JÖNKÖPING UNIVERSITY
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External Requirements and Internal Enablers in the Responsive Supply Chain Management

- A Case Study of Nike's Responsive Supply Chain

Master Thesis in Business Administration

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Background:
Responsive Supply Chain (RSC) has been in the middle of attention nowadays, companies invest massively in their supply chains to adapt to dynamic changes in the market. Examples of prominent changes are technological advances and digitalization happening across various supply chain channels. Almost all businesses and managers are now challenged to build a RSC that better copes with these changes. Therefore, it is essential to explore the external requirements in the market that push business towards adopting a RSC strategy. Along with external requirements, internal enablers are also defining how efficiently supply chain are capable of implementing such a strategy.

Purpose:
The purpose of this thesis is to analyze the external requirements of a responsive supply chain strategy. Furthermore, it will investigate the internal enablers necessarily to efficiently respond to those external requirements, and finally explore the challenges managers encounter while implementing a RSC model.

Method:
A qualitative method has been performed through a single case study analysis. Semi-structured interviews with different managerial levels are conducted to collect data from Nike, as a main research case. A content analysis method has been used to develop an adaptive model in order to fulfil our research purpose.

Conclusion:
Our analysis showed that consumer behavior and social media played a significant role as external requirements. Change management is a key internal enabler for Nike to adapt their current set-up to further develop their responsive strategy. Information technology, resistance to change and trends in the market are amongst the key challenges while building a RSC model.

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1. Introduction

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The aim of the introduction is to give the reader an overview of our research and what inspired us to choose this area of study. Firstly, we will present the background of our research to create a roadmap which basically will allow the reader to understand the importance of our study — followed by the problem description, purpose, research question and delimitation.
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1.1 Background

In a dynamic market where consumers' needs are continuously changing due to their different taste of products and following new trends that keep on changing. Not only that but also, technology had immensely developed in a way that has a significant impact on consumer needs. Therefore, companies are facing many challenges in order to satisfy their consumer needs. Furthermore, as competitions in the 1990s intensified, and markets became global, so did the challenges related to getting a product and service at the right time to the right place at the lowest cost (Li, Ragu-Nathan, Ragu-Nathan, & Subba Rao, 2006). Certainly, the role of globalization makes consumers have easier access to the market all over the world. With just one click the consumer can buy a product from another country and receive it in a few days, and that continuously raise their expectations (Li, Ragu-Nathan, Ragu-Nathan, & Subba Rao, 2006).

On one hand, consumer needs in a growing market led to demand uncertainty which made the competition become harder for companies to respond to their consumers' needs. On the other hand, companies need to assure getting bigger share of the growth part to maximize their profitability and expand in the market; Since the competition in the market is not among business, instead it is about supply chains (Li, Ragu-Nathan, Ragu-Nathan & Subba Rao, 2006). Hence, the role of Supply Chain Management (SCM) becomes significantly essential. SCM defined as management of the resources and complete utilization is the activities in entire supply chain to achieve competitive advantage. (Gunasekaran , Lai, & Edwincheng, 2008).

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The evolution of SCM has reached a new level; therefore, there are different SCM strategies in the field. We have seen how SCM strategies have developed over time to cope with market needs. According to Fisher (1997) who has established a model which differentiates between different supply chain strategies in which a company can choose the right strategy based on product characteristic. Responsive Supply Chain is one of those strategies which has considerably developed the last decade to increase companies' competitive advantage.

Responsive Supply Chain can be described as a network of network of the organization that are capable of generating wealth to its stakeholders in a competitive atmosphere by reacting fast and cost efficiently to changing market requirements (Gunasekaran , Lai, & Edwincheng, 2008). There are several external requirements which steer companies to implement a responsive supply chain strategy. The main three requirements according to Reichhart & Holweg, (2007) are; firstly, demand uncertainty and Variability; one of the main factors of being responsive. Because of the unreliable demand in the market that would make it harder for companies to forecast the demand. Also, demand variability in some way is close to demand uncertainty, even if the demand was 100 percent reliable, but the swing in demand creates uncertainty which create an opportunity for responsive supply chain to react accordingly. Secondly, Product variety; would reflect in demand uncertainty whereas, the high product mix will lead to increase the inventory costs to cover consumers orders. Thirdly, Lead-time reduction; which directly impact on the need of responsive supply chain because of less time available to respond to consumer's orders in a very dynamic market (Kritchanchai, 1999 & Reichhart & Holweg, 2007).

Whereas mentioned by Gunasekaran, Lai, & Edwincheng, (2008), the internal enablers are grouped into two main categories. First category is the operational factors and the second category is the supply chain integration. Each one has several elements. However, the continuous improvement and development we see every day reflects on the RSC requirements. Also, advanced technologies software's that opened gates for organizations to become closer to the market as well as provide a high quality of accuracy (Gunasekaran A. , 2005 & Gunasekaran , Lai, & Edwincheng, 2008).

1.1.1 Responsive Supply Chain in The Fashion Industry

The fashion industry is a worldwide and very globalized industry, with clothing usually created in one part of the world, manufactured in another, and sold in a third (Čiarnienė & Vienažindienė, 2014). It is rapidly growing all over the world, in 2018 the worldwide revenue for the fashion industry reached 481.2 billion Dollar and the growth expectation to rise by 32% to hit 712.9 billion Dollars by 2022 (Orendorff, 2020).

Christopher, Lowson & Peck, (2004) describe the fashion market as typically showing the following characteristics: firstly, short life-cycles – the product is often ephemeral, designed to capture the trend of the moment in the market; consequently, the time in which the products will be offered for selling is likely to be seasonal and short period, measured in months or even weeks. Secondly, High volatility demand; for these products which are always unstable in the market, might be influenced by the vagaries of climate, movies, or even by celebrities and famous sports players. Thirdly, Low predictability; it is challenging to forecast with any accuracy even total demand within a specific period, mainly impacted by the volatility of demand. Finally, high purchasing desire; the consumer decides to buy products at the point of purchase. In other words, the consumer when faced with the product is stimulated to buy it, hence availability plays a significant role in this case. Further, the authors mentioned that the success or failure of fashion companies is mostly determined by the companies' flexibility and responsiveness. Whereas short lead time and ability to react quickly to market are the main characteristics of responsive supply chain.

Recently, the main focus in the fashion industry has been on design and implementation of responsive supply chain strategies. Match supply to demand will drive costs down and increase supply chains optimizations.

In the fashion industry, apparel pipelines have been notably long, intricate and inflexible (Jones, 2002; Hines, 2004 & Murray, 2002). This layout resulted in long buying cycles, which became unsuitable for the need of the modern fashion industry and the increasingly demanding fashion consumers. Thus, New concepts to improve responsive supply chain has been introduced to the fashion industry such ah Just-in-time (Margaret, Daly, &

Towers, 2004), agile supply chains (Christopher, Lowson, Peck, 2004 & Murray, 2002), and quick response systems (Fernie, Azuma, 2004 & Fiorito, Giunipero, Yan, 1998).

In recent years there has been a growing interest in the design and implementation of responsive supply chain strategies (Christopher M. , 2000). Supply chain performance improvement initiatives strive to match supply to demand thereby reducing costs simultaneously with improving consumer satisfaction and increase sales.

Traditional supply chains have been acknowledged lengthy because of its long lead-times and hence, of necessity, have been forecast-driven. By contrast, responsive supply chains are shorter and seek to be demand-driven. A further distinction between both strategies is that traditional supply chains are forecast driven which implies that they are inventory-based. Whereas, Responsive supply chains are more likely to be information-based (Christopher, Lowson, Peck, 2004 & Čiarnienė, Vienažindienė, 2014).

1.1.2   Nike's Responsive Supply Chain

Nowadays the market is so dynamic therefore Nike pays high attention to the responsive supply chain strategy because, they need to react quickly to the consumer needs. As one of the top 10 players in the fashion industry from 2008 to 2017. They capture the opportunity in the market to grow and increase their market share in such a massive market which values of 1.78 Trillion dollars in 2019, therefore they have started the journey of implementing a responsive supply chain strategy since 2016. Nike with 39.1 billion dollars revenue in 2019 has taken real steps into the responsive supply chain direction to maximize consumer satisfaction as well as increase profits, currently the responsive business at Nike shares approximately 30% of the total business revenue (Lissaman, 2020 & Amed, 2019).

Additionally, to show the importance of the responsive strategy, In Nike's 2017 Investor Day, Nike's COO Erik Sprunk informed investors that they have been working on improving their supply chain network and increase automation to adopt to the market growth and he stated that; "*digitalizing our end-to-end supply chain by creating a new*

supply chain model that delivers what a consumer needs in a shorter lead time, when they want it and where they want it "(McKevitt & Lopez, 2020).

For Nike to do this, they are focusing on two main ways. Firstly, by empowering local teams to produce products for their specific regions. Secondly, revolution in Nike's manufacturing, which will enable quick emphasis on styles, and help brining products to the market quicker by provide flexibility in the manufacturing process (Withers, 2020).

Finally, as Nike emphasis on the need to be responsive they launched a new strategy which called "Consumer Direct Offense" also known as the double tripple: 2X Innovation, 2X Speed and 2X Direct, Nike aims to invest on its responsive model to be able to arrive to the consumer faster than ever before and achieve higher sales as well as higher consuemer satisfaction ("NIKE, Inc. Announces New Consumer Direct Offense: A Faster Pipeline to Serve Consumers Personally, At Scale", 2020).

1.2 Problem Description

The responsive supply chain has been an important concept for many industries and has received massive attention. Reichhart & Holweg (2007) created a conceptual framework of the responsive supply chain which describes the external requirements in the market that push towards RSC and what are the internal factors which will enable companies to implement a responsive strategy.

In response to that, we will be analyzing the case of Nike, to understand what made them move towards implementing a responsive supply chain strategy. It has all started in 1964 when Nike set up its business model which was based on pull strategy that has long lead time and called "Futures Order Model", first begins when Nike receives orders from customers six months in advance and then based on the demand, Nike places orders to factories. Accordingly, more than 1 Million workers at more than 566 factories around the world start to produce approximately 1.3 Billion units to be shipped through 75 distribution centers to serve more than 30,000 retailers in 190 counties (McKevitt & Lopez, 2020).

The futures model at Nike has been there for such a long time. Since consumer needs have increased in the market, it is such an essential for Nike to react to that as well as expand in the sporting goods market. Thus, Nike has started implementing a responsive strategy model in various areas in the business in order to react to their customers' needs as fast as possible. The responsive part of the business is rapidly growing which has a relatively shorter lead time than the standard model and provides more flexibility as well. One of those responsive models is called Express Lane also known as Always Available (AA) program which was launched in 2016. The aim of this model is to speed up the process and deliver products to the market faster. According to Nike's CEO Mark Parker, "the Express Lane has driven double-digit growth in many of Nike's key cities". (Ryan, 2020)

Indeed, it is crucial for Nike to clearly understand the internal enablers which will help them to continue growing in the responsive business and how they are impacted by the external requirements.

In the end, we will be comparing Nike's responsive supply chain model specifically; the external requirements and the internal enablers with the framework which was created by (Reichhart & Holweg, 2007). In an attempt to analyze the responsive strategy in the sporting goods industry, specifically, Nike's responsive model.

1.3 Purpose of The Study

The purpose of this thesis is to analyze the external requirements of a responsive supply chain strategy. Furthermore, it will investigate the internal enablers necessarily to efficiently respond to those external requirements, and finally explore the challenges managers encounter while implementing a RSC model.

1.4 Research Question

In order to fulfill the overall purpose of this thesis, the RQs in attention are:

RQ1. What are the main external requirements that have led Nike to implement a responsive supply chain strategy?

RQ2. What are the internal enablers for Nike to implement such a responsive strategy in respond to the external requirements?

RQ3. What challenges are facing managers at Nike when implementing responsive supply chain strategy?

Key words:

Supply chain management; Responsive Supply Chain, External Requirements, Internal Enablers, Challenges in RSC

1.5 Delimitation

In order to facilitate our research in depth and keep it evident, we had to consider some de-limitations. To achieve better understanding on external requirements and internal enablers factors affecting supply chain to be responsive, which is crucial part of our research, we decided to limit our focus on the scope of the responsive model. Due to time constrain while writing our research, we decided to focus on a specific part of the responsive supply chain model (provided in the literature review) to ensure the quality of our research, and hence, we excluded below topics from our scope of study.

- Relational factors,
- Agreements/contracts,
- Trust and commitment,
- Spatial integration and logistics,
- Control factor: ability to meet requirement (delivery reliability and quality).

Additional de-limitation is that we chose single case study as our research approach to be able to explore in-depth the external requirement and internal enabler of Nike's responsive supply chain as well as the challenges they are facing while shifting towards

responsive model. Moreover, since Nike is a sporting goods company, hence we can't generalize our findings on different companies or industries.

1.6 Limitations

The limitation in our research was that Nike is structured based on different geographic locations, we only had access to one of those locations which is EMEA (Europe, Middle east and Africa) headquarter. However, somehow it implies that the results are based on the circumstances of EMEA- Nike and might vary in different region on the globe.

The global companies with sensitive competition are fragile in terms of data sharing. They are handled with additional care to bring best of the data which requires more vigilance with data analysis. Therefore, another limitation confronted during the research was the data provided by Nike team was not very detailed since some information was confidential to be shared.

Furthermore, Nike now is on the journey of implementing a responsive supply chain and only 30% on their business is based on a responsive model, which led us only to focus on the ongoing responsive project of the business.

1.7 Thesis Disposition

To give our study comprehensive and structured view we have divided it into several chapters. The first chapter is introduction, which holds background that leads to problem and explicates the purpose of our study. The second chapter covers the strengths about theoretical framework that includes relevant academic models and arguments from the significant work presented by researchers. The third chapter is methodology that explains the philosophy and research design in depth. Following the pathway, third chapter further elaborates the data collection process and data analyzing methods and techniques. Moreover, the data was collected and presented in the fourth chapter, that is referred empirical findings. Next in chapter five the data is analyzed under the technique of within case analysis. in chapter six the research is concluded. In addition to this future research is provided for readers. To provide a holistic view, the below figure is presenting an outline of our research.

Figure 1: An Outline of Our Research

Source: Own creation.

