 interviews, with some interviews from top management positions to employees. This research started with a broad research question and established a systematic data collection process that the researchers made use of by asking semi-structured interview questions. The aim of this was to create strong triangulation measures. Cho and Trent (2006) argue that “historic approaches to ensuring validity (including the work of Lincoln and Guba, 1985) can be described as transactional, involving participants in the research project to validate themes, interpretations, and/or findings.” (Marshall, Rossman 2016) Descriptive observation was combined with the interviews as well as documentary sources from websites of the companies. The researcher also made use of triangulation which involves collecting data from multiple sources that is interviews, participative observation, and the articles that were used for the theoretical frame of reference.

Validity/ Transferability according to (Kelliher 2011 p. 123) qualitative research depends on solid descriptive data. This helps the researcher lead the reader to be able to understand the meaning of experiences under study. Validation is an interpretive understanding of the truth. According to the author, triangulation will be an alternative and not a tool or strategy. Data triangulation helps to strengthen validation in the
absence of cross case comparison (Kelliher 2011 p. 123) The researchers, to validate their findings through triangulation, connect the themes developed through the data and triangulate it to field notes, descriptive observation, and also academic articles. In order to compare how digitisation has affected the business models of small logistic companies compared to the larger companies, the researchers used the business model canvas as a tool for measurement but they also made sure to make use of other business models which could also be tested against the same companies. The researchers then compared the theory on smaller logistic companies and comparing it to the larger ones.

Dependability is important to trustworthiness because “it establishes the research study’s findings as consistent and repeatable.” (Marshall, Rossman 2016 p. 40) Researchers are trying to make sure that their findings are consistent with the raw data that they’ve gathered. The authors can confirm dependability through the series of 5 feedback sessions given throughout the length of the research. Multiple groups of researchers plus a supervisor read through the data and conclusion and gave the authors beneficial insight on the process of data collection to reaching their findings.

3.3 Research Approach

For this case study, the authors used an inductive approach to analyze the data. According to Goddard and Melville (2004) “an inductive approach starts with the observations and theories that are proposed towards the end of the research process as a result of observations.” (p.145) The authors, including collecting data from interviews, collected data based on descriptive and participatory observation. The fact that the authors had access to the offices of these logistics companies and also one of the authors works for one of the companies, made the inductive approach more promising. Studying and taking footnotes of the work environment and the several expressions at work allowed the authors to interpret several interview transcripts.

According to Bernard (2011), inductive research “involves the search for pattern from observation and the development of explanations-theories-for those patterns through series of hypotheses.” (p.7) With the initial data gathered, interview transcripts plus observation, the authors took their theory and recognized the patterns between the two compared groups; small and large organizations. With that theory they developed a model which was a result of the patterns created from the data gathered.

3.4 Research Design

The researchers chose the inductive research approach. The researchers interviewed 4 logistics companies, both employees and their supervisors, on how digital transformation was used to facilitate their services and found out the challenges they dealt with throughout the transition from analogue to digital. The researchers to compared and contrasted the types of new business models developed between small and large companies and if the transition in general was smoother than the other. The purpose was to get a feel of what’s going on, so as to understand the nature of digital transformation in this industry and how it has affected not only performance but also the behavior of the consumers that use the services of companies within the logistic industry (Saunders, Lewis and Thorhill, 2009 p. 126) An inductive approach was essential for this thesis because it helped shape the understanding of the way the
employees understood digital transformation as well as their interpretation of the effects
digital transformation had on the way value is created before and after the
transformation. The reason the researchers made use of induction is to help gain an
understanding of how the employees have adapted to digital transformation and how it
has affected the business model compared to the time before the company transformed.
This information helped the researchers interpret if this has affected the business model
because even if some of the interview questions are based on the business model or not.
For better understanding, the researcher had to break it down to simpler questions since
most employees being interviewed do not have a business administration background.
This gave the authors more reason to use Interpretivism and the researchers also made
use of triangulation which involves gathering data from multiple sources as the authors
made use of participatory observation because one of the employees works at DSV in
addition they used interview and the information gathered from interviews. This
research approach was most suitable because of its flexible nature to permit changes of
research emphasis as the research progresses (Saunders, Lewis and Thorhill, 2009 p.
127) Furthermore the approach was most suitable with the qualitative method.

3.5 Data Collection

The authors conducted multiple case studies for DSV road AB and UPS as their well-
established multinational companies and compare them with smaller companies JUNE
EXPRESS, and a local start-up in Jonkoping called Transcord AB. The authors chose the
multiple case study because the ultimate goal is to discover patterns, determine and
interpret meanings, construct conclusions, and build theory (Kohlbacher, 2006) The
authors understand that there is some work being done on digital transformation and they
are trying to find out to what extent and at what rate does this transformation impact
certain aspects of the business model. The authors also considered the impact on the
customers and the employees. The authors identified a research gap relating to the
question on how digital transformation has shaped business models of both small and
large companies in the logistic industry as well as the outcomes of this transformation is
not yet certain in this industry. To address this problem, the authors gathered a good
number of articles from previous research that helped give a better understanding of the
different perspectives on digital transformation, the ever changing consumer behavior,
and business models in general.

Based on the literature review and research question, the authors developed semi-
structured interview questions. The questions helped the researchers identify why these
organizations use these types of business models as well as the advantages and
disadvantages of digital transformation on the different services they offer. These
questions weren’t necessarily asked straight forward but rather through a series of broad
questions while funnelling through the themes with follow up questions. The authors
also aimed at identifying key drivers of their business model(s) and found out if there
was any influence from digital transformation. Finally, they identified the challenges
that these organizations encountered in their effort to implement these models. As a
result, the authors interviewed 4 companies with several employees from different
departments. The authors diversified the types of employees in each of the organization
so as to identify any bias if it existed. Every interviewee has his/her own story and
perspective so the authors developed an interview guide for the background of the
interview that enabled them to ask additional as well as follow-up questions to be able
to clarify some answers from the interviewee as well as make use of their observations (See Appendix for interview guide). These interviews helped the authors collect further information concerning the business model(s) being used and additionally helped the researchers understand the impact of digital transformation on the organizations.

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<tr>
<th>POSITION HELD</th>
<th>COMPANY</th>
<th>LENGTH OF INTERVIEW</th>
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<tbody>
<tr>
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<td>UPS</td>
<td>45 Minutes&gt;</td>
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<tr>
<td>Customer Service</td>
<td>UPS</td>
<td>30 Minutes&gt;</td>
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<tr>
<td>Director</td>
<td>DSV</td>
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<td>Director</td>
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<td>Business Manager</td>
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<tr>
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<td>JUNE EXPRESS</td>
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<tr>
<td>Owner</td>
<td>TRANSCORD AB</td>
<td>60 Minutes&gt;</td>
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### 3.6 Data Analysis

In this thesis the researchers made use of primary data and descriptive observation that justified the reason for choosing Interpretivism. Descriptive observation, according to Bill Graham (2000) is a form of observation where the authors look at the setting, the people, the activities, events, and apparent feelings (p.46) This is because during the data collection process if the authors cannot get a response to all the questions they pose, then they will make use of observation where necessary, which could be helpful since these interviews will be face to face interviews at the branch offices. Having access to the employees work space will enable the authors take a closer look at the work environment which could be of great use to drawing inferences about the efforts being made to incorporate digital facets to their business model. With this type of information, the authors are aiming to create a ‘chain of evidence’, as written by Graham (2000) “What you are looking for in, particular, are different kinds of evidence bearing on the same issues in the research. These multiple sources of evidence, which have to be woven into our narrative, alongside that chain of evidence, comes our interpretation of it.” (p.20) With all the interviews, academic articles and descriptive observations, the authors triangulated all the data so as to maintain strong evidence. The authors, with the transcripts of interviews, case studies, and observations, linked the patterns so as to determine key words and draw their conclusion.
Interpretivism relies on both the trained researcher and the human subject (interviewee) as the instruments to measure some phenomena, and mostly involves both observation and interviews. “The interpretive inquirer starts with the view that situations cannot be fractured into variables.” (Thomas, 2011 p. 171) The authors have to study the meaning that the people are creating based on the situations that they are in and they followed these meanings so as to understand the social world. The basic principle of the process of continuous comparison is that the authors develop themes that summarise the basis of their data. The interpretative inquirers collect data based on interview transcripts, informal observations, and so on. They then analyse these using a constant comparative method. “It is the basic method of interpretative inquiry. There may be many bells and whistles that are added to the constant comparative method, but, however elaborate, it will always be defined by the simple principle of going through data again and again, comparing each element-phase, sentence or paragraph with all of the other elements.” (Thomas, 2011 p. 171). To understand the data the authors collected (interviews, descriptive observation, participatory observation) the authors followed the aforementioned constant comparative method to elicit themes that summarise the essence or essences of the data. (Thomas, 2011 p. 171). Once these themes were developed, the authors created temporary constructs to compare to the raw data once more. The data is continuously read through and compared to these temporary constructs so as to create second-order constructs that look like a good fit with the data. Once the authors were satisfied with the themes and how they captured the essence of the data, they labeled them final themes.

