How to lead the transition from multichannel to omnichannel retailing

Address the current challenges and associated indicators with the assistance of a theoretical framework

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Preface

This thesis is the final deliverable of the Masters' program Complex Systems Engineering and Management at the Technological University of Delft. The master thesis is a report which is the result of a six-month research and has taken place between March 2021 and September 2021. The research was conducted during a graduation internship at the Intelligent and Sustainable Operations team of Capgemini Invent in Utrecht. The topic of the thesis focused on the transition from multichannel to omnichannel retailing. This is a transition that many retailers are currently going through, therefore this transition will be looked at from the retailers' point of view. What makes this transition so interesting is that retailers are dealing with a trend towards digitization and technological innovations, in which the various online and offline channels are increasingly merging. This is to ensure that the customer experiences a seamless customer experience when making purchases within the retailer's omnichannel environment. In addition, this transition has been disrupted by the impact of the Covid-19 pandemic that entered Europe in March 2020.

Before I proceed to my thesis, I would like to thank some people who supported me during the writing of my thesis. First, Stefano Fazi, of course. We had our first meeting in November 2020. From the beginning, Stefano has been an amazing mentor in sparring on topics, which took some time, and with all kinds of assistance and insights for my thesis and the research. This helped me a lot during the whole process. I also want to thank Maarten Blonk, my supervisor at Capgemini Invent. For your enthusiasm on the omnichannel topic, which I adopted completely from you. Almost every week we spoke about scoping the topic and afterwards about the progress of my thesis. Thanks for always being open to digital calls or providing me with feedback. I would also like to thank Jafar for his critical view and questions during the meetings. This has helped me enormously to always stay focused on the goal of the research. Also, I would like to thank Jan Anne Annema for his support as advisor to the committee. I could always turn to you for practical or substantive questions, in fact throughout my bachelor's and master's studies. In addition to the committee, I would also like to thank Peter Tacken for his contribution. He always made me focus on the objective of my thesis and to sharpen it.

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Executive summary

Multichannel retailing is a concept familiar to almost all retailers. Online and offline channels operate in silo with separate touchpoints with the customer. However, the increasing digitalization and technological innovations have resulted in a transition from multichannel to omnichannel retailing where online and offline channels could be combined to create a seamless customer experience across these different channels. This is a relatively new concept, first addressed in 2009, but since then it is a concept where all retailers still have to deal with various challenges before we can talk about a successful transition to omnichannel retailing in the entire retail sector. In addition, the global outbreak of the Covid-19 virus has had a serious impact on retailers and especially their supply chains. Customers suddenly had to buy everything online since physical shops were closed due to lockdowns. This resulted in an enormous increase in demand for online orders, which no retailer was prepared for. As a result, retailers had to act quickly and make sure they could meet the demand of the customer. A year later, March 2021, retailers have recovered somewhat from the sudden disruptions of the pandemic and can now focus on the transition to omnichannel retailing again. However, it could be argued that this pandemic has accelerated the transition, since a lot was asked of retailers in terms of scalability and flexibility. The research problem can be classified in a socio-technical system where a complex and technical omnichannel needs to be managed by companies to ensure that the process of transition can be managed smoothly to serve society. In the context of that pandemic, this research seeks to understand how to lead the transition towards omnichannel retailing.

This research looks at the concept of omnichannel retailing from the retailer's point of view. The following main research question will be answered: *"What are the current challenges within the transition towards omnichannel retailing and how to overcome them?"* The main question will be answered in different research phases. First, the literature is consulted after extensive literature study. Here it is investigated what is currently known about the concept of omnichannel retailing and what is currently written about the concept. The work of Jocevski et al., (2019) will form the basis as he identified three dimensions in which the omnichannel retailing concept can be defined. The literature study highlights the current challenges within each dimension that retailers are facing. These identified challenges are supplemented with indicators that function as enablers through which challenges can be overcome. These dimensions and indicators are presented in a theoretical framework that will be iterated throughout the research. In the next phase, several omnichannel retailing experts are consulted by means of an interview. From this, information is gathered to get a better understanding of the current challenges at retailers who are making this transition. This information complements the knowledge from the literature study. The last phase is a multiple case study, which will be conducted by means of semi-structured interviews. Three retailers will be approached for this case study. This will show how multiple retailers experience this transition towards omnichannel retailing, and which current challenges and associated indicators are considered important. Also, the preliminary framework is tested at the retailers. The identified dimensions of Jocevski et al., (2019) will be investigated at the retailers and the impact of the pandemic on this transition is considered. The dimensions will be examined by discussing their relationship, and also whether these three dimensions cover the entire omnichannel retailing aspect from the perspective of retailers.

The results of the study show that there are several challenges. These will also be discussed here per dimension. First, the most common challenges within the Seamless Customer Experience dimension are that retailers struggle to seamlessly connect all channels with additional touchpoints with the customer. The goal here is to create an integrated network where the customer can move freely between channels and combine them. To achieve this, several indicators have been identified that can help overcome these challenges. The two most important and pervasive of these are cross-channel

touchpoint integration, which means that customers can use online and offline channels seamlessly. An example of this would be a customer physically going to a shop to see and feel products, then placing an order for the product online and having it delivered to the customer's home address. For this to happen, it must be possible to place this order directly in the shop so that the customer can have the perfect, seamless, customer experience. The other indicator that is important is that the retailer always puts the customer first in the omnichannel environment, customer centricity. This means that the retailer can always give the customer the experience they want, no matter which channel or touchpoint it is.

Within the Integrated Analytics System, two challenges stand out. Firstly, the leverage and management of data for omnichannel purposes. For this, it is first of all important that the right data is identified, extracted, stored, shared and protected. Then the data can be analyzed using the systems. Here the data differs from order, product or customer data which can all be used for different omnichannel purposes. Another challenge that ties in with this is the integration of back-end business processes. If this is adjusted correctly, all channels can communicate with each other and exchange data, which can optimize processes within the omnichannel in logistical terms, but it can also give the customer a better experience through livestock management, allowing rapid switching between channels.

The third dimension, Effective Supply Chain and Logistics, contains several challenges that are seen as essential in the transition to omnichannel retailing. First of all, scalability and flexibility are seen as challenges but also as enablers to overcome other challenges. Where scalability means that the supply chain must be able to anticipate large increases or decreases in demand within certain channels. Flexibility is about the speed with which the retailer must be able to react at short notice to increases or decreases in demand. Here, indicators such as inventory management, cross-channel planning and last-mile infrastructure play an important role because they must provide the space and resources to meet this flexibility and scalability. Inventory management also comes into play here, as we now see that retailers are setting up peak department stores at busy times, such as Christmas for example, which are only used for a few weeks or months per year in order to be able to scale up at short notice. Stock levels must then be adjusted to meet demand. Another major challenge remains managing operational costs. In the retail world, faster and faster service is offered to customers with next-day delivery and free returns. Retailers have indicated that matching these types of services is important, but should never be too costly. Therefore, managing these costs is extremely important as there must always be enough margin left to make a profit and ideally these costs should not be passed on to the customer.

In addition to challenging these dimensions separately, it is also important to emphasize the relationship between them. As retailers themselves have pointed out, there can be no Seamless Customer Experience without an Integrated Analytics System and an Effective Supply Chain and Logistics. So these dimensions cannot be seen separately from each other and will always be interdependent in order to realize one dimension with the other.

For the omnichannel retailing concept, a framework is being established that builds on the research of Jocevski et al., (2019). In this research, three dimensions were identified. Namely, Seamless Customer Experience, Integrated Analytics System, and Effective Supply Chain and Logistics. These dimensions are supposed to cover the omnichannel retailing concept. The theoretical framework constructed in this research is built in several steps and is iterated constantly. The basis was the literature, then the expert interviews were used as input. As a final step, the results of the multiple case study were used to complete the framework. Here the omnichannel retailing concept is broken down into dimensions with relevant indicators in order to overcome challenges. As a result from the multiple case study, a

fourth dimension is added to the three existing dimensions identified by Jovesvski et al., (2019). This dimension is the Aligned Organization Structure. This is identified by retailers in the multiple case study as an essential aspect of the transition to omnichannel retailing. The final theoretical framework is shown in Figure 1 below. The omnichannel retailing concept is central. Around it are the four key dimensions identified by the study. The outer circle indicates which indicators are important within this dimension for the transition to omnichannel retailing.
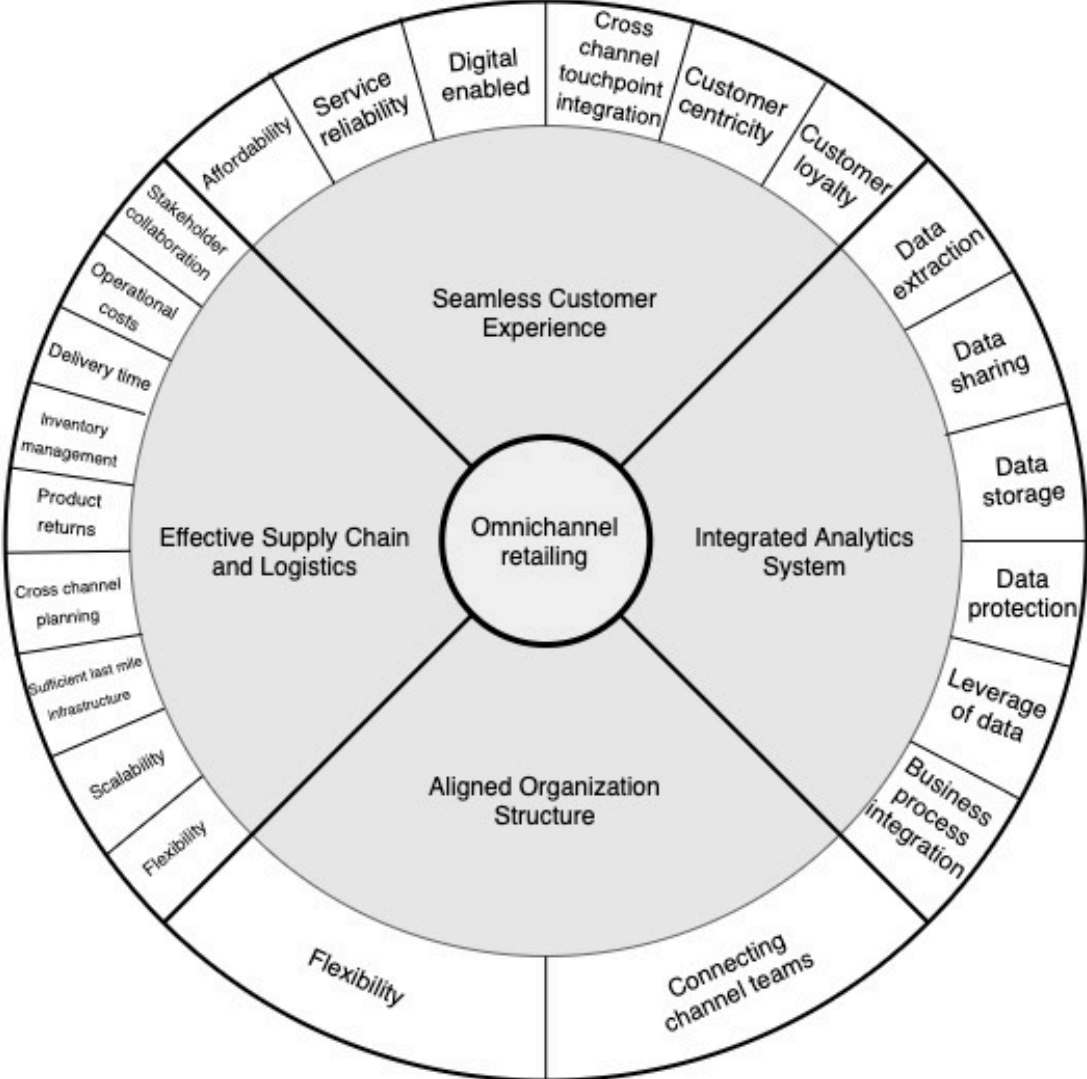

Figure 1: Final theoretical framework

This research and the framework constructed for it allow managers of retail companies to gain several insights. First, this research increases the understanding of the omnichannel retailing concept. Thanks to the framework, it is clear which dimensions and additional indicators are important in the transition to omnichannel retailing. Furthermore, this study offers interesting insights for retailers into how three retailers and experts currently experience the transition and which challenges are most common. Additionally, this research also gives indications of enablers to overcome these challenges. Retailers can take a look at these indicators and judge within their own organization whether they can make steps in this direction.

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1. Introduction

Multichannel retailing is a business model where the retailer uses multiple physical and online channels operating solo to meet the customers' expectations (Frazer & Stiehler, 2014). However, the evolution of this form of retailing is ongoing to the so-called omnichannel; *"conceptualization of the complete integration of all channels, with no distinction between the online and the physical channel."* (Simone & Sabbadin, 2017). Omnichannel retailing has the goal to rationalize multichannel retailing to meet customer expectations by leveraging technology (Larke et al., 2018). This hybrid combination where customers move freely between physical and online channels is a trend that omnichannel retailing has been trying to capitalize the past years (Rosenblum & Kilcourse, 2013). Online channels such as mobile, social media, and gaming are added to the former online and physical channels (Piotrowicz & Cuthbertson, 2014). With the integration of more channels and touchpoints to the omnichannel, the complexity is growing simultaneously (Hosseini et al., 2017). This has accelerated rapidly, supported by the leveraged technology and shifting market expectations (Saghiri & Bourlakis, 2020).

While the omnichannel has been the focus of attention for a while in the retail sector, multiple retailers face several challenges with the re-engineering of their supply chain in the transition to omnichannel, according to a survey held by EY among 42 senior executives of the worlds' largest companies in the retail sector (EY, 2015). This revealed several challenges related to logistical feasibility on the one hand and the use of data and IT systems on the other. In this ongoing transition, the retail sector has been shaken up by the recent events concerning the Covid-19 outbreak. A trend towards more online shopping alongside physical shopping occurred. (Sheth, 2020; Sharma et al., 2021; Lockhart, 2021). This trend has caused people to say they will buy more online in combination with physical shopping after the pandemic, according to a study in the Financial Times by Lockhart (2021). This seamless customer experience where customers switch between channels results in challenges for the supply chain managers to design an omnichannel where a unified customer experience can be created (Sagjiri et al., 2018). In addition, the pandemic has caused challenges related to logistics efficiency and fulfilment, according to a report by McKinsey (Aryapadi et al., 2020).

In the literature, omnichannel retailing has been addressed by different authors. The most prominent works are the ones of Adivar et al., (2019) who proposed a roadmap to success in omnichannel retailing from the perspective of the retailer with multiple important back-end factors. However, the research did not point out specific challenges and moreover, to overcome them. Furthermore, Ye et al., (2018) explored the drivers and barriers to omnichannel retailing in the fashion sector in China. Yet, as they themselves state, future research should be conducted in other retail sectors and geographical areas because the Chinese fashion industry may constitute a bias and require a different design of the omnichannel. Simone & Sabbadin (2017) identified six challenges in the adoption of omnichannel retailing from a literature review, theoretical background, and business' case histories. However, they neglected to test these in a case study to find out what the perception of large retailers is towards these challenges and how these can be overcome. They urge that further research needs to be done to explore new emerging challenges which are faced in the transition towards omnichannel retailing.

The aim of this research is to identify what the current challenges are, with associated indicators that function as enablers to overcome these challenges and to continue the transition. Identifying these aspects is an essential factor and can provide interesting insights for retailers in their transition towards omnichannel retailing. The research problem can be classified in a socio-technical system where a complex and technical omnichannel needs to be managed by companies to ensure that the process of a transition can be managed smoothly to serve society. The scientific contribution of this thesis is that it enhances the understanding in the literature of the omnichannel retailing concept by elaborating on

the different challenges and making suggestions on how to overcome them. In addition, the literature lacks a theoretical framework that explains the concept and its different aspects. This also clarifies the understanding of the concept in the current transition.

In order to achieve the goal of this research, a literature study will be conducted, and experts will be interviewed to gain a complete insight of the current situation associated with challenges. Secondly, retailers will be approached by means of a multiple case study. The multiple case study has been chosen to ensure these challenges can be generalized over the retail sector, and it increases the reliability and validity of the research because the transition will be assessed from multiple points of view (Yin, 2013; Karlsson, 2016). To ensure that the right information will be obtained, semi-structured interviews will be conducted. This method of the interviews will make sure the interview is less biased and therefore increase reliability.

This thesis will be structured with several sections. First, a section gives a literature background and afterwards the methodology of the thesis will be elaborated. The next chapter contains the results of interviews with experts and the multiple case study. Afterwards, the thesis will draw a conclusion where the answer to the main research question will be given. Finally, a discussion chapter will address the limitations of the research, identify theoretical and managerial implications and will briefly highlight future research.

2. Literature background

This section provides an overview of the current literature on omnichannel retailing. The first section will briefly focus on the emergence of the concept of omnichannel retailing in the literature and how it has evolved over the years. Furthermore, challenges will be addressed with associated indicators. These indicators derive from the challenges, but also identified enablers that emerge from the literature. These indicators thus provide indications of enablers that can overcome challenges. Second, the knowledge gap will be addressed with the research question. Third, an overview of the most prominent frameworks in the omnichannel retailing topic will be discussed, and the preliminary framework will be presented.

2.1. Omnichannel retailing

In the literature, pioneers with the term *"omnichannel"* in the retail sector were Parker & Hand (2009) and Ortis & Casoli (2009). They addressed it in a research report of the International Data Corporation (IDC) Global Retail Insights, where they used the term to identify the evolution from the multichannel where customers did not use physical and online channels parallel but simultaneously. Rigby (2011) was the first academic who mentioned omnichannel retailing and defined it as a customer sales experience which takes both advantage of physical and online touchpoints jointly. The complexity of the omnichannel increases with more channels and touchpoints that are being added (Mena et al., 2016). However, more channels and touchpoints also positively affect customer experience because the customer can be served more flexibly in the purchases that are made, and it can lead to growth in sales and profits for the retailer (Pauwels & Neslin, 2015; Verhoef et al., 2015; Simone & Sabbadin, 2017). Conversely, if the omnichannel does not work properly, this may result in poor customer experiences and high operational costs (Peinkofer et al., 2016).

In the following years, many academics referred to the omnichannel retailing term and the conceptualization broadened. Seyedghorban et al., (2019) reviewed 331 articles on supply chain digitization to point out further research topics, among these was the omnichannel mentioned. In the following years, more research has been conducted on omnichannel retailing. However, Raza & Govindaluri (2021) recently conducted a literature review on omnichannel retailing where they address the lack of literature in general, and the literature that is available is mainly focused on specific aspects of the omnichannel or explaining the concept.

The growth of the omnichannel has an immense impact on the complexity of retail supply chains, on how to bring all the channels together in a structured and efficient logistic chain (Chopra, 2018). The flow of information and material across the supply chain must be coordinated strictly with accurate planning activities, which need outcomes to serve customer expectation in the omnichannel (Yang & Zhang, 2019). Pereira et al., (2018) state that if retailers want to transform their supply chain into a supply chain suited for omnichannel retailing, integration of an analytics system which can provide more accurate demand forecasting and minimize risks are needed.