1.8 List of Abbreviation

Abbreviation	Description
AA Program	Always available Program
APLA region	Asia Pacific and Latin America
ATO	Assemble to Order
BTO	Build to Order
EL	Express Lane
EMEA	Europe, Middle east and Africa
QRM	Quick Response Program
RSC	Responsive Supply Chain
SCM	Supply Chain Management

2. Frame of Theory

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The frame of theory is organized as the systematic literature review. It has been the main concern the selected literature is relevant and peer reviewed. Systematic literature review provides transparency and clarity, to do so, the research purpose has been kept as narrow as possible to cater most relevant literature into consideration.
In this chapter, the literature review starts with supply chain management and understating responsive supply chain strategy along with a RSC model. Furthermore, the topic is narrowed to the external requirements and internal enablers. Finally, the challenges in the RSC model.

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2.1 Supply Chain Management

The intense competition is visible globally in markets, consumer expectation is increasing whereas the product life cycles are getting shorter, this shorter lifecycle and increasing expectations provokes firms to focus and invest in their respective supply chains (Sell, 1999). According to Li, Ragu-Nathan, Ragu-Nathan, & Subba Rao, (2006) recently organizations are competing with each other based on their supply chains. Further, the rapid productive evolution of communication and transportation technologies have persistent the development of supply chain methods to administer it adequately (Law, 2016). Before moving forward, it is important to understand what Supply Chain Management is and later have a brief understanding of responsive supply chain strategy.

Janvier-James, (2012) defines Supply Chain *as a set of entities (eg. organizations or individuals) directly involved in the supply and distribution flows of goods, services, finances, and information from a source to a destination (consumer)'. Whereas,* Sells (1999) defines supply chain management as: "*Supply chain management is a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize systemwide costs while satisfying service level requirements*".

In other words, sell (1999) explains supply chain management as a process of connecting different nodes of the supply chain together, it starts by gathering raw materials and

products produced, then stored in a warehouse before dispatching or transporting them to retailers or customers. As to manage business flows, for organization it is adequate to make these work flow chains efficient and effective, in order to achieve productivity and strategic advantage (Law, 2016).

The global world is prompting supply chain for becoming consumer driven, against to what they were previously, production driven (Dicken, 2015). As consumers are responsible for setting the standards that by nature forces supply chains to be more responsive (Reichhart & Holweg, 2007).

2.2 Responsive Supply Chain

The responsive supply chain concept has been receiving a lot attention for the last decade. Kritchanchai, (1999) defines responsive supply chain as "*the ability to react purposefully and within an appropriate time-scale to customer demand or changes in the marketplace, to bring about or maintain competitive advantage*". Further, You, & Grossmann., (2008) define responsive supply chain as the supply chain ability to quickly react to the changes in consumers demand, from the perspective of volume and mix of products. Also, Khan, (2012) and Rajesh, (2015) explain responsive supply chain as firms gain competitive advantage, by reacting insistently in certain timeframe to the changes based on market and consumer demands. Whereas, other authors also present another definition by adding stakeholders, as follow, "*A network of firms that is capable of creating wealth to its stakeholders in a competitive environment by reacting quickly and cost effectively to changing market requirements.*" (Gunasekaran , Lai, & Edwincheng, 2008)

Undoubtedly, based on the different definitions mentioned above, responsive supply chain focus on the ability to react fast and responsively and being flexible to the alterations in the market and consumer demand, in a specific time-frame to achieve competitive advantage.

According to substantial literature, the ability to response to consumer needs is one of the most significant sources of competition. The concept of responsiveness has been analyzed with various perspectives, in turn to discourse its benefits, determine that could allow a company to act responsively (Valeria, Alberto, & Thanos, 2010).

Responsiveness can be explained as the capability of an organization that timely and effectively responds to threat and opportunity, to sustain competitive advantage (Barclay, Poolton, & Dann, 1996). The significance of such performances focused and stressed mainly during 90s, because of the dispersion of the fundamentals of time-based competition (Valeria, Alberto, & Thanos, 2010). Which underlined the necessity of responding to consumers quickly, speeding up the pace of product development process and the order fulfilment (Kritchanchai, 1999 & Khan, 2012 & Valeria, Alberto, Thanos, 2010).

Turning back the clock, Kritchanchai, (1999) argue that responsive supply chain has been perceived through three perspectives. Firstly, the time-based factors which are the reasons for organizations to become responsive by providing products at the right time, since the consumer is not willing to wait longer. Secondly, the financial and performance benefits gained by applying responsive strategy. Thirdly, the scenarios and resources that became pathway for the execution of responsiveness (Valeria, Alberto, & Thanos, 2010).

On one hand, in reference to these perspectives, the first two are based on time-based competition, and in relevance of gaining competitive advantage through time. In consideration of, effectively coping with the escalating dynamics in consumer needs, mainly with the challenges emerging through global competition (Barclay, Poolton, Dann, 1996 & Valeria, Alberto, Thanos, 2010). On the other hand, the third defines various factors those play vital role in respect to ability of being responsive in nature (Valeria, Alberto, & Thanos, 2010).

While Holweg (2005) argue that from the operations management perspective, the most significant perspective associated with responsiveness are *volumes, products and processes* based. These perspectives affect the production volume for the chase of demand, improvise the product range through introducing new models, to make and channelize products quickly (Holweg, 2005 & Valeria, Alberto, Thanos, 2010). Furthermore, speed of product delivery is directly affected by the production lead times (Holweg, 2005).
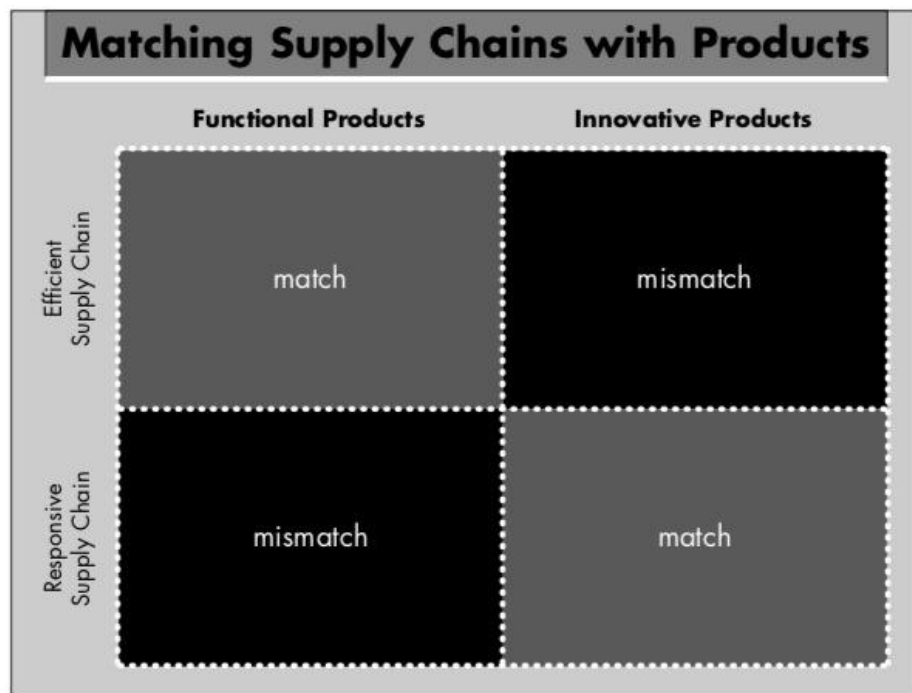
2.3 Role of Responsive Supply Chain

Endeavoring to provide consumers what they demand, within acceptable timeframes, gives the glance of achievable business ground. Although to design and provide a product at efficient competitive cost, Though, it is assumed that advanced responsive supply chains are costly compare to less responsive supply chains (Fisher M. , 1997), that can create barriers to achieve. In other words, presenting consumers with exactly desired products in given time is hard to accomplish. Since firms do not have the ability to forecast consumer demand accurately, in terms of covering their demand by having enough supply; RSC acts as the key to their success (Holweg, 2005)

Yet, many industries fail to response to consumer needs in a timeframe (Barclay, I., Poolton, J., & Dann, Z. 1996). This brings the focus on the responsiveness, though there has been debate going on for ages about time and quick responding. However, there has been certain initiatives developed, successfully proven and supported by academic literature in relevance to responsiveness like, Quick Response Program (QRM) in textile, (Holweg, 2005).

Responsiveness on broader scale, could be explained as the product characteristics and lifecycle that need to be linked, to draft the process of the supply chain (Barclay, Poolton, & Dann, 1996). Fisher has presented a matrix, discoursing characteristics of products in contrast to supply chains strategies. Fisher elaborated that the right strategy for a product, totally depends on the product characteristics. It is essential for firms to determine their products either its functional or innovative. If the product is functional the supply chains is physical efficient process, where the demand is predictable, generating high returns and reduce inventory level and cost minimizer while maximum performance. Whereas, for innovative product the supply chain process should be responsive, which states dealing with responding quickly, unpredictable demand, investing effectively to reduce lead times and prioritizing speed. Moreover, the innovative product is categorized with trendy, fashionable or high tech which are unpredictable in terms of demand. Innovative products have short life and larger product variety which led to high profit margin, and sales of the company have high influence (Fisher M., 1997 & Harris, Componation, Farrington, 2010).

Figure 2: Matching Supply Chains with Products

Matching Supply Chains with Products

	Functional Products	Innovative Products
Efficient Supply Chain	match	mismatch
Responsive Supply Chain	mismatch	match

Source: Fisher, M.L., 1997.

However, Harris, G. A., Componation, P. J., & Farrington, P. A. (2010) explain that the product type isn't the only driver for companies to change their supply chain strategy into a responsive model. There are other pieces externally and internally to be considered, further, Reichhart, A., & Holweg, M., (2007) established a model which illustrate a responsive supply chain strategy based on the main external requirements which motivate companies to move towards a responsive supply chain strategy. Further, the internal determinants (Enablers) which would allow companies to increase responsiveness. In the model, the authors mentioned that the relational factors which do not belong to external requirement nor internal enablers, but they can be influenced by both and impact upon the need.

Figure 3: Supply Chain Responsiveness - A Conceptual Framework.
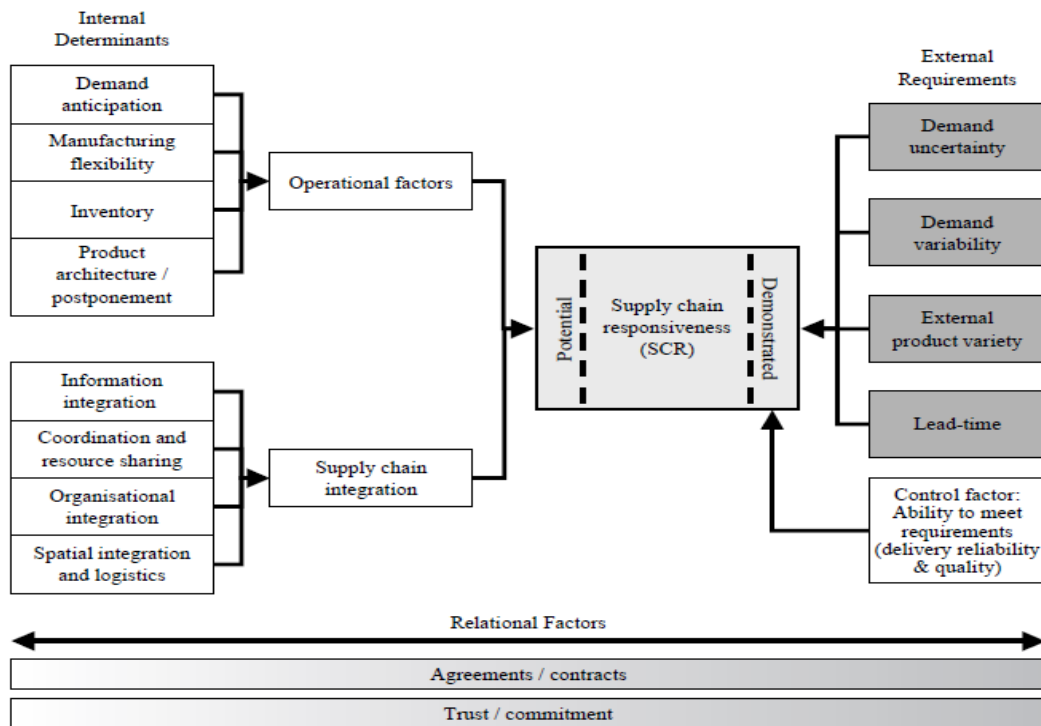
Source: Reichhart, A., & Holweg, M., 2007.

2.4 External Requirements

Harrison (1996) explains the meaning of external requirements as the factors that companies have no involvement and cannot control. In other words, the factors which drive companies to establish responsive strategy. However, improving responsiveness is not based on removing the external requirements rather than stresses the importance of a supply chain to be responsive (Reichhart & Holweg, 2007). Below will be discussing the three external requirements namely, Demand Uncertainty and Variability, Product Variety and Lead Time Reduction.

2.4.1 Demand Uncertainty and Variability

Demand levels and their timing significantly impact capacity levels, financial needs and general structure of the business (Ballou, 2004). Hence, consumer demand has a significant impact on the business and especially when it comes to uncertainty. In the supply chain business, uncertainty can be emanated from three main sources, namely

process uncertainty, supply uncertainty, and demand uncertainty (Reichhart & Holweg, 2007). Demand uncertainty according to Davis, T. (1993) is the most serious source of uncertainty in the supply chain. And it raises from the inaccurate forecast or volatile demand. Also, van der Vorst & Beulens, (2002) say that studies show uncertainty comes mainly from incorrect, inaccurate and lack of up to date information about the market demand. Therefore, if information regarding demand was predictable, the requirement for being responsive would decrease if not fade (Matson & McFarlane, 1999).

Shao, J., Sun, Y., & Noche, B. (2015) explain that while managers make procurement plan, production plan, transportation plan, and inventory plans, etc. they should be aware that demand uncertainty has an enormous impact on forecasting. The internal and external factors of supply chain make forecasting results always unlike the reality. In other words, there would be a gap between the forecasted demand and the actual demand, and if the difference is large, most likely you will fail even if the planning process was well executed.