3.7 Case Selection

The study was based on two startup logistics companies and two well established multinational companies. DSV, UPS, Transcord AB, and June Express. DSV is a Danish logistic company with headquarters in Hedehuene, Denmark; they are listed on the NASDAQ Copenhagen with offices in more than 80 countries and employs more than 40 thousand people, with a huge network of partners and agents worldwide. DSV S/A is the parent company and the organization is divided into five divisions: DSV Air, DSV Sea, DSV Road, DSV Solutions, and DSV Project transport. The study is focused on DSV Road AB, which is the main terminal at Torsvik, Jonkoping which is one among the 17 locations in Sweden. UPS is an American multinational package delivery company listed in the New York stock exchange with over 400,000 employees worldwide. These two companies will be who the authors study as the large well established logistic companies.

Transcord AB is a Swedish based start-up logistics company located in Science Park of the Jonkoping University, Sweden. It has been around 2 years now and has only 1 full-time employee (owner) and a few interns. They basically work by hiring other logistics companies to transport goods for their customers from factories to warehouses to stores, etc. June Express is a family owned company also based in Sweden. They typically work for DSV in most occasion, used for extra trucks, but they mostly have their own distribution. These two companies will be the samples for smaller companies.

3.8 Ethical considerations
All research conditions would be deemed invalid if the authors only try to use the case study method to validate a preconceived notion. Researchers are most prone to getting into this situation because they must understand the topic/issues beforehand, and this understanding may outcast them towards supportive evidence and away from contrary evidence; biases (Yin, 1994). As researchers, aim to reach the highest ethical standards when conducting research (i.e. race, sex, etc.). The authors will aim to gain informed consent from all persons who may be part of the research by letting them know of the nature of the case study and formally seeking their volunteerism in participating. They will also protect those who participate in the study from any harm, including avoiding the use of any deception in the case study. They will also protect the privacy and confidentiality of those who participate so that, as a result of them participating, they will not be unwittingly put in any undesirable position, even such as being on a record to receive requests to participate in future study, whether conducted by the authors or anyone else. The authors will take precautions that might be needed to protect vulnerable groups. No group in the research are unjustly included or excluded.

4. Empirical Results

The study is composed of four case studies the first is a multinational logistics company, the first being DSV, then there is JUNE express, a local family owned business; a startup from the science park called Transcord AB; and finally UPS (United Parcel Service) an American multinational package delivery company and a provider of supply chain management solutions. Through each case, the authors try to identify what aspect of the business model was impacted due to digitisation and change in consumer behavior. If there is a part of the business model not mentioned in the description of the case, then there were no identified changes to the field. The authors also question whether being a large or small firm helped or hindered their progress to digitize.

4.1 JUNE Express /JETPARK

As already mentioned above JUNE express is traditionally a logistic company and offers a few digital services. They provide a digital platform through which they offer services to their customers (i.e. tracking drivers, last location of goods, invoicing, etc.) Their customers are both private individuals and other businesses. In other words, they run a B2B, truck rental to logistic companies with higher volumes and a B2C, package delivery for individuals. In order to offer quality services, JUNE express has a tracking system for their vehicles. From the business model perspective, based on the interview, digitisation has only changed a few aspects of the business model. The business model canvas will be used to analyse the interview transcript form JUNE express.

**Digital Key Partners:** The main digital key partner for JUNE express is Vehco a company providing digital tracking device system for JUNE express

**Key Digital Activity:** JUNE Express’s key digital activity is providing a platform for its customers to be able to send orders online and also a platform to through which it can send orders to divers to pick up deliveries.

**Value Proposition:** They have contracts with other logistics companies (DSV being one of them) to send out vehicles to make deliveries for them. The platform that they use is easily accessible to customers and updates regularly. 24 hours a day service.
**Customer Relationship:** June Express has two types of customer private individuals who want their parcels delivered and companies with high volumes of deliveries who hire trucks from JUNE Express. Both customers are served through the website of the company. Because of this the customers stay up to date on their goods.

**Key Digital Resources:** Fleet 101 Vehco

**Channels:** The customer is normally reached through email or phone, but the company maintains a website for customers to make orders and they can track and trace where their goods are.

**Cost Structure:** Website, Payment for tracking service (Vehco), Outsourced IT

**Themes:** Digital platform to track drivers, Customer satisfaction and retention,

### 4.1.1 Digital Platform

When asked of the initial transformation of the company, the part-owner of the company had little trouble remembering exactly when and how the entire process occurred. It was around the mid-2000s when JUNE Express started getting pressured by other logistics companies that offered more digital services to their customers. Noticing this, he introduced a digital initiative. At the time, the most digital activity performed was basically emailing other customers. Everything else was kept incredibly analog (information on paper and held in files).

They introduced tracking devices on their trucks and they manage each one of them by researching several factors (i.e. mileage, amounts of stops, gasoline consumed, etc.) The tracking of the trucks is all real-time. With that, they can also hone in on the exact route the drivers take or are taking. This type of tracking is done countrywide because most of the orders they receive are local and that gives the tracking added capabilities. The process ended up being incredibly beneficial, when looking through the lense of efficiency. Before any of this, there would be analog inspections of vehicles to check and confirm each of the aforementioned factors. The company would also introduce a new digital platform. They also introduced a platform that would allow customers to make and track their orders through their own computers called Fleet 101 Vehco.

Initially the following steps would occur: (1) Customer makes an order through the platform (2) the traffic leader would be notified of said order then move along to approve the order (3) the driver would then be notified to either send or receive then said the order. The driver would be notified of the order via an application on their smartphones. The driver would then know exactly when/where to pick up then drop off whatever package is needed of him/her. The entire process of order to notification to update only takes a matter of minutes. This type of efficiency helps with customer satisfaction. Taking advantage of said digital technology is one of the reasons JUNE Express is successful “The primary objective of digitizing logistics activities is to leverage the potential of IT to create customer value by delivering products to the right place at the right time in a cost-effective manner to fully satisfy customer requirements.” (Lai, Wong, Cheng, 2008, p.273)

In terms of cost, the competence of the system JUNE EXPRESS uses has helped them with cost reduction in the long-run. Because they can track their drivers,(and etc.) they can measure several methods of cost reduction. With this, they improved their business.
model. New business models, facilitated by digital technologies and focusing on the establishment of solutions and value-added services, on top of cost reduction, are propelling digital transformations. As firms are beginning to understand that the more efficient they become due to improved logistics management (i.e. incorporating digitization) they would essentially try to continue to integrate more value added processes.

At their time of growth (digitization) the company had not considered the risk of digitization because their competitors themselves were transforming their business models. They did consider the fact that would be costly but they understood that it would be worth it. The company’s main focus during the transformation was looking at the long-term results because he had mentioned it was difficult in the beginning due to the company being almost completely analog. The company nevertheless believed it would be a great idea. They wanted to maintain a competitive advantage and they believe they’ve done just that. Surprisingly, there was little to no structural organizational changes. They did not see a need to hire/fire anyone because they trained their employees quite well in their eyes. Because they incorporated new digital technologies, rather than hiring their own IT department, they outsource all their IT needs to another company.

