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Factors influencing demand forecasting and demand planning: A case at an apparel retailer

By

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DECLARATION

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ABSTRACT

As supply chains and distribution channels extend globally and fashion trends become more controlled by media, customers are not only influenced to change their minds overnight about offerings but also organisations are pushed to become more flexible and agile with regard to efficient planning and forecasting for demand. Today's supply chain management is successful when it involves the understanding and management of inventory, the complete satisfaction of the ultimate customer and also the delivery of the right quantity of product to various destinations at a faster rate. The business environment has become highly competitive and complex as customers' demands have become significantly variable, thus pressuring organisations to invest in better demand forecasting and planning tools in order to become more responsive to these demands.

The dynamics of the business environment has become one of the main challenges in the planning and forecasting of demand in apparel supply chains. Such supply chains are affected by external and internal factors such technological advancement, globalisation, economic factors, environmental unpredictability, political and legal matters, social issues, poor internal and external collaboration in the supply chains, and the supply chain structures influencing the performance of organisations in the market. This study aims at identifying the impact that each of these factors have on the apparel industry. Each factor was analysed to determine the impact on the forecasting and planning of demand in the apparel industry. The findings are based on a case study that was conducted with one of the biggest apparel retailers in South Africa, namely, Apparel Retailer A.

The results of the research reveal that the factors mentioned have a more negative than positive impact on the planning and forecasting of demand within apparel organisations. It was found that Apparel Retailer A needed to invest in better collaboration systems (that allow for real time replenishment) with its supply chain partners in order to be more responsive to the unexpected changes that the organisation consistently experiences in the industry. Furthermore, participants indicated: a need to maintain consistency in the areas where the organisation was well-equipped; a need to invest in a more agile and sustainable supply chain due to the massive growth of competition in the market; and, most importantly, a need to build strategic relationships with the organisation's supply chain partners, thus allowing the organisation to plan and forecast better for future demand.

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LIST OF COMMONLY USED ACRONYMS

APICS:	Association for Supply Chain Management
CAGE:	Cultural, Administrative, Geographic and Economic
CPA:	Country Portfolio Analysis
CPFR:	Collaborative, Planning, Forecasting and Replenishment
FGD:	Focus Group Discussion
IT:	Information Technology
PD:	Product Development
POS:	Point-of-Sale
SCM:	Supply Chain Management
SCS:	Supply Chain Structure

CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

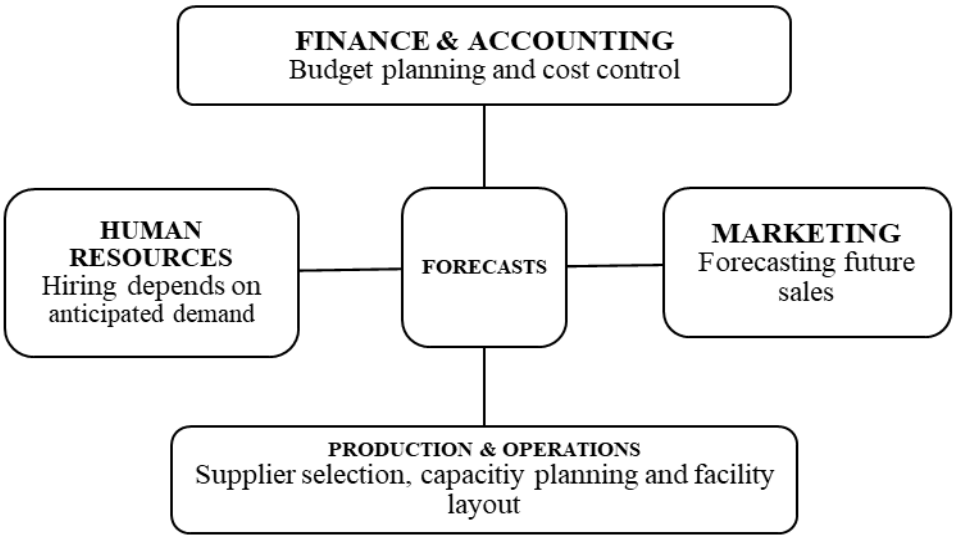
1.1 INTRODUCTION

Globalisation has brought about an increase in competition in the apparel industry and the attendant rapid development of apparel products. Supply chains have overcome barriers brought about by culture, religion, ethnicity and politics that constrained productivity. They have achieved this by adopting global supply chain strategies to perform better on the global economic platform (Heizer, Render & Munson, 2017:32).

The arrival of inexpensive communication, the advancement of technology and the improvement of transportation methods have made supply chain partners and customers increasingly accessible, thus increasing the need for a more responsive supply chain and leading to a challenge in planning and forecasting for demand (Choi & Guo, 2018:3409). The rapid change in customers' perceptions of offerings makes it difficult to predict the products that customers will purchase, and the outsourcing and offshoring of apparel production further complicates preparing and planning for demand since a product item may become obsolete whilst in transit (Nenni, Giustiniano & Pirolo, 2013:2).

Strategic supply chain relationships enable efficient product innovation, lower supply chain costs and an efficient and quick response supply chain, all of which are dependent on effective forecasting techniques (Heizer et al., 2017:109). Jacobs and Chase (2018:446) state that forecasting for future demand is of significant importance to every business as it influences most functions within an organisation, as depicted in Figure 1.1.

Figure 1.1: Influence of Forecasts on Functions



Adapted from: Heizer et al., 2017; Jacobs and Chase, 2018.

Figure1.1 shows how forecasts influence:

(i) the planning of budgets and costs within the finance and accounting function;
(ii) estimations to be made when planning the amount of manpower to be hired by the human resources function;
(iii) the decisions to be made with regard to selecting suppliers based on their capacity and facility layouts;
(iv) Knowledge of anticipated demand in order to plan for future sales in the marketing department.

Acar and Gardner (2012:842) describe demand forecasting as the art of foretelling and estimating the demand of products that may occur in the future or forthcoming period. Jin, Williams, Tokar and Waller (2015:199) define demand forecasting as a process that involves anticipating the future demand for the products and services of an organisation. Jacobs and Chase (2018:446) found that perfect forecasts are almost impossible as there are a number of factors within the business environment that are difficult to predict, and they suggested that supply chains continuously monitor their forecasts as demand occurs.