Moreover, Lee (2002) explains another perspective of demand uncertainty which is, although the demand signals at the consumer could be stable, the distortion of those signals might occur through the supply chain. The flow of demand information from downstream all the way to upstream would increase fluctuations. When orders are placed from the customer moving upstream along the supply chain the small variation that was at the end customer will become bigger, and that is known as Bullwhip effect.
Further, it is clearly harder for companies to predict demand long time in advance, especially when the lead time is relatively long, that's impacting demand uncertainty and decrease the accuracy of forecasts (Xiao & Jin, 2011).

Substantial literature talks about different relationships between demand uncertainty and other factors, such as supply uncertainty and lead time reduction. In terms of the demand uncertainty with supply uncertainty, Lee (2002) has built an uncertainty framework that would help managers to choose the right supply chain strategy that matches their product type in regard to demand and supply uncertainty. The framework is built to guide managers to identify supply chain strategy according to degree of uncertainty they have in their business. Further, dividing uncertainty into two dimensions, firstly, demand

uncertainty includes functional products which represents low demand uncertainty and innovative products represents high demand uncertainty. Further in the other dimension, supply uncertainty contains stable process and represents low supply uncertainty while evolving process represents high supply uncertainty. Accordingly, managers can match their strategy business to one of these strategies based on their current evaluation. Efficient supply chain, Responsive supply chain, Agile supply chain and Risk-hedging supply chain are the supply chain strategies that included in the framework.

Figure 4: Matched Strategies

Source: Lee, H., 2002.

2.4.2 Product Variety

Xiao, Choi & Cheng, (2014) refers Product variety to the number of variants within a specific product group. Also, Randall & Ulrich, (2001) emphasize the time element and define product variety, as the different varieties of a product offered by a company at a single point of time. From a consumer point of view, product variety increases consumer satisfaction since the consumer has more extensive range of product to choose from (Wan, Xiang, & Dresner, 2012). In return, a high level of product variety will positively impact on firm performance as a result of higher consumer satisfaction (Um, Lyons, Lam, Cheng, & Dominguez-Pery, 2017).

Moreover, Reichhart, A., & Holweg, M. (2007) divide product variety into three dimensions, firstly, external variety which refers to number of products available to the consumer of the same category at any given point of time. Secondly, internal variety refers

to the range of products which offered by a single company. Thirdly, dynamic variety refers to short life-cycle products, while launching a new product it would be hard to predict that demand since there hasn't been any historical pattern for the new product available and the consumer may react unexpectedly. The authors argue that higher dynamic variety will increase demand uncertainty and hence the need to become responsive.

Furthermore, Fisher et al. (1994) and Randall and Ulrich (2001) explain that demand uncertainty is amplified by product variety, as the same aggregated demand is split over more stock keeping units, leading to an increase in the aggregated errors related with each forecast. Nevertheless, too many choices may lead to minimize marginal benefits from variety, due to selection confusion for consumers. Besides, a higher level of variety creates challenges in regard to managing inventory and creates difficulties to accurately forecast demand (Wan, Xiang, & Dresner, 2012).

2.4.3 Lead Time Reduction

Time has a significant impact on competitiveness, as consumers are increasingly unwilling to welcome long lead-times for products and services (Bower & Hout, 1988).The basic definition of lead time is defined by You & Grossmann, (2008) as Lead time is the time of a supply chain network to respond to consumer demands. Whereas, Singh (2015) defines lead-time more detailed as the time it takes from refining raw material to delivering finished goods to the consumer. It also includes supplier lead-time, manufacturing lead-time, distribution lead-time, and logistics lead-time.

Lead Time competition by definition increases the need to be responsive because the company or supply chain is given limited time to respond to new orders or changes in existing ones (Bower and Hout, 1988; Stalk, 1988; McCutcheon, Raturi, & Meredith, 1994). In the struggle to better match supply with demand, many companies are aggressively trying to cut lead times. The logic of their actions is clear: if lead times can be reduced such that production is widely in response to demand, forecast errors and related over and underproduction might be avoided. (Fisher, Hammond, Obermyer, & Raman, 2009)

According to Fisher, Hammond, Obermeyer & Raman, (2009) reducing lead times, will enable managers to reduce production risk by delaying production commitments until more comprehensive market intelligence can be gathered. Managers understand that the higher their reactive capacity, the greater the proportion of production they can reserve until early demand indicators have reduced demand uncertainty.

As stated by McCutcheon, Raturi, & Meredith, (1994), supply chain systems would be considered as more responsive if it could deliver the same product to consumers with a shorter lead-time. Thus, reducing lead time enables a company to react more quickly to demand information and hence to better match supply with uncertain demand (Fisher, Hammond, Obermyer, & Raman, 2009). Moreover, Reichhart & Holweg (2007) describe how lead-times, if handled right, can become an essential comparative advantage as consumers are becoming more sensitive towards long delivery-times for services and products. Furthermore, Fisher (1997) pointed out the need for reducing the lead time, which enables quick response to unpredictable demand to minimize stock-outs, markdowns, and obsolete inventory.

Figure 5: Conceptual Relationship Between Lead Time and Responsiveness
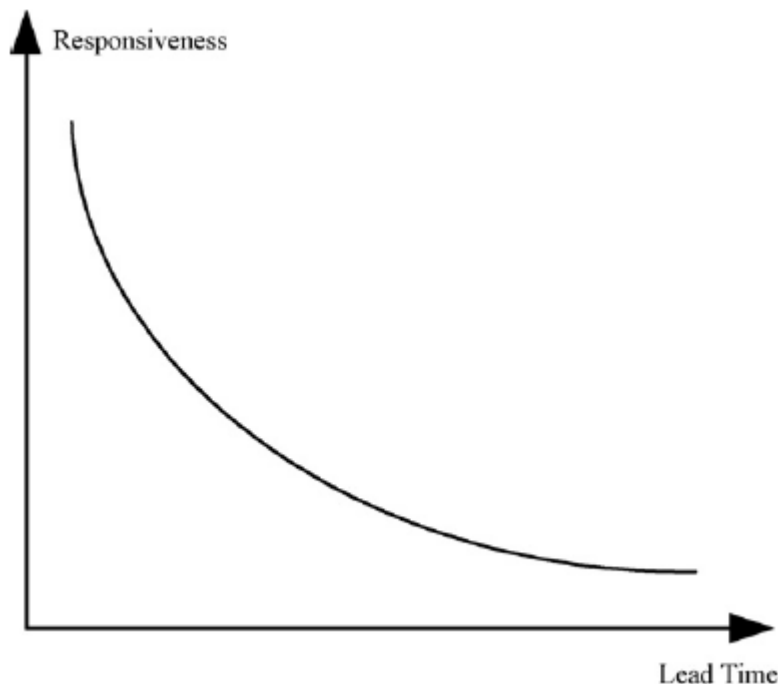
Source: Dubey, R., Gunasekaran, A., & Childe, S. J., 2015.

2.5 Internal Enablers

Reichhart & Holweg (2007) have classified the internal determents into two categories; Firstly, operational factors which focus on an individual node within the supply chain, and secondly, supply chain integration which focuses on the integration of the whole supply chain, as well as different partners along the supply chain. Generally, the internal enablers are the factors that would enable responsiveness in the supply chain.

2.5.1   Operational Factors

One of the first operational factors is demand anticipation. Coyle, Langley, Novack & Gibson, (2013) and Davis, (1993) explain demand anticipation based on three dimensions, as follows; how much products will be purchased, at what time will be purchased and what location will be delivered to, there are various statistical techniques to forecast the demand. According to Reichhart & Holweg, (2007) the most apparent enabler to be responsive is companies to be capable to anticipant consumer demand and estimate the actual output. Fisher et al. (1994) argue that companies can develop a system "Accurate response" by which they can divide their products based on the accuracy of how can the product be forecasted, the products that easy-to-forecast fall under less demanding supply chain strategies whereas saving resource for hard-to-forecast products.

In fast-paced technological development world, Lasi, Fettke, Kemper, Feld, & Hoffmann, (2014) argue that new technology can automate and provide better forecasting, by enabling for a network structure within supply chains where information is shared more seamless and faster among all partners.

The second operational factor is manufacturing flexibility, which seen according to Reichhart & Holweg, (2007) as "Responsive supply chain by definition requires the individual manufacturing systems to be responsive" the ability for factories to be flexible to increase or decrease production capacities according to the demand is a key to become more responsiveness, this flexibility would give companies enough time to decide on what is the right demand in the market and plan production accordingly. Further will release the pressure on companies as they can match supply to demand at later stage whereas real time data would provide better visibility in market insights. Moreover,

Hines, Holweg, & Rich, (2004) explains that a reduction in the system's throughput time is certainly an enabler of responsiveness, that can be achieved by many ways such as; reduction in logistics lead times (Davis, 1993), quicker information processing (de Treville, Shapiro, & Hameri, 2003), and factors that connected directly to manufacturing flexibility such as; shortened machine changeover times (Shingo, 1989). Another perspective of manufacturing flexibility, according to Duclos, Vokurka, & Lummus, (2003) manufacturing flexibility has various dimensions, automation, which means the degree of flexibility within the automation system of manufacturing technology. Also, product dimension, referring to the time needed in order to change or add parts in the process. Lastly, delivery, the system's ability to respond to changes in delivery requests.

The third operational factor is inventory, although a tendency across industries to become lean and operate the supply chain with less stock inventory buffers still exist in many nodes in the supply chains (Womack, Jones, Roos, 1990 & Davis, 1993). Buffer stocks can clearly increase a supply chain's volume, mix or delivery responsiveness (Hines, Holweg, & Rich, 2004). Fisher (1994) argues that innovative products which have a relatively short life cycle and a wide range of varieties need to be responsive. He also differentiates between a responsive process and an efficient process as responsive requires having a higher inventory level as a buffer of parts or finished goods.

Although advanced methods and technique have been developed to improve the forecasting accuracy, uncertainties in demand are still hard to avoid because of ever-changing market conditions, as a result, in supply chains, inventory improves the process by helping to deal with demand uncertainty and providing flexibility, even if it can be costly (Chase, 1995)

2.5.2   Supply Chain Integration

Supply chain integration is defined based on aspects that have to be integrated. These are the integration of flows, processes, activities, technologies, systems and integration of actors. Further, van der Vaart & van Donk, (2004) explain supply chain integration as removing obstacles to ease the flow of material and information through the whole supply chain (Fabbe-Costes, 2008)

The first factor in supply chain integration is information integration. According to Uusipaavalniemi & Juga, (2008) the foundation of supply chain integration is information integration. And it contains six elements of which; processes and activities, information technology in use, information attributes, information sharing practices, collaborative foundation, and time-related issues. Also, Moharana, Murty, & Senapati, (2012) agree that Information integration and more precisely information flow is essential to collaborate and fully integrate the supply chain.

Information sharing is typically achieved through the developed use of information technology or a closer integration between supply chain partners (Reichhart & Holweg, 2007). In the case of Zara, Information sharing connects the separate dots of Zara's supply chain to decrease demand uncertainty. All Zara's outlets are digitally linked to the company's headquarters, then the collected information is directed to various teams who want it. After the design team received the needed information, they start analyzing real-time data and quickly translates the trend of products happening in the market, sales data, and feedback from consumers to the manufacturer (Xiao & Jin, 2011). Furthermore, Barilla initiated information sharing system and coordination replenishment programs as an attempt to develop the supply chain process, as a result, a significant improvement in the efficiency of their supply chain was noticed. This caused a reduction in their inventory level was declined by close to 50%, and stockout rates were lower to almost zero, correspondingly of the tight coordination (Wong, Lai, & Cheng, 2011).

Another factor of supply chain integration is coordination and resource sharing. Coordination and resource sharing refer to how processes, value-adding activities, and associated decisions are coordinated and likely rearranged across firm boundaries and how internal or external resources are shared to add value to products at interfaces in supply chains.

Waller, M., Johnson, M. E., & Davis, T. (1999) further explain the coordination and resource sharing factor in the example of Vendor Managed Inventory, the concept which had developed the last decade to maximize coordination and resource sharing between a supplier and its consumer. It means that the supplier manages its consumer inventory

level at the consumers' location based on a real-time data also replenish the inventory once it reaches a certain level. Further, it increases the responsiveness and consumer value by providing products on shelves when consumers need it. On the other side, this concept requires an investment in the information systems to ensure seamless flow of information (Waller, 1999). According to the analysis by Li, & Liu. (2006) which shows the relationship between the performance of the entire supply chain and coordination, where a company can clearly improve its supply chain performance if they increase coordination among the partners.

Another critical factor regarding supply chain integration is geographical integration and logistics. Reichhart & Holweg (2007) argue that when companies decrease lead-times in transportation activities and initiating cross-firm cost sharing, higher level of logistical proximity can achieve more responsiveness in the supply chain. For instance, using a "milk-run" approach to maximize supply chain integration, where a higher number of unit loads are transported together, will likely have a positive impact on responsiveness as it implies a reduction in transport times and volumes (Reichhart & Holweg, 2007).

Furthermore, Guercini & Runfola, (2004) mentioned that companies have to decide between a global or a local supply chain. The first brings benefits such as the flexibility to choose suppliers all over the world, which creates an opportunity to benefit from economic advantages. The other alternative has the advantage of suppliers being near to the markets which makes them more responsive to changes (Guercini & Runfola, 2004). Thus, countries that are nearer to the markets are more competitive in terms of products with a high need for refilling (Bruce & Daly, 2010).

2.6 Responsive Supply Chain Best Fit

Organizational responsiveness is major concern for business success, in other words the ability of responding quickly to external environment in terms of organizations performance (Liao, 2003). As Gunasekaran A., (2005) stated that presently the manufacture and logistic operation are extensively determined by consumer needs relatively to forecast. Furthermore, organizational responsiveness provides framework for organization to detect market dynamics, re-engineer their processes in accordance to

market requirements, share information across the firm, adopting technology ahead of their competition (Rajesh, 2015). Thus, responsiveness is an essential factor that plays crucial role in providing organizations competitive advantage (Yu, 2001).

According to fisher (1997), responsive supply chain is responsible for movement of innovative product which might hold product variants, short product lifecycle and great prediction error. The responsive supply chain approach is majorly known for dealing and handling demand uncertainty (Gunasekaran A. , 2005 & Rameshwar, Angappa, Stephen, 2015).