4.1.2 Customer Satisfaction and Retention

Another aspect of the tracking that the interviewee expressed was how they can track to the most minute detail. They could easily track how slow/fast the driver is driving, in real-time, to maintain steady efficiency. Even when the truck makes stops, the traffic leader could also keep tabs on it. Because the company works locally, they charge by the hour. It helps when a customer complains claiming they only used 4 hours of truck service but was charged for 5. The traffic leader can always go back and find out if he needs to ratify the situation. Looking at the business model canvas, this would heighten their value proposition. Also, because they gained new private and large corporate customers, their key resources grew larger (in terms of how many more vehicles they own and deploy plus warehousing). In the long run, the digital transformation that occurred restructured their value proposition and strengthened their key resources.

In terms of customer demand, the director stressed how important the system is to them. He mentions that if they aim to stay competitive, they must transfer the orders of customers into their system. Larger companies (customers) only want suppliers with that system. It’s the advantage that they have over other suppliers. Though other suppliers might be cheaper, these same suppliers can’t offer the same services as JUNE EXPRESS. They get, and maintain, a lot of business because of the system.

4.2 DSV

DSV, a Danish logistic company with headquarters in Hedehuene, Denmark. They are listed on the NASDAQ Copenhagen with offices in more than 80 countries and employs more than 40 thousand people, with a huge network of partners and agents worldwide. DSV S/A is the parent company and the organization is divided into five divisions: DSV Air, DSV Sea, DSV Road, DSV Solutions, and DSV Project transport. The study
is focused on DSV Road AB, which is the main terminal at Torsvik, Jonkoping which is one among the 17 locations in Sweden. DSV is considered a major competitor in the Swedish logistics market and the authors also had access to observation and experience through the director and several employees.

**Key Digital Activity:** DSV’s key digital activity is providing a platform for its customers to be able to send orders online and also a platform that allows them to send orders to divers to pick up deliveries.

**Value Proposition:** The fact that the company has been around for over 40 years, they’ve maintained relationships with large organizations. The platform that they use is easily accessible to customers and updates regularly. Both the large organizations and private customer they deliver for has access to find where the driver with their goods is located.

**Customer Relationship:** DSV maintains relationships with two types of customer; private individuals who want their parcels delivered and companies with high volumes of deliveries. Both customers are served through the website of the company. Because of this the customers stays up to date on their goods.

**Key Digital Resources:** CARGOLINK (Track and trace service), S.O.P.

**Channels:** The customer is normally reached through email or phone, but the company maintains a website for customers to make orders and they can track and trace where their goods are.

**Cost Structure:** Website, Payment for tracking service (CARGOLINK) and other software used by higher ups (S.O.P.)

**Themes:** digital transformation, hierarchy, customer satisfaction, training difficulties, future outlook

**4.2.1 Digital Transformation**

The first two interviewees worked at DSV for 2.5 and 17 years respectively. They held the positions of coordinators. The coordinator of 17 years would recall a time when the company was completely analog. He expressed in terms of it was basically pencil to paper. He explained at the time, though it seemed simple, there was contingency in the manner they performed their jobs. It was seen through the mistakes of shipment times, coordination, etc. They had eventually introduced a program, somewhere between 5-8 years ago, called CARGOLINK. The program was an upgrade compared to how the company had once functioned.

Although, about 6 months ago, the company had updated the program to make it faster and easy to use for the employees. The new system is basically only faster and has the ability to be used in different languages. The old program only functioned in English but now the new program allows them to use it in the Swedish language. They mentioned that it made work much easier for not only them but also for the drivers since they are a bit older and have a tougher time understanding English. Initial opinion of the newer program was positive due to the updates and increase in speed which then equals more efficiency. They considered the newer program easier to understand. For the entirety of their jobs, they use a SCANNER and the computer program CARGOLINK to locate shipments and to locate their drivers real time.
The program basically runs almost identical to JUNE Express’s Fleet 101 Vehco. The program works by tracking the driving of the trucks as well as scanning packages to let the company, and the customers, know where the last shipment has been placed or where it is being sent to. With the program, they also have the same functionality of Fleet 101 Vehco where every detail of the drivers driving habits, stops, mileage, etc. JUNE Express also works with DSV (DSV hires some vehicles from them) and they both have the capability of keeping track of those same vehicles. Based on hiring other logistics company vehicles, there are companies that the head office would not allow the coordinators to contact. This is based on the companies not having, or not giving access to these tracking services. They aren’t as digitized as DSV so they neither sell them trucks nor do they request any from them.

Although DSV claims to have digitally transformed, the environment says otherwise. When visiting the office, there were multiple file cabinets and papers lying around on desks. As the interviews were being conducted, one of the coordinators used a clipboard to gather his thoughts on the questions they were being asked.

4.2.2. Hierarchy
Included in the interview with the two coordinators, the authors also had the chance to speak with 2 traffic planners with 2.5 years and 6 years in the position respectively. When the two started working with the company, CARGOLINK was already set up, albeit the older version, so they did not have much experience working analog. In terms of digital technology, they would use a program on their computers where they could locate and contact drivers via the use of scanners. They also have access to the same information or access as the Coordinators.

The traffic planners have functions where they could access the drivers. In other words, the coordinators use the system for information purposes to COORDINATE different strategies. It looks as though there’s a chain of command where if the coordinators notice something on the truck drivers, or if they want to contact them, then they must send it over to the traffic planners. The coordinators said that if the drivers have deliveries on goods and they can’t find it for some reason, they can search and find where the goods were last scanned and report to the traffic leaders to contact the drivers to update. (Updated addresses as well, they did not have access to this information until recently) However, this is only an available feature in Jonkoping. There seemed a sense of irritation when the authors were questioning the communication between departments. The coordinators understand that they have other jobs but they wondered why they haven’t been trained in other functions of the program. As in, why they don’t full access to it. The directors, during the interview, as well seemed like they were wondering why they don’t have full access. The directors office also looked less analog than the coordinators. It is implied that the more access you have to the program, the job becomes less analog.

It isn’t only the traffic leaders and coordinators have different functionalities or different programs. The higher up managers have access to another program called S.O.P. which is used basically for finance purposes. CARGOLINK is mainly used for shipping, invoicing, and tracking. It seems as though some of the jobs, especially between traffic leaders and coordinators, could be done by either one of them. Assuming a driver mishandles or loses a package or for one reason or another he can’t locate the package, both the coordinators and the traffic planners use the location of the driver to understand where those goods were last scanned. The traffic planners are the only ones, though, that can make contact with the drivers. Coordinators have access to information but have to go through the traffic leaders to contact drivers. Depending on their fluency with the system, the organizational structure may well shake up to assume combining the two jobs into one.

There was also a difference in opinion of the training. The coordinators received training for about 2-3 days and they claimed it wasn’t as intense as they would’ve liked it to be. Though the functions was easy to them now, they believe it is only because they have access to only a few aspects of the program. They still thought the program was difficult to run when they first starting using it. The directors, though, insisted that they had quite the easy time being trained in their functions of the program. Though they were taught more functions, they believed that the training and later use of the program was quite simple. That includes their own functions of the program plus the tracking functions of the coordinators.

4.2.3 Customer Satisfaction
Just like most other logistics companies, due to the rise of customer demand, DSV had no choice but to follow suit with its competitors and digitize. Due to the control the customers have on shipment speed, costs, dates, etc., DSV had to find ways to stay efficient while digitization and to still maintain customer loyalty. The COGLINK that DSV introduced was considered an initiative not only to make work productive, but also to keep their customers informed. The director at DSV had mentioned that pricing of the transformation wasn’t much a concern for him, he was focused on keeping the customer updated. The reason being that it helps both the customer and the company work along in tandem. If the customer knows where exactly his/her package is and is also able to understand when it will arrive, it surely helps the both of them.