Nenni et al (2013:2) refer to demand planning as an operational process that is used to improve forecasts, align inventory levels and enhance profitability by ensuring the maximum satisfaction of demand within supply chains. Organisations have started collaborating with their supply chain partners for more robustness, flexibility and uncertainty management, thus allowing for better forecasting and planning for future demand (Ivanov, Das & Choi, 2018: 3360). Areas such as demand uncertainty, natural and man-made disasters, globalisation, high supply chain risks and volatile customer demands complicate the preparation and planning of demand (Choi et al., 2017:1). Accurate manufacturing and replenishment decisions help alleviate the mismatching of demand and supply in organisations (Matsoma & Ambe, 2016:194). This problem can be attributed to the intensity of competition in today's industries, with the ready availability to customers of alternative products.

1.2 BACKGROUND OF THE STUDY

Movements such as globalisation contribute to the factors that influence demand forecasting in the retail industry (Jangga et al., 2015:262). The channels of communication and transportation have broadened, decreasing the uncertainty and vulnerability of the business environment, thus allowing for multinational production of products globally (Choi et al., 2017:1). Consequently, the freedom to move people, products and services globally, as well as the ability to outsource

the production of products in other parts in the world for a fraction of the price, has led to a significant increase in competition within industries (Babai et al., 2013:464). The apparel industry has become customer-driven, as customers now have access to products from abroad at lower costs, before the products have entered the markets, leaving customers satisfied and negatively impacting on the profitability of organisations (Wen, Choi & Chung, 2019:34).

Globalisation has exposed organisations to a number of risks, both foreseen and unforeseen. Some of these risks include: easy access to information and products for customers; the risk of technological failures; manipulation of information systems as hackers easily access organisations' data bases and steal ideas; labour unrest; the use of child labour; constant changes in government laws; and inflation (Mehrjoo & Pasek, 2016:29-30; Choi et al., 2017:2). All these risks lead to uncertainty and instability in an organisation. A lack of historical data further complicates demand forecasting and planning within the apparel supply chains as poor planning impacts negatively on supply chains' performance and costs (Heizer et al., 2017:108-9).

Jacobs and Chase (2018:445) have remarked that the forecasting of demand within the apparel industry has been made more challenging through the advancement of technology. This can be attributed to the amount of time it takes from the spinning and weaving of materials, the production of the final product, shipping between partners to the final customer and short product life cycles (Wen et al., 2019:35). Many processes are involved and communication at various stages is required. As a result, the time from the idea of producing the garment to when it becomes the final product and enters the market is lengthy. Wen et al. (2019:47) found that the shelf-life cycle of a fashion product is much shorter than the amount of time it took to create it. Thus, identification of factors that influence the forecasting and planning of demand may help to avoid the loss of sales due to late delivery and/or an accumulation of unwanted inventory due to over-production.

1.3 RESEARCH PROBLEM

Organisations need to align their supply and demand plans to ensure optimisation of profits within their businesses. Matsoma and Ambe (2016:195) make the comment that demand forecasting plays a vital role when it comes to the profitability of a business. Demand forecasting supports most of organisational planning activities such as demand planning, inventory planning, production planning and procurement planning (Jiang, Tian, Xu & Zhang,

2016: 800). This study, therefore, provides insight into the factors influencing demand forecasting and demand planning in the South African apparel industry.

Furthermore, one of the main challenges that organisations face in most supply chains is the ability to forecast future demand accurately in order to efficiently plan for customers' requirements. Therefore, the purpose of this study has been to provide insight into the factors that influence demand forecasting and planning in the South African apparel industry. After searching Sabinet, a platform for African Journals, Ebscohost Business Review and Google Scholar the researcher went through the Journal of Transport and Supply Chain Management, The Retailing and Marketing Review, Market-Line Reports and the Journal of Contemporary Management, (these were the only journals containing information about the South African apparel industry and only one study was found relating to this specific topic, namely, that conducted by Matsoma and Ambe (2016:194) on factors affecting demand planning in the South African clothing industry. This study was focused on the shutting down of clothing manufacturers in South Africa due to globalisation and economic factors (Matsoma & Ambe, 2016:194). By contrast, the current study has examined the factors related to the demand for apparel products in the South African apparel industry that influence preparation and demand.

1.4 SCOPE OF THE STUDY

The current study has focused on supply chain management (SCM) and the factors influencing demand forecasting and planning within the South African apparel industry. The study was conducted at Apparel Retailer A (a pseudonym). The reason why Apparel Retailer A was chosen is because: (1) it is one of South Africa's leading apparel retailers; (2) the researcher is currently employed by the organisation and was given permission to conduct her study there; and (3) she had access to relevant data for required for the study.

For this study, the planning department at Apparel Retailer A was selected as the target population of the study. The organisation's planning department works closely with the marketing, human resources, operations and production as well as the finance and accounting functions with regard to demand forecasting decision making. This department synchronises the plans for anticipated demand that have been given by each of the mentioned functions and then uses the given information to draw the final plan for each brand. Apparel Retailer A's planning department was deemed as the most appropriate target population for this study as it

is the only department that has access and input to demand forecasting information from most of the organisation's main functions.

1.5 KEY CONCEPTS

1.5.1 Supply Chain Management

Ivanov, Tsipoulanidis and Schonberger (2019:7) observe that a supply chain consists of a web of suppliers, manufacturers, manufacturing plants, storage-houses, distributors and retailers that collaboratively work together in a cost-effective manner to ensure efficient delivery of products and services to the end-customer. Tate, Mollenkopf, Stank & da Silva (2015: 16) define supply chain management as the designing, organisation, execution, controlling and monitoring of supply chain practices with the aim of adding value whilst saving costs.

1.5.2 Demand Forecasting

One of the objectives of supply chain management is the fulfilment of customers' demand. Therefore, demand forecasting has become a critical element for driving efficient operations in supply chains. Monczka et al. (2016:129) found that forecasting has become a critical maintenance tool that ensures that the needs of customers are met through efficient communication and collaboration amongst supply chain partners since SCM decisions are generally made prior to the time that the customers' actual demands are known. For instance, the procurement of a certain type of garment in a fashion retail supply chain is undertaken before the organisation has clarity about the customers' perceptions about the product (Kilger & Wagner, 2015:125).

1.5.3 Demand Planning

Demand planning is described as the scheduling of organisations' outputs such as forecasts, the adjustment of inventory quantities, and aftermarket requirements, helping to avoid further challenges occurring downstream (Monczka et al., 2016:19). Wallace and Choi (2011:209) describe demand planning as a process that ensures that supplies of an organisation's products are kept at levels that meet demand or slightly exceed it and that the products are responsively provided when needed.