The responsiveness in supply chain is explained as the speed that system can manage its results within the available range of volume, product mix, delivery and response rate to consumer demand or another stimulus (Rajesh, 2015). As the market is changing and in this case, the ability to respond in time (shorter lead times) are the capability and strategies that can provide organizations competitive advantage (Yu, 2001 & Rajesh, 2015 & Rameshwar, Angappa, Stephen, 2015).

To sustain on competitiveness the academic literature points out that responsiveness ability cannot be achieved itself but requires responsive supply chain partners and have process and resource in cohesive manner (Kim, 2006). On one hand as the collaborative efforts and strategic foresights kept together by supply chain partner and firm enhances responsiveness (Rajesh, 2015). On the other hand, theory states that responsive supply chain has positive relation with performance (Ganesen, 2005 & Rajesh, 2015 & Kim, 2006). Though it is essential to have top management support, cross function training and immense integration across the firm (Ganesen, 2005).

Interestingly, different supply chain strategies fit for different conditions. The success of supply chain can be achieved by effective and efficient optimization of resources (Rajesh, 2015). This has been noticed, that the supply chain should have major focus on lead time and product cost simultaneously, and this combination can enhance responsiveness and performance in an organization (Qi, 2011). Besides this, associating the product design with supply chain enables and improves responsiveness which ultimately provides competitive edge (Khan, 2012).

In addition, traditionally supply chain is about scheduling rationalization, inventory management and reduction, watching over short- comings, enhancing response time and majorly the supply chain lead time reduction. Though from last decade the lead time has got much attention as this can provide competitive advantage and reduce bullwhip effect throughout the supply chain (Rajesh, 2015).

A responsive supply chain approach provides reduction and management of lead time, reliability, faster response and most importantly flexibility. Though, mostly supply chains couldn't sustain on global level due to lack of responsiveness, to do so, it is vital to have understanding of responsive supply chain and analyze the major factors responsible for responsiveness (Ganesen, 2005 & Rajesh, 2015).

2.7 Challenges in Responsive Supply chain

In new market dynamics, shorter lead times, better or comprehensive logistics alone with improved supply chain over the years are viewed as a competitive weapon (Chin, 2004). With the passage of time and increasing business sphere of an organization and with the varying consumer demands and increasing competition in market, as suggested by many studies a continuous evolving supply chain system is required which should be more responsive toward the consumers (Matson & Mcfarlane, 1999)

To implement changes while transforming the supply chain into responsive supply chain its essential and one of the major part, to enhance and increase consumer satisfaction (Than, 2020). Furthermore, the literature also supports and emphasis on the importance of customer product requirements, enhancing consumer relationships, improving product delivery making it more responsive (Kovács & Kot, 2016)

Digitization and internet integration have expanded client desires; individuals are requesting more customization, quicker, and improved consumer deliveries (Agarwal & Academy, 2018) .Besides, digitization has prompted an extended meaning of the incentive of the retail business. With this expansion in client desires and an extended plan of action, conventional business have a choice to make which is they work in order to meet these new client and industry requests by reconsidering the manner in which they structure their production network (Roh, J., Hong, P., & Min, H., 2014).

In globalized showcase, businesses are confronting extreme difficulties because of fast technological evolution, shorter item life-cycles and dynamic market prerequisites (Dumitrașcu & Kifor, 2017). It is seen that the assembling and coordination activities are progressively determined by client needs as opposed to conjectures (Qrunfleh, 2013).Organizational responsiveness is a focal issue in deciding business achievement. Specifically, the capacity of the firm to rapidly react to changes in their outside condition is an essential determinant of firm execution (Hum & Parlar, 2014).

Furthermore, quick moving, unpredictable economic situations with short product life cycles convey broad consequences for traditional supply chain, in terms of the manner in which the organization is structured and for the way its inventory chains works. It is typically comprehended as requiring new capacities in overseeing across authoritative limits (Siddharth V., Subhash, W., & S.G., D, 2006).

The need to adapt to unpredictable interest requires the ability to deal with the supply chain in a manner that empowers quicker reaction (Gunasekaran , Lai, & Edwincheng, 2008).

Moreover, agility requires fast and suitable reactions to fluctuating purchaser request. Thus, it requires a lot more noteworthy "perception" through the production network than has customarily been the standard (Melnyk, Narasimhan, & DeCampos, 2014). This would empower all players in the inventory network to see starting with one finish of the pipeline then onto the next in as near ongoing as could be allowed (Fisher M. , 1997). These qualities are likewise predicated on the exploitation of data and innovation through between hierarchical coordinated effort and co-operation (Lurie, 2018). However, as our contextual investigation will distinctly uncover, technological capacity is in no way, shape or form adequate and between authoritative co-activity can be hard-won. In any event, when the innovation is accessible, there are colossal hierarchical and social obstacles, client responsive conducts in production network circumstances, which apparently shout out for such reactions (Kovács & Kot, 2016).

3. **Methodology**

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In this chapter, we will discuss the motivations behind selecting the research philosophy, design, approach, method. And the techniques that were used in data collection which consist of primary data; explaining the interviews process, secondary data; the other sources we have used to complement our research. Further, we will be presenting research quality in terms of credibility, transferability, dependability and neutrality. To complete this chapter, the role of research ethics has been stated in-depth.

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3.1 Research Philosophy

Research philosophy is about the belief how and in what ways, the data about a phenomenon, should be gathered and analyzed. While conducting research, it is essential to consider different paradigms and matters of ontology and epistemology. Since these philosophies address the assumption and beliefs about the nature of reality and indeed, have a high influence on "how research is designed" though it is crucial to consider them. These are an essential part of a series of choices, that should be aligned, coherent and connected to the research problem to bring transparency and clarity in research. However, if the consistent flow in the research design is not achieved; the end result will be undermined (Montessori & Norman, 2012) . Before moving forward, it is important to shed light on what is ontology and epistemology.

Easterby-Smith, Thorpe, & Jackson, (2015) defines Ontology as the basic assumptions made by the researcher about the nature of reality. In other words, ontology addresses our view regarding the nature of reality. Epistemology is closely coupled with ontology, and it's about what constitutes reality. Whereas, Epistemology is defined as the assumptions about the best ways of inquiring into the nature of the world (Easterby-Smith, Thorpe, Jackson, 2015 & Ghauri, Grønhaug, Strange, 2020).

Since ontology is defined as the phenomena depend on the perspectives from which we observed them; also, an epistemological position that observations will be more accurate/credible if made from several different perspectives (Easterby-Smith, Thorpe, & Jackson, 2015).

In accordance with our research, we have chosen Relativism as ontology and Constructionism epistemology, as these provide general understanding of the situation of Nike's responsive supply chain, since it helps to gather rich data, higher efficiency, incorporate stakeholder's perspective and allows to focus on single case study (Easterby-Smith, Thorpe, Jackson, 2015 & Ghauri, Grønhaug, Strange, 2020).

The reason we chose relativism as our ontology and constructionism as our epistemology, is we believe that the combination will be best suited to our research methods. Because the relativism, as ontology, gives the liberty as a researcher to consider different standpoints, we will be doing in-depth interviews so that we could be able to get deep insights and different perspective on Nike's responsive supply chain. Furthermore, as stated earlier, "epistemology is the way to truth" we have chosen a constructionist approach because this approach allows subjectivity depending upon shared ideas and opinion which eventually suits best in our research. Since our study is to develop new in-depth insights regarding external requirements and internal enablers of responsive supply chain. And that demands to achieve a deep understanding of different stakes and stance on responsive supply chain in terms of theory and empirically.

3.2 Research Design and Method

As researchers, we intent to find answers to our questions. And to do so every researcher plans a research to get through in a structured way and get logical answers. To bring logical reasoning to our research, we have drafted our research design that discusses the overall strategy which is the backbone of our research, qualitative research has been chosen as our strategy and the method we have selected to be specific and coherent in our research is single case study. So, to give us a structed and easy way to understand yet coherent frame work to our study. We first discuss the qualitative research and how and why we have chosen it then the case-study.

Qualitative research requires understanding a given problem or research subject, from the point of view of the local population concerned. Also, Qualitative research is particularly useful in obtaining culture-specific information about values, opinions, behaviors and social contexts of groups (Gentles, Charles, Ploeg, & McKibbon, 2015). Hence the

research method we have chosen is qualitative research. This approach was adopted to understand Nike's responsive supply chain by analyzing the external requirements and internal enablers. This lays the foundation for further analysis from the business perspective. However, our fundamental concern is to see Nike's perspective, not the researchers.

In addition, another reason to choose qualitative research, that it also suits inductive and abductive research to provides the grounds to gather data. Qualitative research provides the pathway to build theory from interviews gleaned from being in the field. The strength of qualitative research is its ability to provide and elaborate textual descriptions of how people experience a given research issue. It includes information about the "human" side of a problem – that will help us in the Nike case to understand the human side and its impact on our topic. That is the often-contradictory behaviors, beliefs, opinions, emotions, and relationships of individuals (Gentles, Charles, Ploeg, McKibbon, 2015 & Harrison, Birks, Franklin, Mills, 2017). In that sense, we will be able to capture the human side at Nike. The bits gathered from interview and documents are combined to craft a conclusion.

Moreover, the core advantage of qualitative research method in accordance to our nature of research is that, they allow the researcher to have the opportunity to probe participants' initial responses - that is, ask why or how (Gentles, Charles, Ploeg, & McKibbon, 2015). Also, as a researcher, we must listen carefully to what participants say, discuss with them based on their personality and style, and use "probes" to encourage them to specify their answers and that would allow us to better understand the RSC environment at Nike.

The method we have selected in our research is case study, as this method allows a researcher to examine the data in a specific context carefully. Case studies, in their very essence, explore and investigate the phenomenon through detailed contextual analysis of a limited number of events or conditions and their relationships (Harrison, H., Birks, M., Franklin, R., & Mills, J., 2017). Firstly, since the purpose is to explore the external requirements and internal enablers in the Nike's RSC strategy, therefore, we chose single case study as we think is the appropriate fit for our research. The second selection criteria for a case study was to find a global company, which has either changed their supply

chain strategy to responsive supply chain or has some intention towards implementing responsive supply chain. We chose Nike, as our case, because it's a global company which moving towards RSC direction and in a continuous phase of improving their supply chain strategy. Not only that but also the fashion industry and specifically the sports industry has seen considerable development in the RSC strategy according to its dynamics and nature of products. Lastly, one of the researchers was doing an internship at Nike during the research time, which gave us the opportunity to easily get access to Nike and reach out to employees and managers.

To bring clarity in our case as mentioned earlier, we have selected within-case content analysis type (Downe-Wamboldt, 1992), because we believe it will allow us to do in-depth research and analyze the entire phenomenon under specific consideration.

3.3 **Research Approach**

In our study, we considered the combination of inductive, abductive and deductive approach (Dong, Lovallo, & Mounarath, 2015). We have chosen the combination which would help us use the feature of three of the approaches, this will allow the data to create the base (Dong, Lovallo, & Mounarath, 2015) . In addition to that, as suggested by Kaneberg, E. (2017) this combination it is one of the good match for qualitative research. The inductive (to bring in) as it doesn't give definite conclusion but increase knowledge. To apply that, we are interviewing different roles in the RSC team at Nike, that would give us the opportunity to gather new insights in this area. In accordance to our research, we are looking deep in the external requirements and the internal enablers of RSC in the case of Nike, Hence, this approach would help us to better understand the RSC model at Nike.

Whereas abductive approach permits to develop logical interference with the gathered data (Kaneberg, 2017 & Dong, Lovallo, & Mounarath, 2015). As the data would be collected, deductive approach (to bring together) would help us to create linkage between existing substantial information in the literature and the empirical insights we find in the case of Nike. This approach will help us in adaptation of a new model of the external requirements and the internal enablers in regard to RSC for better understanding.

3.4 Data Collection

In our study, we have decided to combine primary and secondary data to increase the input of sources, in order to give better insights and knowledge regarding our research (Staller, 2013). As mentioned in the research method that we have easy access to Nike, that supported us to physically conduct the interviews. First, we made a list of specific roles which will help us to have better mix of managerial level for instance, planners, managers, directors and senior directors, etc. further, to make sure that we interview the relevant part of the responsive team. Accordingly, we finalized the list of names that will be interviewing in our research. Secondly, we wrote a formal email (see a copy of the invite – Appendix 1) to each of the respondents to inform them with the following; researcher's names, university name, program name, topic of the study, purpose of the study, short summary to give the respondents an idea about the scope of our study, the techniques that we will be using in our study to assure them that will be using anonymous names for their privacy and the questions that we will ask them during the interview. In the letter, we also proposed date and time based on their availability (which it was in the period of May 2019) to conduct the interviews. Finally, we waited until they replied with the confirmed date and time.

Primary Data

Primary data is defined as the original data that collected firsthand for specific research. There are various ways to collect primary data such as interviews, observations, etc. in accordance with our nature of research and the availability of data. We have selected an in-depth interview as a source of primary data. In general, interviews are preferable to questionnaires when it is possible to identify people who are in key positions to understand a situation (Boyce & Neale, 2006, Easterby-Smith, Thorpe & Jackson, 2015, Hsieh, 2005) (Staller, 2013). Therefore, we will be interviewing different key roles at Nike in the responsive supply chain department and supported functions if needed.

In-depth Interviews

We used In-depth interviewing that is a qualitative research technique, that involved us to do intensive research through a small number of respondents, in order to, explore their views on our study. For example, we could ask participants, staff, and others associated

with a program about their experiences and expectations, their reflections on the operations, processes and results of the program, as well as on changes they perceive in themselves as a result of their participation in the research. Later we organized the collected data from the participants.

The advantage of in-depth interviews is that they provide very detailed information than what is available through other data collection methods, such as secondary methods (Boyce, Neale, 2006 & Easterby-Smith, Thorpe, Jackson, 2015). Interviews are often used to provide context to obtain data such as results. In the case of Nike, we chose in-depth interview to understand and dig the core, to get maximum information and understand the external requirements and internal enablers of Nike's responsive supply chain. As we aim to provide a complete picture of the RSC strategy at Nike and why was the RSC strategy implemented at first place. Hence, in-depth interviews will give us the sufficient information that would help us in our study (Boyce & Neale, 2006).