Jocevski et al., (2019) identified three dimensions of omnichannel retailing based on relevant literature that was studied for the research paper. According to their paper, the core aspect of omnichannel retailing is the creation of a seamless customer experience which is empowered by how the retailer integrates analytics systems which leverages data across the channels and can offer customized and flexible shipping preferences with an effective supply chain and logistics. Therefore, the three dimensions are: S*eamless Customer Experience, Integrated Analytics System, and Effective Supply Chain and Logistics* which are visible below in Figure 2. The relationship between these dimensions according to Jocevski et al., (2019) will be highlighted first. The core is the creation of a seamless customer experience due to the changing behaviour of customers to more online and physical use of

channels. This is empowered and can be achieved using technology and the leverage of data across the different channels. This is where the integrated analytics system plays a crucial role to use data-driven insights across channels to enhance the customer experience. These data-driven insights and use of analytics systems also support customers' preferences in shipping in a flexible and resilient way. The management of an effective supply chain and logistics across channels is a crucial aspect of the transition towards an omnichannel for a retailer. Literature regarding these three dimensions will be reviewed in the following three paragraphs, identifying current challenges and associated indicators. These indicators will be structured by dimension to create an overview of which enablers fall within which dimension to overcome challenges.
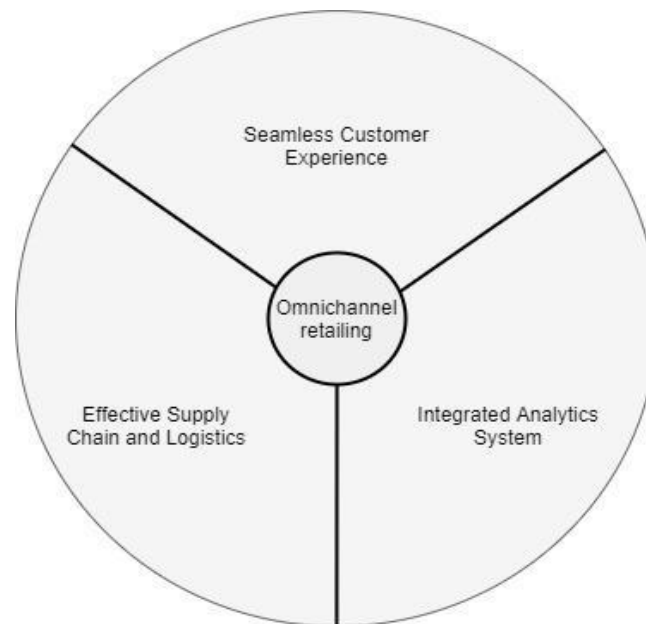
Figure 2: Omnichannel retailing dimensions by Jocevski et al., (2019) in the preliminary theoretical framework

2.1.1. Omnichannel dimension: Seamless Customer Experience

According to Jocevski et al., (2019), a seamless customer experience entails that customers can view product availability across different channels of a retailer. Literature on the customer experience side of omnichannel retailing is limited (Gerea et al., 2021). Some researchers have studied omnichannel retailing performance but lack the interest of customer experience (Ailawadi & Farris, 2017; Verhoef et al., 2015). Gerea et al., (2021) recently published a literature review with focus on the omnichannel customer experience and state the customer is the core of the omnichannel interaction. Xu & Jackson (2019) conducted a survey among customers to identify what the influential factors are for the selection of a channel within omnichannel retailing. Shi et al., (2020) conducted a mixed-method approach where the findings highlight the key determinants of omnichannel experience that have a significant influence on customer behaviour when shopping omnichannel. Peltola et al., (2015) did qualitative research in the Finnish market and concluded that if a retailer wants to provide a good omnichannel customer experience, it is important to make sure the customer is continuously involved in the customer journey and in order to do so, make sure each touchpoint connection matches the preferences of the customer. Shi (2017) agreed on this challenge of creating a sufficient customer journey and addressed it as well in their research. Two key determinants have been identified to enhance this. Namely, unified, and integrated customer experience to reduce the risk of losing the customer during the journey and seamless connections between customer touchpoints to keep the customer proceeding in the journey. These challenges have been acknowledged in the research of Cui

et al., (2021). Banjeree (2019) highlights the challenges of the customer experience and focuses on the consumers' buying habits, where e-commerce enables consumers to shop at flexible times. However, online shopping also decreases the amount of money spent in a single visit because impulse shopping happens more in physical stores due to the fact that shoppers doubt reliability online where in the physical shop they can touch and see the product (Banjeree, 2019). Furthermore, Banjeree (2019) and Shi (2017) highlight the loyalty of online shoppers to a retailer, where their incentive is to be price-sensitive and compare it to the other online retailers. A final challenge addressed by Simone & Sabbadin (2017) is the need for customer centricity, which is a strong driver for the omnichannel efforts. Ye et al., (2018) provided several enablers which can enhance the customer service within the omnichannel. One is to combine touch and feel information of the physical and online world simultaneously in the digital world. It has been stated that with more interactions between customer and retailer, it could be a value-added experience for the consumer. Furthermore, with technology a more friendly customer experience can be created making use of social media, gaming, QR codes, and other fast digital transaction methods. Brynjolfsson et al., (2013) concluded that enabling the power of data and analytics could provide opportunities to understand both customer transactions and interactions. The data and analytics of it can therefore be very useful to overcome challenges related to creating a seamless customer experience. Peltola et al., (2015) also acknowledge the fact that flexibility in logistics is a vital aspect in omnichannel development and can help to enable this unified and integrated customer experience. In addition, the importance of product information across both physical and online channels has been addressed as a prerequisite to enable unified customer experience in omnichannel retailing. The identified challenges are summarized in Table 1 below.

Table 1: Identified challenges in literature of Seamless Customer Experience dimension

Challenge	Reference
Create unified and integrated customer experience	*Peltola et al., (2015), Cui et al., (2021), Shi (2017)*
Create seamless connections between customer touchpoints.	*Peltola et al., (2015), Cui et al., (2021), Shi (2017)*
Increase reliability to increase the number of items bought online.	*Banjeree (2019)*
Ensuring consumers' loyalty	*Banjeree (2019); Shi (2017)*
Ensuring customer centricity	*Simone & Sabbadin (2017)*
Enable digital support for channels	*Ye et al., (2018)*

2.1.2. Omnichannel dimension: Integrated Analytics System

In integrated analytics systems, data analytics serves as the keystone for the retail activities (Jocevski et al., 2019). The importance of data analytics in omnichannel retailing has been acknowledged by many researchers in the literature. Various studies have delved deeper into this topic of how data can be used by analytics system to gain a competitive advantage and to optimize supply chains which are better aligned with the omnichannel (Brynjolfsson et al., 2013; Shen & Chan, 2017; Pereira et al., 2018; Pereira & Frazzon, 2019). Therefore, this is a subject that is frequently addressed within the omnichannel retailing topic, where there are still several challenges for the retailer in order to make the transition. EY (2015), Myerson (2020) and Hajdas (2020) acknowledged that leveraging data is one of the major challenges in the transition towards omnichannel retailing. In addition, Mirzabeiki & Saghiri (2020) conducted a multiple case study to identify how companies can enhance their omnichannel activities based on improving analytical data management and integration. Five opportunity areas have been identified concerning the implementation of omnichannel with the key theme of data. The outcomes of this research indicate key enablers for omnichannel data integration,

which will be incorporated as indicators into the framework. Brynjolfsson et al., (2013) concluded that enabling the power of data and analytics could provide opportunities to understand both customer transactions and interactions. The data and analytics of it can therefore be very useful to overcome challenges related to creating a seamless customer experience. Ye et al., (2018) highlight as well that one of the challenges is to enhance traceability, however this is hard because leveraging data is key here and this is yet a challenge. Pereira & Frazzon (2019) combined analytical methods to handle demand uncertainty and understand customer behaviour to support the omnichannel retailing supply chains. Pereira & Frazzon (2021) go more in-depth where they focused on the data-driven part of omnichannel retailing and propose a data-driven approach which can enable the synchronization of supply and demand with the help of demand forecasting models. Banjeree (2019) conducted and highlighted how retailers can build an omnichannel retailing strategy. Regarding the analytical challenges he identified, there is a lack of readiness in omnichannel technology and the challenge is to leverage data which will enhance the retailer to obtain product information which can help retailers to remain cost-effective as they can steer customers to be convenient, and be able to be cost-effective with the management of inventory and fulfilment options. Cui et al., (2021) and Kondo (2018) mention data challenges in specific and highlight the challenge to gain data access across channels and the main barrier here is that data has been spread among various databases and this should be stored to make it accessible and usable. Finally, Cui et al., (2021) also emphasize the challenge of protecting customers' data across all channels concerning the General Data Protection Regulation (GDPR), where this forms a barrier to be able to share the data among stakeholders. The challenges are summed up in Table 2 below.

Table 2: Identified challenges in literature of Integrated Analytics System dimension

Challenge	Reference
Leverage and management of data for omnichannel purposes	Brynjolfsson et al., (2013), *EY (2015), Myerson (2020), Banjeree (2019); Hajdas et al. (2020)*
Integrate methods for sharing/capturing data in all channels	*Mirzabeiki & Saghiri (2020), Cui et al., (2021)*
Integrate product data capturing and sharing automation	*Mirzabeiki & Saghiri (2020)*
Centralization of product data storage	*Mirzabeiki & Saghiri (2020), Cui et al., (2021), Kondo (2018)*
Availability of product track/trace data availability	*Mirzabeiki & Saghiri (2020), Ye et al., (2018)*
Protect customers' data	*Cui et al., (2021)*

2.1.3. Omnichannel dimension: Effective Supply Chain and Logistics

Supply chains and logistics is a key dimension for the implementation of omnichannel retailing (Mirzabeiki & Saghiri, 2020). According to Hubner et al., (2016), the success of omnichannel retailing depends on how well the integration of the customer fulfilment can be aligned among both physical and online channels because it facilitates the delivery of a comprehensive and consistent logistics service that meets customer expectations. Despite this, researchers address the lack of literature within this dimension (Galipoglu et al., 2018; Marchet et al., 2018). But the few articles that have addressed it will be discussed. According to Myerson (2020), if retailers want to provide an omnichannel which is integrated and consistent with positive customer experience regardless of which touchpoint they want to use, the supply chain requires to accommodate this and connect seamlessly across all touchpoints. This asks for technological solutions where stakeholders need to collaborate. In addition, the fact that collaboration of stakeholders is important is also acknowledged by Archer et al.,

(2006), EY (2015), Song et al., (2019), Myerson (2020) and Bijmolt et al., (2021). A barrier addressed by Ye et al. (2018) is that there is an inability to leverage integrated supply chain processes across the different channels. Banjeree (2019) conducted research in the retail landscape of India and highlighted how retailers can build an omnichannel retailing strategy. He identified several challenges and barriers, where the logistic barriers have been focused on the lack of necessary infrastructure. Gallino & Moreno (2019) address the challenge regarding inventory and fulfilment management which is also acknowledged by Bijmolt et al., (2021), who highlight the challenge of the design and development for sustainable last mile logistics in city environments. Ye et al., (2018) highlight two challenges, namely 'Enhance supply chain efficiency and reduce operational cost' and 'Enhance supply chain and scalability'. The challenge to enhance an efficient logistics strategy with low operational costs, acknowledged by Bijmolt et al., (2021) as well. Furthermore, a challenge where Banjeree (2019) and Bijmolt et al., (2021) agree on, is that product returns create high costs for retailers with online channels, which is therefore related to the efficient and reduced operational costs challenge. This is also acknowledged by de Borba et al., (2020) who identified barriers in omnichannel retailing returns and found that the separation of returned products drives the costs. The identified challenges are visible in Table 3 below.

Table 3: Identified challenges in literature of Effective Supply Chain and Logistics dimension

Challenge	Reference
Ensure efficiency and reduce operational costs	*Ye et al., (2018); Banjeree (2019), Bijmolt et al., (2021)*
Enhance scalability	*Ye et al., (2018)*
Creating coordinated stakeholder collaboration	*EY (2015), Myerson (2020), Bijmolt et al., (2021)*
Management of inventory to customer fulfilment	*Banjeree (2019), Bijmolt et al., (2021); Gallino & Moreno (2019)*
Sufficient design of last mile infrastructure	*Bijmolt et al., (2021), Banjeree (2019)*
Efficient design of product returns	*Banjeree (2019), Bijmolt et al., (2021)*

2.2. Knowledge gap and research question

It can be concluded from the literature that the different dimensions of omnichannel retailing have been studied separately. It is also said that within all three dimensions, more research should be done on omnichannel retailing in general but also on the three dimensions separately. In addition, the three dimensions identified by Jocevski et al., (2019) have not yet been tested in the literature among retailers. Therefore, this research will focus on this knowledge gap by testing these three dimensions by getting in touch with experts and retailers. This will be supported by a framework. This framework will provide a scientific contribution by combining the different aspects in the omnichannel retailing concept, the dimensions, challenges and associated indicators. Thus, the contribution to the literature, which has not been done before, is to decompose the omnichannel concept into different dimensions and bring them together in a theoretical framework. In addition, indicators will be identified to indicate enablers to overcome the challenges within these dimensions in the transition to omnichannel retailing. This way, the overall understanding of the concept can become clear and other researchers can use this to better understand the omnichannel concept. The three dimensions will be put into perspective in the transition from multichannel to omnichannel retailing that many retailers are currently undergoing. To make an addition on the omnichannel retailing concept, this thesis will answer the following research question:

"What are the current challenges within the transition towards omnichannel retailing and how to overcome them?"

This research question will be answered with the help of experts and a multiple case study supported by semi-structured interviews.

2.3. Preliminary theoretical framework

Based on the above, the dimensions identified by Jocevski et al., (2019) are expanded with indicators which are visible in the preliminary theoretical framework in Figure 3. These indicators have been based on enablers to overcome the identified challenges in the literature. Another prominent article where a framework has been constructed in omnichannel retailing, is the framework constructed for data integration in omnichannel retailing by Mirzabeiki & Saghiri (2020), the three pillars have been defined as consumer, logistics services, and manufacturer. Here, there is overlap with the three dimensions of omnichannel retailing described by Jocevski et al., (2019). In the article of Adivar et al., (2019) a framework has been constructed for a roadmap regarding omnichannel retailing, which also includes the three dimensions as proposed by Jocevski et al., (2019). A circular framework has been used here, with the omnichannel retailing aspect at the center and the aspects considered important around it. In this thesis, the same structure will be used where the omnichannel retailing aspect is central in the core of the framework, surrounded by the dimensions of the omnichannel retailing concept. The dimensions of Joceyski et al., (2019) are expanded with the indicators. The framework will be continuously developed through the different phases of this research. After each phase, a new iteration of the framework will be presented and clarified.
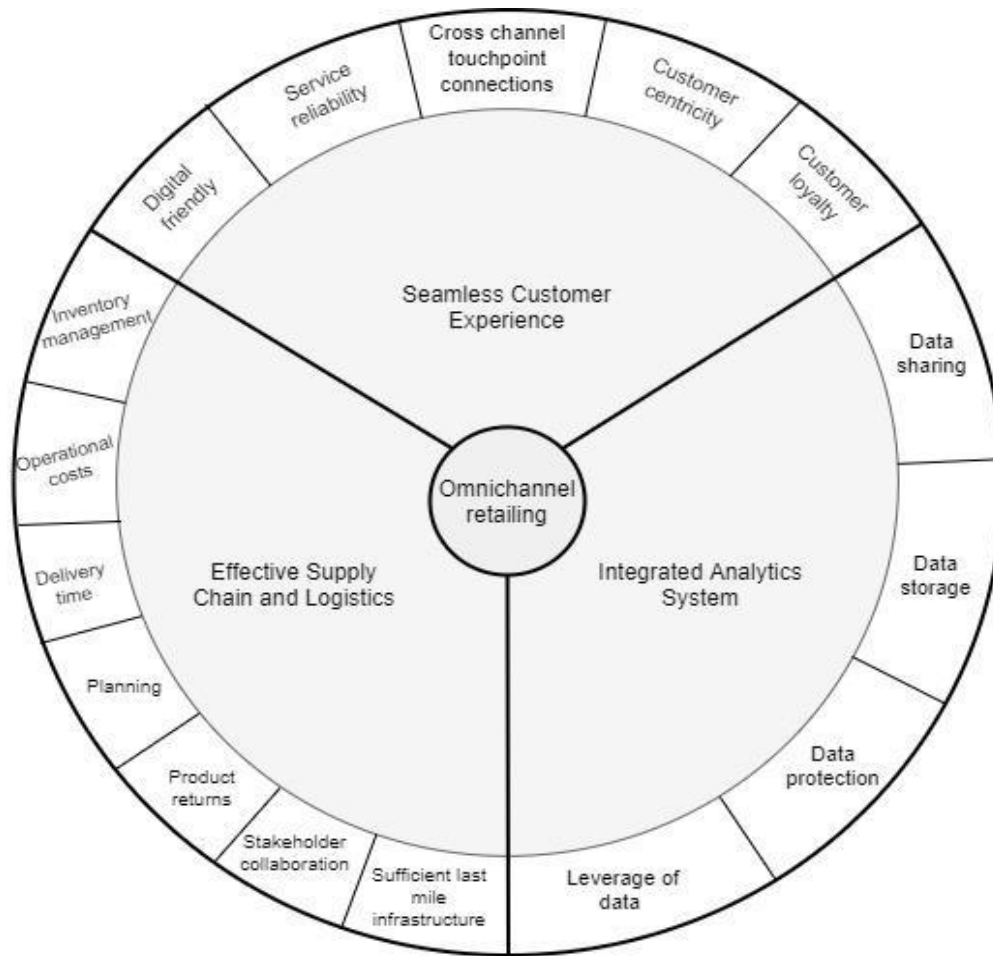
Figure 3: Iteration of preliminary theoretical framework after literature study

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3. Methodology

This chapter will elaborate the methodology of the research. The purpose of this thesis is to gain valuable insights of retailers in their current transition towards omnichannel retailing. Identifying challenges is an essential factor and can provide interesting insights to other retailers in a similar environment who want to evaluate their multichannel to the omnichannel. This can be characterized as an exploratory study, and a qualitative multiple case study will therefore be carried out to gain these insights. The reason a multiple case study has been chosen is that this method can provide an opportunity to capture a transition (Yin, 2013). In order to answer the main research question, the research will take place in several successive phases. First, the research scope will be explained. Then, a general overview of the research will be given and clarified. This will be followed up by an elaboration of each of the successive phases of the research. This entails that the approach of the research will be elaborated for each of the several successive phases. Afterwards, a paragraph is devoted to data collection and analysis. Then the maturity model in which retailers will be assessed will be explained. This is followed by a paragraph on the reliability and validity of the research.

3.1. Research Scope

This paragraph will elaborate on the scope of the research where three different retailers have been approached in the multiple case study. This study focuses on how to continue the transition from multichannel to omnichannel retailing. Therefore, it is important that retailers are familiar with both concepts and are also in this ongoing transition. This means that they have already actively started to implement the omnichannel concept, but do not yet have it fully in place. It was decided to keep the retailers' scope within the Netherlands. This means that the touchpoints that the retailers have with the customer are located in the Netherlands. One of the reasons for this is that compared to the global digital commerce growth, Figure 4 shows that the Netherlands is increasing more in year-on-year change in revenue on a per-period basis since the outbreak of the Covid-19 pandemic (Salesforce Shopping Index, 2021). The peak in the first quarter of 2021 can be explained by the strict lockdown rules that forced physical shops to close down. However, we see that after these strict measures have been lifted in the Netherlands, many people continue to buy online compared to the rest of the world. In addition, it has been decided that the product portfolio of these retailers should be within the general merchandise. The revenue of Dutch retailers in the business of non-food, with a focus on the general merchandise, increased by 9.3% in the second quarter of 2021 compared to a year earlier (CBS, 2021). The retailers who sell general merchandise have therefore seen a growth in digital sales, which is higher compared to the global average of all retailers. Hence, it is important for these retailers to have their omnichannel in order so that the growth in online channels is well-connected to the offline channels and customers get a seamless shopping experience.
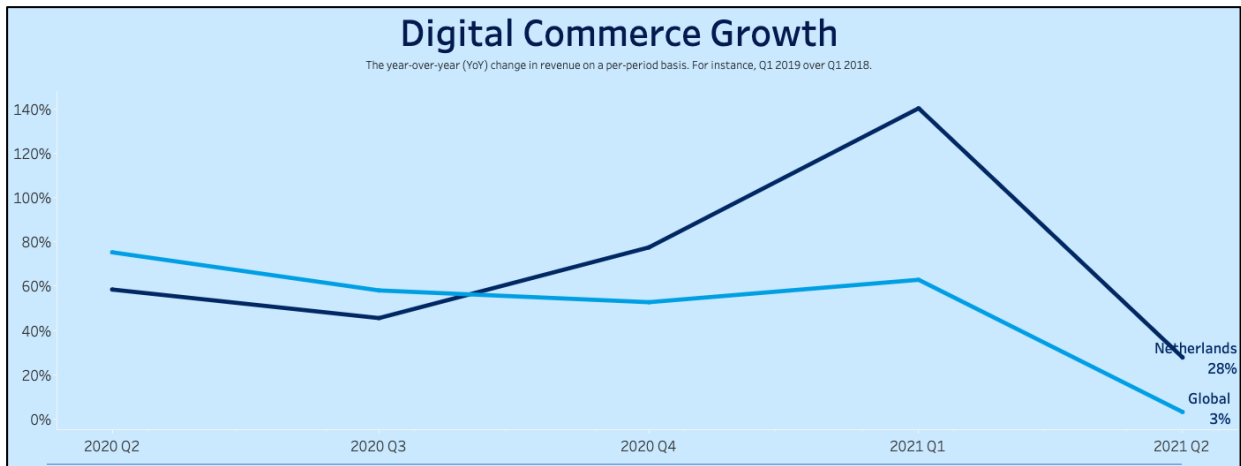
Figure 4: Digital commerce growth of revenues of retailers in the Netherlands compared to global revenues