1.5.4 The Retail Industry

Liu et al. (2013:3) define retailing as the art of trading and distributing products and services to the ultimate customers. The product category for retailing can include a range of goods, for example, groceries, apparel, furniture, and appliances, just to mention a few. These products

can be sold face-to-face or, thanks to the advancement of technology, in the comfort of the customers' homes via the internet.

1.5.5 Retail Supply Chains

Retail supply chains have become more global as organisations seek for strategic ways to deliver the best customer service delivery around the world, making retail supply chains logistically and technologically complex (Ayers and Odegaard, 2018: 6). A retail supply chain can be described as a network of suppliers, manufacturers, distributors and retailers, collaborating in terms of their systems and resources to move products and services to satisfy the ultimate customer at the lowest cost possible (Jin et al., 2015:199).

1.5.6 Apparel Retail Supply Chain Management

The Council of Supply Chain Management Professionals (CSCMP, 2019) describe apparel supply chain management as, "encompassing the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities in the apparel retail supply chain". Furthermore, "it includes coordination and collaboration with supply chain partners. In essence, apparel retail supply chain management integrates supply and demand management within and across the fashion retail supply chain with a goal of satisfying the customer requirements under the leadership of the retailer" (CSCMP, 2019).

1.6 THE CONTRIBUTION OF THE STUDY

The apparel retail industry has grown significantly over the years and competition has increased as organisations are not afraid to venture into new markets beyond their borders of origin. The emergence of new entrants into retail markets has made the forecasting and planning of future demand highly unpredictable (Choi, 2018: 162). The entrance of new competitors into the market easily distorts the historical data that organisations have available (Ayers & Odegaard, 2018:3). This can lead to an overestimation or underestimation of demand, as companies become unsure of how much inventory they should hold or how well their product offerings will perform compared to previous years when there was not as much competition within their respective markets.

Studies conducted with regard to the South African apparel industry have been tabulated in Table 1.1. The year of publication of these studies ranges from 2016 to date, indicating that this is an area in which not much research has been previously published. These studies were found after a thorough search through Ebscohost, Sabinet and Google Scholar, and within the Journal of Transport and Supply Chain Management, The Retailing and Marketing Review and

the Journal of Contemporary Management. These journals were selected based on the field of the study as well as the use of key terms such as "demand forecasting, demand planning and South African apparel industry." The studies do not name the apparel organisations that participated as stakeholders in South Africa's apparel industry are not willing to be identified or to have their operations identified. Some of the researchers focused: on only one apparel organisation (White, 2017:2; Muhwati & Salisbury (2017:864); on the clothing manufacturing industry in only one specific area of South Africa, namely, Gauteng (Matsoma & Ambe, 2016:194; Matsoma & Ambe, 2017:2); or on a specific factor such as point-of-sale or agility (Muhwati & Salisbury, 2017:864; Raza & Kilbourn, 2017:1). Other scholars chose to investigate specific apparel product types, such as eco-friendly apparel for males and cotton garments (Taljaard, Sannenberg & Jacobs, 2018:461; van Niekerk, 2018:2). The current study, however, contributes to the existing body of knowledge in that it provides insight into the various factors (internal and external) that influence demand forecasting and planning for a prominent apparel retailer within the South African apparel industry. It also provides insight into the initiatives Apparel Retailer A has in place to minimise the negative impact of these factors.

Table 1.1: Research Conducted by Others

Author/s	Topic	Year	Research Method Used and Focal Point	Contribution to Literature
Mastoma and Ambe	Factors affecting demand planning in the South African Clothing industry	2016	- Mixed research approach - Survey conducted among 56 clothing manufacturing industry stakeholders in Gauteng - Tool: A semi-structured questionnaire	The study uncovered key factors affecting demand planning in Gauteng's clothing manufacturing industry.
Matsoma and Ambe	Demand planning approaches employed by the clothing industry stakeholders in Gauteng, South Africa	2017	- Exploratory and descriptive research approach - Conducted surveys with 18 fabric suppliers, 26 clothing manufacturers and 12 fashion designers from Gauteng - Tool: structured questionnaire.	The study investigates approaches used in the clothing industry to plan for future demand and the effects that the current approaches have had on the performance and growth of the industry.

White	Quick response inputs and outcomes in the apparel industry: an example from a South African retailer	2017	- Case study of a South African apparel retailer - Number of participants and data collection tool not mentioned	The study served to investigate the benefits of sourcing locally and globally with the aim of reducing lead-times and the responsiveness of an apparel organisation's supply chain.
Muhwati and Salisbury	Agility in a South African fashion industry supply chain	2017	- Exploratory case study of a major South African apparel retailer - 8 face-to-face interviews - Tool: Semi-structured questionnaire	The study assessed the perceived need to improve agility in the South African apparel supply chain.
Raza and Kilbourn	The impact of point-of-sale (POS) data in demand planning in the South African retail industry	2017	- Grounded theory approach based on the collection of qualitative data - Collected data broken down into codes using the data from the grounded theory analysis from which various categories were developed into themes	The study served to highlight the importance of incorporating POS data when planning for future demand and to determine the extent to which apparel retailers in South Africa use POS data when planning for demand.
Taljaard, Sannenberg and Jacobs	Factors motivating male consumers' eco-friendly apparel acquisition in the South African emerging market	2018	- Cross sectional survey approach with structured questionnaires distributed by hand and through SurveyMonkey and Facebook - 305 males responded with 74% of them being from Gauteng	The aim of the study was to promote pro-environmental apparel purchasing behaviour amongst male consumers in emerging markets such as South Africa.
Van Niekerk	An integrated supply chain programme for the South African cotton garment industry	2018	- Pilot study	The aim was to evaluate the challenges faced in the cotton garment industry and how these challenges slow-down the responsiveness of the supply chain; another aim was to find supply chain systems that can make SCM more efficient and competitive in the industry.

Adapted from: Mastoma & Ambe, 2016 and 2017; Muhwati & Salisbury, 2017; Raza & Kilbourn, 2017; White, 2017; Taljaard, Sannenberg & Jacobs, 2018; van Nierkerk, 2018.

1.7 JUSTIFICATION FOR THIS STUDY

Demand forecasting and planning is critical for retail industry operations as it helps with balancing the supply and demand of products within a supply chain. Therefore, the significance of this study lies in the importance of identifying the factors that influence forecasting and planning for future demand in order to accurately estimate supply quantities required to meet demand. Moreover, the study provides an understanding of the initiatives Apparel Retailer A have in place to minimise these factors. As indicated previously (in Table 1.1, Section 1.6), the study adds to an existing body of knowledge base in an under-researched area. The knowledge of these factors may help retailers to prevent the loss of sales from under-stocking as well as decreasing over-stocking costs.