To add value and clarity to our research we use the semi-structured interview method, to collect data from Nike. In semi-structured interview, we had the opportunity to use a series of predetermined questions to the RSC team at Nike, as the respondents could broadly answer and open the door of new insights. The series of interview questions we constructed for Nike (see the interview questions in – Appendix 2), which we send beforehand, were semi-structured and open-ended questions. Further, follow-up questions were added to keep the interview in the right scope and ask for more details if needed. To get reliable data from Nike, open-ended questions allow us to be exploratory and offer the researchers rich, qualitative data (Easterby-Smith, Thorpe, Jackson, 2015 & Gentles, Charles, Ploeg, McKibbon, 2015).

The critical benefit of open-ended questions, which made us chose them, is that it will give us the opportunity to find more than we anticipated. Such as respondents may share motivations, behaviors and concerns that can express openly in open-ended questions. By asking open-ended questions, it led us to add follow-up questions to extract more insights about our research.

The interviews were conducted face to face to allow us to be more interactive with the respondent. We conducted the interviews in English, since it's the business language at Nike. the total duration for each respondent was approximately 60 to 90 minutes, which in some cases was divided into two sessions because we passed the scheduled time limit and we had to book a follow-up interview to ask all the needed questions. In order to make sure that we have the right environment to conduct the interviews, we booked meeting rooms at Nike's head quarter campus. In the beginning of each interview, we inform the respondents that they have the right to skip or decline any question they do not feel comfortable to answer in the interview.

During the interview, we were asking follow-up question to make sure that the interview is running on the right track, and to ask for more insights or elaboration if needed. While concluding the interview, based on the questions in the interview, we asked them to suggest more relevant names that could help to answer and give more insights for our research within the supply chain functions. Finally, after their permission, we recorded the interviews since we believe it's difficult to concentrate on leading the interview while taking notes at the same time and stored them in a safe location. Later after the interview, we transcript the recordings as evidence and strength our research.

Sample

To keep the research specific and transparent we decided to interview different employees, with distinguish job roles. We chose to interview management which is directly and indirectly involve with RSC, till we get to a saturation point and have maximum number of opinions and insights.

Below are the respondents' details, as follows

Table 1: Interviews Details (Respondent)

Name	Role	Date	Time	Duration	Follow-up	Date, Time, Duration
Respondent A	RESPONSIVE SUPPLY MANAGER	10.04.2019	11:30	45 mins	Yes	18.04.2019 / 16:30/ 30 min
Respondent B	PROGRAM LEAD RESPONSIVE PLANNING	14.05.2019	13:00	40 mins	Yes	20.05.2019 13:00/ 25 min
Respondent D	SR DEMAND PLANNER FTB	20.05.2019	14:30	50 mins	No	-
Respondent E	SENIOR PROCESS ANALYST	21.05.2019	15:00	45 mins	Yes	30.05.2019 16:00/ 25 min
Respondent F	BUSINESS DEVELOPMENT DIRECTOR EXPRESS LN EMEA	23.05.2019	11:00	60 mins	No	-
Respondent G	BUSINESS DEVELOPMENT MGR EXPRESS LANE EMEA	27.05.2019	13:30	40 mins	Yes	30.05.2019 15:00/ 20 min
Respondent H	INVENTORY SUPPLY PLANNER	16.07.2019	15:00	45 mins	Yes	25.07.2019/ 16:30/ 30 min

Source: own creation

Develop an Interview Protocol

To maintain reliability and strengthen our interview, we have used interview protocol refinement framework. This framework has four phases first, the interview questions are systematically ordered and aligned. Secondly, construction is exploration based to gather information about the aim of study. Third, the feedback on the interview to bring reliability and trustworthiness. As the feedback will explain how well the participants have understood the questionnaire. Fourth piloting interview protocol (Castillo-Montoya, M. 2016 & Boyce, Neale, 2006).

Explain Interview Questions

We have developed interview questions that follows the protocols, to result in an efficient interview questions. And fulfil the criteria of insights needed to proceed with our research. First and foremost, we have kept the questions language easy and appropriate that the responded could understand. Due to the nature of our research we have made sure that the questions are not lengthy but sense prevailing. The questions are framed and designed in four sections with general to specific follow as, first, general opening questions about SCM and RSC to start the interview. Second, RSC External requirements. Third, internal

enablers of RSC. Finally, the fourth sections of question are about the challenges and futures of RSC. The questions are placed in order that they are suitable for a specific context, gratifying the purpose of generating relevant insights with respect to time.

Secondary Data

Secondary data is defined as written sources of information that include books, newspaper articles, company and government reports and archival data which the objective is other than the research however with some relevance to a specific research project. We believe that secondary data can be used to compliment primary data. Also, can provide data related to a specific company market, consumer or product other than the data collect as primary. Therefore, in our study we will be using secondary data such as books, companies report and official websites and substantial literature to develop our understanding and help us to have better insight about our study (Easterby-Smith, Thorpe & Jackson, 2015). In this research we will be collecting secondary data from various sources from Nike such as their official website and reports.

3.5 Data Analysis

The experience of interviewing the Nike's RSC team was tremendous. The interviews were conducted on different time span as due to busy schedule, we had to reschedule interviews to better fit with respondents. After the data was generated, we were left with bulk of information. We learned about various aspects and areas of RSC, but as our research was limited to the understanding in depth in contrast to the existing model presented by the literature, the external requirements and internal enablers of RSC.

To begin with the analysis, it was important to organize the collected data. We organized it by making one to one transcript and saving recording of interviews by respondents, with their contact information -each separately. To ensure the confidentiality of the responses we secured access to the data

After this, we as researchers went through every interview separately and made sure to avoid biasness to maintain transparency. We interpreted the data and organized it with

questions matrix. As the answers were excreted, the relevancy and extra information was distinguished for clear understanding.

3.6 Coding

The analysis approach that we choice for our research is content analysis, which was foremost influenced by the purpose of the study (within case analysis).

The goal of our study was to bring insights for responsive supply chain in terms of internal enablers and external requirements, not to identify individual perspective but to obtain and define those aspects of the study that are common to all, by respondents. To do so, it was important for us that the interviews we conducted, as researchers, must be understandable to all readers individually.

After the interviews were conducted and data collection was completed, our first task was to immerse ourselves into the data, we reviewed and went through all the interview recording and made transcripts from all the respondent's. We were more involved to analyze critically each amount of data provided.

We followed the path of content analysis in our research (Downe-Wamboldt, 1992). For this analysis we took content and evaluated it for differences and similarities, from question to question and to be able to form a matrix, which will eventually give us clear understanding. These difference and similarities gave birth to quotes; further, this led us to data key words. Once we draw the matrix it was easy to develop commonalties, which we identified as categories. Later, when the categories were made, we went back to each interview recordings and transcript to reconnect and validate the categories'.
As the categorization was done, we came up with themes that will present our respondent answers.

Table 2: Research Analysis Steps

Step	Description
1- **Reading the transcript**	• Browsing through as whole. • Reading through transcript carefully line by line. • Writing notes.
2- **Labeling relevant pieces**	• Relevant words phrases; differ, important, new insights, something you have read earlier. • Be unbiased, stay close to transcripts have many codes. • Identify the patterns.
3- **Decide which codes are the most important and create categories by bringing several codes together**	• Go through all the codes. • Read them again. • May create new codes. • Keep codes those are important and relevant. • The codes might be close and have same similarities, they grouped in one category. • Conceptualizing data.
4- **Labeling and connecting the categories**	• Label the categories. • Describe the connection between these categories. • These connections and categories are result of our study.
5- **Hierarchy of the categories which is more important or most stated**	• Draw a figure and summarize the result.

Source: own creation

3.7 Research Quality

The quality in our research is essential, therefore assessing the quality and trustworthiness of research is a complex task. As discussed by Kaneberg, (2017), he major issue for trustworthiness is "naturalness" in research, the "consistency" in the process of research, the process of findings over the time span and volume of findings (Rennie & Frommer, 2015). To bring quality in our research there are many quality criteria presented, but in context to our research, we considered quality assessing measure, which are credibility, transferability, dependability and confirmability (Easterby-Smith, Thorpe, & Jackson, 2015)

3.7.1 Credibility

While conducting our thesis, it has always been the main concern. To present meaningful results and to bring credibility as explained in Easterby-Smith, Thorpe, & Jackson, (2015) to our research, we have designed the research methods in an aligned and suitable manner, that complement the research problem and findings. The methods chosen are well-established and based on the theoretical background, though to keep credibility consistent in our study, we have monitored and followed data collection protocols. The in-depth interviews were performed on ethical and literature suggested grounds. We assure the liberty to speak and have reservations as per respondent choice. Furthermore, for extracting and analyzing the primary data, we went back and forth through interviews, whereas, we use multiple sources for secondary data like substantial literature and websites to cross-check and have clarity. Later the matrix was created to keep details of respondents, their reservation and reports to maintain authenticity for the record. The aim was to bring sensible findings as contribute in the study.

3.7.2 Transferability

Lincoln and Guba (1985) define transferability as the opportunity to apply the study to several contexts. Further, transferability requires a detailed description of the methods and context of data collection. Therefore, comprehensive description of our study strategy and data collection methods was provided. Moreover, we used both primary and secondary data to greater address the complexity of our topic.

Also, we chose single with-in case analysis to better observe detailed information about the selected case, which will allow us to deeply understand our topic and hence provide a robust study to other companies in the sports industry where our findings could be used in other cases.

3.7.3 Dependability

Consistency and dependability in our research provide clarity in understanding the research, through consistent results over the time (Easterby-Smith, Thorpe, & Jackson, 2015). Dependability is about possibilities of replication of the study and getting similar

kind of the results in particular studies. It is essential to have dependability because this describes the stability of data which eventually strengths the quality of data. We ensure the quality in terms of dependability by cross checking the patterns, connections, theories and findings at each phase of the research over time. We also ensured to draft the same interview questions for every respondent. Furthermore, we overlap empirical findings time to time, with secondary data to keep the answers consistent and transparency to our research in context to considerable literature.

3.7.4 Confirmability

This aspect of quality states the attitude of the researcher, we often do the research in that area which we are interested in, this led us to have strong opinion about the topic. We are aware of what's happening in the research area which has high influence over researcher and there are high chances that the researcher shows their true feelings during interview or interpretation (Easterby-Smith, Thorpe, & Jackson, 2015). Since one of the researchers was doing an internship at Nike, to deal with such a situation ensured committed to stay highly neutral and avoid our personal interpretation or feeling specially while face to face interviews. We went back and forth to transcript and interview where we had confusion to conform the statement and for the assurance of right interpretation. That is why we send a copy of our interpretation to our respondents for more authenticity.

3.8 Ethics

Ethics have an essential role to play to complete the process of the research. Research involves cooperation and coordination among many different entities, ethical standards. Further, endorse the values that are important for collaborative work, such as trust, accountability, credibility, respect and avoid biasness. To ensure the quality and ethical standard we have followed path of (Easterby-Smith, Thorpe, & Jackson, 2015) "*(1) Ensuring that no harm comes to participants. (2) Respecting the dignity of research participants. (3) Ensuring a fully informed consent of research. 4) Protecting the privacy of research participants. (5) Ensuring the confidentiality of research. (6) Protecting the anonymity of individuals or organizations. (7) Avoiding deception about the nature or aims of the research8) Declaration of affiliations, funding sources, and conflicts of interest. 9) Honesty and transparency in communicating about the research. (10) Avoidance of any misleading or false reporting of research findings.*"

We made sure that we chose a topic which doesn't harm in anyway but add valuable information. We initially informed our participants/respondents about the topic and explain our research area. We made sure about confidentiality and anonymity as requested by respondents. We sent them interview questions beforehand and respected their reservations. During the interview they had the right to deny any questions or remarks. We asked them to give us the permission to record the interview and transcript them, also informed it that we will keep the data in secure place as high confidentiality and they have the right to re-call it or delete after finishing the analysis, so that any misuse and false reporting could be avoided.

3.9 Summary

Below table illustrate and summarize the steps that have taken during our study.

Table 3: Research Methodology Summary

Step	Description
Research philosophy	Ontology **Relativism** Epistemology **Constructionism**
Research Strategy	Qualitative Research
Research approach	Abductive, inductive and deductive
Research design	Case study (within-case analysis, in-depth interview)
Data collection	• Primary data – interviews • Secondary data – books, companies report, official websites and substantial literature • Sample – the case of Nike (EMEA Region)
Data analysis (how data is analyzed)	Content analysis (within case analysis)
Quality or Trustworthiness of the study	Research quality • Credibility • Transferability/Applicability • Dependability • Confirmability/ Neutrality
Ethical consideration	10 principles by Easterby-Smith, M., Thorpe, R., & Jackson, P. (2015).

Source: own creation.

4. Empirical Findings

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In this chapter, the empirical findings of the data collection will be presented. First of all, the company profile will be introduced. In addition to that, we will focus on the empirical findings, creating a deeper insight and building a rich basis for our analysis.

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4.1 Company Profile

NIKE Inc. was established in January 25, 1964, it is an American multinational company that is engaged in the design, development, manufacturing, and worldwide marketing and sales of three key categories; Footwear, Apparel and Equipment. NIKE Inc. includes the Nike brand, Converse, Hurley International, and Jordan brands. It is the world's largest supplier of athletic shoes and apparel and a major manufacturer of sports equipment. The world headquarter is located in Beaverton, Oregon where the whole journey has started, beside the other headquarters for EMEA region (Europe, Middle East and Africa) in the Netherlands, Asia Pacific and Latin America (APLA) region and finally greater China region in Shanghai.

In 2019 Nike served its athletes and consumer by offering products in more than 1150 stores all over the world with a lot of focus on the key cities; London, New York, Berlin, Shanghai, Barcelona, Milan, Beijing, Tokyo, Paris, Seoul, Los Angeles and Mexico City. Nike raises awareness in regard to the importance of sports and life style changing by making sports a daily habit, as highlighted in their mission statement, "*to bring inspiration and innovation to every athlete* in the world – *if you have a body, you are an athlete*".

In fiscal year 2019 Nike reported 39.1 billion dollars as revenues for the full year where the growth rose by 7.5% versus 36.4 billion dollars in fiscal year 2018. High revenues were driven by the footwear and apparel with a double-digit growth, and across Nike Direct as well as Wholesale including key categories; Sportswear, Running, Basketball, Football, Training, Women's and Young Athletes ("NIKE, Inc. Reports Fiscal 2017 Fourth Quarter and Full Year Results", 2019).