When asked of their relationship with their customers, both the traffic leaders and the coordinators explained that a majority of their customers appreciate the usability of COGLINK. They believe that the program helps with customer satisfaction because they can answer basically any of their questions right away based on the program. The only issue they mentioned was the fact that they only know when and where the delivered goods were last scanned. They wouldn’t know, real-time, where these packages are located. Essentially this would mostly be a problem with lost or stolen goods. The drivers would initially scan the goods during pick up then scan them again during drop off. The program not only helps with private customers but also with large organizations that depend on just-in-time delivery.

4.3 UPS

**Digital Key Partners:** The main digital key partner for UPS is TELEMATICS which provides other programs for tracking such as: GSSI (Global Scanning) and DDI (Drivers Scanner).

**Key Digital Activity:** UPS key digital activity is providing a platform for its customers to be able to send orders online and also an application for the customers that want to track and trace their goods.

**Value Proposition:** They are a trusted multinational company that delivers to over 220 countries. They offer several methods to deliver goods to their customers. They offer an application that allows customers to track their order of goods through their smartphones.

**Customer Relationship:** UPS delivers to both large organizations and also to private consumers. Both types of customers have access to tracking and tracing their goods.

**Key Resources:** Telematics platform (track and trace software), scanners for drivers

**Channels:** The customer is normally reached through email or phone, but the company maintains a website for customers to make orders and they can track and trace where their goods are.

**Cost Structure:** Website, Payment for tracking service (Vehco), Outsourced IT

**Themes:** Digitisation, Competition in Nordics, Technological capabilities compared to other markets.

4.3.1. Digitisation
In this interview, the authors spoke with the business manager of the UPS that is responsible for the Jonkoping center. He has been with the company for about 7 years and he mostly handles administrative issues and coordination. When he first arrived to the company, they were still working on expanding their market share in the Nordics. They did not have a well-established system in place and that caused some issues. As the process of digitization came along, UPS opened up 3 new locations around the Nordic countries to expand on their initiative.

Based on the type of technology they use, they also have the same type of platform as JUNE EXPRESS and DSV. Their system is called Telematics. Telematics keeps track of packages that were scanned through the hand scanning device that the drivers carry with them. The issue with the hand scanners is that they do not update completely real time. The authors were told that most updates would come after about 24 hours. So if goods were scanned through the scanner at a terminal, it would take a full day for the telematics system to update. The obvious difference is that with DSV and June Express, they get updated on their goods being delivered as soon as they are scanned at the terminal. Another difference between UPS and the other two organizations is the tracking of their drivers. UPS does not have real time active tracking of their drivers. This causes quite a stir in the organization, at least in the Nordics market, but the authors have been told they coordinate quite well with each other through phone calls/emails and that they trust their drivers.

In most cases the Telematics service is used for information, or investigative, purposes. As in, it’s used to keep the company informed on where the package was last and when it was there, etc. The issue though is that, also in most cases, customers have to go through customer service at UPS if they need any queries or complaints answered. The problem with that is that the customer service representatives do not have access to the telematics service. Usually, the customers ask questions that the customer service representatives can handle through simple contacts to directors or coordinators but other times, it requires direct coordinator interaction with the customers. This sometimes causes a rift between the coordinators/directors and customer service. To have to constantly contact higher ups when it would be easier to have access to the program can be quite tiresome. When questioned, the business manager mentioned that because the organization is large and that he must maintain stability, he delegates work to other departments. It seems like UPS has an organizational structure similar to DSV. The larger organizations delegate work to other departments rather than having everyone gain access to the software the higher ups use.

**4.3.2 Competition in the Nordics**

As previously mentioned, UPS had entered the Nordics market quite late, especially after the digital revolution. When UPS had arrived, PostNord already dominated the logistics market. They had already established the necessary connection with their customers and they were technologically more advanced than UPS, at least here in the Nordics. PostNord had already offered their application that helped customers connect with them and also help them track and trace their packages. In a likely scenario, somewhere in the next 5 years, the business manager of UPS Jonkoping hopes to gain 5-6% market share of the Nordics. It’s difficult for them to compete with a well-established company.
Their plan isn’t necessarily to digitize continuously and hope for the best but rather maybe to buy another established corporation to gain their customers. Another solution they’re looking at is possibly doing what JUNE Express does for DSV. They would offer them trucks when they would need them and that could possibly gain them more revenue streams and also more customers.

### 4.3.3 Technological capabilities in other markets

UPS is known to be one of the more innovative logistics service providers in the world. It originates in the United States but now it delivers to over 220 countries worldwide. The business manager that was interviewed had continuously bashed the capabilities of the company in the Nordics region. Basically, they only have the hand scanners and telematics platform as the only means of innovation. Comparing to the U.S. offices, they are incredibly behind on digital advancement. Notifications taking up to 24 hours could only mean that they would gain less customers than their well established competition.

Another aspect that they are well behind is their communication system. They usually notify or speak with their customers through email, telephone calls, or text message. They don’t have any means of live tracking neither their drivers nor their packages. This could cause for issues if there isn’t someone immediately answering phone calls or emails. And as mentioned before, everything is basically run through the hand scanner. The hand scanner is the only means of notifying both the customer and the coordinators of location and time of package arrivals. The interviewee implored that they would require additional services and aid from the UPS in the United States, but in the long-run, due to the hold that competitors have on the market here, doesn’t seem very likely to happen.

### 4.4 Transcord AB

**Digital Key Partners:** The main digital key partner for Transcord AB is ENTREX a company providing digital tracking device system.

**Key Digital Activity:** Transcord’s key digital activity is providing a platform for its customers to be able to send orders online and also a platform through which it can send orders to divers to pick up deliveries

**Value Proposition:** They have contracts with other logistics companies like DB Schenker to send out vehicles to make deliveries for them. The platform that they use is easily accessible to customers and updates regularly. 24 hours a day service.

**Customer Relationship:** Transcord deals with small to medium size carriers

**Key Resources:** Tracking technology, ENTREX software.

**Channels:** The customer is normally reached through email or phone, but the company maintains a website for customers to make orders and they can track and trace where their goods are.

**Cost Structure:** Website, Payment for tracking technology, Outsourced IT

**Themes:** Digitized, Customer satisfaction and loyalty
The authors interviewed the owner of Transcord AB to uncover some aspects of a new startup with just himself, and a few student interns, as the only employees. The owner himself has been working in the logistics industry for a little over 25 years and he started two of his own companies, the second one being Transcord AB which was established about 2 years ago. The company has been based in Science Park in the Jonkoping University for the past year. The service he provides is that he takes care of all transport administration and the control of the supply chain from any side of the world to their factories or clients. It could be anything from cross stocking to direct shipments. He has an internet site where all the shipments are tracked digitally.

The only value proposition that he offers based on his digital business model is that he understands the customers better. This helped him in gaining customers that had tougher times with larger organizations. Building that trust was key. In times when he has to hire other companies to take his goods for him, he has great partners with other freight carriers. To name a few: Dux (German), NTT, ANTEX, and a handful of other medium sized carriers. He had picked these freight carriers based on past relationships rather than pricing. They were people he trusted. When asked of pricing, he had a slight negative reaction. Though money plays a vital role in any business decisions, it seemed as though based on his expression that he is more concerned with trust and loyalty rather than costs.

4.4.1 Digitized

When the owner started his own logistics firm, he understood that the industry was quickly becoming more and more digital. Though he had been in the logistics industry business for 25 years, he stands firm that it is entirely different when you own your own company. As soon as he opened operations, the owner purchased a tracking platform called ENTREX. He uses the system for internal use to keep track and status of shipment throughout Europe; and also to let his customers track and see information about their shipments and price for the service. Unfortunately, the system can’t be used to communicate with the customers directly. To communicate to any one of his customers, he must use the general means i.e. telephone, email. In most occasions though, he believes it isn’t much of a problem because the customers have access to ENTREX and they can keep track of their goods. He claims he rarely has to interact with customers other than receiving orders through the company website.