3.2. Research approach

This research will be conducted in several successive phases, which are visualized in Figure 5, the research flow diagram. Every phase will deliver a specific sort of output which can be used as input for the next phase. The three phases, research, verification, and conclusion will be elaborated separately in the next three paragraphs.
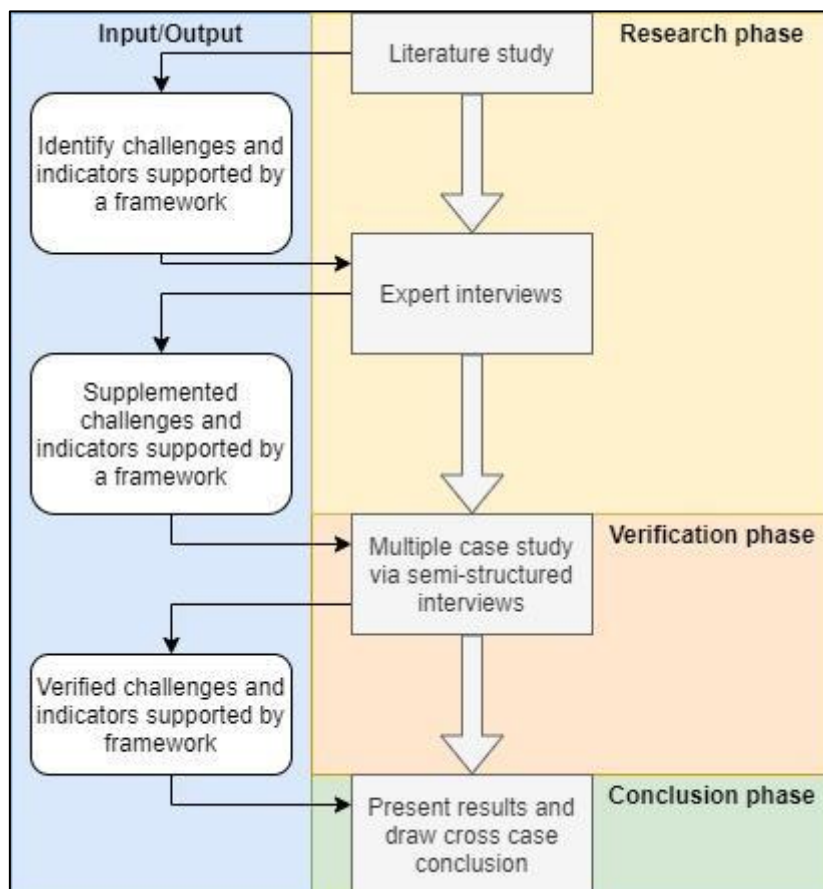
Figure 5: Sequence of steps of the research visualized in a Research Flow Diagram

3.2.1. Research phase

The research phase is twofold. First, the decisive aspects for omnichannel retailing will be determined based on a literature study. The literature study also identified what challenges and indicators are known in the literature. This is structured within each of the three dimensions identified by Jocevski et al., (2019) and is visualized in a preliminary framework. After this overview has been established, experts will be consulted by means of an interview on what they perceive as the current challenges regarding the transition towards omnichannel retailing. Table 4 gives an overview of the consulted experts and under which job title they operate within their organization. These experts that will be consulted are specialists on the omnichannel retailing topic who are not employed by a retailer but have provided advice to retailers, with a particular focus on the transition to omnichannel retailing. The mentioned challenges by the experts will be converted to indicators and are then added or emphasized with the overview from the literature so that a complete overview of the current situation can be generated. A threshold value will be applied of the minimum number of experts who mention a similar challenge before it will be considered as a significant challenge, which can be considered as an indicator in the framework. This threshold value is two experts before it will be added to the framework. However, if a challenge will be mentioned by only one expert, but also originated from the literature, it will be included in the framework because several sources will refer to it. Moreover, indicators will not be excluded from the framework at this stage. The reason for not excluding indicators is that this research aims to provide the broadest possible view of the omnichannel retailing concept and which aspects can be considered important in this transition. Therefore, it is important that the framework contains all possibly relevant aspects so that these can be tested in the multiple case study with the retailers. Furthermore, a distinction in importance of the orange marked indicators will be applied as well. If a challenge will be mentioned by two experts, it is coloured light orange, when three or more experts highlight it, the colour will be dark orange. This will then be brought together in a framework created from the literature and expert interviews. This closes the research phase and allows the next phase to begin.

Table 4: Consulted experts, job title, and company description

Expert	Job title	Company
1	Head Supply Chain Management	International digital transformations consultant
2	Managing Consultant Supply Chain Management	International digital transformations consultant
3	Managing Consultant Retail Buying, Merchandising and Supply Chain	International digital transformations consultant
4	Vice President Global Retail and Consumer Goods	International digital transformations consultant

3.2.2. Verification phase

The second phase consists of the verification of the investigated findings from the research phase. This will be done via the multiple case study method. The reason this method has been chosen is to ensure these challenges and indicators can give interesting insights into the transition to omnichannel retailing from a retailer's point of view. The multiple case study method is also a method which increases the reliability and validity of the research because the transition will be assessed from multiple points of view (Yin, 2013; Karlsson, 2016). To ensure that the right information will be obtained in the multiple case study, semi-structured interviews will be conducted at three retailers. The semi-structured method of the interviews will make sure the interview is less biased and therefore increase reliability. The interviews will be structured in several phases, a number of key questions will be asked in each

interview. In addition, there will be room to ask supplementary questions. An overview of the structure of the interviews is shown in Table 5 and the interviews will be recorded and transcribed. This will be added to the appendix of the report and referred to in the results chapter. The phases of the interviews will be briefly explained here.

First, several introduction questions will be asked to the manager about his role, responsibilities, and the company where he is employed. These descriptive questions give an overview of the setting in which and with whom the interview will be conducted. Second, the interviewee will be asked for the definition of multichannel and omnichannel retailing to make sure there is the same understanding of the concepts. In addition, the retailer will be asked what the most important benefits are according to them and how this transition has been going on in their organization in the past years. Third, the framework will be a point of discussion. The framework will be run through several steps in the interview. First, the three dimensions of omnichannel retailing will be addressed. The definition of these is given by the interviewer. Afterwards, the interviewee will be asked if they think these dimensions cover the omnichannel retailing concept and what their relation is according to their understanding and what they experience within their company. In addition, what the most important challenges are within their organization in each of the dimensions will be asked. This provides a perspective on what bottlenecks currently exist in the transition to omnichannel retailing. In the next phase, each dimension will be discussed separately. Here, each dimension will be addressed with associated indicators and these will be discussed in detail. The retailer will be asked what the most important indicators are to successfully overcome the challenges and reach omnichannel retailing in this transition. The reason that this structure is used is because it is also the structure of the framework in which the reasoning is from the inside to the outside. First the omnichannel concept, then the challenges within the various dimensions. And finally, the outer ring of the framework, the indicator of the dimensions. Afterwards, the indicators that are identified in the literature and by the experts will be shown. The question to the retailer is whether they think these are relevant, and if significant ones are missing. When all the dimensions with indicators have been dealt with, the complete framework will be presented. Here, there is an open discussion about what the interviewee thinks of the framework and whether it summarizes the omnichannel retailing aspect well in this framework. Finally, the pandemic will be discussed. Here, the retailer will be asked what impact this had on this transition and what influence it had on the challenges within this transition. Also, the indicators that played a significant role in switching quickly to online sales during the lockdowns will be addressed, and whether this has accelerated the development of these indicators and had a positive impact on the transition to omnichannel retailing.

Table 5: Structure of interviews shown in successive phases with associated questions

Phase	Questions	
Introduction	1.1.	What is the sector your company operates in?
	1.2.	How many physical stores does your company have in the Netherlands?
	1.3.	What is the product portfolio of your company?
	1.4.	What is your function title?
	1.5.	What are the responsibilities of this function?
Definition of concepts	2.1.	What is your definition of multichannel retailing?
	2.2.	What is your definition of omnichannel retailing?
	2.3.	What are the most important benefits from omnichannel retailing?
	2.4.	When was the moment your company started with the transition towards omnichannel retailing?

Dimensions and challenges	3.1.	Explanation of the three existing dimensions is given with a first draft of the framework, where only the dimensions are visible in relation with the omnichannel retailing concept.
	3.2.	What is your opinion about these three dimensions, do these cover the omnichannel retailing concept?
	3.3.	What is the relation between these dimensions within your company?
	3.4.	What is the biggest challenge with each dimension for your company in this transition towards omnichannel retailing?
Indicators: Seamless Customer Experience	4.1.	*Explanation about the indicator definition and relation to dimension.*
	4.2.	What are the two most important indicators with this dimension for your company?
	4.3.	How has your company been developing these indicators?
	4.4.	Show the identified indicators of the research within the dimension.
	4.5.	Do you think these indicators cover the dimension
	4.6.	Do you think one or more significant indicators in addition to the existing indicators?
Indicators: Integrated Analytics System	5.1.	*Explanation about the indicator definition and relation to dimension.*
	5.2.	What are the two most important indicators with this dimension for your company?
	5.3.	How has your company been developing these indicators?
	5.4.	Show the identified indicators of the research within the dimension.
	5.5.	Do you think these indicators cover the dimension
	5.6.	Do you think one or more significant indicators in addition to the existing indicators?
Indicators: Effective Supply Chain and Logistics	6.1.	*Explanation about the indicator definition and relation to dimension.*
	6.2.	What are the two most important indicators with this dimension for your company?
	6.3.	How has your company been developing these indicators?
	6.4.	Show the identified indicators of the research within the dimension.
	6.5.	Do you think these indicators cover the dimension
	6.6.	Do you think one or more significant indicators in addition to the existing indicators?
Total framework	7.1.	*Show total preliminary theoretical framework.*
	7.2.	Do you think the framework covers the omnichannel retailing topic with all relevant dimensions and indicators in the transition towards omnichannel retailing?
Feedback	8.1.	Do you think the interview managed to cover the omnichannel retailing topic and transition?
	8.2.	Do you have any documents or articles which could supplement this research?
	8.3.	Do you have any additional comments or feedback regarding the interview or research?

3.2.3. Conclusion phase

The conclusion phase will consist of presenting the results obtained from the expert interviews and the retailer interviews in the multiple case study. As for the expert interviews, the challenges identified by the experts will be listed. Afterwards, the most important points regarding the challenges identified by the expert will be briefly extracted from each interview. With this input, a preliminary framework will be constructed in which the input of the literature serves as a basis and the results of the expert inquiries supplement this basis with additional indicators resulting from the challenges.

The results of the semi-structured interviews in multiple case studies will be discussed in detail. First, the challenges cited per dimension will be listed. Afterwards, each interview will be used to extract why the retailer in question experiences this as a challenge in their transition to omnichannel retailing. Then the dimensions will be discussed. The interviewees will be asked for their views on these dimensions, whether they cover the concept of omnichannel retailing and what the relationship of the dimensions is. Again, quotations will be taken from the interviews to emphasize their views. Then the indicators of the dimensions and challenges will be discussed. These are also listed first, and then quotations will be cited for each interview to highlight them. After the challenges, dimensions and indicators, there will be a short section on the impact of the pandemic on the retail industry's transition to omnichannel retailing. Here, indicators that are considered significant will be highlighted through quotes from the interviews. All these results will be incorporated as input for the framework. The framework will be presented at the end of the results chapter. Here, the preliminary framework drawn up after the expert interviews will be used as a basis and a final theoretical framework will be presented.

3.3. Data collection and analysis

The data collected in this qualitative research will be derived from the three interviews which are conducted with managers of retailer companies. Interviews are a method which allows a researcher to gain insight into a specific topic by gathering opinions and interpretations on this specific topic. The data derived from the interviews complements the information previously collected from the literature and expert interviews. Together, these provide a clear and realistic overview of the current transition and allow the research questions to be answered. In this paragraph, a brief analysis of the retailers and the market they operate in will be given. At these retailers the data will be collected by means of the multiple case study. Afterwards, the findings of the research will be analyzed and interpreted will be elaborated on.

As mentioned before, three retailers will be consulted in the multiple case study. An overview can be seen in Table 6 below. The interviews will be held with managers of three different retail companies who are responsible for the transition to omnichannel retailing within their organization. The names of these individuals will not be published in order to remain in line with the GDPR (General Data Protection Regulation). Furthermore, it is important that the retail company is familiar with the omnichannel concept and has the ambition to implement it to ensure transition is already ongoing. The difference in the number of physical shops between the retailers varies widely, however, this is the focus of shops only within the Netherlands so that the environment can be precisely described, and it can be made clear where these retailers stand in comparison to the omnichannel retailing environment within the whole of the Netherlands. The number of employees will also be shown to give a better indication of the size of the company.

Table 6: Retailer interviewees with background information of the function and the company

Retailer	Function title	Company	Product portfolio	Number of physical stores in the Netherlands	Number of employees
A	Director Digital Supply Chain	Dutch retail chain of department stores in NL	General merchandise of own brand only	764	9569
B	Senior Digital Project Leader	International general merchandise retailer with multiple stores in NL	General merchandise of own brand only	14	6000
C	Director HR & Supply Chain	Dutch retail chain of department stores in NL	General merchandise of own brand only	150	1500

The results of the expert interviews and multiple case studies will be used as input for the framework. The reason the challenges and indicators will be clearly listed and discussed is to ensure a good overview of the input for the framework. Cross-case conclusions will then be drawn, and these will be incorporated into the framework. To draw these cross-case conclusions, the results will be analyzed for similarities and differences that are mentioned. First, the challenges: which challenges will be mentioned by which experts and retailers? From this it can be concluded which challenges will be identified more often and can therefore be assumed with greater reliability. For the indicators, a different type of table will be used to indicate the opinion of the retailers and to draw cross-case conclusions from this. Here, all indicators will be listed per dimension and whether retailers agree or disagree is noted behind them. They can also find the name of the indicator not appropriate enough and find an alternative for this. Should this happen more often, the researcher himself looks for an appropriate middle ground that covers the indicator factor well. All this information is visible in Table 10 in the results chapter.

Furthermore, a threshold value will be applied here as well. A challenge will only be included if at least one retailer mentions it, and it is also mentioned by at least one expert. An indicator can be added to the framework when at least one retailer mentions it. There is also a distinction between light orange and dark orange, which is applied in indicator Table 11 in the result chapter. Light orange indicates that one retailer has mentioned it, and dark orange implies that two or three retailers mentioned it as a significant indicator in the transition towards omnichannel retailing. These threshold values ensure that the reliability of the findings will be safeguarded and that a distinction can be made if certain aspects will be mentioned more often than others and are therefore considered more important in this transition.

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3.4. Maturity model

To gain a good understanding where the three retailers consulted in the multiple case study will be positioned in the omnichannel retail environment, a maturity model will be defined. A maturity model is a technique which is widely accepted to measure the maturity level of one or more aspects of a specific process of an organization (Proenca, 2016). The model represents several maturity levels of a path towards the ideal way of performing a certain process. The goal of this analysis is to identify at what level the three retailers currently are. This is done by asking the retailers in the multiple case study about their current position within these dimensions and how they develop the key indicators. This allows us to measure where these retailers stand in the maturity model. Here, the different levels will be identified. This is based on the five stages identified in the model of Magestore (2021). Each stage will be briefly described by means of the maturity level within the three dimensions of omnichannel retailing.

The first stage is called 'siloed' where there is no clear omnichannel strategy visible. The focus of the retailer is on product centricity and transactions regarding the customer experience. The supply chain process is basic, and they operate in silo. This may mean, for example, that the point of sale and online services are not integrated. There is a separation in the products, orders, and data of customers. The data which is needed for the analytics systems are of low quality and the needed data is not extracted completely. The second stage is the 'early-stage omnichannel'. Here, a strategy is clear and the focus of the retailer is more on customer centricity. In addition, the integration of online and offline channels is being developed, which can result in a basic view of the customers and offer a better customer experience across these channels. For example, here the point of sale, online services and associated warehouses are connected. This entails those orders and data can flow across these channels. The analytics systems are able to track the performance of the retailer using quantitative data. This stage is followed by the third stage, the 'mid-stage omnichannel'. The retailer has embraced customer centricity. The processes are aligned to the journey and experience the customer demands. This results in a more strategic view on processes and integration of cross-channel touchpoints. Stakeholders collaborate better to match the expectations across channels and the seamless customer experience can be improved. In addition, the obtained data is being leveraged more and provide insights across some channels. The fourth stage is called 'omnichannel', where the customer-centric is embedded, which results in a seamless customer experience across the channels. These processes and operations of the channels are aligned to meet this customer centricity. The analytics system provides real-time views and analysis of all channels and associated processes. Furthermore, the retailer is iterating new techniques to keep improving the customer experience and developing the operation processes. The fifth stage is the 'optimized omnichannel'. Focus here is on the development of the customer experience, which is supported by the operations and analytics systems. The channels are integrated and aligned completely to serve a seamless experience across the channels. The retailer is constantly working on improving the omnichannel model by integrating new technology and looking for new digital opportunities. The following Table 7 summarizes these stages and the degree of development within each dimension.

Table 7: Maturity model in five stages per dimension

Stage	Seamless Customer Experience	Integrated Analytic Systems	Effective Supply Chain and Logistics
1: Siloed	No omnichannel services	In store processes with high manual effort	Channels are not integrated
2: Early stage omnichannel	Omnichannel services are not 100% reliable	Low level of automation	Channels are integrated from online to offline
3. Mid-stage omnichannel	Omnichannel services are reliable to a large extent	Medium level of automation	Channels are integrated partly to multichannel
4. Omnichannel	Reliable and standardized omnichannel services	High level of automation	Complete integration of all channels
5. Optimized omnichannel	Optimized customer experience	Advanced innovations and analytics	Complete integration and alignment.

3.5. Research reliability and validity

This study uses a qualitative research method where semi-structured interviews will be conducted in a multiple case study. The goal is to understand the omnichannel retailing concept and test a theoretical framework which will be constructed and iterated in this thesis. For the interviews, the same structure will be maintained in order to ensure that the answers can be easily compared, and cross-case conclusions can be drawn. Before asking substantive questions about the research in the interviews, the understanding of several important concepts in the research will be asked. This ensures that reliability and validity is increased because there is a mutual understanding of the omnichannel retailing concept and the ongoing transition. To ensure reliability in the scope, three retailers were approached to see general merchandise sales of their own brand only. In addition, the touchpoints between retailer and customer were framed within the Netherlands. The semi-structured interviews are all recorded and transcribed to make sure the interviewers could interact better with the interviewee to open a discussion or to ask more in-depth questions regarding a dimension, indicator, or challenge.

4. Results

The results' chapter presents the findings of the expert interviews and the multiple case study. First, the challenges addressed by the experts will be listed. Each interview with an expert will focus on the major challenges regarding the transition from multichannel to omnichannel retailing. The paragraph will elaborate on these challenges and cite the quotes related to the challenges in the interview. These identified challenges will supplement the earlier identified challenges resulting from the literature research. Afterwards, this input will be used in the preliminary theoretical framework. The earlier constructed preliminary theoretical framework resulting from the literature study will serve as a basis. After the results from the expert's interviews, the results of the multiple case study will be discussed. But first the maturity analysis will be carried out on the basis of the maturity model explained earlier. This is explained so that it can be made clear where these retailers stand in relation to the Dutch omnichannel retailing environment. It also clearly indicates where these retailers are in their transition to omnichannel retailing. This makes it clear which steps retailers have already taken to get to where they are now. In the following paragraphs, where the results of the semi-structured interviews are explained, the same structure of issues as in the interviews is followed here as in Table 5. Thus, the framework is referred to from the center, the omnichannel retailing concept, to the dimensions with additional challenges, after which the link to the indicators is made. This will be done in more detail because the challenges, dimensions, and indicators are all addressed and explained with quotes. In addition, the effect of the pandemic on the transition from multichannel to omnichannel retailing is explained and briefly discussed. Discussions have been held with the retailers about which indicators played an important role in this. The results of the multiple case study and effect of the pandemic on the transition, will also be concluded with the iteration of the framework in which this is the last step. Thus, the final theoretical framework will be presented here.

4.1 Challenges mentioned in expert interviews

The following paragraph will highlight which current challenges experts consider to be faced when the transition from multichannel to omnichannel retailing is ongoing. The experts were informed of the scope, namely that these challenges should come from the retailers' point of view who sell general merchandise of only their own brand in the Netherlands. An open discussion was chosen where the current challenges of omnichannel retailing were identified, the highlights of these discussions are transcribed and visible in appendix 8.1. The open discussion allowed these experts to come up with their own challenges instead of a list of challenges being presented and structured in dimensions, which could lead to bias. After the discussion, the challenges mentioned by the experts were taken from the conversation and are shown in the following Table 8. The indication symbols of the experts correspond to the above Table 6 where the experts and function are described. The challenges mentioned that came out of the discussion will be briefly explained with additional quotes. Furthermore, the framework will be visible in Figure 6.