1.8 RESEARCH QUESTIONS

The study aims to answer the following research questions:

- What forecasting methods does Apparel Retailer A use?
- What are the factors influencing demand forecasting and planning at Apparel Retailer A?
- What initiatives does Apparel Retailer A have in place in order to cope with and minimise these factors?

1.9 RESEARCH OBJECTIVES

In order to address the research questions, the following objectives are appropriate to guide this study:

- To determine the type of demand forecasting and planning methods that South African Apparel Retailers use based on Apparel Retailer A's operations.
- To identify the factors that influence demand forecasting and planning within the South African apparel industry using Apparel Retailer A as a case.
- To determine the initiatives Apparel Retailer A has in place to minimise the negative impact of these factors.

1.10 RESEARCH METHODOLOGY

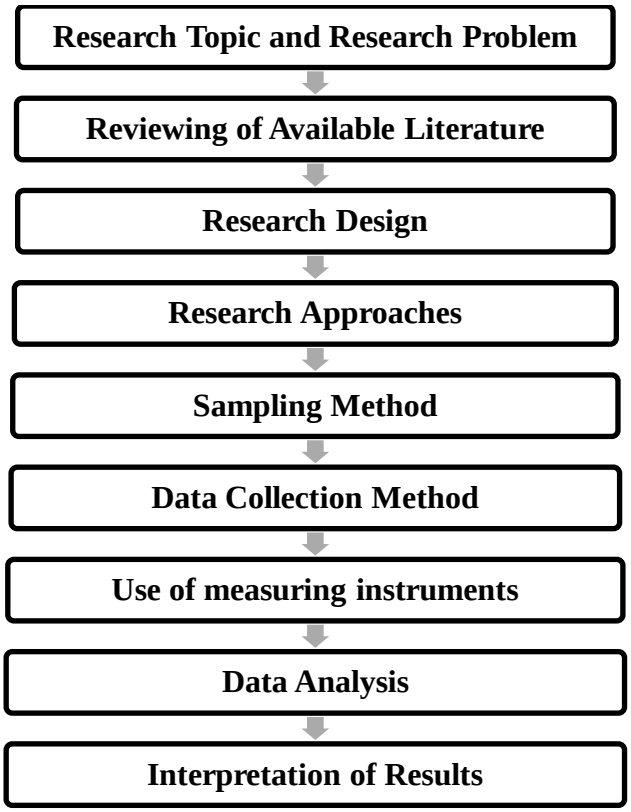
The research undertaken in this study consisted of two stages, namely, primary data collection as well as the collection of existing researched data relating to the study. The first stage consisted of a review of existing relevant literature on demand forecasting and planning and

the factors that influence them in the apparel industry. This was achieved through the use of various academic texts, journal articles and published academic material. The literature gathered through this process is presented in Chapter 2 and Chapter 3. Based on the literature review, questions were drawn up to be used as a guide for focus group discussions (FGDs).

The second stage (primary data collection) consisted of gathering new data through FGDs with participants at Apparel Retailer A. This is dealt with in more detail in Chapter 5 of the study, where the data that was collected during the FGDs is analysed using the thematic analysis method.

Figure 1.2 depicts the steps that were taken during the research process.

Figure 1.2: Steps in the Research Process



Source: Sekaran & Bougie, 2016.

1.10.1 Research Design

Sekaran and Bougie (2016:95) describe research design as the blueprint for the collection of data that creates answers to the research questions. Wiid and Diggines (2015:54) describe research design as the framework for a study. This study is exploratory and descriptive, and thus it adopted a case study approach as a research strategy. Saunders, Lewis and Thornhill (2016:174) define exploratory research as a type of research that is conducted when a problem

has not been clearly defined; it helps to establish the most ideal research design and data collection method. Descriptive research plays the role of filling in the missing parts and unfolding what is happening within the research in more detail, also described as, "answering the who, what, where, when, why and how questions" (Sekaran & Bougie, 2016:43).

The South African apparel industry has one of the largest market volumes that has contributed US$567m into the market in 2020 (StatsSA.com, 2020). Due to the size of the market the researcher decided to use a case study approach in order to narrow down the broad industry as it contributes to 10.6% of the country's GDP (Marketline Industry Profile: South Africa, 2018:2). Due to financial limitations and time constraints, the researcher decided to use Apparel Retailer A as a case study as it is the only major retailer located in close proximity to where the researcher resides. The other major retailers are between 6-18 hours away from where the researcher resides. In addition, the subject of demand forecasting and planning in the South African apparel industry is under researched. Lastly, since Apparel Retailer A is one of the top five largest apparel retailers in the country (Marketline Industry Profile: South Africa, 2018:7), it was deemed appropriate to use Apparel Retailer A as a case study.

An analysis of existing literature was done to provide the following: an understanding of the retail industry both locally and internationally; an overview of the planning and forecasting of demand and the role it plays in retail supply chains; and an account of the factors influencing demand forecasting within the retail industry. Existing literature relating to the study was collected from available resources in order to construct a focus group question guide. The empirical research carried out in this study consisted of three FGDs that were conducted at Apparel Retailer A's Head Office. The participants included fifteen of the division's planners, who were split into three groups of five, six and four respectively.

1.10.2 Research Approaches

The purpose of the study was to explore and provide insight into the factors influencing demand forecasting and planning in the apparel industry from Apparel Retailer A's perspective. The study required an in-depth analysis of data provided by the participants in order to provide a better understanding about the particular case being researched. Therefore the study adopted a qualitative case study approach. Saunders et al. (2016:193) identify qualitative research as the collection, analysis and interpretation of information that cannot be summarised into numerical form. In other words, qualitative research is about determining and providing insight into the

"how and why" of decision making within a particular method or technique and is not limited to the "who, when, what and where."

1.10.3 Study Site

This research study focuses on Apparel Retailer A's Head Office Apparel Division since the study adopted a single case study format pertaining to the Apparel Retailer A Group. The participants that took part in the study were all from the Apparel Retailer A's Apparel Division and were all based at the head office, one of South Africa's major cities.

1.10.4 Population

Sekeran and Bougie (2016: 236) refer to a population as people, business organisations, events, or things that a researcher has interest and thus wishes to investigate. The elements of this study's population are leading South African apparel retailers. Four were listed by MarketLine (a world leading research organisation with regard to commercial intelligence) as the leading organisations in the South African Apparel industry and Apparel Retailer A was one of them (Marketline Industry Profile: South Africa, 2018:24).