The owner was asked if he had considered any risks when he started his company and decided to make it digitized by spending his money on the most up-to-date and efficient equipment. He did not. He believes that the logistics industry has come a long way since digitization. Some companies further than others. Sometimes, the big companies may look quite advanced technologically based on sheer size; but if digitization was investigated, he asserted, their processes are quite analog. The owner agrees that trying to digitise older businesses can be quite difficult. For himself, he is self-employed but if he had three or four more employees to help with the transition, it would be easier than having a large organization and transforming the entirety of that organization. He does have a couple of student interns as mentioned above but they are fully trained on the program. They work mostly to help out on IT needs but, the owner mentioned that they are completely comfortable with the program after he trained them on it.
The digital service he provides is quite expensive for him but he believes that he will have his return on investment within the next two years. He had said this quite confidently based on his tone of voice and facial expression. When discussing future innovative technology, the interviewee expressed that he is always on the lookout for smaller, easier, programs that could help him out at work.

4.4.2 Customer satisfaction and Loyalty

The owner of Transcord AB implored that the customers played quite a large role in his company being digitized. A majority of his clients are more or less small companies and they were mostly analog at first, but when he introduced the ENTREX software to them, they found it remarkably convenient, considering that they don’t have to email or make phone calls to track where their package is and when it will arrive to them. The platform in itself does make him a stable income but the logistics industry is quite the competitive market. His margins aren’t incredibly high because it is a volume based market but he believes that it will work out. He mentioned that in most cases he is delivering maybe a few pallets of goods every other day but because he’s on time, orders increase every other week.

When discussing future digital transformation, the owner understands that technology is advancing every day, and though he’s enthusiastic of the idea, he remains slightly skeptical. He believes he could lose personal contacts with customers so it might end up as somewhat of a trade-off on how much he digitizes before he starts losing close contacts with customers. Becoming a larger organization as the company becomes more and more digital could cause his customers to become perplexed with the new processes. Although, he did offer a solution. He believes that if he had to attain new technology, he would initially hire 3-4 new employees and train them on the new technology. Secondly, he would introduce the new technology to his customers as soon as he can so he could gain the market advantage. With this method, he wouldn’t end up as a large organization still transitioning with technology, but rather a company that began digital and is mostly comfortable with new technologies and customers, that are loyal to him, that would be willing to use the new technology based on ease of use.

Based on him being the company’s only employee and having only 2-3 student interns, if his company garnered 2-3 times more customers by tomorrow, it could cause some problems. The reason being that he would have to find a better way to better communicate with his customers. He would have to find a program that allows him to be in contact with the customers at all times rather than emailing.

5. Data Analysis

5.1 Pattern Matching

Using the empirical results, the authors developed themes based on each of interviews for each company. Those themes were: Digitisation, Customer Satisfaction, and Organizational Structure. These were themes that the authors developed based on recurring discussion topics. Once the authors discussed these themes in depth, they matched the patterns between each case based on that theme. As in, they discussed the
concept of Digitisation between the large organization and the small organizations and compared it between the two of them. Once that was done, the authors recognized patterns forming which gave them an idea to construct a theory that connected the comparison between the two types of organizations.

5.1.1. Digitisation

Looking at the concept of digitisation, the authors saw that each organization went through different methods to digitally transform. In the larger organizations, DSV and UPS, it was quite more difficult for them due to the fact that they’ve been around the business for so long and maintained an analog status. Organizations as large as DSV and UPS tend to have employees in the thousands. When they transform, they have to train every one of their employees on each of their functions of whatever program they are introducing. The authors saw in their data that even though the training process between the two large organizations were similar, the reactions were slightly different.

In DSV, the reaction to the training of these digital platforms, in the process of their digitisation, was quite mixed. Depending on the position, some had harder times adjusting while others thought the platform, CARGOLINK, was quite simple. The two coordinators interviewed at DSV found the program to be rather difficult at first. Looking at their body language and the way they expressed their training from before, it was interpreted that they didn’t have an easy time with the platform. They were trained only on their responsibilities of the platform. In other words, there were many other functionalities of the program that the coordinators weren’t trained on because it didn’t have to do with their job. The two directors that were interviewed on the other hand believed that the functionality of the program was quite simple. They took about 3 days of training and they claimed that the system gave them absolutely no problems ever since. The difference between the directors and coordinators offices’ was quite dissimilar to one another. It was evident which of the two positions had a harder time getting adjusted to the platform CARGOLINK. When visiting their offices it was noted that the coordinators’ office was quite analog compared to the directors’ office. The coordinators still had multiple file cabinets all around their office and their desks were scattered with paperwork. It wasn’t an entire mess but if a company says they’ve digitized 6-7 years ago, we’d assume there would be less papers scattered around. The directors’ office was an improvement compared to the coordinators’ office. Yes, they still had some paper here and there but they never referred to them a single time during the interview.

In the interview with UPS, the authors interviewed both a business manager and a customer service representative. The business manager showed the authors all the programs they use to track and trace their drivers and also expressed to them how analog they once were before the digitisation. The customer service representative thought otherwise. In most cases, the customer service rep would be dealing with customers through the telephone or email. They do not have access to the same program as the business manager does. When there is an issue concerning the tracking or tracing, customer service has to contact the business manager so he can relay the information back to him. When questioned about this, the manager expressed that it wasn’t something he originally came up with but he must follow protocol. He believes that customer service should have access to the same TELECOM program as he does. It
would definitely make his job better because he mainly focuses on administrative and coordination issues rather than customer service. The customer service rep though believed again otherwise. He believed that the customer service should be promoted to higher positions where yes they initially do take care of the customer issues but they can also handle some administrative procedures. This problem only arose once they digitised. The business manager, though agrees digitising was a great idea, believes there wouldn’t be such friction if customer service was trained and made responsible of TELECOM responsibilities, in terms of customers asking questions.

With the interview with June Express, the director/part-owner had expressed how it was a simple transition to digital platforms. Just like every other company, they too were very much analog before adjusting to the competition in the industry. The director mentioned how the drivers would have to come in with formal paperwork back to the office showing their driving habits (i.e. mileage for the day, gas consumed, etc.) Now though, it can all be monitored through their Vehco program. In terms of the other workers, everyone had access to this program. From customer service to directors, if they needed in anyway to track and/or trace drivers or packages, they can do so. They don’t have as many employees as the big organizations so they didn’t have the ability to delegate jobs to several people but rather have everyone know the program Vehco so that any one of the employees could perform these tasks. Furthermore, they outsource their IT to another company to solve their needs. If they have any issues they could use them to solve it rather than hiring in-house. The director also mentioned that he believes the company is working to full capacity, as in they wouldn’t need to hire or fire anybody for now.

Transcord AB only has a single employee with 2-3 student interns. When the company began, they only plan they had to begin with was starting digital. By the time the company opened up, many logistics companies in the areas had major market shares and many of the customers in the region. To stay competitive, they had no choice but to be completely digital. This was noticed when The authors walked into his office and saw nothing but his laptop and a tablet. His 3 student interns are all able to use the program he possesses, ENTREX, and they also help with IT duties whenever the system has problems. The owner of the company mentioned that he wouldn’t be able to manage having double or triple the amount of customers he has today because he doesn’t believe he has the working capacity to meet demand. His program cannot communicate with customers directly so he would be receiving multiple phone calls and emails which he doesn’t have the manpower for. Although, he stated that the way this could possibly work is by first hiring more full-time employees (4-8 ideally because he wants a small team), and have them all trained in the program. It was the same strategy as the director at June Express. Transcord AB also believes that the more people know the full functionality of the platform, the more flexible the team can be. Also, when he can’t manage the amounts of orders received he has to hire other companies to help with the shipments. Digitization has also enabled logistics companies to cooperate more but also, at the same time, to be a lot more efficient (Bertram, Schrauf 2016 p.4) These same logistics companies that hire other companies to help transport their goods (i.e. Transcord AB, DSV with JUNE Express) wouldn’t be possible without digitization. Transcord AB maintains the ability to track the trucks transporting his goods no matter if it’s his or someone else's.
Comparing the strategy between the large and small organizations, the smaller ones seemed to have an easier time adjusting to the transformation. The large well established organization had not adjusted to the changing times. It seemed that though they wanted to make things more digital and change up their strategy, but they unfortunately refused to make changes to the structure of the organization and now resort to having people of different departments do the same jobs. With the smaller organizations, they decided to teach everyone the functionalities of the program so that everyone can do every job. It would be easier to delegate the work more efficiently. From a strategic point of view, these large organizations must learn better and quicker than their competitors do through “proper alignment with their environments. Some organization should also consider learning to be a strategic resource creating a differential competitive advantage.” (Flint, et al. 2011, p.118)