Furthermore, the global sportswear industry is highly fragmented, caused by high competition. Global competitors in this industry are Reebok, Obermeyer, Puma, Adidas, ASICS and many more. Although the strong competition in the market but Nike is leading this competition with a company value of 22.3 billion US dollars in 2018 which is almost double than the next competitor which is Adidas at 12.8 billion US dollars in 2018, where Puma comes at 2.5 billion US dollars ("Footwear / shoe revenue Nike, Adidas & Puma 2010-2018 | Statista", 2020).

4.2 The Value of Nike's Responsive Model on The Consumer

While asking the respondents about the value that Nike brings to its consumer through the responsive model, we heard different answers, however they all came up in the end to the same result which is mainly around consumer satisfaction.

"…*the consumer can actually find what they want, and that's the main thing, because if you are the consumer that intent to purchase, there's no bigger disappointment than not finding what you want, so that's the biggest value added" – Respondent F*

"in essence it's our way to be faster and certainly respond faster to what the consumer wants, so we bring value in being more right against consumer demand so bring the product that the consumer wants at the place where they want to buy it to meet their expectations. Bring them the product that they love more often" – Respondent G

In the meantime, respondent B discussed the value of Nike's responsive model from two lenses. First, from the consumer lens where the respondent believes that *"Nike strategy is really focus on serving the consumer more quickly and be able to provide the product that the consumer is wanting at that moment".* And the main driver behind that is the consumer behavior *"that the consumer is now moving faster than ever before. you think about the new generation they grew up with cell phones and smart phones, internet, everything. We kind of shifted to this world where used to have physically go somewhere to get products to with this* device *I am be able to look at any product in the world and basically deliver to me next day. So very different type of consumer with a lot of different expectations and we need to be responsive to be able actually to serve them and give the*

level service they are expecting from companies now". Second, from the wholesale/consumer point of view, where by supporting them with such a responsive business that would help them for better planning and respond to the consumer faster than before.

Moreover, responsive model brings more flexibility in terms of how the company reacts to market shifts by providing to its consumer the right product at right time and the right place. Respondent H and E spoke how responsive model can help to react quicker to the trends happening in the market as well as be flexible according to the market needs.

4.3 The Motivation Behind the Responsive SC Model at Nike

In the case of Nike, we captured from the interviews that one of the main drivers to shift to the responsive model is increase revenues, by offering to consumer what they need at the right time, which means selling products with higher margin and that would reflect in more profit for the company. Respondent F, talked about increase revenue and connecting that to the consumer.

"it all started with making sure the consumer can find what they want and what they need and that translate back through the retailer increase the full price sell thru, which translate into higher margin higher revenue and also of course that kind of value back to Nike as well to drive higher margin higher revenue"

The respondent also argued that to be able to achieve this,

"the only way we can make money in this company is if we provide to the consumer what they want and what they need when they want it and when they need it. And therefore, increase of responsiveness it helps that to do it…"– Respondent F

Also, respondent A, believes that it all started from the need to have a good coverage, especially for the core products which the consumer is expecting to find them anytime and anywhere, also different variety in the assortment in the non-core products. And hence the responsive model could help to drive more revenues,

"we would be able to deliver extra if there's extra demand in the market. from a revenue point of view, to maximize sales, the consumer wants to see quick changes in assortment in the market as the market is moving fast…"– Respondent A

4.4 **Nike's Strengths in The Responsive Business**

At Nike there are different program/project running in the responsive side. Respondent B and A argue that the AA (Always Available) program is considered as one of the biggest /strong strength at the moment, also stated that,

"in Europe that 25% of our business is on this replenishment model and I think that's generally well, and it's been able to extend for lifestyle cycle of products…"

"…been able to supply that, been to get the product and been able to react faster to the marketplace which is responsive. So, I think we do that pretty well". – Respondent A

However, respondent A believes that the AA program due to nature of the products they are part of this program, as they got the core product which is simple and not much innovative. And in terms of the innovative products they still have an opportunity in the responsive model as it's still mainly depended on the futures model.

Another perspective came up from the interviews is that reducing the lead time, respondent F argues that there's a lot of work has been done in this area and they significantly reduced the lead time in the range from giving the factories signals all the way to bring the product to the marketplace. Also, respondent F and H pointed out another strength which is planning,

"I think we are doing pretty good job in managing in all the opportunities and risks along the way that we don't end up like taking higher inventory position of finished goods or anything which of course exposes us to a risk of off-price sales." – Respondent F

Moreover, respondent F strongly believes that one of the strengths is educating the customer (wholesaler/retailer) how is the responsive model is supposed to work as they are partners in the whole supply chain.

Finally, respondent H mentioned a critical strength which is the capability and resources that Nike has. They have been doing this business for some time and they also have historically enough data and learnings.

4.5 External Requirement – The Case of Nike

Understanding the external requirement is a key to be able to shape the business model and respond to the market demand. Further it would help Nike to focus on consumers' needs in the market in order to increase customer satisfaction. What we have noticed during the interviews regarding the external requirements question is that, the majority of the answers came out from the respondents are mostly related to the consumer behavior, technology and social media.

"the consumer is moving faster than ever with Instagram, social media with the availability of technology and being able to order from basically anywhere in the world at any point of time, like that's driven really different consumer behaviors" – Respondent B

"definitely the consumer, because we need to deliver what they want and retailer as well, specifically you can see the digital player like Zalando or Asos and the rest of them to be more demanding in the area of brand being more responsive. Because would help their business works" – Respondent F

Demand Uncertainty

Demand uncertainty is considered as one of the external requirement, according to respondents H, G, B, A and D they all agreed that demand uncertainty plays a big role as an external requirement. Respondent H believes that the consumer behavior in details contains demand uncertainty. Moreover, respondent B and G think that one of the main

reason behind the demand uncertainty at Nike is the trends happening in the market, as they are unpredictable, and it comes and goes quickly in the market so responsive model is needed here to be able to react quickly to that demand uncertainty.

Lead Time Reduction

Respondent H, and A clearly said that to be able to react fast to the market and trends, shorten the lead time is an essential requirement for the responsive model. Respondent A emphasizes that the lead time reduction should be everywhere and looking at the whole supply chain end to end, also explained that focusing only on one part in the supply chain could improve this part, however without looking holistically it could causes longer time in another part. Moreover, respondent G agree the same and states as below,

"...I think the mostly that is related to how fast trends are coming and going. Consider that some of our product is from design to delivery it could take a year, it's very difficult to capture trends that show up in a few months and then go again. and that's where the responsive model plays a role which create a product and delivery in shorter time to be able to capture those trends" – Respondent G

Product Variety

In terms of External variety, respondent D believes that Nike competes in a very big market as they not only selling sporting goods product but also selling life style products which in the same line with other fashion industries where the varieties in the market are really wide and the consumer is not willing to wait more for product.

Respondent F also agreed to the same idea and stated that *"...in the case of Nike if you would trade in a multi brand environment so we sell for Footlocker, JD, Zalando where they offer I don't know how many other brands not just Nike, I mean you would still find variety for that single product"*. Moreover, respondent G and F suggested that Nike needs to be more responsive across categories to be able to provide products on the right time or even before competitors in the market.

4.6 Internal Enabler – The Case of Nike

After recognizing the external requirements, it is crucial for Nike to understand the internal enablers since they are considered as the fuel necessary for them to start off their engine while implementing the RSC strategy, moreover will give them the capacity to react to the external requirement. Further, will help them to continue growing in the responsive business. The followings present what Nike think about the internal enablers.

Demand Anticipation

As mentioned before in the literature review, different demand anticipation techniques can be used to predict the demand. While asking the respondents what they think about demand anticipation, respondent H argued that demand anticipation plays a huge role, having a good demand planning and having a good forecasting system, to know what Nike needs to buy, in line with factories capacity and flexibility provides clarity on how demand anticipation impacts at the first point internally. Further, respondent B thinks that the demand signals are the most important of what drives everything. Also stated that

"Because if we don't know what to respond to we can't respond" – Respondent B

Moreover, when respondent A spoke about demand anticipation and how it's important as an enabler as everything will follow later,

"Demand anticipation, yes, we need to focus that what is need on short term, but also how to improve more long-term demand planning to be more responsive in long run…"– Respondent A

They furthermore agreed that understanding the behavior timely and getting accurate signal on market trends is one of the most crucial enabler, because is dictates everything Nike needs to be responsive. It is about the entire supply chain management, how quickly does Nike gets the signal and starts working on product making/designing. A demand signal that discloses what to react to, which is basic as it begins the entire procedure.

Nike need to drive capabilities and build responsive SC, and yet Nike truly determines what are the prerequisites and effective insights on the demand signals to comprehend when the trend occurs, the minute trend begins till the trend closes. On the off chance that Nike can identify that to what extent trend keeps going. as from the respondent point of view, respondent E further explains that If quarterly a trend is built, it begins in summer and finishes in fall. Firstly, Nike needs to know to what extend they need to sell through of the product. If Nike is able to identify the trend, possibly within a week after a trend begins, then looking at three months that they have sufficient time to actually capitalize that trend. That implies Nike need to have the product in the market, within three weeks frame should then drive the necessities of Nike's supply chain, which is why it's essential for Nike to make supply chain responsive.

However, respondent D argues that demand anticipation might be an enabler but not the most critical one. *"...I believe that there might be some gains, but we use already some models to predict the future and not really. Don't think from that side there's a lot to gain, it's more about how we organize the supply side"*

Inventory

Respondent A, B, H and F think that the type of product/raw material plays a role to decide on the inventory level within the whole supply chain.

"...from a finished-goods inventory or very long-life cycle products point of view such as AA program, yes, it's an advantage to have inventory level to enable such a responsive model, while if you are talking about innovative products or shorter life cycle where there's less trendy, then not really. Unless you have inventory for semi-finished or raw materials since you can use them for multiple products, that would definitely be an enabler" – Respondent A

Respondent F believes that the reason why they hold inventory is it's a buffer because they are not fast enough. But if they were significantly faster and have the factory capacity to make the product whenever they want it, then they wouldn't need to have inventory.

therefore, it could be an enabler but ideally it wouldn't be, So, ideally it would be a mix of both (speed and Inventory) but now they often still make to stock.

On one hand, this could be said that some of the respondent agreed that better to have inventory un-finished then easy to deal with but finished good is much more risky – postponement or design differently can be strategies to have healthy and responsive inventory.

On the other hand, some respondent indicated in order to be responsive Nike have to build and hold some inventory at certain point.

Information Integration

Information integration is one of the most important enablers according to respondent H. if the data is not flowing properly in all time we cannot do our job, because it takes some time for change our model. having a real time and integrated data helps to make decision smarter and faster.

Truly, it is a necessary part and assumes a fundamental job. Since Nike as of now attempting to improve their data framework to have profound experiences and updated data. Real time information would include incredible advantage.

In detail discussion with the respondents we discovered that, an integrated real time information system based on insights from the marketplace, it could automatically send signals to the factories facilities to increase or decrease the production volume. and only someone in HQ's can monitor those decisions and watch-out for what's occurring in the market. This will save a lot of time and money because currently they need to discuss those decision in many forums as well as invest in more resources which leads to lose time and hence losing sales in the marketplace.

For more clarity respondent B explained information integration as,

"like that real time data will be really very helpful. I mean also having real time visibility to what inventory is in our pipeline and where is it going and having more flexibility more leverage to pull much faster" – Respondent B

Also was added in the interviews that,
"one of the foundation element is to make sure that information is available in all stages upstream in the supply chain to make sure that the whole supply chain is in the rhythm of marketplace including real time data" – Respondent E

Furthermore, respondent G discussed that if we see the current state like the trends happening now and how fast we interpreted them or that how we can use it next year, we have to be twice as fast Nike is now. With the existing enough data, we kind of already know what is going to happen but at the same time it's risky you can be wrong and right as its big horizon. it's important to have different process, we can give higher priority to the product that have high margins and are closer to season (having right amount of product in the market).

Manufacturing Flexibility

We think that manufacturing flexibility creates a competitive advantage for companies to be more responsive to the market demand. Clearly it is an important enabler since all the respondents have agreed that by having higher flexibility would definitely increase their responsiveness.

"Definitely factory capacity, in terms of size but also in terms of flexibility, how quickly we can go up and down in producing more or less products. Speed, so how fast we make the products" – Respondent F

Moreover *"Manufacturing flexibility to be able to get extra capacity when needed or ramp up or down in case less/high heat in the market"* – Respondent H

To comprehend that conduct and getting a great pulse on consumer trends/drifts on request flags, is the most a basic beginning point, to incorporate responsive supply chain.

Since the point it directs a signal and process is starts is all that one needs. Nike must have a great expertise on demand signal and buyer patterns, there's a genuine model example discussed during the interview, games happens mostly on weekends, if A group wins on Saturday, (ideally, Nike want to be back in stock in store on the following weekend to capitalize on the win of that team). The triumphant jerseys (shirt or different accessories) must be available on the following week, as it will be the demand. To accomplish this objective Nike hopes to have mass access, access to greatest area location , that they can rapidly print on the clear tee's anything NIKE desires, which implies the flow must be sufficiently equipped and accurate that it could be printed and airship cargo or transported through other mode, so it could be accessible for consumers as soon as possible .And moreover, postponing important decision to have capacity reservation on higher level for longer level of time to have a lower level market closure to know intently the market

Also, respondent D shared an example which explains why do they need more flexibility, *"everything after demand signal is really important and how you can be flexible in a sense that if I know that there's a demand of 500,000 thousand units where only 350,000 thousand are certain, then how I can be flexible with the uncertain quantity and mitigate the risk as much as possible"*.

Organization Integration

We noticed from the interviews that most of the respondent agreed that organization integration is essential to enable such a responsive model. However, they also mentioned that since only 30% of the business is baes on responsive model, the current state is still from where they want to go, which would support them as organization to become more integrated.

Also, they spoke about how important it's that different function within the organization should speak to each other especially in such a fast and globalized market where you need to take decisions as fast as possible in order to react to what is happening in the market.

Coordination and Resource Sharing

The coordination and resource sharing are significant for Nike because the functions of business are associated with one another. It's progressively similar to a pipeline, each other part/end is associated with one another.