1.10.5 Target Population

According to Sekaran and Bougie (2016:119), a target population is a collection of participants that meet a well-defined set of characteristics. Moreover, a target population can be further defined as, "the entire aggregation of participants being analysed or investigated as determined by the problem (Wiid & Diggines, 2015:183)." The target population in this study were employees within Apparel Retailer A's apparel planning department. These included ten merchandise planners and five brand merchants. Brand merchants are the team leaders. These participants are responsible for analysing the information provided by the trend, resource and marketing department, looking at the suppliers at hand that are capable of delivering the required products at a fair price, evaluating the demand trends of the products in specific locations and then allocating the products to the different stores in different locations according to the various area demands.

1.10.6 Sampling Method

A non-probability convenience sampling technique was used. The convenience sampling method technique was deemed appropriate as the sample was drawn from a segment of the population that the researcher had access to. Moreover, Creswell (2013:93) remarks that convenience sampling is ideal for a case study as it helps to ensure the collection of accurate and reliable data providing that the sample under study can be easily reached.

1.10.7 Sample Size

The participating organisation in this research study was Apparel Retailer A. Fifteen Apparel Retailer A's planners within the Apparel Division formed part of the FGDs in order to provide insight into the constraints of demand forecasting within the South African retail industry from Apparel Retailer A's perspective. The planners were divided into three groups of five, six and four participants each, allowing for three FGDs. These participants have been selected for the study as they are responsible for the day-to-day planning, forecasting and allocation of the organisation's products.

The feedback that was provided by these participants included the factors that influence demand forecasting and planning. These participants are the ones who work around these factors in order to distribute and allocate products in Apparel Retailer A's apparel division. Therefore, these participants were deemed appropriate to be included in the study as they were able to provide the required data in order to answer the research questions.

1.10.8 Data Collection Methods

The researcher used a focus group question guide comprising five open-ended questions. The question guide was attached to consent forms that were sent to the participants prior to conducting the discussion in order to inform them about the benefits of the study and how, when and where the discussion would be carried out. A moderator guided and monitored the discussion. Saunders et al. (2016: 673) describe the moderator of a focus group as the "instrument" of the discussion. Interviews can be conducted by the researcher or a moderator may be used (Cooper & Schindler, 2014:158). In this study, the researcher conducted the FGDs after extensive reading and after piloting a demo discussion.

1.10.8.1 Focus Groups

In order to collect unique data that specifically relates to the study, the researcher chose to conduct FGDs with participants who understand the issue in question from Apparel Retailer A. Sekaran and Bougie (2016:121) describes focus groups as a type of qualitative research method that consists of eight to ten participants that are chosen based on their understanding and knowledge regarding a particular topic. Koskan, Rice, Gwede, Meade, Sehovic, and Quinn (2014:1-2) suggest that focus groups can be conducted through face-to-face meetings, telephonically or via video calling. Telephonic and video-calling focus groups are ideal for geographically dispersed participants. However, Cote-Arsenault and Morrison-Beedy (2005:172) point out that a good number of researchers perceive face-to-face focus groups as

better. The researcher chose to conduct face-to-face focus groups as they save time. In addition, the participants were accessible. This method allowed the researcher to gather a rich amount of information in less time than would have been possible when conducting a large number of individual interviews.

1.10.8.2 Focus Group Question Guide

The FGDs were conducted face-to-face at Apparel Retailer A's Head Office. A focus group question guide was the most appropriate for the collection of data for this study. Palomba and Banta (1999:196) argue that the questions in the guide should be short, clear, open-ended and worded in such a way that participants may remain engaged in the discussion. Iacobucci and Churchill (2018: 191) describe three types of focus group questions, which are:

- **Engagement questions** – these introduce the topic to the participants and make them comfortable
- **Exploration questions** – these provide the "meat" of the discussion
- **Exit questions** – these check if anything has been missed during the discussion.

The interview guide contained open-ended engagement questions to introduce the next section within the study and open-ended exploration questions to build rapport during the discussions and to gain more insight with regard to the study (see Appendix 3).

1.10.9 Data Quality Control

When collecting qualitative data, a researcher cannot run statistics to see if the data gathered is reliable or not. Primary data that is gathered must be reliable, trustworthy and credible, and therefore the researcher used Guba's (1979: 268) model of trustworthiness. Lincoln and Guba (1985: 307) argue that the trustworthiness of a study is of significant importance and Guba's model involves establishing the following:

- ***Credibility*** – is there truth in the findings?
- ***Dependability*** – is there consistency in the findings and can they be repeated?
- ***Transferability*** – are the findings applicable to other contexts?
- ***Confirmability*** – to what extent did the participants shape the results of the findings and the researcher not bias?

To ensure that the data collected was credible and dependable, the researcher took care when selecting the focus group participants. The participants that partook in the study had expertise

and knowledge of the topic at hand. In addition, during the discussion, the moderator ensured that one individual did not dominate the group discussion as this could have created a bias in the results.

The participants were familiar with the evidence that supported the information they were providing, and the data itself was internally valid. However, transferability of the data or external validity of the data is not easy to confirm as the study was based on one organisation. Nevertheless, the findings may be applicable to other organisations in the apparel industry. The discussions were voice recorded and transcribed, and each participant was given a pseudonym that they used each time they spoke. The pseudonym made it easier for the researcher to identify the participants' voices when transcribing. A CD copy of the recordings as well as the transcribed reports has been handed over to the supervisor in both hard and soft copy.

1.10.10 Data Analysis

Creswell (2013:117) describes data analysis as the process of minimising large amounts of data that has been collected into the form of succinct information. Data in the study was analysed using thematic analysis. Braun and Clarke (2012:57) refer to thematic analysis as a method that identifies, analyses and reports patterns or themes within data and then minimally organises and describes the collected data in detail. This method allows the researcher to identify and trace major themes from the information provided by the participants during the focus group discussions (FGDs) and to examine the data with respect to the topic under study in a deductive and grounded manner. The data was audio recorded by the moderator and subsequently the researcher listened carefully to the recordings and wrote out the responses verbatim. Thereafter the researcher transcribed the recordings, familiarised herself with the data and searched for patterns or themes within the discussions. Once the themes were identified, they were reviewed, defined and named. The themes that did not meet the line of study were excluded from the research.

1.11 EXPECTED CONTRIBUTION OF THE STUDY

The purpose of this study was to highlight the factors that influence demand forecasting and planning in the South African apparel industry. Competition within the industry has significantly increased, with international competitors venturing into the already saturated market. This study helps organisations identify these factors and find ways around them, giving organisations a competitive advantage against their competitors.