Table 8: Challenges mentioned by experts in interviews

Challenge	Expert
Management of operational costs	1, 2, 3, 4
Match competitor's service in quick and cheap last mile delivery	1, 4
Efficient design of product returns	1, 3
Have sufficient last mile infrastructure available	1
Ensure scalability in supply chain	1, 2
Ensure flexibility in supply chain	1, 2
Management of inventory fulfilment across channels	2, 3, 4
Creating coordinated stakeholder collaboration	3
Manage supply chain planning	3
Management of data	3

4.1.1. Expert interview 1

In the discussion with expert 1, the position of the customer was reviewed and how the retailers should adapt the omnichannel design to the customers' expectations. Here, the current challenge lies in fast service with low costs:

> *"The customer experience must be truly seamless. It must be as easy as possible, with as few actions as possible to make a purchase, and at the lowest possible cost, or even free these days to compete. "*

The experts addressed the fast and convenient service with as little actions as possible for the customer. For the retailers this needs to be offered at low costs so that, on the one hand, a margin can remain for the retailer but, on the other, no high costs need to be passed on to the customer. In addition, it is mentioned that this must be done because a lot of retailers are offering this service. Therefore, every retailer should match this. In the context of meeting competitors' service, quick delivery needs to be even quicker these days. To facilitate this, there must be good last mile infrastructure that can cope with it, in the form of available transport and personnel. Finally, the most important aspects mentioned to have an effective supply chain and logistics are scalability and flexibility. Therefore, these are added to the framework as omnichannel indicators. The following is mentioned by this expert in the interview regarding the scalability and flexibility indicators:

> *"Flexibility is about being able to scale up and down your capacity quickly. Scalability is you want to grow very much in the coming years, so how can you scale up what you have or roll it out to other countries."*

4.1.2. Expert interview 2

In the second interview with expert 2, it is also mentioned that the challenges in matching competitors' service, in terms of free and quick delivery, are in relation with managing operational costs. Moreover, the expert also addressed the importance of scalability and especially in context of the pandemic.

> *"I see scalability as a challenge, for example in the context of a pandemic, the shops are now closing and online scaling-up is required, how fast can the retailers do this? Can extra carriers be attracted? Do we have extra capacity? Do we have enough operators?"*

The final challenge that was mentioned is regarding service reliability management. This challenge came also forth in the literature research, therefore emphasizes its importance why it was already included as an indicator in the framework.

4.1.3. Expert interview 3

The third expert interview started with the planning challenge of omnichannel retailing regarding the effective supply chain and logistics dimension, this emphasizes with the framework indicator. This challenge will be especially focused on the transition from multichannel to omnichannel retailing and which challenge this creates.

> *"So, supply chain planning is really simple in multichannel, but in omnichannel it is just not really simple. So, the biggest challenge in this new world is predicting what the demand for a product is going to be and where that demand is going to come from."*

Therefore, the indicator planning will be marked as significant as well in the framework. Furthermore, product returns are mentioned as a significant challenge. How this can be designed efficiently is dependent on several aspects and therefore a complex aspect. Costs and service are the most important aspects, where the customer wants to be able to return products as easily as possible. As for the retailer, this only costs money because the sale does not go through, but the retailer wants the customer to have a pleasant customer experience so that the loyalty from customer to retailer will be maintained. Thirdly, the challenge regarding inventory fulfilment is mentioned as well, to manage this across the different channels. This allows quick switching between channels if products will be sold out somewhere but still available on other channels. As a fourth challenge the expert mentioned the following:

> *"The collaboration of stakeholders is therefore really in the sharing of stock, in multichannel you just pretty much owned your own stock whereas in omnichannel, essentially, fulfilment methods cover all channels. That's the difference, in the omnichannel world multiple demand signals coming into one stock. Where in multichannel there were equal demand and supply channels. "*

Thus, stakeholder collaboration across channels is essential in the transition towards omnichannel retailing as channels need to be more aligned and stakeholders play a crucial role in this. Finally, the expert referred to the management of the data systems throughout the whole omnichannel across the channels.

> *"Then there is the analytics and the data side of it, which is difficult to manage. Because in the old world and how lots and lots of planning and stock allocation systems work, still now because there are big investments to be made to improve this. There is a physical operational and data pain point in just like mix in demand signals and like what a standard multichannel replenishment system does, and let's be honest, our big major clients don't have omnichannel replenishment capabilities within their systems right now."*

The expert states that many large retailers do not yet have the omnichannel capabilities they actually need for the data analytics side of the omnichannel environment. Especially in the transition from multichannel to omnichannel retailing. For many retailers, there is still a lot of room for improvement in the general sense of data management. This is in the framework covered by the several data indicators at the integrated analytics system dimension.

4.1.4. Expert interview 4

In the final discussion with expert 4, several challenges are mentioned. Where there are multiple focus areas for the retailer in order to successfully go through the transition towards omnichannel retailing. Where in the first challenge, the focus lies on the management of operational costs, according to expert 4:

"Number one challenge, you have to manage the cost of omnichannel, which comes from additional transportation costs. Also, if you enable stores to fulfil those orders, you have to add personnel to those stores."

The expert highlights the management of operational costs of the omnichannel, but also acknowledges the importance of inventory management here. Inventory management is also an important cost driver for personal and storage space. Secondly, the expert mentioned the free shipping service which is becoming standard nowadays among retailers and the delivery service which is becoming quicker simultaneously. The experts mentioned the following about these changes in the current environment:

"The second challenge, you got to match the other retailers in the service they provide."

This is however more a retailer's challenge in general and will also be of importance in omnichannel retailing but is not decisive in the transition, therefore it is not marked orange. At last, the expert referred to the fulfilment across channels, which needs to be aligned in order to meet customers' expectations. Finally, the expert cites the challenge of stock management. It mentions that this stock across different channels must be well-matched if something will be sold out in one channel but not in another. The driving factor behind this challenge is technology, according to the experts. Technology can make the customer experience seamless if, for example, there is no stock left in the shop, but this can then be filled by an online stock that can be delivered to the customer's home the next day.

The challenges mentioned by the four experts will be used as input, in addition to the challenges and indicators emerging from the literature. These two sources together form the input for the following preliminary theoretical framework.
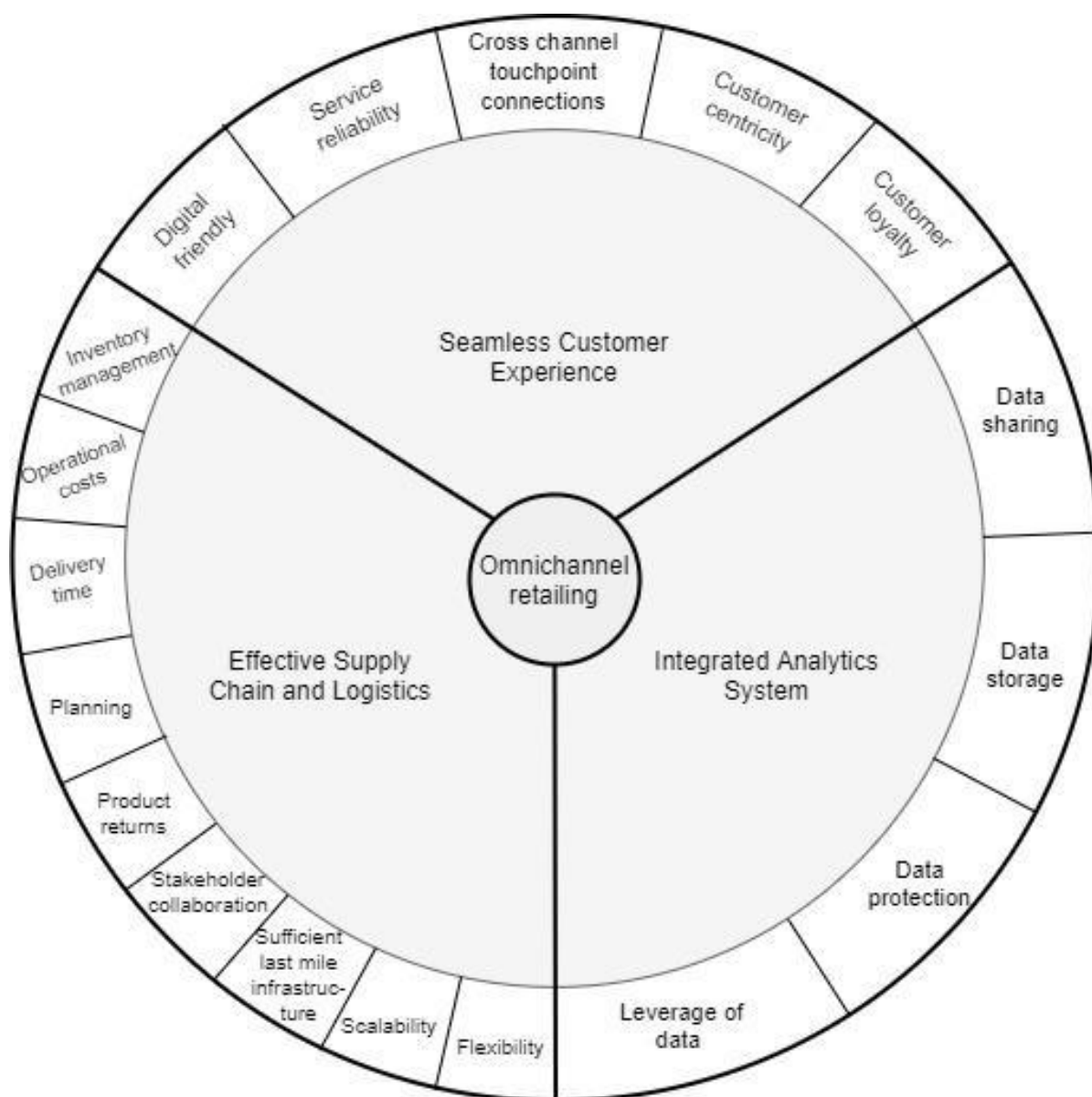
Figure 6: Iteration of preliminary framework after expert interview

4.2. Multiple case study results

The multiple case study consists of three semi-structured interviews. The highlights of these interviews will be added to appendix 8.2. The goal of these interviews was to identify the current challenges within each dimension and to test the framework with its indicators from a retailer's point of view in their transition towards omnichannel retailing. Their opinion and insights will be asked about the dimensions separately, but also about the relationship between these dimensions. Afterwards, the interview led to discuss each dimension specific regarding the indicators. Furthermore, the effect of the pandemic on the ongoing transition will be discussed as well to identify which indicators play a significant role. All these different phases of the interviews will be supported by including a piece of the framework in the discussion so that the output of the interviews can serve as input for the framework. At the end of the interview, the entire framework will be discussed with the retailer.

4.2.1. Maturity analysis.

Based on the maturity model described in paragraph 3.3., a maturity analysis will be conducted. In the semi-structured interviews, several questions will be asked which can indicate the level of maturity of the specific retailer. The results will be briefly mentioned here, with arguments for the choice of the stage in which the retailer finds itself in the maturity model. This is assessed on each of the three dimensions of which stage the retailer is in.

Retailer A is a retailer that initially operated from the physical shops to optimize the customer journey, which was then complemented by the online channels to focus on the customer centricity. In recent years, the company has been working to better connect the online side to the physical channels because they see that this is what the customer demands. Retailer A states that the most important thing for them within the Seamless Customer Experience dimension is that the channels with the touchpoints are well-connected. That the customer can also be helped quickly when the stock in the shop is empty, either online or physically elsewhere. So, inventory is essential to really connect the channels and make sure they can be used interchangeably. Thus, it can be concluded that there is some integration between channels, but it is still relatively basic because there are still big steps to be taken and that is where the focus is now. In the maturity model this can be described as phase two, the early-stage omnichannel. In terms of the Integrated Analytics Systems, the retailer indicates that the data storage is in order and a cloud platform has been set up for this purpose so that it can also be shared internally. What the focus is now on is the following:

> *"Analysis and decision-making. And this is exactly what we are going to look at in the omnichannel case, that you learn to combine the data from your shop and web and start making analyses and reports based on that data."*

Here you can say that the retailer is well-developed and that the right data has been collected and stored. The next step is made in the leverage of data, and that is only in the third stage. That's why stage two is appropriate here. In the last dimension, the retailer indicates that the focus is now on balancing capacity and where the demand comes from, and how to ensure that this is logistically coordinated. And, in addition, connecting your stock management to this. Enough stock in the right place at the right time. Here, too, the retailer is in the second phase. There is integration across channels but not yet of all the department stores and between the channels this is also not fully integrated as it is in stage three. This retailer is thus in the second stage in all dimensions, and therefore it can be concluded that this retailer is in the early-stage omnichannel.

Retailer B mentions that the retailer used to focus mainly on just large physical shops outside the cities and also on online sales. But the focus now is really on making customers move seamlessly between channels, and for that they are going to open different types of physical shops that are smaller and located in the middle of the city. He calls this: *"We are creating customer experience centers."* Here they want to give customers a kind of showroom store, after which it can be ordered and brought to their home. This is a good example of embracing customer centricity and how integrating online and offline channels achieves this. This corresponds to the third stage. Regarding the second dimension, the retailer emphasizes the importance of facilitating business processes that can connect the data between channels. This is where the focus lies at the moment, which coincides with the third stage where the retailer is positioned. The retailer emphasizes the fact that the management of inventory is integrated across the supply chain and channels. So that the customer has the flexibility of which channel and at which time a purchase can be made. This is where the focus is now, to seamlessly connect the back end of the channels to meet customer expectations. This is also in the third stage, which leads to the conclusion that this retailer is in the mid-stage omnichannel.

Retailer C mentions that they are adapting their shops to the omnichannel philosophy and customer centricity. The focus is now on how this runs between the physical shops and the online channels. So, we can say that the omnichannel strategy is formed and there is a focus to execute it. This corresponds to the second stage. In the area of data, the focus is currently on creating a good view of the customers. The focus is now on ensuring that first the customer proposition is in order and then the product movement they want to follow. This is characterized by the second stage. As for the logistics dimension, the retailer says that within the sorting center to deliver all orders, they still have a scalability problem. They do relatively small volumes and have a wide variety of products, which pushes up operational costs. They are in the process of mechanizing this and becoming more flexible. It can therefore be said that the warehouses are probably not yet where they want to be. So here, too, there is a second stage. Summarizing all dimensions, we can say that this retailer is in the early-stage omnichannel.

4.2.2. Challenges in multiple case study

After the introduction and definition questions in the interview, the retailers were asked what their biggest challenges are for implementing omnichannel retailing within their company. These challenges will be structured within each of the existing dimensions of the framework. They are listed in Table 9 below. Afterwards a short explanation will be given. This paragraph will be structured in three sub-paragraphs for each interview to give a clear overview of what each specific retail experiences as the major challenges in their transition towards omnichannel retailing.

Table 9: Identified challenges within each dimension in retailer interviews

Dimension	Challenge	Interviewee
Seamless Customer Experience	Integration of cross channel fulfilment	A, C
	Create unified and integrated customer experience	A, B, C
	Create seamless connections between customer touchpoints	A, B, C
Integrated Analytical System	Obtaining the right data	A
	Leverage and management of data for omnichannel purposes	A, B, C
	Integration of business processes in back-end system	B, C
Effective Supply Chain and Logistics	Ensure scalability	A, C
	Manage operational costs	A, C
	Ensure flexibility	C

4.2.2.1. Challenges in retailer Interview A

Interviewee A mentioned the importance of cross-channel fulfilment integration, in order to create this unified and integrated customer service and seamless connections between customer touchpoints within the omnichannel is needed. What can you offer via the online and physical channels to the customer and if some inventory will be sold out, can the channels support each other? This was mentioned as the main challenge in order to create a seamless customer experience. This challenge corresponds to what the experts have also pointed out as major challenges within the Seamless Customer Experience dimension. Regarding the Integrated Analytics System dimension, the retailer mentioned the following as answer to the question of what their biggest challenge is within this dimension:

"And data, the challenge is whether you really have the right data together and can you make a good analysis on that. And then really look at what data you need exactly for the right sharp analysis."

From this it can be concluded that the retailer splits this in twofold: on the one hand getting the right data and on the other hand making the right analysis based on this data with the right goal in mind what you want to achieve with this data. Thus, the retailer wants to find out what their goals are, what kind of data will be needed for this purpose and at last to leverage this data to achieve those goals. As for the indicators in the framework, this includes data extraction and the leverage of data. In context of the Effective Supply Chain and Logistics dimension, the retailer addressed the following challenge:

"Yes and logistics, of course it is tricky always how much are you going to grow then and how should logistics have capacity. Upscaling always costs money, and you have to invest that, so you can't scale indefinitely."

Here, the retailer highlights various indicators related to the challenges. There is a trade-off between scalability and the operational costs involved. Where the balance lies and how best to prepare for it remains a challenge. Therefore, they do their best to predict peak moments such as Black Friday and Christmas so that operating costs do not rise too high. However, there are always unforeseen events that are difficult to predict, such as the pandemic. Therefore, this will always be a big challenge for retailers, but it is interesting to see what effect the pandemic has had on these challenges. This will be discussed later in the results chapter.

4.2.2.2. Challenges in retailer Interview B

In retailer interview B, it is noteworthy that the retailer really sees the dimensions as interrelated aspects of omnichannel retailing. This also places the challenges less in separate dimensions but rather how a challenge will be tied to all three dimensions or the dimensions are all dependent on this challenge. This can be clearly seen in the challenge mentioned by the retailer as the biggest challenge in the transition to omnichannel retailing. This has everything to do with the integration of the back-end business processes which lies within the Integrated Analytics System dimension according to the retailer. However, this challenge also ensures that you can create a seamless customer experience on the one hand and the effective supply chain and logistics on the other.

"I'm talking about the whole integrated business process, which is supported by a set of tools systems and technology. And I think that's where the true challenge lies. That if you don't have that you cannot have the seamless customer experience, or you cannot have an effective supply chain because business process is not integrated, so that usually is the biggest challenge here."

If the integration of the business processes is successful, it can mean that across all channels in the omnichannel environment there is a seamless connection both in terms of inventory management and the customer experience who can choose from the channels they prefer at that time.

4.2.2.3. Challenges in retailer Interview C

At retailer C, the transition to omnichannel retailing has thus been ongoing since 2018 as the retailer had previously reported. Therefore, the focus for the retailer is on the competitive part and letting the customer know that a seamless customer experience is possible with this retailer. Concerning their biggest challenge within the first dimension, he said the following:

"The biggest challenge is to put ourselves back on the map. We've been around for a long time, and you have to look at what your target market is. So, we have to make sure that

we enlarge our target group to make sure that your online and physical channels are really seamless."

Thus, these connections between touchpoint on the one hand and unified and integrated customer experience on the other is key for them in order so that the promise to customer can be kept. In addition, these challenges are also related to the indicators in the framework. The retailer acknowledges the importance of this dimension and therefore wants this to be fully implemented and integrated to develop the other dimension: *"Customer experience, if you don't have that in order you don't have to think about the following."* This indicates how key these challenges are for the whole omnichannel retailing topic. Furthermore, the retailer mentioned the challenge regarding the integration of a cross channel inventory management. Where this mainly affects the physical stores, according to the retailer:

> *"In every store there is an ordering point. So that we actually have an infinite inventory. In the store you may not have all the sizes, but if you can then order that directly from your online warehouse, you have more options with your stock."*

On the Effective Supply Chain and Logistics dimension, the retailer emphasized that the challenges here lay mainly in the fact that higher volumes had to be run at efficiency. Here it can also be stressed that the retailer focuses on the scalability indicator, but on the other hand, efficiency is also taken into account, with the operational cost indicator playing a different role.

4.2.3. Dimensions

In the interviews, the retailers were asked about their opinion of the three existing dimensions defining the omnichannel retailing concept. First, the relation of the dimensions will be highlighted in the interviews and how the retailer experiences and deals with this relation. Afterwards they were discussed separately and if a significant dimension is missing according to the retailers' point of view. Whether they cover the omnichannel retailing topic or significant aspects are missing and cannot be incorporated within the existing three.

Retailer A confirmed the relation of the three dimensions. To create the service of a seamless customer experience, you need your data and the analytics. A retailer needs to know what and where a customer buys the products in order to give that seamless experience. In addition, the importance of the supply chain and logistics dimensions is highlighted as well.

> *"Data is of course very important and how you use it to see where a customer buy and why. (…) And the supply chain and logistics of course, this plays a central role in all this. "*

Regarding the relation of the three existing dimensions' retailer B emphasizes the crucial role of the integrated analytics system dimension, which is in line with the statement in the research of Jocevski et al., (2019):

> *"But I think within I mean regarding the second dimension, whether you call it an integrated analytical system or basically a solid coherent background back end. It's basically what I would say is required because of your business processes. And your back end across different channels should be also integrated as one end-to-end process, and then that's usually the biggest challenge. Because that is what leads to the top and the bottom dimension right. You cannot have the seamless customer experience, or you cannot have an effective supply chain because your business processes are not integrated. So, to have a seamless experience you need to have that as a prerequisite. And also have it externally to have an effective supply chain logistics."*

In the third interview, retailer C mentioned how the integrated analytics system dimension contributed to combining online and offline channels which creates the seamless customer experience; *"Research online, purchase offline."*, data and technology is leveraged to direct the customer to shops to physically make the purchase. The other way around is another point of attention where the effective supply chain and logistics plays a crucial role.