Respondent H and B strongly agree that coordination and resource sharing would have an impact as internal enabler. An example was provided in the interviews which explains how coordination in transportation can improve responsiveness and reduce lead-time, while delivering a shipment, if it arrives to the port one day later than it was planned most likely it would wait longer until it gets loaded in the next vessel. since the transportation companies don't run frequently, hence the shipment will face more delay, unless if the transportation company can provide more frequent shipments that would help to avoid delays and deliver faster

Moreover, respondent F agreed with above and stated that;
" especially for a global organization, I mean coordination of resources and assets across all of the different geographic locations and of course within the geo between territories and countries whatever because of the size of the company, that's crucial" – Respondent F

4.7 Challenges in the RSC – The Case of Nike

Lastly, the following part presents that what are the current challenges Nike as a company and Managers face in the responsive supply chain business.

Change Management and Employees Behavior

Most of the respondent agreed that change management and people behaviors are a curtail challenge. To change the mind-set that people are used to and have been working on - the tradition model - and switch to a different model, that will always be challenge. Respondent E argue that in general any change within an organization or a move to a new business model there will be faced by resistance from people, and hence if they don't understand the pros and cons of the responsive model they might see risk and that's a big challenge.

Respondent B added that *"probably the biggest challenge that Nike has which is internal mindset and incentives"*. By incentives it means that they need to be adjusted to make sure it supports the responsive model in terms of setting the right KPI's and targets. Also, respondent F stated the importance of mind-set shift;

"I think the main challenge is that mind set shift, paradigm shift because we the entire organization is built on a different model which made perfect sense in the contexts a couple of years ago but this contexts is changing as we just discussed and we need to figure out the new way of running the business and this is in terms of everything we do at Nike from charging the factories to the consumer buying the product" – Respondent F

System, Tools and Process

Respondent A, F and E think that in order to be able to work in the responsive business area, systems, tools and processes need to be reviewed/changed. Still people need to use alternative system since the available ones are made to serve the traditional model and that does not help at all, same idea with the current processes as they don't support taking quick decisions and react quickly to the market. Was also mentioned that *"we don't have an integrated system. all we have of systems, tools and dashboards all for the tradition model and process, so we have clear visibility there. But we don't have the manufacturing side, we don't have visibility or connection to material planning or material level which is extremely important for the responsive side"* – Respondent A

Organization Integration

Some of the respondent believe that it's a challenge to integrate the whole organization and imbedded the responsive model in all functions. Respondent G explains it as *"I think the challenge now is really how do you integrate the responsive muscle into the overall business and that's really a very big exercise. You are speaking about planning, sales, merch you are talking about every function and finance, how do you make sure that it becomes the regular business is responsive business and that's I think the main challenge for the future"*

Also, respondent B thinks that the current structure that Nike has separates the tradition model than the responsive model and it's like in between model, in fact this separation creates tension between the two models as well as slows down the processes. Moreover, respondent D also thinks that organization integration is a challenge, however because of the respondents' demand planning background, argues that providing transparency and connect with other functions involved in the supply chain would change many aspects. "*If you truly want to enable responsiveness, one thing you should do is the demand planning team should create awareness to the other involved functions in the supply chain on how we forecast. Given the fact that we don't see the impact of our decisions on the supply side, we don't see the need to do that*".

Manufacturing Flexibility

Respondent D, F and B spoke during the interviews how challenging it is to increase flexibility in the manufacturing side, since many stakeholders are involved in the process. Further how could the supply team quickly increase/decrease the supply volume when they get closer to the in-season period, especially if there's a change in demand signals has occurred in the market and they need to capitalize this demand by reacting fast and produce extra volume, generally for factories not easy to provide extra capacity in such a busy moment for them and short notice of time. considering that factories have capacities and most likely they are running with maximum capacity, not only that but also some factories share their capacities with Nike's competitors which makes it even harder to adjust capacities. Therefore, different strategies could put in place in order to increase manufacturing flexibility to be more responsive and avoid lost sales.

Competition in The Market

Competition in the market add extra pressure on Nike, they need to make sure that they deliver the right service to their consumers before other competitors do. Therefore, they need to continuously improve their strategies as other competitors are rapidly developing in the market.

Respondent B,E,G and H mentioned that competitors play a huge role as a challenge. Further, while respondent B sharing the challenges that Nike faces, competition was mentioned as second biggest challenges.

" consumer behavior is number one, then competition this probably second, a lot of other companies are also building responsive strategy strength, they have speed factories, those are really the big ones" – Respondent B

Also respondent E stated that" competitor *is one of the major reason, the competition is becoming faster to the market and the other angel is the consumer and customer is demanding product faster, quicker supply"*

4.8 Analysis

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In this chapter, we established results on the basis of empirical findings and under the light of academic discussion. To bring clarity and credibility in our research, we went through our finding from various angles, through content analysis method we were able to develop best interpretation of the findings. For the analysis we made codes and categories from the findings and ultimately create themes. These themes define end result for the framework of the adapted model

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The interview questions were divided into four sections, first section discusses general questions on responsive supply chain and the value for the consumer as well as for Nike. second section mainly focuses on the external requirements that made Nike implement such a responsive model. Third section emphasis on the internal enablers which would allow Nike to implement the responsive model. Finally, the challenges that Nike faced to be able to implement the responsive model. Therefore, below tables illustrate the respondent replies to be have an overview on what they have said. Furthermore, these tables demonstrate the analysis of the empirical data gathered from Nike during the interviews. The tables start with respondent's answers, which are stated as code, falls into a category based on keywords that we found in the codes, and then a theme is created with most discussed codes in the interviews.

In the first section we wanted to understand Nike's motivations to implement a responsive model and how does this bring back value to the consumer. We can clearly see that from Nike point of view that responsive supply chain can increase consumer satisfaction by providing the right product at the right time and right place. And as a result, that would reflect on Nike's profitability by increasing sales and revenues. They also believe that the brand strength is currently helping them where the consumer is looking forward to buying it. Besides that, the current AA program that they have started where they explored the responsive area and learned from their experience. See table below.

Table 4: Data Analysis – The Motivation Behind the Responsive SC Model at Nike

		Value to Consumer	Nike Motivation	Nike's Strength
Respondent H		●Right product at right time and the right place.	●Increase efficiency.	●Responsive planning. ●Brand strength.
Respondent D		●Respond quicker to the consumer demand / provide what they want.	Adopt to external factors.	
Respondent A		●Demand fulfilment.	●More revenues - extra sales. ●Better coverage.	●AA program.
Respondent B		●Nike strategy is really focus on serving the consumer more quickly. ●Provide the product that the consumer is wanting at that moment. ●The consumer is now moving faster. ●We need to be responsive to be able actually to serve them and give the level service they are expecting from companies now.	●Provide products faster. ●Extending products life cycle.	●AA program. ●Brand strength. ●Ability to react faster.
Respondent F		●There's no bigger disappointment than not finding what you want.	●Increase revenues.	●Lead time reduction. ●Planning and manage Risk and Opportunities.
Respondent E	Codes	●Be able to provide the product when they want it and where they need it.	●Maximize profitability.	

Respondent G		●Bring the product that the consumer wants at the place where they want to buy it to meet their expectations.	●Match supply with demand.	

		●Consumer satisfaction	●Increase revenues	●Brand Strength
	Categories	●Product accessibility	●Better consumer experience	●Planning process
				●Current responsive program (AA) - Learnings

		●Consumer satisfaction	●Increase revenues	●Brand Strength
	Themes		●Better consumer experience	

Source: Own creation

Further in the second section, undoubtedly, we find that the consumer behavior has a massive impact as external requirement because of technology and social media, new trends can come in and out very fast which eventually rises consumers needs and expectations. And accordingly, that creates demand uncertainty. We also noticed from the respondents that lead time reduction is necessary to be able to arrive faster in the market before other competitors.

Table 5: Data Analysis – External Requirements (Case of Nike)

		External Requirements	Demand Uncertainty	Lead Time Reduction	Product Variety
Respondent H		●Competition and digitalization. ●Crisis and disaster.	●Consumer behavior in details contains demand uncertainty.	●Lead Time Reduction.	
Respondent D			●Demand uncertainty.		●Product Variety.
Respondent A		●Consumer behavior.	●Change in demand because of trends of for example football teams' performance or footballer transfers.	●Lead time reduction should be everywhere and looking at the whole supply chain end to end.	
Respondent B		●The consumer is moving faster than ever with Instagram, social media with the availability of technology and being able to order from basically anywhere in the world at any point of time.	●Yeah, I mean I think we've always had demand uncertainty. But I think it matters more now		
Respondent F	Codes	●You can see the digital player like Zalando or Asos and the rest of them to be more demanding in the area of brand being more responsive,			●In the case of Nike if you would trade in a multi brand environment so we sell for Footlocker,

	●Because would help their business works			JD, Zalando where they offer I don't know how many other brands not just Nike.
Respondent E	●Other companies have responsive model and we need to be there in the market as well.	●Demand uncertainty.	●Overall lead time reduction in logistics and speed.	
Respondent G		●Trends happening in the market, as they are unpredictable, and it comes and goes quickly in the market	●Responsive model plays a role which create a product and delivery in shorter time to be able to capture those trends faster.	●Responsive across categories to be able to provide products on the right time or even before competitors in the market.

Themes	●Technology & Social Media	●Demand Uncertainty	●Lead time Reduction	●Product Variety
	●Competition	●Trends and Sudden Demand	●Speed	●Diversity
	●Consumer Expectations	●Consumer Behavior		●Competitors
	●Consumer Behavior			

		Themes		
Themes	●Consumer Behavior (Technology & Social Media)	●Demand Uncertainty	●Lead Time Reduction	●External Product Variety
	●Competition			

Source: Own Creation

Moreover, the third section was split into two parts, on one hand the first part is looking at the internal enabler from the operational perspective, and here we found that most of the respondents highlighted the importance of manufacturing flexibility and its direct impact to enable responsiveness. Also improve demand anticipation by giving a better demand signals closer to the in-season time frame. Not only that but also having inventory as a buffer would increase responsiveness especially if the supply chain is not fast enough.

Table 6: Data Analysis – Internal Enablers / Operational Factors (Case of Nike)

		Operational Factors		
		Demand Anticipation	**Inventory**	**Manufacturing Flexibility**
Respondent H		●Having a good demand planning and having a good forecasting system, to know what Nike needs to buy.	●Not necessary.	●Manufacturing flexibility to be able to get extra capacity when needed or ramp up or down in case less/high heat in the market.
Respondent D	Codes			●We need to get enough capacity (at factories) to be able to react.

Respondent A		●Demand anticipation, yes, we need to focus that what is need on short term, but also how to improve more long-term demand planning to be more responsive in long run.	●It's an advantage to have inventory level to enable such a responsive model.	●Manufacturing Flexibility.
Respondent B		●"If we don't know what to respond to we can't respond. ●Understanding that behavior and getting a really good pulse on consumer trends on demand signals is the most important start because it dictates everything else you need."		●Yes 100%.
Respondent F			●It's a buffer because they are not fast enough.	●Definitely factory capacity, in terms of size but also in terms of flexibility, how quickly we can go up and down in producing more or less products.
Respondent E		●You want to understand what the consumer wants, to be able to predict to the marketplace.		●You need to have quick and flexible manufacturing.
Respondent G			●We need to allow ourselves to have a certain amount of buffer and flexibility throughout the supply chain, so we can postpone	●We need to allow ourselves to have a certain amount of buffer and flexibility throughout the supply chain, so we can postpone certain

Categories			
	●Demand anticipation	●More speed	●Manufacturing flexibility
	●Short term demand anticipation	●Postponement	●Speed and agility
	●Good demand planning	●Enough buffer	●Postponement

Themes			
	●Demand anticipation	●Inventory	●Manufacturing flexibility

Source: Own creation

On the other hand, the second part is looking at the whole supply chain end to end. And here they emphasized on the importance of organization integration, and how moving from the tradition supply chain model towards the responsive model need to consider employees behavior as well as processes. Also, they mentioned that information integration plays a crucial role by providing end to end visibility on the full pipe line with real time data. And finally, coordination and resource sharing which connects Nike with different stakeholders and many Geo's for collaboration and performance improvement.

Table 7: Data Analysis – Internal Enablers / Supply Chain Integration (Case of Nike)

		Supply Chain Integration		
		Information integration	Coordination and resource sharing	Organization integration
Respondent H		●"If the data is not flowing properly in all time we cannot do our job. ●Having the information shared with all the functions would allow for example supply team to start sensing capacities at factories while demand planner is forecasting for the demand in the market."	●Coordination and resource sharing with the external entities to provide better visibility on what's not covered by Nike. for example, transportation.	
Respondent D		●Information integration		
Respondent A	Codes	●Information integration		●Organization integration.
Respondent B		●"Real time data will be really very helpful". ●Visibility to what inventory is in our pipeline and where is it going."	●Coordination between Nike and the different stakeholders amongst the supply chain. To become more faster and improve performance.	●Two different models and the separation between them creates tension between the two models as well as slows down the processes.
Respondent F		●If we do that faster and more diligently that would definitely help.	●Coordination of resources and assets across all of the different geo's and of course within the geo between territories and countries whatever because of the size of the company.	●Shifting that mind set to be responsive that's to me the main unlock.

Respondent E		●One of the foundation element is to make sure that information is available in all stages.		●Organization Integration.
Respondent G		●Information Integration.		●Integrate the responsive muscle into the overall business and that's really a very big exercise.

	Information Integration	Coordination and Resource Sharing	Organization Integration
Categories	●Information Integration	●Coordination and Resource Sharing	●Organization Integration
	●Real-Time Data	●Stakeholders	●Change Management
	●End to End Visibility		●People Behavior

Themes	●Information Integration	●Coordination and Resource Sharing	●Organization Integration
			●Change Management

Source: Own creation

Challenges:

While discussing challenges part during extracting primary data (in interviews) we came across different perspectives regarding challenges. How challenges are perceived at Nike on different levels and angels. Though these challenges were repeated by respondents in the interviews. As exhibited in the below table it is visible how many times particularly a challenge is repeated. Nonetheless later during coding and categorizing many challenges resulted interrelated to each other, which led us to make themes. The most discussed challenges were resistance to change, information technology, competition and trends in market.