1.12 LIMITATIONS OF THE STUDY

The following are the limitations of the study:

- Apparel Retailer A is the only organisation that was included in this study. Other retail organisations in South Africa were not part of this study, and therefore the results of the research cannot be generalised to all organisations in the South African apparel industry.
- The literature review and semi-structured in-depth interviews with participants at Apparel Retailer A's apparel division were used to identify of the factors influencing demand forecasting. Therefore, not all factors may have been identified as Apparel Retailer A has four other divisions that were not included in the research.

1.13 ETHICAL CONSIDERATIONS

The researcher respected the need and wants of all individuals involved in the study. Therefore, before any primary research was undertaken, a gatekeeper's letter for permission to conduct the research was acquired from Apparel Retailer A as well as an ethical clearance letter from the University of Kwa-Zulu Natal's (UKZN) Ethics Committee (Appendix 1). Confidentiality will be maintained and any private information acquired that the organisation may not want to be disclosed was not included. In addition, participants were informed that they do not have to disclose any information they feel uncomfortable with and that their responses will be kept confidential. Primary data was collected once full ethical clearance was granted by UKZN (see ethical clearance letter attached as Appendix 1).

1.14 CONCLUSION

The paradigm of modern apparel supply chains is to maximise service delivery and customer satisfaction, and to do so and to achieve higher profitability, organisations have to ensure that they have adequately forecasted their customers' demand. In conclusion, the identification of factors that influence demand forecasting and demand planning within the South African apparel industry may help the local organisations cope with the dynamic changes that are currently taking place within the international realm of the apparel industry.

This chapter has provided an outline of the study: "Factors that influence demand forecasting and planning: A case at Apparel Retailer A". It has provided the background and introduction to the study and included the research questions and objectives. The remaining chapters are briefly described in the next section.

1.15 OUTLINE OF THE CHAPTERS

Chapter 1: This chapter has provided the background and introduction to the study.

Chapter 2: This chapter reviews the literature on SCM. It provides a better understanding of demand forecasting and planning within supply chains as the researcher examines past studies on the subject. The theoretical data collected on demand forecasting and planning in SCM guided the data that was collected for demand forecasting and planning within the apparel supply chains.

Chapter 3: This chapter provides the context for the study by means of an examination of previous literature on demand forecasting and planning practices used in apparel supply chains, globally and locally. The factors influencing demand forecasting and planning in apparel supply chains are then identified within the literature.

Chapter 4: This chapter focuses on research methodology; the chapter provides an overview of the methods selected to conduct the research and further explains and justifies why these methods were deemed to be appropriate.

***Chapter 5*:** This chapter interprets and discusses the key findings of the research, taking into consideration the existing information gathered from the literature review in Chapters 2 and 3. The collected data is analysed and the data quality assessed. Recommendations are made based on the conclusions drawn from the data collected from the research.

Chapter 6: Finally, this chapter discusses the findings and how they link to the research questions and objectives; furthermore, recommendations and limitations of the study are given. The conclusion and recommendations with regard to possible future research are provided.

Thus, the next two chapters of the study will be in the form of a literature review. Chapter 2 defines and further explains supply chain management; in addition demand forecasting and planning is described and outlined.

CHAPTER 2: SUPPLY CHAIN MANAGEMENT, DEMAND FORECASTING AND DEMAND PLANNING

2.1 INTRODUCTION

The elimination of borders that came about due to the progression of technology has globalised today's markets and fast-paced processes. Globalisation has physically and digitally increased competition for organisations, thus highlighting the importance of efficient demand forecasting planning (Rakicevic & Vujoseic, 2015:5). Choi and Guo (2018:3409) affirm that demand forecasting and planning are essential for supporting successful supply chain performance as they have a major impact on inventory planning and capacity utilisation across all functions within an organisation. Chapter 2 first provides an overview of supply chain management and highlights the importance of supply chain management within organisations. Thereafter, the chapter discusses the pillars of supply chain management, demand forecasting and demand planning within supply chains.

2.2 WHAT IS SUPPLY CHAIN MANAGEMENT?

Interest in supply chain management has significantly increased as organisations are realising the need of having collaborative relationships with the different businesses that affect their productivity (Meier, 2016:27). Organisations today are faced with the globalisation of operations, long lead times, shorter product life cycles, increased competition and the movement for better customer services (Ivanov et al., 2018:3359). Businesses are thus compelled to unite forces, internally and externally, with the aim of gaining a competitive advantage within their respective industries (Heizer et al., 2017:444). Successfully competing in markets without the help of supply chain partners has become challenging as customers' options and varieties increase (Christopher & Ryals, 2014:29). Thus, businesses are learning to develop collaborative relationships within and beyond their own four walls.

Kurtulus, Ulku and Toktay (2012:1) are of the opinion that supply chains experiment with a number of information sharing systems and processes that aim for the reduction of operational inefficiencies of demand uncertainty within markets. Lotfi, Mukhtar, Sahran and Taei-Zadeh (2013:299) support this view by pointing out the benefits of supply chain partners "joining forces" and highlighting the tools that supply chain partners can make use of to integrate and share real time information. Ivanov et al. (2018:3360) highlight the importance of increasing

supply chain flexibility (system, process and product flexibility); the authors emphasise how supply chain flexibility was vital with regard to increasing reactions to the changes in the product's lifecycle, better reaction to demand uncertainty and increased customers' satisfaction.

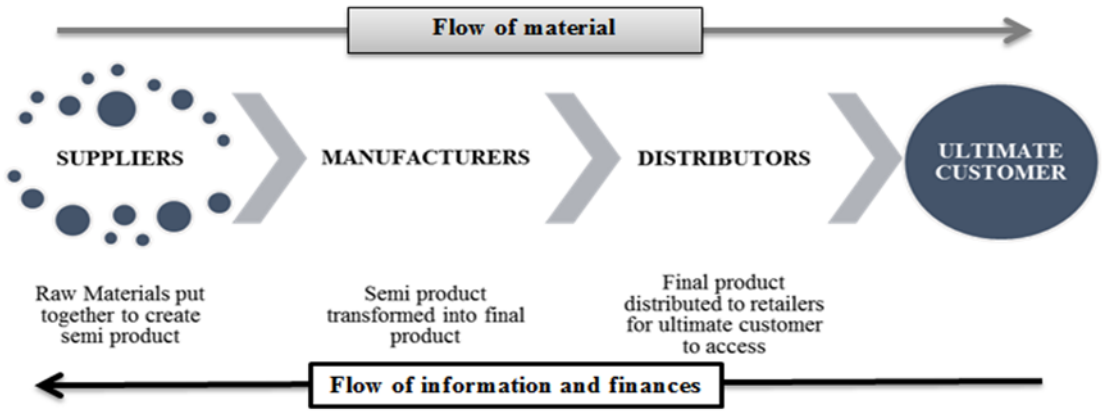
The ability to link the organisational strategies of supply chain partners to key supply chain management goals has been shown to lead to solid and resilient supply chain networks with clear-cut competitive advantages that are difficult to duplicate (Basak et al., 2015:24). Accurately defining what a supply chain and what supply chain management is would be required in order to successfully implement profitable supply chain strategies and processes (Li & Li, 2017:74). Jacobs and Chase (2018:3) describe a supply chain as a network comprising suppliers, producers, warehouses, distribution centres and retailers that are directly or indirectly interdependent in delivering a product to the ultimate customer. Similarly, Monczka et al. (2016:13) defines a supply chain as a group of two or more organisations that are legally separated, but are linked by the flow of materials, information and finances in order to deliver the final product to the ultimate customer.