Secondly, the interviewers were asked whether these three dimensions cover the omnichannel retailing topic according to their organization. Interviewee A mentioned the following, which he was missing within the existing dimensions:

> *"How does a traditional organizational structure fit with omnichannel retailing. That's also an important one to explore. Especially in the transition, you used to have only stores and now a channel is added, e-commerce."*

Subsequently, in interview B the retailer highlights a fourth dimension: *"And for us, there is another fourth dimension to this and for us that is people, planet, and environment."* He was then asked to elaborate more on the people aspect:

> *"It's organization structure. It's about our co-workers. The working conditions for them, but also everything related to people's aspect of life and planet in whether it is working conditions about equality, whether it is about diversity, whether it is about respect, all those elements become an integral part of how we want to run our business. Because if you do not have those elements in place, and becoming a true omnichannel retailer will be difficult."*

The organizational structure came up in interviewee C, but as a prerequisite. *"It's kind of a prerequisite, that many of these things in the framework can only work if the organization is in order."*

4.2.4. Indicators

Next, the interview continued with the indicators within each dimension, and the retailers were first asked what the most important indicators were for their company within the dimension. Afterwards, the indicators of the specific dimension in the preliminary framework were shown and the retailers were asked if they agree or disagree with each indicator. If they disagree, they were asked if an adjustment had to be made to rename it or delete it. Furthermore, the retailers were asked if they miss any indicators and would like to add one or more. Here, the threshold of one retailer will be retained, as it allows one to gain a complete understanding of the key indicators. If additional indicators are similar, they are combined into one indicator. This resulted in the following Table 10 below.

Dimension	Indicator	Agree	Disagree or adjustment	Comment
Seamless Customer Experience	Service reliability	A, B, C		
	Cross channel touchpoint connections	A, C	B	B: 'Cross channel touchpoint integration'
	Customer loyalty	A, B, C		
	Customer centricity	A, B, C		
	Digital friendly	A, C	B	B: 'Digital enabled'
	+ Additions	-	-	B: 'Affordability'
Integrated Analytical System	Data sharing	A, C	B	B: 'Data integration'
	Data storage	A, B, C		
	Data protection	A, B, C		
	Leverage of data	A, B, C		
	+ Additions	-	-	A: 'Data extraction' B: Business process system integration' C: 'Back-end system integration'
Effective Supply Chain and Logistics	Stakeholder collaboration	A, B, C		
	Operational costs	A, B, C		
	Delivery time	A, B, C		
	Inventory fulfilment	A, C	B	B: 'Customer fulfilment'
	Product return time	A, B, C		
	Planning	C	A, B	A: 'Data-driven planning' B: 'Omnichannel planning'
	Sufficient last mile infrastructure	A, B, C		
	Scalability	A, B, C		
	Flexibility	A, B, C		
	+ Additions	-	-	

As most important indicators for the Seamless Customer Experience dimension, retailer A mentioned the service reliability of the inventory as key indicator:

> "For us, stock availability is really one of the most important. That the customer really can be helped quickly when the stock in the store is empty, either online or physically elsewhere."

This is in the framework included under the service reliability indicator, where the service to create that seamless experience needs to be reliable in terms of stock availability and delivery promises. On the Integrated Analytics System dimensions, the following is mentioned in interview with retailer A:

> "Yes well A, that you extract the data properly and B that you can quickly make the right analyses for business based on it."

Here it will be emphasized again that within this dimension there is a challenge that touches upon two important indicators. Namely, on the one hand the data extracting and on the other hand on the analytical side of the data utilization. Therefore, data extracting will be added as an indicator because

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this is the starting point of the data management part, after this it is shared, stored, protected, and it can then be leveraged. The final dimension, Effective Supply Chain and Logistics, the retailer referred to his previous mentioned challenge of scalability:

> *"Yes, for us it's about balancing capacity and customer demand. That you make the right choices in that regard.".*

This is included in the framework. On the question if he wanted to add an indicator, the following is said: *"Yes, I would maybe add the digital component, data driven. It is of course under planning. (…) Planning is very important. With omnichannel, you have to make choices in terms of planning across channels."* Based on these words, the planning aspect could be renamed to data-driven planning.

In the second interview with retailer B, the first important indicator within the Seamless Customer Experience dimension, the following is mentioned:

> *"A very important driver is affordability, and we want that affordability across our customer domains, right?"*

The retailer highlights the aspect that in this seamless customer experience, the cost to the customer must always remain affordable. This means that the retailer's margins for all the additional costs of offering this service must remain limited so that a respectable margin remains, and no costs need to be passed on to the customer. In addition, the delivery aspect of the service reliability is mentioned: *"The second is a customer promise delivery, so whatever we have promised to a customer, are we delivering on that?"* When he was asked if he would like to add or change any indicators, the reaction was: *"The cross-channel touchpoint, I would use the word integration because no matter what cross channel you go you want to be sure that all these touchpoints are of different channels or integrated with each other."* Next, on the Integrated Analytics System dimension, the following two indicators are pointed out as most important:

> *"I think the two important indicators for this dimension is how well your end-to-end business processes systems are integrated and how well you are able to make business decisions based on data."*

Therefore, the end-to-end business process integration can be added, the second one lies within the leveraging of data indicator. Further, he disagreed with the data sharing indicator and would rather see data integration. *"I think you can change that because when you talk about data integration, that basically means that different business processes are using the same sort of data. Sharing is more like sort of nice to have our possibility to share, but your data should be integrated. I think that's an important part."* On the most important indicators of the final dimension, the following will be noted:

> *"An integrated supply chain which is focused on customer fulfilment is the core of an omnichannel".*

Later in the interview, we spoke on the planning indicators where he said the following: *"Planning is a very important aspect which is connected to customers which is connected to your business. So rather than just using the word planning, you should use the word omnichannel planning."*

The third retailer mentioned their transition towards omnichannel retailing has been going on since 2018. Their connection of online and physical channels has been developing over these past years. Therefore, when the indicators for the first dimension of the framework were questioned regarding the performance of these channels, they compare the revenues of both channels and compare that. With this, they can measure how well their marketing team is operating in different channels.

Furthermore, on the current indicators in the framework, there is mentioned which ones they see as omnichannel decisive. Here, cross channel touchpoints are of course important to align the channels. Loyalty is something they build on with the help of several channels to bring them together. And lastly, the digital friendly and centricity aspect is also a basic requirement which they combine:

> *"A combination of digital friendly and customer centricity, with customer focus, is that we make suggestions. (…) And then we can suggest to customers which articles fit with that."*

The second dimension, Integrated Analytics System, the retailer mentioned they are a data inspired company. This entails the following, according to retailer C:

> *"It is not the data that determines what you do, but the data that gives you the inspiration to make the right commercial marketing choices."*

This can be covered by the leverage of data indicators in the framework. However, the business processes which serve as the back end of the system where the analytics are really integrated in the system is mentioned here as well: *"The back-ends of our system where the customer data gives us insights of what we would like to know."* This is something they have been developing as well, but is not yet included in the framework. Therefore, it is added as an addition to Table 10. The current indicators were acknowledged by the retailer as important. In the third dimension, all indicators were recognizable in their omnichannel transition. However, the most important and crucial for omnichannel retailing.

> *"With our growth model, scalability and flexibility are a constant concern for us. In times of corona, for example, we have been flexible to scale quickly. And those two are most important to us when it comes to transitioning to omnichannel."*

This emphasizes the importance of these indicators and why they are also highlighted in the indicator Table 11.

4.3. Effect of the pandemic on the transition

In all the interviews, the topic of the pandemic was addressed as well. The goal of this was to find out whether the shift towards more online shopping due to the closing of physical shores has accelerated the transition towards omnichannel retailing. With the interviews, the current situation can be tested, which can give interesting insights on the effect of the pandemic on the transition towards omnichannel retailing from a retailers' point of view. The focus will be on which indicators are of significant importance in the adjustment to the pandemic situation and can also help in this transition. When this is the case, these indicators will be incorporated as important in the framework. The highlights of the three interviews will be addressed in this paragraph briefly.

Retailer A mentioned their online sales have been increasing enormously due to the pandemic where physical shops were closed. This resulted in the fact that their plans to shift to more online sales in combination with the physical sales have accelerated rapidly:

> *"We saw that our plans for over two to three years have been realized within the first months of the pandemic."*

In interview B, the retailers not only focused on the online sales but how this contributes to your omnichannel where online and physical channels are combined. Here, the back-end process is crucial to be a truly omnichannel retailer. To align this process, it costs a lot of time. But the pandemic has accelerated this:

"But omnichannel is not only about online rights. It is the use of multiple channels including online into a seamless customer experience for your customer, right? It's quite a complex process to keep in place in the back end. And this has accelerated. "

Retailer C mentioned that due to the pandemic, the online sales were increasing enormously. They had to react by being flexible and scalable to meet the customer demand. This is something which is an essential aspect in the transition towards omnichannel retailing, according to the retailer. Therefore, the retailer concludes that due to the pandemic which increased flexibility and scalability, their transition towards omnichannel retailing has accelerated as well:

"That is, of course, also the thing about being a retailer: you have to continuously scale up during the transition to omnichannel retailing and be flexible. Corona has enabled us to make rapid progress in this respect."

These indicators have thus been significant during the pandemic and can therefore be incorporated as significant indicators in the framework.

4.4. Final theoretical framework

Concluding from the results of the multiple case study, the preliminary framework from chapter three will be adjusted and supplemented. This final theoretical framework can be seen in Figure 7 below. The interpretation of the framework can be seen as follows. Omnichannel retailing consists of four dimensions that are important for a successful transition to omnichannel retailing. Within these dimensions there are specific challenges that must be overcome, and these have been made clear in the framework in the outer ring by means of indicators. It elaborates on the work of Jocevski et al., (2019) by creating a theoretical framework, the three existing dimensions are expanded with indicators, and adding a fourth dimension. On the other hand, can it provide managerial contributions where the framework gives insight in the relevant aspects for the omnichannel retailing concept. More will be elaborated on the implications in the discussion chapter. Table 11 gives an overview of all indicators with description and reference.

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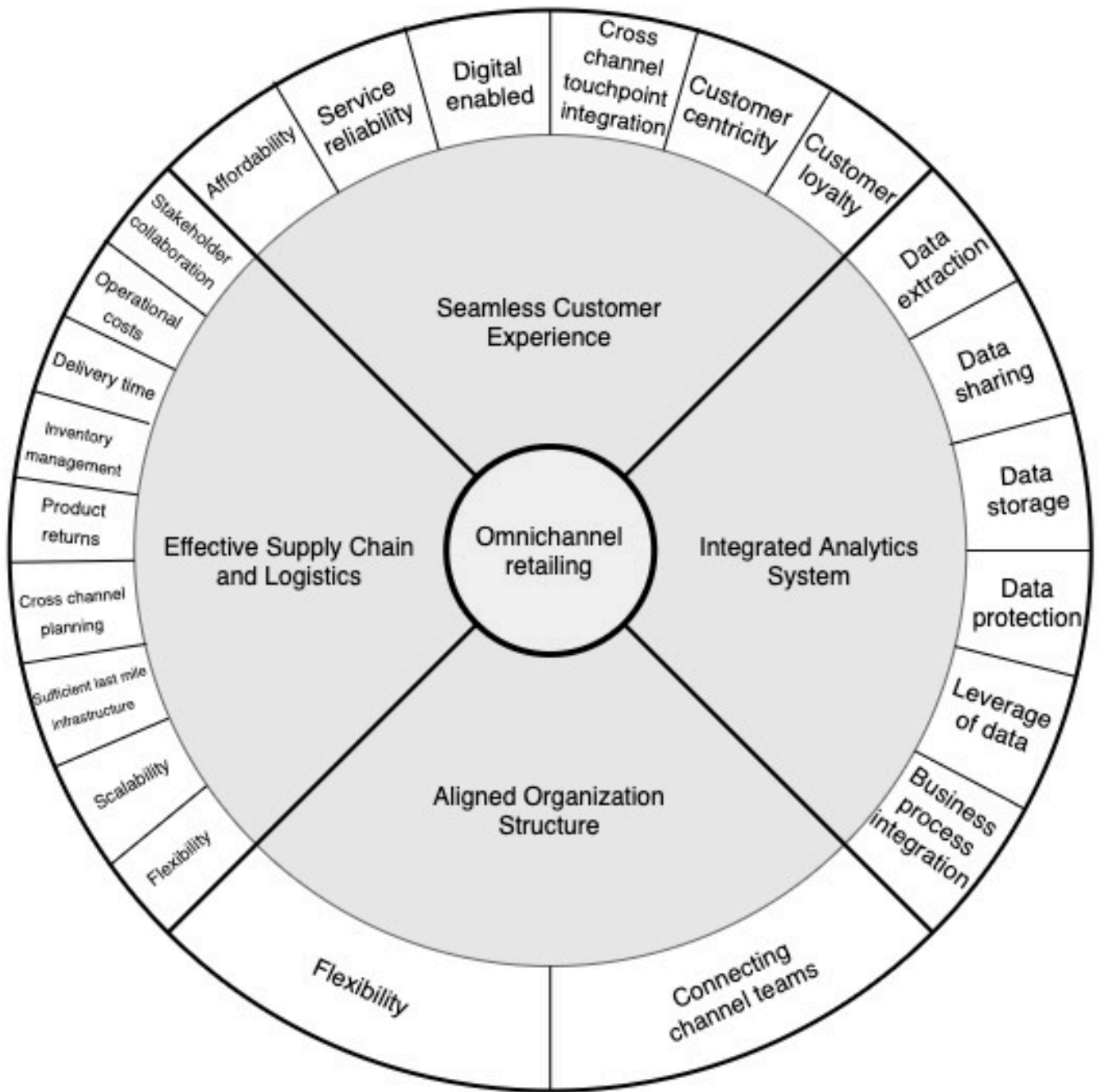
Figure 7: Last iteration of theoretical framework

Table 11: Overview of indicators per dimension with description and references

Dimension	Indicator	Description	Reference
Seamless Customer Experience	Affordability	The costs passed on to the customer to provide a seamless customer experience must remain affordable and compatible.	Retailer B
	Service reliability	The reliability of the service promised to the customer.	*Banjeree (2019)*
	Digital enabled	The customer experience between online and offline channels must be digitally enabled. Combine	*Ye et al., (2018),* Retailer B

		touch and feel information of the physical and online world simultaneously in the digital world.	
	Cross channel touchpoint integration	Online and offline touchpoints connected. E.g., the possibility of having an order physically delivered at home while in the shop, or a buy online and collect offline option.	*Peltola et al., (2015), Cui et al., (2021), Shi (2017), Retailer A, B & C*
	Customer centricity	The retailer is at the service of the customer so that the customer can always decide how and where they want to make a purchase, and the retailer adapts itself accordingly.	Simone & Sabbadin (2017)
	Customer loyalty	The loyalty of online shoppers to a retailer where their incentive is to be price-sensitive and compare to other retailers.	*Banjeree (2019); Shi (2017)*
Integrated Analytics System	Data extraction	Obtaining the right data from data sources such as web traffic, operations, finance, and point-of-sale.	*Mirzabeiki & Saghiri (2020),* Retailer A
	Data sharing	The ability to share data within multiple channels and between stakeholders of the supply chain.	*Mirzabeiki & Saghiri (2020), Cui et al., (2021)*
	Data storage	The storage of the data in a specific form of storage media to be able to be shared and leveraged. E.g., cloud-based or on-premises.	*Mirzabeiki & Saghiri (2020), Cui et al., (2021), Kondo (2018)*
	Data protection	Consumer information privacy protection according to GDPR.	*Cui et al., (2021*
	Leverage of data	Link the data to how it will be used and applied for which purpose with help the of analytics. For example, for forecasting sales and customer behavior to sense demand.	*EY (2015), Myerson (2020), Banjeree (2019); Hajdas et al. (2020),* Brynjolfsson et al., (2013) Retailer A, B & C
	Business process integration	The process where front and back-end processes linked to data and the analytics are fully connected and integrated to leverage the data across channels.	Retailer B & C
Effective Supply Chain and Logistics	Stakeholder collaboration	Close collaboration and support between stakeholders of supply chain and channels to reach a common goal.	*EY (2015), Myerson (2020), Bijmolt et al., (2021)*
	Operational costs	The total costs that constitute a considerable percentage of total	*Ye et al., (2018); Banjeree (2019),*

		sales price of the product sold. E.g., transportation, procurement, production, inventory, and investment costs. These must be kept low to ensure that the margin on products can be maximized.	*Bijmolt et al., (2021), Expert 1,2,3 & 4 and Retailers A & C*
	Delivery time	The time in which a product can be delivered to a customer from the moment the order has been placed.	*Ye et al., (2018); Banjeree (2019), Bijmolt et al., (2021)*
	Inventory management	Matching stock to customer demand between online and offline channels.	*Banjeree (2019), Bijmolt et al., (2021); Gallino & Moreno (2019), Expert 2,3 & 4*
	Product returns	Fast and efficient return of products associated with costs. For customers, the operation must be easy and for retailers the costs are low.	Banjeree (2019), Bijmolt et al., (2021), Expert 1 & 3
	Cross channel planning	The forward-looking process of coordinating and optimizing the delivery of products and services across channels over the whole supply chain from the retailer to its customers.	Expert 3, Retailers A & B
	Sufficient last mile infrastructure	An infrastructure that can meet the requirements of last-mile deliveries. E.g., internal and external service providers for transportation, handling and/or installation of products.	*Banjeree (2019),* Retailer B
	Scalability	Ability to ramp up or down to anticipated demand of the supply chain activities.	Expert 1 & 2, Retailer A & C
	Flexibility	Ability to respond and to short-term adaptatopm in demand situations of customers.	Expert 1 & 2, Retailer C
Aligned Organization Structure	Connecting channel teams	Ensuring that the different teams from the online and offline channels work together from an organizational point of view, so that everything can run seamlessly.	Retailer C
	Flexibility	Flexibility in the organization to switch between channels to meet customer needs where necessary.	Retailer C

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4.5. Next steps

Now that all current challenges with associated indicators which indicate enablers to overcome them, have been identified from three different sources, this thesis will look at the next steps retailers can take to overcome these challenges and thereby continue the transition towards omnichannel retailing. This section will highlight the main challenges per the three original dimensions and what next steps retailers can take to overcome these challenges with the assistance of the indicators.

In the Seamless Customer Experience dimension, creating a unified and integrated customer experience where they can move freely between the touchpoints of these channels seems to be the biggest challenge. An article of Gao & Huang (2021) emphasizes the importance of omnichannel integration, which can positively affect customer engagement and customer journey. To achieve this alignment of channels to provide customers with a seamless experience, the relationship with the other dimensions plays a crucial role. This has been highlighted by retailer B who says that on the one hand, the supply chain must be ready, for example a click and collect option or if the customer comes to the shop, but it needs to be delivered to his home. On the other hand, the business processes and analytical systems must also be ready for this so that stocks are clear and customers receive their orders quickly and the data has to be available and accurate. Therefore, it is important for retailers to look at the other two dimensions and their challenges first, before they can create an expectation for the customer at all. However, it is important that the retailer has a clear idea of the customer experience they want to create. Indicators such as customer centricity and cross-channel touchpoint integration play an important role in this, so that the other dimensions can be connected to it.

Concerning the major challenges within the Integrated Analytics System dimension, two challenges stand out. However, the first thing that is important is to get the right data to integrate the analytical system. Often order, customer, and product data are used for this. This data is stored on a cloud platform that can be shared with all stakeholders involved, as was already done by one of the retailers in this study. The real challenge lies in using this data. This requires the integration of business processes that process this data and provide the desired output so that decisions can be made based on it. Retailers therefore need to ensure that, in order to take the next steps, they first have the data-related indicators in order, such as extraction, sharing, storage, and protection. Then it can be used for the right purposes and integrated into the business processes.

In the third dimension, Effective Supply Chain and Logistics, the management of operational costs is a challenge that often comes up from all three sources. The most important issue here is that retailers can offer their products to the customer through any channel without losing their profit margin. This is therefore an efficiency aspect for the entire supply chain, but especially for the last mile. It is therefore important to work together efficiently with the stakeholders involved in this process. For example, by running larger volumes with partners, operational costs can be spread over more products and customers, making the entire process more efficient. Regarding the management of inventory fulfilment across channels, retailers often come from the multichannel situation where there are separate warehouses for the online and offline channels. However, because these channels are now more closely linked, there is less need to make a distinction. Therefore, creating more central warehouses by bundling the separate warehouses could result in a clearer overview of the stock and, in addition, in the long run it will mean lower costs because less space is required as all the products are bundled together. Two other challenges that often go hand in hand are creating scalability and flexibility in the supply chain. Nowadays, there are already companies that set up special peak warehouses to meet times of enormous demand in a short period of time (Elazary, 2019). These are various steps that retailers can explore to create the desired effect and overcome challenges

5. Conclusion

The focus of this thesis was to get a better understanding of the omnichannel retailing concept by decomposing the omnichannel retailing concept into the three identified dimensions of Jocevski et al., (2019). This has been done in the current context, where the transition from multichannel to omnichannel retailing is in progress at many retailers. Moreover, the pandemic has also had an impact on this transition by accelerating the shift to more online sales. By combining literature, expert insights, and retailers' input, relevant challenges could be identified in the current situation where the pandemic still plays a significant role in the transition towards omnichannel retailing. The indicators give insight into how retailers can overcome challenges by improving performance within those indicators. These indicators are therefore linked to the dimensions to provide a structured overview of exactly what this challenge entails. In addition, a framework has been developed which is based on the three omnichannel dimensions identified by Jocevski et al., (2019). This framework will be supporting the understanding of the omnichannel concept in the literature.