This area of research was completely new for us, as the challenges where not studied in the original or parent model. We also looked into various, peer reviewed substantial literature (which is discussed in literature review) and in that light, constructed our research for challenges faced by Nike management during implementing responsive supply chain. Whereas, while extracting and analyzing the data we came across numerous versatile challenges discussed by the interviewees, and we made different codes from it. But most of the challenges where either interrelated or repeated with different synonyms. So, we went through each and every interview back and forth, in 'challenge' related data and with very high vigilance created categories. These categories were interrelated and was most discussed, they eventually resulted in to themes.

The themes we created were refined form of data, which we extracted from Nike in our research through interview as primary data collection. During our interviews, we also found a unique component regarding challenges. That the challenges where reflecting a 'relation' with internal enablers and external requirements. Challenges were someway connected to the other two parts of research. Since our interview questions was open ended and on various occasion during interview, interviewees highlighted some challenges in relation to internal enabler or external requirements.

Table 8: Data Analysis – Challenges (Case of Nike)

Challenge by Category	Respondent A	Respondent H	Respondent D	Respondent E	Respondent F	Respondent B	Respondent G
Systems, Tools and Processes (Technology)	Yes			Yes	Yes		
Change Management (Employee Behavior – Incentives)	Yes	Yes		Yes	Yes	Yes	Yes
External Factors – Stakeholders	Yes	Yes					
Commercial Consumer / Consumer Behavior (Demand uncertainty)		Yes			Yes	Yes	
Organization Integration			Yes	Yes		Yes	Yes
Manufacturing Flexibility			Yes		Yes	Yes	
Product Architecture						Yes	
Postponement				Yes			
Competition (competitors)		Yes		Yes		Yes	Yes

Overall Themes	Resistance to Change	Information Technology	Competitors	Trends in the Market

Source: Own creation

Results

After extracting data from primary and secondary sources, as researchers we went through all the data provided and came to the analysis point. In the analysis we did content analysis, with single case study. For analysis, we started to make codes, later when those codes were similar, interrelated and repeated they took the face of categories. As the categories were made, the interrelated categories came out as themes. After all this process we end up with the output of empirical findings as internal enablers, external requirement and challenges.

Turning back the clock, as mentioned before, we took a model as a blueprint which was developed by Reichhart, A., & Holweg, M. (2007) then we built our research around that. That model gave us the framework and positioning of factors that has affected in implementing a responsive supply chain strategy. On the grounds of this model, we did a research at Nike as a single case study and source of data. The data provided by the model and the data extracted by us from Nike was compared. However, most of the elements in the data where similar, the original or parent model from the literature is divided into three sections internal enablers and external requirements and the rational factors. Since we had certain limitations in our research further in the light of our research questions we wanted to mainly focus on the internal enablers and external requirements along with the challenge's managers face during the implementation of responsive supply chain.

We combined the data that was collected from Nike with the original model from the literature, and created an adaptive model by following the original framework. The adaptive model we created has many elements from the original model, as in the first section in internal enablers we found are demand anticipation, manufacturing flexibility, inventory in operational, conversely in original model had another factor as "product architecture" whereas we didn't receive enough data in regard to product architecture, in result we excluded it from our adaptive model. In the second half of first part, which is SC integration where we found the following elements, those were also part of our adaptive model; information integration, organizational integration and coordination and resource sharing which were also present in the original model. Further, we found a new factor, extracted from Nike's model which is, 'change management', the new element has been added in our adaptive model in this section.

Moving forward to the second part, external requirement, firstly in the original model we had demand uncertainty and demand variability as separate elements. Whereas in our adaptive model after data extraction form Nike, we combined both together as demand uncertainty and variability. Furthermore, 'external product variety' and 'lead time' elements were discussed in an original model and were also found in our research at Nike. The new element we found in our research at Nike is 'consumer behavior and social media', on contrary which was not discussed in the original.

The third part we have presented in our research is challenges, that are not considered in the original model. We also excluded the control factors that were displayed and discussed in the original model. As discussed earlier due to limitation of scope, we focused on internal enablers and external requirements, and we also expanded our horizons of our research in terms of challenges that managers face throughout implementing responsive supply chain.

Consequently, to present the relationship with other two parts, as soon the themes where generated we placed the challenges - Table 8, in accordance to their incline towards the particular section. As one can exhibit in challenges table in the same chapter, the four challenges are resistance to change, information technology, competitor and trends in market. The placements of these four challenges are under each relating section and the arrows are made to explain that with which section are these challenges affecting and relating directly.

In the below adaptive model, we have derived this framework from the original or parent model. The positing of elements is completely based upon the original model. The new findings are added into the adaptive model as our results from the research at Nike. And due to certain limitation of study we made some exemptions of elements as discussed earlier, from the original model.

Figure 6: Adaptive Supply Chain Responsive Model – Conceptual framework
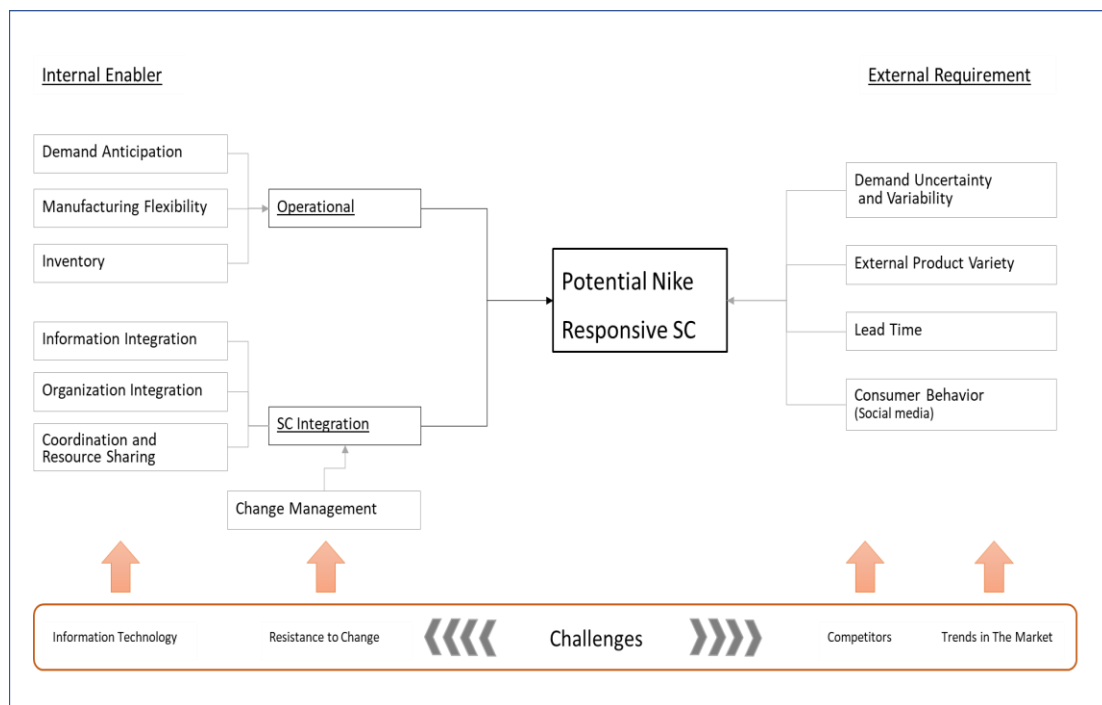
Source: Own Creation

5. Conclusion

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In this chapter, we concisely revisit the purpose of our study, then we conclude our findings and analysis in order to answer our research questions. Furthermore, we end this chapter by suggesting areas for future research.

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5.1 Discussion Summary

The aim of this study is to analyze the external requirements of responsive supply chain management. Further, the internal enablers to respond to the external requirements and identify the challenges that managers face while implementing such a RSC model. We had our research questions well drafted to be able to fulfil the research purpose. In order to answer the research questions, we applied a single case study strategy of Nike's responsive supply chain. We adopted a new model that represents Nike's RSC based on the model we found in the literature (Figure 3: Supply Chain Responsiveness - A Conceptual framework), looking at the results of our analysis we were able to answer our research questions through the following discussion.

As explained in the model presented by Reichhart, A., & Holweg, M. (2007), there are both external and internal factors that are having a direct impact on businesses in order to adopt a responsive model. External factors represent external requirements in the marketplace that are driving companies to consider implementing a responsive model as a response to those requirements. However, internal enablers are considered as the fuel necessary for companies to fire up their engine to implement an RSC strategy after recognizing external requirements.

Understanding the external requirements and the internal enablers shall help companies to implement a RSC strategy. Therefore, in our research we studied the above model considering the technological development that happened in the last decade, therefore new elements were found in our study as well as identifying the key challenges that face companies and managers which considered as the unlock of the future in the responsive business. Moreover, after analyzing the case of Nike within the light of our research questions, we came to a conclusion that Nike's responsive supply chain has a unique

model based on their business nature. Hence, we came up with an adapted model that better describes Nike's RSC model, and we found out the followings:

First, as mentioned in the analysis, the external requirements align with what was discussed by the model presented by Reichhart and Holweg (2007). On top of that, our analysis showed that consumer behavior and social media also played a role as an external requirement resulting in an adapted model. Further, we discovered that the external requirements have a significant impact on consumers decisions. Our analysis also shows that social media is directly impacting the wholesale business as well as the end consumer behavior in the market especially in a very dynamic and globalized market like what we currently have.

Second, in the internal enabler, we found that since Nike is in the journey of transitioning towards implementing a RSC strategy and currently only 30% of the business is responsive. Thus, change management becomes prominent to add to the adapted model we came up with. Our findings showed that change management is very crucial for Nike to adapt their current set-up in order to integrate new working strategies. Those strategies do not only include legacy systems, but also employees' behavior,

Moreover, we looked into the current challenges that Nike face in order to implement the RSC model. In our analysis, we found that those challenges were caused by external and internal factors. Externally, competitors in the market are trying to be responsive, which creates extra pressure on Nike to ensure that they deliver the consumers' need in a faster manner. In addition, many trends happen so quickly in the market such as sports competitions events and celebrity's endorsement which represents a critical challenge to be able to respond to the unexpected demand and avoid lost sales.

On the internal enabler side, Nike's resistance to change is one of the major challenges. Our analysis revealed that it is challenging to change employee's routine and behavior in accordance to the responsive model. Nonetheless, information technology was the most dominant concern in terms of internal challenges that we identified. This IT challenge even sores up more when existing systems are not built to support or contain such a responsive model.

5.2 Future Research

While conducting this research, we discovered various areas that could serve as steppingstones for potential future research. We think that the need to be responsive and gain an operational advantage out of responsive models are pressingly high. As the world is getting more globalized and digitized, things are changing on a quicker pace that trends are changing much faster and consumers are becoming more demanding than ever before. in such situation, building a responsive strategy that is proactive is of a great importance for businesses and their market endurance in the long run.

Our study provides an overview about the adaption of a responsive supply chain model, focusing on external requirement and internal enablers along with challenges in a global company working in the fashion industry and sporting goods, in specific in the EMEA region. Since responsive models is not an ancient concept, there are higher chances that different businesses adopting responsive supply chain may disclose additional observations and results with a unique amount of information. Whereas, piloting similar research in different geographical locations may turn out to be different results in regard to structure or approach in comparable business. This thesis encourages further studies aiming to understand and explore how responsive models influence systems, processes, and people in different countries, company sizes and/or industries.

Furthermore, we have not covered all elements in the original model and few were excluded in our analysis due to the limitation in our study such as; Relational factors, Agreements/contracts, Trust and commitment, Spatial integration and logistics, Control factor: ability to meet requirement (delivery reliability and quality), hence future research focusing on the excluded elements could give more context to the whole RSC strategy and help companies to better understand different dimension in the RSC strategy.

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Appendix

Appendix 1: Example of Interview Invitation

AA Abushoke, Abdalla

Master thesis interview | Nike's responsive supply chain

Required

Retention Policy   2 Year Delete (2 years)   Expires 7/14/2021

Interview questions.docx
21 KB

When Tuesday, July 16, 2019 3:00 PM-4:00 PM   Location EH-QSB-2/Air Pegasus (8)(VC)

Hi ,

Hope you are doing well. I would like to interview you as part of my master thesis. I believe your role as Supply and Inventory planner will help me to get my questions answered.

In attached you can find the question which you will be answering during the interview. Please have a look and if any question let me know.

Also below some useful information in regards my study.

- **University name**: Jönköping university
- **Program**: Master of international logistics and supply chain management.
- **Thesis Title**: External drivers and internal enablers in supply chain management (A case study of Nike's responsive supply chain)
- **Purpose of the study**: the purpose of this thesis is to analyze the external drivers of responsive supply chain management (RSCM). Further, the internal enablers to respond to the external drivers and increase responsiveness productivity, in specific, the sporting goods industry.

If any questions please let me know.

Many thanks in advance.

Regards,
Abdalla

Appendix 2: Interview Questions Guide

Interview questions:

<u>**OPENING QUESTIONS**</u>

1- How does Nike's responsive Supply Chain model bring value to its customer?

2- What do you think made Nike start thinking about the responsive SC model?

3- In your opinion, what are Nike's strengths in the Responsive SC model scope?

<u>**External drivers**</u>

4- As being part of Nike, what are the external drivers that drove Nike towards the Responsive SC model?

a. Demand uncertainty & variability.

b. Lead-time reduction.

c. Product variety.

a. Different categories

b. Wide range of products

5- What do you think about the impact of the external drivers in the responsive SC model?

a. Based on previous question, what do you think the most critical driver(s) in the responsive SC? What is the ranking from the most important driver to less important of the external driver from your point of view?

<u>**Internal Enablers:**</u>

6- What are the operational factors (focus on a specific node within the supply chain) that are important as enablers for Nike's responsive SC model?

a. Demand anticipation

b. Manufacturing flexibility

c. Inventory

7- What are the sources of supply chain integration (The whole supply chain) from the internal enablers perspective?

a. Information integration

b. Coordination and resource sharing

c. Organization integration

<u>Challenges</u>

8-   In your perspective, what are the major challenges in the responsive supply chain strategy model?

9-   According to challenges where do you see Nike's responsive supply chain in the Future?

a.Opportunities

10- who else do you suggest can answer those questions?

Appendix 3: Literature Review Search Queries and Excel Table

Table 9: Web of Science Search Query

Source: Own creation

Figure 7: Screenshot of Relevant Articles in the Literature Review

Source: Own creation