The APICS (Association for Supply Chain Management) dictionary (2019:internet) describes supply chain management (SCM) as the running, controlling, and monitoring of supply chain activities with the objective of creating and, building a competitive infrastructure that leverages global logistics, matching supply with demand and evaluating supply chain performance. Lotfi et al. (2013:298-9) break down SCM into three main components as follows:

- ***Activities*** – which comprises the flow of materials, information and finances;
- ***Benefits*** – which includes improved customer service delivery, increase in value and improvement of efficiencies that are brought about through SCM
- ***Components*** – the final products and profitability that are brought about by the fusion of core competencies to create an efficient supply chain.

Based on these definitions, the terms supply chain and SCM can be defined in terms of four key activities, namely, planning, sourcing, making and delivering. Figure 2.1 illustrates a supply chain example.

Figure 2.1: A Supply Chain Example



Adapted from: Stadtler, 2014:4.

SCM plays various roles in terms of improving the efficiencies of an organisation. These efficiencies include the reduction of costs and cycle times, increasing customer relationship management, improving productivity within the supply chain, flexibility in product and service delivery and reducing defects and waste (Singh & Raghuvanshi, 2014:1091). SCM has the power to give organisations the competitive edge to manage the flow of materials, information and finances, particularly if the ultimate customers and supply chain partners' feedback about the product is reflected upon by the organisation (Fredendall & Hill, 2016: 4-6).

Traditionally, organisations tended to focus on maximising the efficiency of single business units. However, with the rapid change in technology, organisations are beginning to realise that the aim of SCM is to optimise the performance of an organisation and its partners as a whole, instead of one business unit (Xu, Dong & Xia, 2015:370). Wen et al. (2019:34) argue that today's organisations cannot become successful market leaders without the help of their supply chain partners as leveraging the strengths of partners gives competitive advantage and compensates for internal deficiencies.

Basak et al. (2015:23) find that SCM has become a strategic move to improve, develop and better manage organisations' supply systems. SCM aims at performing better than competitors, delivering outstanding customer service, cutting costs and maintaining profitability (Wen et al., 2019:35). With the help of advanced technologies, organisations are now working closely with their partners to make their supply chains competitive and not just their own business units (Bae & Lee, 2015:74). Integrated strategies and information sharing, according to Cao et al.

(2015:923), have allowed organisations and all their partners to become more agile, to minimise costs without compromising the quality of the final product, to integrate and optimise their performances, capabilities and processes, to gather more facts about their market and industrial competitors, to become more flexible, and to balance out their core competencies. This has allowed partners in the supply chain to not only eliminate any imperfections or inefficiencies but also to create a powerful and highly competitive industrial unit.

Although globalisation has made supply chains complex, involving supply chain partners in operations keeps the upstream partners well-informed of the ultimate customers' demands, which is imperative for the efficiency, success and profitability of a supply chain (Choi et al., 2017:3). Supply chains have become trans-boundary due to globalisation, and speed-to-market (with practices such as Quick Response that help improve operations by quickly responding to market changes) has become one of the fundamental strategies for supply chains (Choi, Zhang & Cheng, 2018:932). Fredendall and Hill (2016:8) further argue that organisations have started realising that the days when they had complete control over the success of their product within a market are past and that their suppliers do not only help to improve supply chain costs but also increase responsiveness and reliability. Ultimately, SCM allows organisations to put together their core competencies with the aim of efficiently and effectively satisfying the needs and wants of the final customer (Choi et al., 2017:2).

Choi and Guo (2018: 3409) found that the responsiveness of supply chains as a whole is growing, as organisations are learning how difficult it is to satisfy the needs of customers as a solo organisation. Each partner in a supply chain has strengths and weaknesses, and it is vital that each network invests on maximising on its strengths and transforming its weaknesses into strengths (Wen et al., 2019:36). Efficient SCM gives a group of organisations the opportunity to become a "perfect organisation" but this is only achievable if the partners have well defined roles and excellent communication systems in place (Flynn, Huo & Zhao, 2010:59).

The next section explores the pillars of SCM.

2.3 THE PILLARS OF SCM

The aim of businesses is to improve their competitive positioning and maximise their profits, especially with the increasing domestic and international competition within their respective business environments (Kozlenkova, Hult, Lund, Mena & Kekec, 2015: 586). Organisations are aiming for the improvement of the quality of their products and reduction supply chain operations costs in order to gain larger market shares (Gharde, 2016:2). The dynamic developments in the business world, with fast-changing conditions, numerous complexities and forever changing customer demands, have made SCM one of the key performance strategies to compete efficiently in industries (Choi & Guo, 2018:3409). Organisations are finding it extremely challenging to compete in isolation from their suppliers as SCM is not a standalone process (Tomas, Hult, Closs & Frayer, 2014:186). To better understand SCM, one could suggest that organisations thoroughly define the most fundamental support structures of SCM, which are popularly known as "the pillars of SCM."

Ahmed (2015:1) found that supply chains consist of four main pillars, namely, people, processes, technological systems and execution. Similarly, Kawazhang (2016:1) describes four key supply chain enablers, that is, human resources, organisational design, information technology and measurement. Slone, Dittmann and Mentzer (2010:34-6) identified five pillars of SCM: talent, information technology, internal collaboration, external collaboration and change management. For this study, following Slone et al. (2010:34-6), the key pillars of SCM to be described are:

- talent/human resources
- information technology
- internal collaboration
- external collaboration.

The pillars described by Slone et al. (2010:34-6) were selected for this study as the research is based on the field of SCM thus requiring the inclusion of external stakeholders as the pillars identified by the Slone et al (2010) are the only ones that include external stakeholders and hence was deemed appropriate.