The research question that is answered in this thesis is the following: *"What are the current challenges within the transition towards omnichannel retailing and how to overcome them?"* After carefully conducting research in several phases and consulting multiple sources, the following answer can be given to the question of what the current challenges are for retailers in their ongoing transition from multichannel towards omnichannel retailing. In order to overcome these challenges, indicators can be used to gain insight into the conditions that need to be met in order to overcome the challenges. Therefore, behind each challenge the indicators will be listed that are important for overcoming this specific challenge. Table 11 in the results' chapter explains the indicators in more detail and also indicates with the threshold value which ones have a significant influence on the transition to omnichannel retailing. These challenges and key indicators are broken down within the three-existing dimension from the article from Jocevski et al., (2019) and visible in Table 12 below.

Table 12: Challenges with associated key indicators per dimension

Dimension	Challenges	Key indicators
Seamless Customer Experience	Integration of cross channel fulfilment	- Cross channel touchpoint integration - Service reliability
	Create unified and integrated customer experience	- Customer loyalty - Digital enabled - Affordability
	Create seamless connections between customer touchpoints	- Cross channel touchpoint integration - Customer centricity - Digital enabled
Integrated Analytics System	Leverage and management of data for omnichannel purposes	- Data extraction - Data sharing - Data storage - Data protection - Leverage of data
	Integrate back-end business processes	- Leverage of data - Business process integration
Effective Supply Chain and Logistics	Ensure scalability in the supply chain	- Stakeholder collaboration - Cross channel planning - Sufficient last mile infrastructure - Scalability

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		- Customer fulfilment
		- Inventory management
	Manage operational costs	- Operational costs
		- Cross channel planning
		- Sufficient last mile infrastructure
	Ensure flexibility in the supply chain	- Stakeholder collaboration
		- Cross channel planning
		- Sufficient last mile infrastructure
		- Flexibility
		- Inventory management
	Management of inventory fulfilment across channels	- Stakeholder collaboration
		- Delivery time
		- Product returns
		- Scalability
		- Flexibility
		- Cross channel planning
		- Inventory management

Finally, the final theoretical framework in Figure 7 has been constructed for the omnichannel retailing concept. The framework is based on the three dimensions of Jocevski et al., (2019). Seamless Customer Experience, Integrated Analytics System, and Effective Supply Chain and Logistics. As a result of the multiple case study, a fourth dimension is added to the framework: Aligned Organization Structure. These four dimensions indicate what important aspects the omnichannel retailing has from a retailers' point of view in the transition towards implementation. With these dimensions, indicators have been identified based on current challenges. An overview of the indicators is listed in Table 11. This thesis was able to add to the literature by first elaborating on the three existing dimensions using indicators by extending the research of Jocevski et al., (2019). In addition, a fourth dimension is added by using the multiple case study method. All this has been brought together in a theoretical framework. Retailers can thus gain insight with this framework into which dimensions are important in the transition to omnichannel retailing and which indicators play a significant role in this dimension.

6. Discussion

The discussion chapter of this thesis will take a critical look and will reflect on the research that has been carried out for this thesis. Limitations will be highlighted regarding the research, methodology, and the results. Furthermore, the implications of the research will be discussed as well for both theoretical as managerial implications. At last, possible future research will briefly be summarized and discussed.

6.1. Limitations

In this thesis, the current challenges with associated indicators in the transition towards omnichannel retailing have been identified. This information is derived from literature research, multiple expert interviews, and a multiple case study. This section reflects on this research method by addressing the limitations.

6.1.1. Limitations of the interviews

From a literary point of view, the intention was to test the three dimensions studied by Jocevski et al., (2019) among experts and retailers. This was achieved by talking to four experts and three retailers using semi-structured interviews. First, the interviews with retailers were conducted in a period where the Covid-19 pandemic was still around and had an impact on the way shopping was done, this created a unique situation for retailers. In this snapshot, retailers were asked what they think are important challenges and indicators for omnichannel retailing. They have answered this with today's knowledge and impact of the pandemic still noticeable. Hence, the question is whether they will give the same answers if we go back to normal when the pandemic is over. This makes the timing of the interviews very specific, and the question is whether this information is also relevant outside the pandemic. However, there is also literature indicating that the impact of the pandemic will never completely disappear from customer behaviour because customers have become accustomed to online shopping in addition to physical shopping Sheth, 2020; Roggeveen & Sethuraman, 2020). Therefore, they will not quickly return to the 'old normal', but the impact of the pandemic will continue to play a role. Therefore, this research might also become more relevant as time goes by. However, it is impossible to determine right now which way it will go in the future. Furthermore, another limitation which needs to be highlighted is the locations of the touchpoints with the retailers and customers were scoped to the Netherlands. Also, the responsibilities within the roles of the interviewees fall within the Dutch branch of the companies. Therefore, the generalizability to retailers outside the Netherlands cannot be proved. Another limitation of the interviews is that, despite the fact that the retailers are all in the same sector and all sell own-brand general merchandise, it is difficult to generalize a multiple case study in which three cases are included for a segment of the retail sector. There are, of course, many retailers who are all active in different sectors and industries. These three retailers are comparable with their sector and industry, but this makes it difficult to generalize to retailers in other sectors and industries. Furthermore, all the experts approached are employed by the same consultancy company, although they have their own client portfolio of different retailers and operate in different retail industries. However, due to the fact that they work at the same company may give a biased view on the omnichannel retailing concept and the additional challenges within the dimensions. Another important limitation of the multiple case study scope is that it only includes retailers who are already in the process of transition to omnichannel retailing. This means that they have already overcome some steps and challenges to start this transition. This can therefore have a biased view on the challenges, as these are the challenges for retailers that are in this transition and not at the beginning.

6.1.2. Limitations of the theoretical framework

This paragraph will address the limitations of the theoretical framework that has been constructed. From the literature on the omnichannel retailing aspect, a lot of research is still being done, and many articles are still being written on this topic. This will continue in the coming years because it is a relatively new concept. This can always provide new insights which can supplement or adjust the framework. The research gives a first impetus to further elaborate on the three dimensions studied by Jocevski et al., (2019) and create more understanding for the omnichannel retailing concept from the retailer's point of view. Regarding the framework itself, it now consists of four dimensions, the fourth of which is derived from the multiple case study. However, this has not yet been recognized by other literary or other sources. Therefore, further research into the existence of this fourth dimension is needed. In addition, the number of indicators of this fourth dimension are still very low, only flexibility and cross channel teams which emerged from retailer interview C. No research has been done into the challenges and additional indicators that could complete the framework. Therefore, this too needs to be researched in the future. Another important implication that should be emphasized is the relationship and interdependence of the indicators. The coherence and relationship of dimensions has been discussed, and this should have been extended to the indicators. Indicators that are not initially mentioned as key indicators may nevertheless have a connection with other indicators, because they can drive these other indicators or are the cause of them. Since these indicators are seen as enablers of challenges, in practice this may influence the way the challenges can be overcome. Therefore, it is emphasized to read the results with care on the indicators with the knowledge that there might be interdependencies between the indicators.

6.2. Implications

The implications of this research will be discussed for both theoretical and managerial understanding. The research implications indicate how the results of this research can be used for theoretical use in literature, or for managerial use by decision-makers of retailers in the transition to omnichannel retailing.

6.2.1. Theoretical implications

As for the theoretical contribution, several implications can be made. First, this thesis contributes to the understanding of the omnichannel retailing concept by breaking down the concept into the three identified dimensions by Jocevski et al., (2019) and adding a fourth dimension to ensure that all aspects deemed important by retailers are included in the theoretical framework. These dimensions have been further broken down into indicators, which enhances understanding of these dimensions. The aim of this thesis was to test this with experts and retailers, which was successful. Therefore, the scientific contribution here is that the different aspects of omnichannel retailing are all represented in one framework as one element. This had not yet been investigated by other researchers. In addition, these indicators provide guidelines for overcoming the challenges identified by literature, experts, and retailers. Furthermore, this thesis provides an insight into the current situation regarding the transition from multichannel to omnichannel retailing. First, there is an overview of the current literature and what challenges there are. In addition, these findings have been tested with experts and the experts have also provided insight into the challenges retailers are facing during this transition. The last phase of the research was that the findings of literature and experts were tested with retailers using the multiple case study. This provides insight into the relationship of the different dimensions studied separate in articles by Peltola et al., (2015), Cui et al., (2021), Shi (2017), Mirzabeiki & Saghiri (2020), Ye et al., (2018), Banjeree (2019) and Bijmolt et al., (2021). All this has been visualized in a theoretical framework that can be used by other academics to further elaborate or understand the concept of omnichannel retailing. As a final implication, the effect of the pandemic was identified in the multiple

case study. Here it was noted that this shift to online sales has accelerated some indicators within the different dimensions. This has therefore had an impact on this transition from multichannel to omnichannel retailing, making this thesis a link to the research on the omnichannel retailing concept on the one hand and the effects of the pandemic on the other. However, more research can be done on this to better identify the causes and effects through broader research among different retailers. Other implications, where there are comments to be made, is regarding the background of the experts, who all work for the same consultancy firm. In addition, the scope of the retailers is similar. Therefore, it is said that this study can provide interesting insights for the literature, where further research is needed before generalization over many retailers can be made, and the framework can be generally accepted.

6.2.2. Managerial implications

This thesis also provides managerial implications which can provide several retailers with relevant insights into the transition towards omnichannel retailing. In addition, possible solutions to the major challenges identified in this thesis are outlined with examples based on articles from the literature. First, this thesis gives retailers a better understanding of the omnichannel retailing concept, which is very important when starting this transition from a multichannel approach to an omnichannel approach. Thanks to this theoretical framework, a retailer can see which dimensions are important and which indicators are attached to these dimensions, so these indicators can enable them to overcome certain challenges within these dimensions. Furthermore, this thesis was able to provide an insight into where retailers currently stand in the transition to omnichannel retailing and which challenges are considered most important. With this information, retailers can check whether they are lagging behind in this transition compared to other retailers. It can also provide insight into whether a retailer has already made significant progress in the transition to omnichannel retailing. In addition, the impact of the current pandemic is also identified, which gives a complete insight into the current, relevant challenges in the transition. These challenges and indicators are drawn from literature, expert interviews, and retailers in the multiple case study. Based on the results, significant challenges and indicators can be identified. They can keep hold of the framework in this respect. When looking at the most common challenge currently faced by retailers in the transition to omnichannel retailing, it is about the efficiency aspect, how to ensure that you create the seamless customer experience for omnichannel retailing without incurring excessive operational costs. Possible solutions for managerial implications can be found from the literature on how to cope with the indicators identified in this thesis associated with these challenges in order to overcome them. For example, in the article of Ye et al., (2018) several solutions are identified to enhance efficiency and reduce costs, the suggestion is to redesign the fulfilment process to realize an efficient cross channel delivery and returns. A central procurement for all channels will be created, which can therefore create more efficiency and reduce operational costs. Another contribution to this aspect is the realization of an integration information platform which can monitor the supply chain inventory and do quick-time delivery and quick responses to customers. Furthermore, another frequently mentioned challenge in this thesis is to ensure the scalability of supply chains. Here an example of a solution from the same article, is to create standalone distribution centers which can enhance fulfilment and returns at high speed. This way, they can manage their inventory, which is seen as an important indicator to increase scalability within the supply chain. Another important aspect of creating a seamless customer experience, in relation to the other two dimensions, is the role of digital supply chains. According to an article of Warner & Wagner (2019), retailers should focus on incorporating data and technology into their supply chain management to improve overall omnichannel performance. For this purpose, Ishfaq et al., (2021) constructed a conceptual framework that supports retailers in choosing a strategy for digitizing supply

chain processes. Useful managerial insights are given to develop a digital supply chain from a retailers' perspective.

6.3. Future research

To finalize this thesis, the possible future study areas will briefly be summarized. First, further research will have to be done to test this entire framework at retailers in other sectors, industries and countries. This will increase the reliability and validity of the framework and allow it to be generalized across a larger part of the retail sector. Furthermore, the fourth dimension resulting from the multiple case study needs further research. What challenges lie here and what indicators are linked to this specific dimension. This ensures that the framework can be explained in detail from all four dimensions and increases the understanding of the omnichannel retailing concept. Finally, the framework could also be tested in the situation when the pandemic is fully under control or has been eliminated. Then there can be reflected on this research, which was carried out in the middle of the pandemic situation. Given that the relationships and possible interdependencies between indicators were not investigated in this study, but may have an impact in practice to overcome the challenges, it is important that this is investigated in future studies so that this can be proved. Another interesting point for future research is about the limitation that this study only approached retailers who are already in the process of transition to omnichannel retailing and identified these challenges. An important addition would be to approach retailers with the same type of research who still need to make the step from multichannel to omnichannel retailing. Here, entirely different challenges may emerge than those identified in this study.

7. References

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8. Appendix

8.1. Highlights from expert interviews discussions

This section will highlight the pieces from the expert interviews where they describe the challenges the retailers currently face in the transition to omnichannel retailing. These are used in the research in the expert interviews phase. It is structured in a table where for each challenge mentioned the transcript is noted. The first two interviews were held in the native language of the experts which was Dutch and the last two here held in English.

8.1.1. Expert interview 1

Table 13: Highlights of expert interview 1

Expert 1:	Head of Supply Chain Management. *International digital transformations consultant*
Challenge 1	De klantenervaring moet echt seamless zijn. Het moet zo makkelijk mogelijk zijn, met zo min mogelijk handelingen om een aankoop te doen en ook tegen zo laag mogelijke kosten, of zelfs gratis tegenwoordig om te kunnen concurreren.
Challenge 2	Als de klant het niet leuk vind moet het ook makkelijk te retourneren zijn. Dat blijft het uitgangspunt waar heel veel bedrijven momenteel mee aan het struggelen zijn. Moet dat gratis blijven, wat ethisch gezien een kwestie is op duurzaamheids gebied klopt het namelijk niet helemaal. Maar vooralsnog is dat wel waar alle retailers naar toe gaan.
Challenge 3	De infrastructuur moet er zijn om snelle service aan te kunnen bieden. De bezorging moet namelijk steeds sneller kunnen. Eerst was het ergens deze of volgende week, toen next day, toen same day, binnen 2 uur, binnen 1 uur en nu zelfs binnen 10 minuten. Dat kan aleen maak als de infrastructuur er is, en dat is iets logistieks. Het moet in de buurt zijn, er moet voorraad liggen en dan moet er iemand beschikbaar zijn om het heel snel op een fiets of auto bij de klant te brengen.
Challenge 4	Er moet capaciteit zijn voor alles wat je wil in de omnichannel als retailer. Zeker in de last mile levercapaciteiten zijn er tekorten omdat de vraag zo is toegenomen. Daarnaast zijn de flexibiliteit, schaalbaarheid en productiviteit hiervan belangrijk. Flexibiliteit gaat over snel op- en af kunnen schalen van je capaciteit. Schaalbaarheid is je wil heel erg groeien de komende jaren, dus hoe kun je wat je hebt opschalen of naar andere landen uitrollen. En productiviteit gaat over de kosten, hoe oud je je kosten onder controle en hoe maak je winst. De uitdagingen zijn dan de balans tussen die drie zoeken. Flexibiliteit is zeker in bijvoorbeeld corona pieken nodig, schaalbaarheid zegt iets over hoe je verder kan groeien en de productiviteit zegt iets over kosten en dat is toch wel belangrijk hoe maak jet het winstgevend? En daar speelt logistiek en vooral last mile een grote rol in.

8.1.2. Expert interview 2

Table 14: Highlights of expert interview 2

Expert 2:	Managing Consultant Supply Chain Management. *International digital transformations consultant*
Challenge 1	Qua last mile fulfilment wat betreft omnichannel retailing is de nummer één uitdaging de kosten, dat is en blijft een uitdaging wat wij ook zien bij verschillende klanten. Als we dan praten over 'free delivery' omdat concurrenten dit ook doen, zetten ze de hakken in het zand, ze verliezen nu al erg veel en om dat ook nog free delivery aan te

	bieden worden de kosten nog hoger. Dus er wordt dan veel verloren op online deliveries en dat is iets dat heel erg speelt en zal blijven spelen. Bedrijven kijken hoe ze ervoor kunnen zorgen dat ze het mandje met gevulde producten door de klant rendabel kunnen krijgen, waar je delivery cost en je fulfilment cost in zit om die toch onder aan de streep niet negatief te laten zijn. Dus dat is een belangrijke. Om dit te verwezenlijken kan je natuurlijk kijken hoe je je operations efficiënter gaat inrichten, hoe ga je je transport efficienter inrichten, maar het staat of valt met het feit dat je voor online leveringen bepaalde activiteiten moet doen die de klant normaal gesproken in de winkel doet.
Challenge 2	Scalability zie ik als een uitdaging waarbij bijvoorbeeld in context met pandemie, de winkels gaan nu dicht, er moet online flink opgeschaald worden, hoe snel kan de retailers hiermee zijn? Kunnen er extra vervoerders worden aangetrokken? Hebben we extra capaciteit? Hebben we voldoende operators?
Challenge 3	Voorraad betrouwbaarheid beheer is een andere belangrijke uitdaging. De beschikbaarheid van de voorraad komt hier naar voren en anderzijds het beheer van de voorraad.

8.1.3. Expert interview 3

Table 15: Highlights of expert interview 3

Expert 3:	**Managing Consultant Retail Buying, Merchandising and Supply Chain.** *International digital transformations consultant*
Challenge 1	So the first challenges for me, supply chain is really simple basically you plan demand for a product or series of products and then you place stock in the right place, in the right quantity, at the right time, for the customer to buy or receive. So, supply chain planning is really simple in multichannel but in omnichannel it is just not really simple. So, the biggest challenge in this new world is predicting what the demand of a product is going to be and where that demand is going to come from.
Challenge 2	Another omnichannel challenge is around returns of products. Because one of the main principles is you can buy something online and return it to the store, a fundamental customer journey. Now lots of retailers will struggle with that return stock. Not only from a processing point of view but also from a other view point which is the question which arsis: "am I selling this product in my store, is it listed and have I got somewhere to place it or is it just sitting with me and it is wasteful? So this is something for reversed logistics, so it can be fulfilled at the distribution center or you need a complete system overhaul where the IT systems can see actually which product is at which store, and can see a product is unlikely to sell at a store because there is no demand signal so it is not likely to be sold in that store. And then the IT system needs to identify that as a product that should be dispatched to a e-com customer or made be available for click-and-collect. So, there is a big technological challenge to work out pockets of available stock that are in the location of where there are going to be sold in, and then optimize the movement of those products out to customers of to valid picking location. So that's a huge technological challenge because I don't know any retailers right know who have these kinds of systems.
Challenge 3	How I experience it, multichannel did not necessarily mean so shop across channels. A retailer in a multichannel world had multiple channels but the channel was planned and executed as a silo. So, if you bought something online and it got delivered to your house you returned it by mail order back to the distribution center where it came from. Or you return it to store but 99% of the time that unit was returned from the store back to the e-commerce distribution center. So even though it was a fake omnichannel customer experience the stock flows still meant those channels

	operated as one channel. It was completely multichannel and still at many instances it is, you had two stock pots, you had an online stock pot and a store stock pot and you physically you moved between the channels, but you did not have one load of stock
Challenge 4	KPI's, is another big challenge in an omnichannel world. So, I'm going to use the store and online reference again. I've got a store manager, who looks after and owns the PNL of their store. And I've got an e-com channel, let's say a website which takes demand as well. Often, there is also a digital team in the head office. Now, there comes a really complex spiders web of KPI's that says the store manager is responsible for what the store sells, but he is also responsible for fulfilling let's say click-and-collect order that is of a sale made in my digital channel. So how do I make sure, and how do I set up my KPI's within my business so that that store manager is as equally motivated to do a good job fulfilling that e-com sale as they are helping their physical customers that are in store. And that is causing large retailers with big store bases to like equally completely have to append their operation models and KPI trees, to make sure that even though the customer is experiencing omnichannel, that all of the behaviours in their business are also omnichannel. Because if they are not, despite the customer being omnichannel you still end up in a bun fight in head offices of channels discussing that they need the stock to make sales and they will keep their stock for their self because if they don't have the stock, they will miss their store sales KPI so why would I give all of the stock to the e-com customers. So it than becomes a total transformation effort needed in head office functions to make the change and make everybody in the network omnichannel and responsible for all channels or to somehow have a complex dotted line of KPI's so that everybody is putting everyone in the same direction which is maximizing sales globally and not just in the part that one channel looks after. The collaboration of stakeholders is therefore really in the sharing of stock, in multichannel you just pretty much owned your own stock whereas in omnichannel, essentially, fulfilment methods cover all channels. That's the difference, in omnichannel world multiple demand signals coming in to one stock. Where in multichannel there were equal demand and supply channels.
Challenge 5	Then there is the analytics and the data side of it which is difficult to manage. Because in the old world and how lots and lots of planning and stock allocation systems work, still now because there are big investments to be made to improve this. There is a physical operational and data pain point in just like mix in demand signals and like what a standard multichannel replenishment system does and let's be honest, our big major clients don't have omnichannel replenishment capabilities within their systems right now.