5.1.2. Customer Satisfaction

In terms of customer satisfaction, it's obvious that June Express and Transcord AB both have quite a smaller customer base compared to DSV and UPS. That doesn’t mean that the larger organizations care less for their customers. However, the smaller organizations do have a more personal relationship with their customers and that can only come naturally. For the smaller companies the authors can infer that they may have less of a hard time meeting up with the customer’s demand compared to the larger organizations. It may also be easier for them to handle certain situations with these customers. Take for instance JUNE Express and Transcord. These two companies have their customer base in one general region which happens to be Jonkoping and a few cities surrounding it. Furthermore, the co-owner of June Express mentioned the fact that in order for them to be able to get larger companies to hire their trucks (i.e. DSV) it was necessary for them to have the software that was capable in allowing customers to track their goods. Berman (2012) discusses how these very same customers can not only drive digital transformation, but also successful transformation, ”To succeed in digital transformation, leading companies focus on two complimentary activities: (1) reshaping customer value propositions and (2) transforming their operations/functionality for better customer collaboration and interaction” (p. 17)

Each company that was interviewed had their own take on customer satisfaction. Though each of them were more or less similar, it is still interesting to go through the types of situations a smaller organization may have compared to a large one. For the most part, Transcord AB believes that he has a 10/10 relationship with his customers. Although, he doesn’t communicate as often as you would expect with his customers. He mentioned he only speaks to them once every week or so. He believes they don’t communicate so much because the program they use works incredibly well for both parties. It makes sense to not speak all the time with such a small customer base since that would imply that there were multiple complaints or problems that need to be addressed. Nevertheless, the owner of Transcord AB did acknowledge that there were times when customers would complain based on delays but because those complaints were met with quick solutions, the customers would stay loyal to them. The same goes for June Express. They’re not quite as small as Transcord AB but they are compared to DSV and UPS. June Express also indicated how their easy-to-use program Fleet 101
Vehco had effected customer contact. They began receiving less emails and phone calls because most of the queries could be answered by taking a look at the program. (See image below) As shown, all the customers would have to do is type down the tracking number of said good and they could see exactly where their good is being transferred to based on the truck it is located on. Also, June Express’ website made it so that customers can just order their shipments through the internet so there would be little to no need for them to contact the company. It was noticed here the smaller organizations have close contacts with these customers even though they hardly receive contact from them. The authors interpreted this as both customer loyalty and good service.

As mentioned before, it could be inferred that the smaller organizations have an easier time keeping customers satisfied based on the fact that their customer base is smaller and they still have the same digital capabilities as the larger organizations. That’s not to say that the customers in the large organizations aren’t satisfied though. UPS for example has its own customer service department that the manager insists is integral to customer satisfaction. The authors spoke with a customer service representative and although he believes that customer service is their top priority, he doesn’t believe it is always met. As mentioned before, the customer service department does not have access to the TELEMATICS program as the business managers. This can sometimes cause delay in answering questions. In one example mentioned by the customer service rep, he visited a time when a customer called him and had issues with tracking their package. Since the representative doesn’t have access to the program, he had to reach the business manager to find the solution to this query. Unfortunately, the manager that was in charge of the department was out of office. The representative had to resort to contacting several other managers to help mediate the situation. This was after a process of keeping the customer on hold and receiving negative feedback on the company website. It can be interpreted, based on the frustrated tone of voice and the story in itself, that this was difficult for the representative because they understand that customer service is key for not just his department, but for the company as a whole. This is another argument for the customer service to be granted access to the TELEMATICS program.
DSV has quite a different approach to customer service. Most of the employees in the company are trained to use the CARGOLINK program. So the company, instead of hiring a customer service department, decided to have a desk set-up and have any employee they deem fit for the day to be placed in customer service. As in, the desk is empty in the morning and whosoever is scheduled for customer service that day then has to work in that department. The company believes this is a way to cut costs (or corners) in the long-run. They believe “Why hire customer service when we can all service the customer?” Based on participatory observation however, it doesn’t work exactly as one would assume. DSV is a large company which means they have a large customer base. Although they don’t have a personal connection with the customers, they still treat them as such; customers. The issue observed was that when a customer service rep (it could be a coordinator, director, administrator, etc.) switches shifts with another worker, there are certain aspects that could hinder their job performance. For instance, a coordinator would take notes of a customer’s complaints/frustrations and would then put them on hold. Switching shifts, a director would now take control of the situation not knowing the exact situation and as well not knowing anything about the customer. This seems more of an ineffective way of cutting costs rather than aiming to be efficient. Though, when interviewed, the coordinators and directors did not mention this situation at the workplace. They only acknowledged that they have a great relationship with their customers. It can be interpreted that maybe they do in fact keep in contact with their customers through email and phone but it isn’t as personal as they make it seem out to be. Observation could tell that they probably did not want to mention how customer service works in the office. The authors had used their observation to see that they hardly had a customer service department at all.

5.1.3. Organizational Structure

Organizational structure was not originally one of our aims of the study but rather it was a theme that came up within every interview that was conducted. Whether it was the things they said, or the authors’ observation, there seemed to be quite the contrast when starting to recognize the organizational structure. Both the small and large organizations had a way in strategizing their company’s organizational structure.

As discussed before, DSV is structured in such a way that certain departments do not have full access to the CARGOLINK program and they also don’t have access to the financial program, S.O.P. The authors understood that S.O.P. is integral for the financial department and not so much any other departments but in terms of CARGOLINK, it is strange that they don’t teach every employee all the functionalities. To illustrate, there are two coordinators that the authors had interviewed as well as two directors (both from DSV). The coordinators had mentioned that they would have to report to the directors of the office if they wanted to make contact with drivers based on any issues that may come up. Consequently, this would cause a form of resentment between the two departments. This resentment was observed during the interview. When asked why they should report back to the directors, the coordinators only indicated that that’s how the job works. They couldn’t entirely explain why that is so. It becomes even more convoluted from the directors’ perspective. Both the directors have the same access to the CARGOLINK program and they also have the same
functionalities as the coordinators do. Essentially, the directors could be doing the coordinators’ jobs rendering them obsolete. The directors do have jobs on their own but the coordinators do essentially have to report to them. If the coordinators see a problem, they let the directors know so that they may resolve it. But at the same time, the directors would already notice this problem; seeing as that they can access CARGOLINK just as much as the coordinators. It seems useless for coordinators to have to contact the directors so that the directors can contact the drivers, customers, etc. to resolve an issue. Either give the coordinators more responsibility and grant access to drivers, or get rid of the job entirely. DSV’s strategy to digitization seems as delegating the same job to as many workers as possible so as to make sure the job is done right. The authors looked at this as taking one step forward then two steps backwards. It is considered progress to digitize the job, but it is also unproductive to not strategize the organizational structure to better suit the company’s capabilities.

In UPS’s perspective it is somewhat similar. The authors interviewed the business manager that handles coordination and administration, and also a customer service representative that takes care of customers. As mentioned before, the customer service representatives do not have access to the TELEMATICS program as the business manager does. The customer service representative is defending the fact that he and his team should have access to the program because he believes it will make both the business manager and the representatives’ jobs easier. The business manager himself agrees they should have access to the program but unfortunately it is considered business protocol to only have certain departments have access to the program. When looking at the larger companies, it can be assumed that they lack any type of strategy to better adjust the organizational structure to make it more suitable for digital transformation. It was assumed that it has to do with the board of directors that may want it this way; the reason being that when both managers of DSV and UPS were questioned on the lack of strategy, they both agreed that it should certainly be adjusted but it doesn’t seem like they have the power to do so.

The smaller organizations though seem to adjust better, in terms of organizational structure, to digital transformation. Looking at June Express, instead of training the employees on certain functionalities of Fleet 101 Vehco, they trained them on the entire program. That includes customer service, directors, coordinates, etc. When asked why so, the part owner explained that it is better to have everyone understand the process of the program rather than certain aspects. He explained that the process of customers’ order to the driver delivering the order is much smoother when everyone knows their job. He implored that each employee is an essential member of the company. That is also why they haven’t hired or fired anyone during the transition from analog to digital. For Transcord AB, though he is the sole employee, the 2-3 student interns all understand the functionalities of the ENTREX program. These students are essentially IT help, but they also have managed to help out in his office when he is out (i.e. customer service, communicating with drivers, etc.) He also goes on to say that if his company increases in size, he would make sure that every member of his staff would be comfortable with whatever program they implement and/or introduce.

When studying the business model, the authors understood that even though organizational structure isn’t an element in the model, it is essential for organizations to adjust when they are digitally transforming. It would be unproductive to have several
departments working on the same task when one single department could handle it. It could also cause unnecessary discord in the workplace that could be entirely avoidable.

6. Discussion

6.1 The Purpose

The purpose of this study was to investigate how digital transformation and customer behavior has affected the business models of smaller companies compared to well established multinational companies in the logistics industry. Once the authors studied the effects that digital transformation and consumer behavior had on the business model of these companies, they discovered a new category in the business model, organizational structure.

6.2 Conclusions

The authors took an interpretivist approach to help them gain a better insight on the effects of digital transformation in regards to the business model(s) of small and large organizations. The authors would take the data gathered and interpret it with both descriptive and participatory observation. Following so, the researchers chose the inductive research method to develop their own model based on the findings of the research. The process was implemented as so:

(1) Through the empirical results, the authors developed 3 themes that were relative to the study (digitization, customer satisfaction, and organizational structure) (2) the authors then took these themes as subcategories and with the empirical results and descriptive observation, interpreted the meanings. (3) the authors then took these meanings and matched the patterns with the small and large organizations respectively. (4) the authors then took the interpretations, with the data and patterns backing them up, to develop the theory. It was recognized, based on the findings, that an organization’s capacity to utilize a digital strategy is inverted when firm size is considered. In other words, the larger an organization is, the less likely they will take-up a digital strategy. This is in regards to the new digital business model developed that includes organizational structure:
The categories that remain from the old business model are the categories that were fundamentally affected by digital transformation. Based on the data gathered, both small and large organizations had seen an impact in these categories. For value proposition, most of the companies now offer a digital platform that can take orders from orders and can track and trace their goods. The relationship with customers was also affected, depending on the size of the organization. It seemed as though, through interpretation, that the larger organization’s had an obscure relationship; whether it be business managers with customer service (in terms of handling a situation) or customer service with the customers themselves. Key digital activities would show the new processes implemented into the organization’s day-to-day duties. The Key Digital Partners to these organizations were the companies whose platforms they incorporated into their business’ (CARGOLINK, TELEMATICS, ENTREX, Fleet 101 Vehco). The Key Digital Resource is again in regards to the platforms implemented into the company’s day-to-day processes. The channels for communication is more or less the same (i.e. email, phone calls) but the customer can now use the websites of these companies to communicate their orders. With the cost structure, the companies now must pay for the digital service they provide for their customers, and in June Express point of view pay for outsourced IT department.

The two categories removed were customer segment and revenue stream. Revenue stream was removed because these same organizations receive the same earnings except now they receive it faster and with less complications. Their logistics service is where the revenue comes from. In terms of customer segment, the organizations interviewed were limited to the Scandinavian region. UPS, though a multinational company, the company interviewed here is only in charge of the Scandinavia area so the customer segments for all 4 of the organizations stayed constant.

The role of the customer is the main reasoning behind logistics companies transitioning to digitization. Most interviewees had mentioned it was based on competition which evidently is all about the customer. The organizations are either trying to gain or
maintain their market share in the region and the only plausible way of doing so is keeping the customer satisfied. So in regards to the customer, they’ve played an essential role in logistics companies digital transformation.

There is definitely quite the difference between how a large and small organizations strategize to embrace digitized business models. In most cases, both types of companies look at digitization in a positive manner. They believe it will work best for everyone in the long run. It was discovered though, through the data gathered, that the large organizations lack restructuring of the organization to better suit productivity within the organization. The larger companies also do not train the staff on the entire functionalities of whatever programs they introduce (i.e. TELEMATICS, CARGOLINK). This causes for workers to either do several of the same jobs or cause friction between departments; or both. The small organizations insisted on training the entire staff of the functionalities of the platforms they incorporated (Fleet 101 Vehco, ENTREX) This way, work can be better delegated accordingly.

6.3 Discussion

The aspect of the organizational structure wasn’t something that was aimed to be identified when conducting the research. A majority of the academic articles as well only discuss having everyone in the workplace on the same page. These types of discrepancies were discovered once the interviewees and their environment were studied. The employees themselves, to a degree, believed they were working efficiently based on the use of the platform they had. Though they had their concerns on why they were not being trained in all the functionalities, it was interpreted that they were adjusted to the steady workflow. Strandhagen et al. (2017) writes, “Logistics performance is affected both by the structure and control issues. Structure refers to how the supply, production, distribution and product systems should be designed. Control refers to how to plan and execute operations to ensure an efficient material flow. Control requires an effective information flow to support the logistics operations.” (p. 3) To have a productive workflow in the logistics organization, there must be an effective information flow. This in itself expresses that the organizational structure must be set up in such a way that every employee understands their job so as to not inefficiently replicate someone else in the office. Just as those coordinators and directors at DSV, they should either give the coordinators more responsibility or they should scrap the position all together because it is almost unnecessary in the flow of information. Same goes for UPS, if the customer service had access to the program TELEMATICS, there would be a better information flow between the business manager and the representatives rather than unnecessary friction.

“The drive towards Logistics 4.0 as an element of industry 4.0 gives possibilities for new business models. Instant information exchange, automated solutions and real-time big data analysis are among the features of Logistics 4.0 paving the way for new business models.” (Strandhagen et al. 2017 p.7) The digital transformation of these logistics companies is creating new business models that newer smaller companies can incorporate. Just as the authors contributed, they created a similar business model that the logistics companies can use when they are developing their own businesses. The key components being Value Proposition, Organizational Structure, and Customer
Relationship. These three factors are the essence of a successful business model. If the Value Proposition of a company stands out from the competition and is continuously delivered through the consistency of workflow in the organizational structure, then the relationship between the logistics company whether big or small would be exceptional.

6.4 Limitations

There were a few limitations that came up during the process of data gathering: (1) Language barriers (2) Limited to Scandinavian region (3) Refused access to Transcord AB software ENTREX (4) Employees delaying interviews, or canceling interviews

6.4.1 Language Barriers

While conducting the interviews, the authors spoke with employees from different backgrounds and different cultures. From German to Swedish to Polish, there wasn’t scarcity of different perspectives. At times during the interviews however, the authors had to break down certain questions or almost skip them entirely. The interviewees would try to discuss it amongst one another to maybe get a better translation. This doesn’t mean they were not knowledgeable of the topic, but rather, it seemed that they could have elaborated a lot more had the authors spoken their native language.

The authors were also aiming to interview the drivers to figure out their opinion(s) on the concept of the scanners and how they adjusted to the new technology, unfortunately though the authors were discouraged by the employees at both DSV and UPS because of their lack of fluency in the English language. The coordinators recommended that they could serve as translators but that the authors would have to schedule on a different day that works for both drivers and coordinators.

6.4.2 Limited to Scandinavian region

Although the authors were trying to understand the logistics industry as whole, they were limited to the Scandinavian region. As expressed by the larger companies, DSV and UPS, the processes are different depending on which market that is being researched. Both being multinational companies, neither of the business managers in DSV and UPS could express how the companies in other markets reacted to digital transformation or how the organizational structure was affected.

The business manager at UPS gave the authors a little insight on the company in other markets. He expressed that UPS in North America is much more innovative compared to UPS in Scandinavia; being that they possess a much larger market share in the U.S. than they do in Scandinavia so they put all their resources and efforts into the U.S. market. Maybe one day, the business manager believes, all that innovation will drift down to his region.