8.1.4. Expert interview 4.

Table 16: Highlights of expert interview 4

Expert 4:	**Vice President Global Retail and Consumer Goods.** *International digital transformations consultant.*
Challenge 1	The cost of omnichannel pretty much offset the margin gains that you had in additional cells. So, number one challenge you have to manage the cost of Omnichannel which comes from additional transportation costs. Also if you enable stores to fulfil those orders you have to add personnel to those stores and those stores tend to be in cities to that personal is cheaper than the personal you could hire in any work warehouse in the middle of a city right? So, number one challenge is costs.

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		So the tradeoff between efficiency and operational costs. Yeah, exactly so there is a service gain, and this can potentially drive sales, but there is also a cost to it, so if you don't manage that, that increase sales with the increase of costs. Of course, you lose money. I read somewhere that the cost of servicing the last mile is now about 60% of your total cost of supply chain that big. So, one of the key things is people are not planning upfront these costs right there. Just encourage them and they're trying to optimize their order logic, but they are not planning.
Challenge 2		Second, challenge customers don't want to pay for that extra cost of delivery. Some retailers start giving this for free, especially during promotional time. So free shipping. Right now, it's become a standard right? So now everybody has free shipping. You may have a limit in the size of the order, right? If it is a door on order of $10, you don't do it, but in general is becoming standard to offer free shipping to your customers and that is really driving the second challenge, right? You have to match the service that the other retailers are doing. So, if those retailers' competitors of you say I'm going to deliver in two hours. You better match those two hours. Some companies can deliver within hours in major cities. So, the second challenge, you got to match the other retailers in the service they provide.
Challenge 3		If you have a small store and many are opening these small stores, you may not be able to offer the full assortment right, so a customer sees something on line goes to the store and it doesn't find on the store, so that is a bad service for that customer, right? So, I'll send you a presentation that we have something we called corner shop. This very cool but one of the things we do for smaller stores is that you have. The assortment physical assortment of the sneakers let's say, and then next to it you have a screen that has the rest of the assortment that is not offer physically in the store. But you can click on that screen and say, oh, I like this one, but they don't have the red color in this one. But the red color is on the screen so you can click on this screen. Try this size on the green one to make sure it fits and then order the red on the screen. And if you have two hours delivery by the time that guy gets home, it gets the sneakers waiting for him. That seamless experience. So I'm offering small store the full assortment using technology in a very way. Easy way to buy with the advantage that the guy is going to get it home if he wants to go to a party that night. And once we have the red sneakers, so I so it be home which is basically the same time it would have taken the guide to buying and carry things off right? And then you have to use technology to your advantage to offer experiences.

8.2. Highlights of interviews with retailers

This section provides the highlights of the interviews with the three retailers that have been held. Questions of the interviewer and the response of the interviewee are noted. Quotes from these interviews are used in the results' chapter four.

8.2.1. Retailer interview A

Table 17: Highlights of retailer interview A

Phase	Question	Answer
Introduction	**Wat is de title van uw functie?**	Dat is Value Stream Lead Supply Chain binnen 'COMPANY' digital van de retailer afdeling.
	Over welke aspecten binnen het bedrijf bent u verantwoordelijk?	Ik ben verantwoordelijk voor alle applicaties die onder de value stream vallen. En dus verantwoordelijk voor dat die applicaties het goed blijven doen en opleveren wat er van verwacht wordt. En ook voor het opstellen van de roadmap

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		voor de toekomst, natuurlijk hebben de teams ook een back-log voor de nabijetoekomst voor de ontwikkelingen die moeten worden gedaan om applicaties en proceessen te verbeteren.
	Wat is uw definitie van 'Multichannel retailing'?	Als je zegt multichannel dan is dat je de HEMA producten verkoopt via meerdere kanalen, heel simpel. En
	Wat is uw definitie van 'Omnichannel retailing'?	Nou dat is meer dat je echt een unified commerce noemen we dat dan, wat ik zelf vind is dat je de klantbeleving en wat die klantenreis meemaakt, dat dat naadlaas op elkaar aansluit maakt niet uit waar je bent, in de winkel of online, die beleving en je aanbod is exact gelijk. Natuurlijk zijn er wel verschillen, digitaal is anders dan in de winkel, maar als je iets wil kopen in de winkel en het is op dan kan je dat ook snel bestellen op internet en vice versa. Dus je sluit zeg maar het hele product voorraad en de beleving en informatie, die is identiek voor elke consument waar hij dan ook is.
	Wat zijn de belangrijkste voordelen die omnichannel retailing voor uw bedrijf kan opleveren?	Enerzijds is het natuurlijk dat de klant het ook van je verwacht voor een groot deel, dus dat is één. Als je dat niet doet dan gaat het klanttevredenheids gevoel omlaag. Dus je moet zker die basics in place hebben. Maar waar het dan ook aan kan toevoegen, we hebben natuurlijk heel veel fysieke winkels, en de producten bij ons zijn niet heel hoog qua prijs, gaat om €2 tot €5, dus je moet goed kijken naar je kosten ook, maar het kan juist enorm elkaar versterken als je omnichannel retailing goed toepast denk ik. Want dan kan je ook naar de winkels meer traffic laten komen als je bijvboorbeeld besteld op internet en dat kan laten bezorgen vanuit een winkel binnen een uur of twee uur, of te laten ophalen in de winkel. Of je kan als een product ergesn op is op internet kan je het laten door routeren naar een winkel in de buurt die het nog wle heeft. Ehm, dus het kan elkaar echt versterken en als je dat goed doet dan zal je zien dat ook het winkel bezoek omhoog gaat uiteindelijk en ook weer het internet bezoek als je dat goed kan combineren. Dus je gaat uiteindelijk meer verkopen. Je moet het echt als één zien, soms maak je iets meer of minder marge op het ene kanaal maar dat moet je eigenlijk als één kanaal samen zien. Maar ook de achterkant van je organisatie, ook daar kan het dingen opleveren. Beter gebruik van voorraad bijvoorbeeld. Hier kijken we hoe we voorraden die in de winkel liggen ook echt gebruikt kunnen worden bij verkoop online. Dat doen we nog niet, maar zijn we wel mee bezig.
	Je noemt dat de klant het verwacht, is dat dus omdat de concurrenten deze service bieden dat	Ja deels wel. Omdat de klant het dan verwacht ja, en dit ook bij andere krijgt. Dus dan moet je daar gewoon in mee qua klantenverwachting ja. En als je het goed doet kan je ook beter je interne processen verbeteren wat ik zie vanuit mijn rol.

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	jullie dat ook doen?	
Dimensions	**Denkt u dat deze dimensies dekken hoe u omnichannel retailing ziet en hoe u zich richt op de implementatie ervan?**	Ja dat is wel een beetje wat ik zei en dat klopt wel, die klant beleving is natuurlijk heel belangrijk, klanten service goed kan doen op al die kananalen. Nieuw team zijn we daar ook voor aan het installeren. En ook je data die je analyseert, helemaal eens. Dat is natuurlijk extreem belangrijk hoe je dat gebruikt en zie waar een klant koopt en waarom. Daar zijn we ook al heel lang mee bezig en is een ongoing traject. En dan supply chain en logistiek, logisch natuurlijk inderdaad. Dat wordt ook gedaan en werd al gedaan door een centrale rol. Die drie dingen die kloppen wel ja en zijn belangrijk. Alleen dan is natuurlijk wel nog de uitdaging hoe ga je dit ogranizatorisch goed voor elkaar krijgen. Hoe past een traditionele organisatie structuur daarbij. Dat is ook een belangrijke om te onderzoeken. Vooral in de transitie, vroeger had je alleen winkels en nu komt daar een kanaal bij, e-commerce en mensen die de webshop maken. Maar echt omni, dan moet je dingen samen gaan doen. Dan moet je dat afvragen, doe je e-commerce apart die ook gaan plannen bijvoorbeeld of moet dat samen. Moet dat dan met producten die je aanbied op internet ook afgestemd worden met winkels. Is dat dan niet een afdeling. Vroeger was e-commerce een aparte winkel, een apart kanaal. Maar nu is het zo groot geworden. En dan nu met omnichannel retailing is het ook niet meer apart en moet je het ook echt gaan integreren. En ik denk zelf dat je dat ook moet gaan integreren in je organiatie. Zeker vanuit digital gezien, alle indicatoren hebben natuurlijk ook een digitaal compomnent. En om een ervaring seamless te maken moet je dat vanuit die digitaal perspectief aanpakken ook. Niet alleen kijken naar winkel automatisering maar juist dat samen doen met je e-commerce ook. Je hebt daar natuurlijk aparte teams voor maar je moet ze wel heel nauw laten samen werken met elkaar voor de transitie naar omnichannel retailing.
	Dus als we dat samenvatten, zou het dan een goede toevoeging zijn om een organisatie structuur dimensie toe te voegen?	Ja dat zou ik wel zeggen ja, dat zien wij namelijk wel dat de organisatie echt aanpassen. Je ziet geen echt onderscheid meer tussen digital en business. En zeker als je die stap wil maken naar omnichannel maar je ook ernaar kijken hoe ga je dat goed organiseren door verschillende teams, e-commerce, IT, logistiek, product offering en customer service te laten samenwerken. Winkel en e-commerce zijn nu nog apart maar dat moet veranderen.
	Wat zijn de grootste uitdagingen	Ik zou zeggen bij de customer experience, wat je aanbied aan je klanten op de website en hoe die voorraden worden aangesloten. En data, is de uitdaging of je nu echt de juiste data bij elkaar hebt en kan je hiermee een goede analyse

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	binnen elke dimensie?	maken daarop. En dan echt kijken naar welke data je nou precies nodig hebt voor de juiste scherpe analyse. Ja en logistiek, is natuurlijk lastig altijd hoeveel ga je dan groeien en hoe moet logistiek aan capaciteit hebben. Met bijvoorbeeld de lockdowns was er een extreme groei. En nu alweer veel minder, dus heb je de capaciteit net op de groei aangepast. Dus hoe hou je dit in evenwicht en hoe reageer je in het algemeen op pieke zoals Black Friday. Focus echt op schaalbaarheid dus. Je moet ook visie hebben als bedrijf, hoeveel ga ik toestaan als over capaciteit. En hoeveel wil je dan echt kunnen rekken met die piek momemtenc En hier moet je dan een afweging in maken in piekmomenten. Lever je dan misscien niet de dag erna maar twee of drie dagen later. Dan heb je de hele dag voor order picken. En dat is ook nog een spel, je maakt een afweging tussen de service die je bied aan klanten, wanneer lever je etcetera. En aan de andere kant je kosten.
Indicators	**Wat zijn volgens jou de belangrijkste indicatoren voor de dimensie Seamless Customer Experience voor uw bedrijf?**	Voor ons echt de voorraad ontsluiting een van de belangrijkste. Dat de klant ook echt als de voorraad op is in de winkel snel kan worden geholpen door vorraad waar deze nog wel is, dan wel online of fysiek elders. Dus de voorraad is hierin essentieel om echt de kanalen op elkaar aan te sluiten en dat deze door elkaar gebruikt kunnen worden. De andere is de customer journey verbeteren. En seamless maken. En een ding hierin wat van belang is is het bon bedrag verhogen van aantal producten. Maar anderzijds wil je ook dat als je online dan verkoopt dat er ook echt supere goeie informatie krijgt. Waar is je pakket, waar kan je dat ophalen. Maar ook in de winkel beter gehoplen wordt om het dan te bestellen. Dat is natuurlijk ook de technische ondersteuning.
	Wat denkt u van de huidige indicatoren, dekken zij de dimensie?	Ja deze kloppen in principe exact inderdaad. Maar je moet natuurlijk ook je offering goed hebben, wat biedt je nou een klant aan? En wat wil de klant nou? Hierin gebruik maken van de winkels want we hebben er een hoop. En daarnaast moet je dus inderdaad van de producten die je verkoopt er genoeg van hebben, dat komt terug in die service reliability ja. Die is heel belangrijk, die is denk ik overkoepelend in omnichannel retailing. Anderzijds als je omnichannel goed wil uitputten moet je inderdaad die cross channel touchpoints hebben. Dat moet ook digital friendly zijn. En je moet ook je use cases gaan ontwikkelen op omnichannel en ook zo denken. Daar moet de customer journey op aanpassen.
	Wat zijn volgens u de belangrijkste indicatoren voor de dimensie Integrated	Ja A dat je de data goed ontsluit en B dat je op basis daarvan snel de juiste analyses kan maken voor business. Hierin hebben wij alles naar de cloud gebracht, soort cloud data platform ingericht en die is klaar. Dat is voor het delen en opslaan van data, het ophalen en in het platform opslaan. Het kunnen analyseren is ook gereed maar nu is het zaak dat

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	Analytical System voor uw bedrijf?	ook te doen dan. En informatie eruit te halen die je wil hebben. En met name dat laatste is nog iets wat loopt, de analyse en besluitvorming. En hier gaan we nu ook juist naar kijken in het omnichannel geval, dat je juist de data vanuit je winkel en webwinkel leert combineren en vanuit daaruit analyses en rapportages gaat maken. Dat je kan zien waarom er in bepaalde weken er een verschuiving is van winkels naar e-com of andersom. Waar moet je dan aan draaien om dat te kunnen sturen. Dat zou super zijn als je dat weet.
	Wat denkt u van de huidige indicatoren, dekken zij de dimensie?	Ik zie deze punten bij ons terugkomen inderdaad en daar zijn we druk mee bezig. Dus ik zou hier niets aan toe willen voegen.
	Wat zijn volgens u de belangrijkste indicatoren voor de dimensie Effective Supply Chain and Logistics voor uw bedrijf?	Ja voor ons die afweging tussen capaciteit en vraag die vanuit de klant gaat komen. Dat je daar de jusite keuzes in maakt. Op basis na de offering die je doet aan klanten. En de andere is het ontsluiten van voorraad, hoe zorg je er nou voor dat je de jusite producten op de juiste plaats hebt, op basis van de klantenwens. Genoeg voorraad, juiste plek, juistse tijdstip.
	Wat denkt u van de huidige indicatoren, dekken zij de dimensie?	Ja ik zou misschien het het digitale component willen toevoegen, data driven. Het is natuurlijk onder planning, maar wat je echt ziet bij ons bedrijf is dat je die planning voorspelbaarheid over de keten heen moet verbeteren. En dit zorgt ervoor dat het veerkrachtig wordt bijvoorbeeld. Dus planning is daar heel belangrijk in. Bij omnichannel moet je keuzes maken wat betreft planning over kanalen heen.
	Hoe hebben jullie de pandemic ervaren? Heeft dit jullie transitite versneld of juist vertraagd?	Wat we hebben gezien is dat online heel hard is gegroeid. Onze plannen van over twee a drie jaar ineens gerealiseerd werden. Wat er toen gebeurde is dat e-commerce DC is uitgerekt naar 110% en dat was nog niet genoeg. Toen hebben we groot deel van de winkels, stuk of 60, gebruikt als fulfillment centre. De winkels waren toch dicht dus de voorraad die daar lag werd gebruikt om te kunnen picken voor online orders en die te versturen naar de klant. Dus zo konden we de helft nog erbij klussen. Dus op die manier snel bijgeschaald, echt een omnichannel oplossing eigenlijk.

8.2.2. Retailer interview B

Table 18: Highlights of retailer interview B

Phase	Question	Answer
Introduction	What is your function title?	I am the senior digital leader, so that's basically my function title.
	What are the responsibilities for this function?	It's mainly around projects program for digital transformation. So when the vertical where I am working is in the area of customer fulfillment or the IKEA retailing part. So that's basically in this segment of quality, customer

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		fulfillment and within customer fulfillment we are doing omnichannel planning and that's the current set of responsibilities within this function. But the key task of the function or the group within IKEA where I belong to is primarily project running projects program change transformation from the perspective of digital transformation.
	What is your definition of 'Multichannel retailing'?	Well, as the name suggests, the multichannel retailing. This basically is that you are selling your products through multiple channels or multiple mechanisms, or multiple formats. And in retail you usually call it different formats an so multichannel retailing is when you are getting to your customer or reaching your customer or customer could reach you as a retailer through various channels and for me to yeah the core definition of multichannel.
	What is your definition of 'Omnichannel retailing'?	It's a step forward and that's basically you can sort of, from my perspective it basically three things, first is end to end customer journey and that customer journey is seamless through different channels. Within that retailing unit, right? So, what I mean to say, is there a customer can start their own line? The journey in an online mode can continue with their journey into an offline mode, can go back into the online and change. So basically, customer experience should remain consistent. An any customer order or any customer buying behavior doesn't matter what channel it is going into. A customer should get a unique experience which is unified across all the channels. That's the first aspect of opening channel retailer. Second aspect of omnichannel retailing is the integration of the entire planning and execution of customer ordering customer deliveries. Irrespective of the channel the customer had user that's a very core part of omnichannel retailing, and then the third element for me, for a normal channel, retailing is primarily having a solid network to fulfill customer orders so customer fulfillment in network around the customer fulfillment and the total supply chain cost so the back end elements off the only channel regionally should be an optimization of that is the third core aspects for me.
Dimensions	**Do you think these dimensions cover how you see omnichannel retailing and how you are focusing on the implementation of it?**	Uh, it is. These are the three important elements of omnichannel retailing. But I think within I mean regarding the second dimension, whether you call it integrated analytical system or basically a solid coherent background back end. It's basically what I would say is required be because of your business processes. And it back in across different channels should be also integrated as one end to end process and then that's usually the biggest challenge. Because that is what leads to the top and the bottom dimension right. So, to have a seamless experience you need to have that as a prerequisite. And also have it externally to have an effective

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| | | supply chain logistics, but also about total cost of operations, right? The operating model behind this, so within this supply chain customer fulfillment whatever you call it right, that's a very important element. Within omnichannel retailing I would say it's both the supply side but also the demand side, which is basically the whole customer fulfillment journey. It needs to be also optimized so optimized supply chain and logistics for a total lower cost for the omnichannel retailing.