6.4.3 Refused Access to Transcord AB software ENTREX

During the interview with the owner of Transcord AB, the authors requested to take a snapshot of the ENTREX program that he uses (As the authors did with the other companies). This time though the owner had given a resounding no. At first it was
assumed that he was being nervous with the authors but he only expressed that it is confidential only for himself, his interns, and his customers. The authors did not press on with the matter, seeing as he was not comfortable with showing how the program works. The authors assumed that it might be because of the fact that they interviewed other logistics companies before him and that one of the authors works for another logistics company that may be a competitor of his.

6.4.4. Employees delaying interviews

It is no secret that collecting data is quite a lengthy procedure. Having to coordinate schedules with a busy employee also poses relative complications. The authors had lost 4 different interviews based on scheduling interferences. Most of these lost interviews were based on the employee having an impromptu schedule change (i.e. board meeting, leaving office, etc.) and other times the employee wouldn’t answer phone or emails all together. Seeing as the authors were constricted with time, they would move on from those employees and continue searching for other interviewees until 10 interviews were subsequently attained.

6.5 Future Research

The research conducted took a total of 5 months with new discoveries within the research once the data was interpreted. One of the findings being the concept of organizational structure. The authors had theorized that the larger the organization is, the less likely they will adopt a digital strategy to better suit productivity. This is evident when the organizational structure of small and large companies are studied. A theory like the one developed above would better suit hypothesis testing. It was a small sample size that was used to theorize this discovery, the reason being that the patterns were too evident when studying the larger organizations and comparing them to smaller ones. The new business model concept could also be tested on other organizations as well. It would be interesting to see how a medium size firm strategizes to suit digital transformation. Another interesting research topic would have been how well would these small organizations hold up with their business strategy. The authors understand that the large organizations are multinational and well established which means they will most likely keep their percentage of market share. It would be intriguing to see if the smaller companies maintain their strategy if they start growing exponentially. Also, would the larger companies try to incorporate these same types of strategies to maintain their market share in the long run? It could be assumed that as technology advances and the small companies continue cost saving, they would start gaining more market share as they grow larger. How would the large organizations counter this.

Another aspect that could be researched in the future is possibly these same large organizations in different markets. The organizations in this research were based in Scandinavia and that had limited the stability of the theory developed. The business manager of UPS kept expressing how their North American UPS market is much more efficient and innovative compared to the UPS in Scandinavia. It goes the same with DSV. They are a multinational company as well and it would be interesting to study how different their strategy for digital transformation would be compared to the markets in Scandinavia. It would also be interesting to find out if this type of theory could be applied to different markets. Is it only in the Scandinavian market where this applies or
would it also apply to other much larger markets. There could also be more employees involved in the study. The authors interviewed about 6 different positions but it would have been fascinating to get the perspectives of the different departments and see how each different applies digitization respectively.
Reference

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APPENDIX

Figure 1.1

Vehco software (JUNE EXPRESS)

Figure 1.2

CARGOLINK (DSV)
FIGURE 1.3

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CARGOLINK (DSV)
Interview guide

- What traditional services are you offering digitally?
- Which additional digital services / platform are you offering? (e.g. electronic signature, data repository, electronic document management, e-health platforms,)
- Who are the target customers for your digital services?
- What is/are the value of these digital services for your customers (e.g. performance customisation, design, brand, price, cost reduction, risk reduction, accessibility, convenience, usability etc …? Are there other digital services offered as part of this bundle or a as standalone services?
- What source of communication(s) is being used to reach these customers? Are the customers able to interact with the operator digitally? What relationship have you established with your customers (e.g. online communities)
- What is the focus of these services (e.g. local (cities), regional, national, global)?
- What partnerships have you formed to provide the digital services and with whom (e.g. with vendors, consultants, government, user communities)?
- Who are your competitors for these digital services?

Detailed description of diversification into digital services

- Has there been any type of transformation into digital services and when did such transformation begin?
- What are the reasons (strategic considerations) for such transformation (e.g. cost reduction, first mover advantage, customer demand, competitive pressure)?
- Are there any risk you identified and what measures are taken to ease these risks?
- Are there any short-term or long-term views on such transformation (e.g. market analysis)? and how has this evolved
- Did you or have you considered any partners for this diversification (e.g postal operators, consultants, vendors, IT companies, suppliers?) Do these partners have any role in R&D (Research and Development)?
- Where there any changes that occurred during this transformation process? (e.g. abandonment recalibration, acceleration, etc)
- What are the organisational changes made to integrate such changes in customer relationship management? Is there a separate unit for innovation? If yes what are the units overall functions and duties? How is it related to the overall organisation?
- More generally who are the main stakeholders inside your organisation for digital services
- What role if any did/do customers play in your digital development?

A general overview of the underlying business model (s):

- What are the general business models) that is fundamental your services?
• Do these business models take you into other industries (e.g., communications industry?) if yes which?
• Have you identified risk to your business model (s)? if yes which ones?
  Did you take any action to fight these risks? If yes which ones?
• How important is the role of technology in your digital business model(s)?
  if it is, how would you evaluate the impact of technology change on your business model?
• Do you plan new IT infrastructure and architecture based on your new business model?

Economic and Financial information about the digital services and platforms
• What were/are your sources of investment into digital platforms / services? How significant were the investment? Was there/ is there a time line for the investment?
• What were/ are your expectations in terms of return? What can you say about the profitability of your digital service or platform.
• What can you say about the pricing of your digital services and platforms?
• What type of revenue streams do you apply (e.g. usage fee, subscription fees, renting, licencing, brokerage, advertising)? Which of the streams have been the most effective?
• What about cost structure of the digital services or platform (e.g. cost driven, value driven)? What are the cost driven and value driven drivers of your underlying business model?
• What can you say about the performance indicators of your digital services and business model? How do you measure their performance?

Additional questions for employees

1. What position do you hold and for how long have you held this position?

2. How does the company use the following digital technologies:
   a. Mobile computing (e.g. mobile apps, tablets, smart phones)
   b. (Big) Data/Analytics (e.g. analysing/leveraging data, digitalisation of physical assets)
   c. Social media/social networks (e.g. for marketing, contact with customers)
   d. Internet/networks (e.g. website, e-commerce, cloud computing)
   e. Digital technology in production (e.g. embedded sensors, 3D-printing)

3. When did you start to use this technology in the organization? What was it like before you implemented this technology?
4. Who was responsible for implementation of this technology? Who uses it now?

5. Why do your company use this technology? (Does your company take advantage of digital technology e.g. increase customer satisfaction, reduce costs)?

6. How has the company benefited from using this technology?

7. How has the changes related to digital technology affected the following activities:
   a. Inbound logistics (e.g. supply chain, storing, internal distribution)
   b. Operations (e.g. production)
   c. Outbound logistics (e.g. distribution)
   d. Marketing and sales (e.g. entering new market, expanding existing market)
   e. Service (e.g. after sales service)
   f. HR (e.g. recruitment)
   g. R&D (e.g. developing new products)
   h. Your overall business strategy
   i. Structure of the company
   j. Cost (reduction)/efficiency

8. How has the changes related to digital technology affected the following relationships:
   A) Customers (e.g. customer segments, old or new customers, value proposition, offerings, contact channels)
   B) Suppliers
   C) Partners
   D) Competitors
   E) Society (e.g. community, government)
   F) Employees

**Key drivers for digital transformation**

9. Which are the most important changes related to digital technology in your department in the last five or ten years?

10. What were the desired benefits of those changes?

11. How were these changes implemented?

12. Did you encounter any major challenges in implementing these digital technologies?
13. How has the implementation of these changes impacted the way the organisation work? Have there been any problems?

14. What are the most important lessons learned regarding these changes that you have made? Any specific success or failures with regards to digital tech. implementation?

15. How is the company going to adapt digital technology in the future? What are the obstacles to take into account?

16. What do you think are the future digital technologies that will be used in your industry? In your company?

17. Which are the major challenges related to digitalization in your industry? In your company?