And for us, there is another fourth dimension to this and for us that is people, planet, and environment. But this is an important aspect for everything we do. it is core, so there's nothing in our company or in our retail in company with what we do is not included that and that's a very important direction dimension driver. For any change, any implementation, any business process, any business decision we do. So, the planet, environment, sustainability, whatever you want to call it. |
|---|---|---|
| | **Could you elaborate more on the people aspect?** | It's organization structure. It's about how our coworkers. The working conditions for them, but also everything related to people aspects of life and planet in whether it is working conditions within about equality, whether it is about diversity. Where this is about respect, all those elements become an integral part of how we want to run our business. So, for us, because if you do not have those elements in place and becoming a true omnichannel retailer will be difficult and you will see what I mean by that. Is that when you when you talk about reverse logistics, so return products or damaged products. That's a significant part of any retailing, right? And you need to implement circular economies kind of stuff. And that is not only about sustainability, but also about what kind of mindset your people have in the process and system meant to integrate. That is a very key element of our omnichannel retailing as well so. |
| | **What are the biggest challenges within each dimension?** | I think the biggest challenges is to create the seamless experience for the customer, is number one. But that challenges because of the fact that you do not have one integrated backbone setup, right? and also when I say back in, I mean both from a supply chain perspective but also from this system and data perspective. Depending on how old or newer retailer is the whole back-end system could be very legacy based or could be very traditional approach of running the business. So how integrated your back-end processes are? In true sense of only channel retailing is the biggest punch. They'll probably be the case for most of the retailers in general for a just in general right to become more technology driven and the business outcomes. Based on using technology to give that create experience. It's not only introduces integrated in local system is a part of the whole |

		back-end part of the whole integrated business processes, right? So, I'm talking about the whole integrated business process, which is supported by set of tools systems, possible technology, right? And I think analytical system, so using customer data to make business decisions is part of running your business right. You still need to run the business and when you run your business you need to have all different verticals within. Omnichannel should talk to each other with keeping one customer experience in mind. And I think that's where the true challenge lies. That if you don't have that you cannot have the seamless customer experience or you cannot have an effective supply chain cause business process is not integrated, so that usually is the biggest challenge here.
Indicators	**What do you think are the most important indicators for the Seamless Customer Experience dimension for IKEA?**	A very important driver is affordability, and we want that afford affordability across our customer domains, right? Our customer experiences. whether it is about buying a sofa or buying something through kitchen or buying the whole kitchen notes on its own right, so we have a built in affordability throughout our business processes and how we design products and so that is an important element. The second is a customer promise delivery, so whatever, we have promised to a customer. And are we delivering on that? So basically, we think will happy customer and they're different segments within that, and that's where to track. So, affordability is a very important element and then of course connected to that is the happy customer basically.
	So, you've mentioned affordability and the service reliability for customers, what do you think of the current indicators, do they cover the dimension?	Yeah but about affordability, if you look at Apple, Apple is not about affordable, right? Apple products are premium, so it really depends on what type of retailer you're talking too. Although Apple is everything, so digital companies are we. It's in the physical hardware devices etc. So, affordability is important for us but for seamless customer experience. Yeah, service reliability is all about service customer promise right what I mentioned. Further, in this and of course cross channel test point, I would use the word integration because no matter cross channel you go you want to be make sure that all these touchpoints different channels or integrated with each other, so customer loyalty is very important. Uh, and customer centricity. So basically, your business should be built around customer, yeah. Digital friendly well, that's true requisite right? It needs to be for guys only channel means digital is missional challenge channel. So, it's a friendly. Sounds more like nice to have for me rather than must. So maybe digitally enabled, something like that.
	What do you think are the most important indicators for the	I think integrated well end to end business processes. And that should be a reflection of your end to end customer journey. So you should be able to move the data from one platform to another platform depending on how customer

	Integrated Analytical System dimension for IKEA?	moves right and that should be over all connected and then using data to make business decisions, but to also facilitate business processes. I think you need automated processes, and that's an important aspect of so. I think the two important indicators for this dimension is how well your end to end business processes are integrated and how well you are able to make business decisions based on data.
	How would you formulate this as an indicator?	Well, end to end business process integration. That is how it is and should be able to integrate the data across business processes in one endless experience right from that person.
	And do you think these indicators cover the dimension, supplemented with the ones you just mentioned?	Hm, data integration rather than data sharing? I think you can change that because when you talk about data integration, that basically means that different business processes are using same sort of data. Sharing is more like again sort of nice to have our possibility to share, but your data should be integrated. I think that's an important part.
	What do you think are the most important indicators for the Effective Supply Chain and Logistics dimension for IKEA?	The one most important element is the customer fulfillment. I think, uh, and then you need to have an integrated supply chain end to end integrated supply chain, which is sounds very simple word, but I think it has a lot to do with omnichannel. It has a lot to do with optimization, so integrated an optimized supply chain reflecting the omnichannel reality, right 'cause an essentialized customer fulfillment that's a very important element. So that's what you want to do in omnichannel, right? Very important that a customer can has the flexibility to decide where and how they want to get the product right. They can go and pick up the one it gets delivered. They want to get delivered at a certain place in a certain time. So, an integrated supply chain which is focused on customer fulfillment is the core of an omnichannel. If you are a retailer with lot of physical stores, multiple physical stores you need to create a blended approach. And delivering product when customers are visiting you or delivering product from customer are visiting all lines or a combination of customer can still come to you. Order product in your physical location but wanted delivered later. So, you need a seamless integration of variety of omnichannel points into your customer fulfillment domain. I think that's a that's a very important in this dimension, so that's why that for us to two key dimension or two key indicators would be a customer fulfillment and go not an integrated omnichannel supply chain.
	And do you think these indicators cover the dimension, supplemented	Uh, Stakeholder collaboration, operational cost delivery time, inventory fulfillment, product return time, planning, sufficient infrastructure, scalability, flexibility. I think network is an important aspect as well. So, customer fulfillment network for omnichannel. That becomes an

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	with the ones you just mentioned?	important aspect. Uh, last mile delivery is a very important aspect. So, I think that's missing.
	What aspect of last mile delivery is key in your opinion?	Uh, promised next day delivery or to make it efficient. It's a combination, so effective last mile delivery means delivering based on customer needs at the lowest possible cost. Because it has the be affordable for us, right? For any omnichannel retailing last mile delivery becomes an important aspect of customer satisfaction and your optimized supply chain. And you need to build around your different omnichannel, so physical and online
	And what role does planning play in this for your company?	Here, omnichannel planning is the key starting block. How do you want to do your customer fulfillment? Because that leads to what kind of suppliers you're going to work with, what kind of warehousing capacity do you need? Where do you need them? What kind of transport agreements do you need for a supply chain? How do you want your supplies to deliver the product to you, and where and in what time frame? So, it's the whole omnichannel. Planning is a very important aspect which is connected to customers which is connected to your business. so rather than just using the word planning, you should use the word omnichannel planning.
	How do you collaborate with stakeholders regarding this channel planning?	Right, it's always a challenge. The more parties you have involved in your business process, it is a challenge. And then you need the right technology. You need the right mindset to make sure that. Uh, go smooth and it can be done in an effective way with the lowest cost base, right? So, and it should be something for all the retailers in there, right? So, I think that's the overall. That's why this stakeholder collaboration is quite important.
	How did you cope with the effects of the pandemic on the transition towards omnichannel retailing?	Well we became close to the customer. That has always been one of the big goals of our business. But the moment corona came and the challenge that we face to be closer to our customer, which was really challenged because the stores were being closed. Although we had good online presence but only channel transition towards omnichannel became more prominent. And yes, it accelerated the transition towards omnichannel. The pandemic of course led to the acceleration because it was everywhere. Online business increased significantly because stores are closed, and we were sort of prepared. We shifted to more online before the pandemic, so that was right on time. But omnichannel is not only about online right. It is the use of multiple channels including online into a seamless customer experience for your customer right? It's quite a complex process to keep in place in the back end. And this has accelerated, but it's a journey which we embarked upon. It

| | | takes time to become a truly omnichannel retailer right? It's a process we need to go through. |

8.2.3. Retailer interview C

Table 19: Highlights of retailer interview C

Phase	Question	Answer
Introduction	**Wat is de title van uw functie?**	Director HR & Supply Chain
	Over welke aspecten binnen het bedrijf bent u verantwoordelijk?	Eind verantwoordelijk voor het Hr beleid en eindverantwoordelijk voor de totale supply chain. Inclusief het hele import gedeelte. Dus vanuit import totdat het in de winkel ligt. De totale keten is dat zowel fysieke als online kanalen met transport naar de klant ook.
	Wat is uw definitie van 'Multichannel retailing'?	Dat wij zowel offline als online naar de klant de kananlen hebben om onze spullen bij de klant te brengen.
	Wat is uw definitie van 'Omnichannel retailing'?	Omnichannel retailing is dat deze beide kanalen van multichannel nog steed aanwezig zijn. Maar de klanten prositie is zowel online als offline. Waarbij de keuze voor de klant in de winkel ook richting oline kan gaan en andersom.

Voordelen, propositite tegenover de klant. Exposere hierin versterken vanuit de online geadachte. Dus kijken op het web en kopen in de winkel. Ook kun je online producten uitproberen en dan later in de winkel kan leggen. En als laatste kunnen we een split maken in artikelen. Dus alleen online of alleen offline, of natuurlijk beide. |
| Dimensions | **Denkt u dat deze dimensies dekken hoe u omnichannel retailing ziet en hoe u zich richt op de implementatie ervan?** | Dat denk ik wel ja. Bij ons gaat seamless customer experience breder dan onze website, dus inclusief social media bijvoorbeeld. Zoals Instragram en Youtube, daar zijn wij buitengewoon actief om die customer experience te verbeteren en daardoor onze sales te bevorderen. Als het gaat om integrated analytic sysems herkennen wij dat ook. Een van deze zaken is natuurlijk research online, purchase offline. Waarbij wij op data en andere technieken ook de klant kunnen sturen naar winkels waar de klant fysiek zijn aankomen doet. En daarnaast kan je hier ook zien wat het online goed doet, wat doet het fysiek goed. En dan is daarna de vraag hoe ga je dat op een effectieve manier naar de klant brengen. En daar komt dan die derde dimensie ook terug, hoe ga je het naar de klant brengen en eventueel weer terug. |
| | **Wat zijn de grootste uitdagingen binnen elke dimensie?** | Het is natuurlijk de fase waar wij in zitten. We zijn sinds 2018 met de transitie bezg eigenlijk. En als ik dan de dimensies even af ga. Customer experience, als je die niet op orde hebt hoef je over de volgende niet na te denken. En daar heb je natuurlijk om dat op orde te krijgen ook je data nodig en dan uiteindelijk wil je het naar de klant brengen. Maar als je naar ons bedrijf kijk, is het voor ons de grootste uitdaging om ons weer terug op de kaart te zetten. We bestaan al heel lang en je moet kijken wat je doelgroep is. Dus we moeten ervoor |

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		zorgen dat we onze doelgroep te vergroten om zo zorgen dat je online en fysieke kanalen hier echt naadloos op aansluiten. Dus de fysieke winkels woden ook zo ingericht op de nieuwe filosofie dat je online en fysiek echt samen hebt. Dus om die seamless customer experience te creeeren is het echt een uitidaging om je verhaal te vertellen en dat online en fysiek aangesloten op elkaar te hebben.
	Speelt hierin dan ook mee dat je dit doet omdat je concurrentie het goed?	Nee eigenlijk niet helemaal. Voordeel bij ons is dat we allemaal eigen werk hebben. Dus als je iets wil met ons merk erop, moet je simpel weg gewoon bij ons zijn. Dus wij moesten meer een bestaand merk opnieuw positioneren.
	Even terug naar de uitdagingen op andere dimensies, welke zijn dit?	De grootste uitdaging nu is, meer aan de winkel kant. Maar ook de mens kant. Bijvoorbeeld dat er in elke winkel een bestel punt is. Zodat we eigenlijk een oneindigschap hebben. In de winkel heb je misschien niet alle maten, maar als je dat dan direct kan bestellen vanuit je online warehouse heb je meer mogelijkheden met je voorraad. Dus daar zijn we de winkels momenteel op aan het inrichten zodat je de klant toch kan helpen als het in de winkel niet aanwezig is maar online wel. Dus je voorraad integratie in beide kanalen is een uitdaging waar wij mee bezig zijn. Een tweede uitdaging is dat wij zulke hoge volumes draaien, dat we nu continu aan het bijschakeln zijn om zo efficient mogelijk de laatste stap, effectief bij de klant te laten komen. De volumes zijn gewoon erg groot, en we zijn niet gestart met het meest geavanceerde order verzamel systeem, maar dat zijn we continu aan het verbeteren en bijstellen zodat we die volumes kunnen afleveren. Dus dat zit meer binnen het effectieve supply chain and logsitics aspect. En daarbij is het belangrijk dat je je kost prijs zo laag mogelijk is. Omdat je richting de klant dit zo laag mogelijk wil doorrekenen. Dus de kosten zijn belangrijk om in de gaten te houden.
Indicators	**Wat zijn volgens jou de belangrijkste indicatoren voor de dimensie Seamless Customer Experience voor uw bedrijf?**	Nou éém is een vrij simpele, dat is het aandeel omzet wat via de web deals gaat. Dus dan is de belangrijke hoe je dat kunt meten. Een tweede belangrijke indicator is hoe effectief de promoties zijn, zowel online als offline. Dus dat je gaat kijken na de promotie hebben we een omzet verhoging van zoveel procent gezien. En dan moet je nadenken wat er aan de hand is als dat wel of niet naar verwachting is. En als hier iets niet klopt, dan klopt er iets niet in de eerste dimensie want dan is er geen seamless customer experience. Want het moet de klant in principe niets uitmaken welk kanaal er gebruikt wordt. Dus of het via het web of in de winkel wordt aangeschaft.
	En hoe hebben jullie deze indicatoren ontwikkeld de afgelopen jaren?	Sinds 2018 zijn wij bezig om continu het verhaal te vertellen en dus daarnaast de winkels aan te passen op deze omnichannel filosofie. En dat betekent dat als je zoekt op het web dat je dan digitaal door de winkel heen gaat. Dus de wereleden die wij hebben in de winkel die vind je ook terug op het web. En datzelfde geldt voor social media. Het heeft

		veel te maken met het consititent te maken met communicatie en wat werkt bij de klant. En dat wil je versterken, online hebben wij bijvoorbeeld influencers. En die gebruiken we ook in de winkels in belangrijke weken in het jaar.
	Wat denkt u van de huidige indicatoren, dekken zij de dimensie?	Nou als je kijkt naar service reliability heeft dat voor ons niet zozeer met omnichannel te maken maar meer een retail principe in het algemeen. Dus dat is de basis die op orde moet zijn. Cross channel touchpoint connections hebben wij het inderdaad over gehad, dat is zeker essetieel als je het over omnichannel denken hebt. Customer loyality bouw je op en dat doen wij onder adnere met social media en andere kanalen. En customer centricity vind ik ook een basis als een retailers. Digital friendly is daarin ook een basis vereiste. De klant moet online makkelijk en snel op zijn keuze komen. En wat wij doen, is bijvoorbeeld een combinatie tusen digital friendly en customer centricity, is met klant gerichtheid dat wij voorkeuzes maken. Bijvoorbeled kijken wij naar een aantal woonstijlen, dan doen wij zowel online als offline een test zodat je weet welke stijl past bij jou en daarbij kunnen we dan klantne voorstellen welke artikelen daarbij passen.
	Wat zijn volgens jou de belangrijkste indicatoren voor de dimensie Seamless Customer Experience voor uw bedrijf?	Om te beginnen is onze filisofie dat wij data geinspireerd werken. Dus dat is dan niet zozeer de data bepaalt wat je doet maar de data geeft je de inspriatie om de juiste commericele marketing keuzes te maken. Dan is het vervolgens de belangrijkste voor ons is dat wij goed zicht hebben op de kueze momemten van de klant. En dan krijg je klassieke zaken als wat is de conversie, is dat hetzeflde online en offline. We kijken naar de basket samenstelling, we kijken naar de grootte daarvan. En we kijken naar terugkerende klanten. Al deze aspecten kan je aan zien hoe effectief we zijn.
	En om uit te wijden over het bon bedrag, merken jullie verschil tussen online en fysiek?	Bij ons is het bon bedrag online vaak 4 tot 5 keer zo hoog als in de winkel. Nou dat heeft te maken met een aantal keuzes die we hebben gemaakt. Een hiervan is het gratis bezorgen, dat heeft een drempelwaarde van 35 euro. En hollanders zijn natuurlijk hollanders, ookal zijn de bezorgkosten laag. Ze doen altijd hun best om het gratis bezorgd te krijgen. En dan heb je ook gratis return. Dan heb je nog het gemak aspect. Wat echt verandert in de wereld, dat de consument makkelijker dure spullen thuis laat bezorgen en dan vaker het online kanaal kiest.
	En hoe hebben jullie deze indicatoren ontwikkeld de afgelopen jaren?	Dat zijn natuurlijk de back-ends van ons systeem waarbij de klant gegevens die geven ons inzichten van wat wij graag zouden willen weten. De klanten maak je uniek door ze te kunnen volgen op basis van dat ze member worden en een account krijnge. Dan weet je wat je klant koopt en dat de klant terug komt. En op de back end systeem zijn wij bezig met ontwikkelen. Eerst de klant propositie op orde en daarnaast de goederenbeweging die je wilt kunnen volgen.

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	Wat denkt u van de huidige indicatoren, dekken zij de dimensie?	Data sharing gebeurt binnen ons omnichannel en opslag is een belangrijke in waar wij afgelopen jaar flinke stappen in hebben gemaakt. De beveiliging is ook belangrijk want er zijn altijd pogingen dat hackers iets met je data willen doen. En uiteindelijk als je dat dan goed combineert levert dat een leverage op. Dus dat is logisch ja.
	En hoe gaat het data delen met alle stakeholders?	Nou ik zal nooit zeggen dat iets helemaal op orde is, ik zal altijd zeggen continous improvement. Dus ja we hebben de data maar we kijken ook continu welke keuzes we hierin maken.
	Wat zijn volgens jou de belangrijkste indicatoren voor de dimensie Seamless Customer Experience voor uw bedrijf?	Kosten, die we uitspliten in een aantal dimensies. Het tweede wat belangrijk is return percentage. Maar daarnaast ook hoeveel voorraad heb je liggen en omzet. Maar dat heeft niet specifiek met omnichannel te maken maar meer retail in het algemeen. Voor het omnichannel vooral de kosten omdat dit ook naar de klant wordt doorberekend dus daairn hun keuze wordt beinvloed. Dus die moeten zo laag mogelijk zijn.
	En hoe ontwikkelen jullie deze kosten?	Ja dat is van veel aspecten afhankelijk. Verantwoordelijk van de inkoop begint het al welke route leggen de producten af. Welke modaliteit en welke route leggen ze af. In je warehouse moet het inpakken vna de pakketten ook efficient gaan. En de derde schakel zijn de pakketbezorgers, de meest ontbetrouwbare ook. Dit doen wij niet zelf maar hebben wij wel gedaan, tijdens corona bijvoorbeeld. Maar om alles zelf te doen moet je gigantisch investeren in de sorteer kant van je producten in pakketten. Grote bedrijven die dit doen hebben grote sorteer centra. Als je dat zelf wil doen met je grote volumes hebben om dat rendabel te maken. En dat is bij ons nog niet. Dus is het rendabeler om het bij een grote partij te doen.
	Wat denkt u van de huidige indicatoren, dekken zij de dimensie?	Herkenbaar zijn ze zeker. Je moet overal aan denken ja. Stakeholder collaboration over gehad. Operationele kosten, over gehad. Delivery time tuurlijk. Maar dat doe je ook voor een deel met je stakeholders. Hoe betrouwbaar zijn die ook. Dit was tijdens corona heel slecht natuurlijk. Fulfilment time belangrijk ja, bij ons zit winkel en online voorraad in hetzelfde pand. Dus dat scheelt. Product return, vanuit klant perspectief. Planning spreekt voor zich. Sufficient infrastructuur ook. Scalability en felxibility zijn voor ons met ons groei model een continu aandachtspunt. In tijden van corona bijvoorbeeld zijn wij flexibel geweest om snel te schalen. En die twee zijn voor ons als het gaat om me willen naar omnichannel het belangrijkst, de rest denk ik ja dat is gewoon als retailer ook. Wat we hebben gezien in corona dat het online verkoop door het dak ging. En omdat we toch in staat waren flexibel te zijn en op te schalen hebben wij ervoor gezorgd dat alle andere aspecten snel op orde

			konden zijn waardoor we konden leveren en dit niet in te hogen kosten op liep.
		En hoe hebben jullie deze indicatoren ontwikkeld de afgelopen jaren?	Wat je gewoon ziet is dat je een verschuiving van labour naar mechanisatie. En bij ons is dat er nog een extra uitdaging in zit. Bij een groot sorteer centrum kan je veel mechaniseren. Bij ons met kleiner volume is dat lastiger en hebben wij een grote diversiteit aan producten. Een kast tot een paar bordjes. Dat is lastig te mechaniseren. Dus techniek heb je hier nodig om dit te kunnen ondersteunen maar moet het ook rendabel zijn. Dus dat is een verschuiving van investering naar investering. Maar ook een verschuiving in het soort mens. Dus de flexibiliteit heb je ook nodig in je organisatie. Hoe bewegen die mee met nieuwe ontwikkelingen.
		Je noemt de organisatorische flexibiliteit, welke rol speelt dat organizatorische aspect voor jullie in het totaal plaatje vna omnichannel retailing?	Nou ik denk dat het iets aanvullends is om succcesvol te zijn. Als ik het hele framework zie denk ik ja, herkenbaar. Maar juist die flexibiliteit om mee te bewegen als organisatie dat is eigenlijk ook een cultuur ding, en dat is essentieel om succeesvol te zijn. Als het besluitvormingsprocess dusdanig traag is dat je niet met de maatschappelijke en commericele trends mee kan gaan ja dan mis je wat. Eigenlijk is het een soort randvoorwarde, dat veel van deze zaken in het framework alleen kunnen werken als de organisatie op orde is. Bijvoorbeeld als je van de productie je scalability wil opschalen moet je ook een organisatie hebben die daarop kan reageren. Flexibiliteit idem. Het moet passen bij de soort organisatie governance. Alle punten in het framework hebben wel of geen succes bij die organisatie governance.
		Wat mist er nog in het framework?	Nou misshcien het cultuur aspect. Passen veranderingen in je cultuur. Je moet innovatief zijn als organisatie. Alles kan kloppen in een framework maar cultuur en organisatorisch moet dat ook kloppen om het theoretische idee werkbaar te maken.
		Hoe bent u omgegaan met de gevolgen van de pandemie voor de overgang naar omnichannelretailing?	Met corona hebben we gemerkt dat we enorm moesten schalen in flexibiliteit. Online ging het qua volume enorm hard. We moesten ineens 7 dagen per werk en 24 uur per dag werken. Tijdens corona ging dit door het dak dus. Toch zijn we in staat geweest om op te schalen en flexibel te zijn en hebben wij ook onze leverbeloften, operationele kosten, voldoende op tijd kunnen aanvullen. En dat heeft echt te maken met dat stukje flexibilieit en schaalbaarheid. En dit heeft er voor gezorgd dat we dit in de toekomst houden, we kijken continu hoe we nog makkelijker kunnen opschalen. En dat verschilt qua voorraad tot aan hoe pakken we alles in. Dat is natuurlijk ook het ding van retailer, je zal bij de transitie naar omnichannel retailing continu moeten bijschalen, dus flexibel zijn. Daar hebben we door corona snel stappen in gemaakt.

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