2.3.1 Talent/ Human Resources

The individuals working within the supply chain should have well defined roles and responsibilities; furthermore, they should also be well-trained for their respective roles, so they get to fulfil their responsibilities efficiently and effectively (Ahmed, 2015:1). With supply chains having to compete on a global scale, organisations identify their workforce as a key differentiator from their competition as well as a crucial source of innovation and performance improvement (Leon & Uddin, 2016:20). Moreover, organisations have started developing their supply chain talent management mind-sets and investing in "talent optimisation."

It is imperative to have the right people, in the right place, at the right time, fulfilling the right roles in order to allow supply chain partners to put in place and align the best strategies possible as well as execute them (Slone et al., 2010:12). With well-defined roles, the talent pool in the supply chain will be able to work together efficiently as a team and strategically set and align their goals successfully. SCM connects with most, if not all, the functions within an organisation and therefore requires a broad skill set. Van Hoek and Wagner (2013:2) identify supply chain talent management as a key source of competitive advantage in today's industries. Dubey and Gunasekaran (2015:258) concur by pointing out that a shortage of supply chain talent is a supply chain risk.

SCM is about delivering the right product, to the right place, for the right customer, at the right price; therefore, it is of significance that management ensures that all supply chain partners have the right people with the right skill set in place (Ahmed, 2015:1). This enables the supply chain to pay attention to the demands of its customers and to plan adequately and efficiently for the production and delivery of the goods that the customers demand (Dubey & Gunasekaran, 2015: 259).

2.3.2 Information Technology

Li and Li (2017:72) found that the rapid growth of information technology has allowed organisations to function more efficiently, optimise decision making, to decrease supply chain costs, improve competitiveness and service levels as well as decreasing electronic risks (e-risks). Li (2018: 181) describes information technology as a "must-have weapon" for linking the parent organisation with its suppliers and customers, allowing for well-synchronised collaboration that can compete on a global scale. As a result, a significant number of organisations have started looking at technological advancement as a "competitive tool" which

has allowed them to move towards supply chains that are virtually managed due to the geographical dispersal brought about by globalisation (Varma & Khan, 2014:35). Li and Li (2017:73-4) describe innovation as making use of new methods or technologies that have the potential to result in the improvement of productivity and efficiency of processes.

Embracing innovation contributes significantly to the success of SCM. Cai et al. (2016:1249) agree and state that the importance of information technology within businesses has grown significantly; furthermore, it has improved the performance of supply chains as it allows organisations and their supply chain partners to effectively integrate and efficiently share information within and beyond their organisational walls. Technology has shortened the geographical distance between supply chain partners allowing the chain to collaborate better internally and externally and to be more responsive to market demands (Li, 2012:56). Cai et al (2016: 1248) describe the mechanism of combining and deploying external and internal resources across a supply network with the aim of attaining goals that cannot be achieved alone as supply chain collaboration. Technological collaboration allows supply chain partners to merge their business strategies and operational processes within and outside of their organisational boundaries, providing the supply chain with a competitive advantage. SCM allows organisations to differentiate themselves from their competitors and overcome supply chain complexities for all parties involved. Successful SCM entails that that organisations do not only embrace innovation but also leverage technology (Li & Li, 2017: 73).

2.3.3 Internal Collaboration

Lin, Wang and Kung (2015:129) reveal that organisations are making it a priority to ensure that all their internal supply chain departments and all other functions across the organisation work seamlessly. The level of competitiveness has increased over the years and organisations have been forced to find ways to adapt within their dynamic environments (Ivanov et al., 2018:3359). As customers' demands change swiftly, organisations are looking for ways to improve their performance that are better than those of their competition by delivering products and services of value and ensuring that they meet all customers' demands in a highly pleasing manner (Wong, Lai & Cheng, 2012:162).

Organisations are rethinking how they can have staff in their internal departments become similarly attuned. This can be achieved through cross-functional collaboration, internal collaboration and/or cross-functional integration (Slone et al., 2010:104; Pimenta, da Silva &

Tate, 2016:570). Many organisations suffer from operating in silos, which may result in barriers to organisational efficiencies, an increment in organisational costs and redundancies (Bae & Lee, 2015:73). Van Deursen and Mello (2014:8) found that organisations have had to deal with the acrimony amongst functions shown in lack of cooperation, pointing of fingers and unreasonable expectation of accurate forecasting. This has led to distrust amongst functions as well as high costs with respect to inventory management and sales losses (Van Deursen & Mello, 2014:8). These problems may be alleviated by an improvement in collaboration and communication amongst functions. Mello (2015:16) noted that a number of organisations have adopted a process known as Sales and Operations Planning (S&OP) with the aim of ensuring that functions arrive at an agreement on plans that meet their customers' requirements within the resource capacity of their organisation. Mello and Stahl (2011:37-8) define S&OP as an integration and communication process that leads to efficient decision making and effective inter-functional collaboration. According to Mello (2015:17), S&OP has three main purposes:

- the balancing of the product quantities in order to meet demand;
- joint planning of volumes to assist with the guidance of detailed production plans;
- the integration of financial information, new-product development ideas, and operational plans across the organisation's functions.

Furthermore, Van Deursen and Mello (2014:9) highlight the importance of S&OP by pointing out how it increases awareness of the challenges faced by functions across the organisation and how it promotes trust amongst functions and reduces silo mentalities.

To create value for customers and to meet the high level of competitiveness, organisations are learning to share ideas across their functions and to leverage and join the core competencies of each of their functions via the creation of cross-functional teams (CFTs) (Enz & Lambert, 2015: 25). Daspit et al. (2013:34) define CFTs as the coming together of individuals from all functions across the organisation in order to work together to achieve a common goal. This may include the development of new products, the transformation of the entire organisation itself, the alignment of organisation strategies and better response and flexibility strategies (Mihm, 2010:57). Having individuals from different functions come together helps with the contribution of unique expert perspectives, which may significantly improve the responsiveness of a supply chain. Millard (2016:1) argues that CFTs are not only an effective problem-solving tool but also a valuable way to keep employees driven and motivated enough

to develop their skills and talents. CFTs are also a method of strengthening the amalgamation of the different functions within the organisation.

A lack of effective integration amongst functions may easily lead to a loss of credibility with customers as organisations fail to deliver their offerings to their target market (Matsoma & Ambe, 2016:194). This may further lead to poor collaboration across the rest of the supply chain (Daspit et al., 2013:35). Internal collaboration allows functions to overcome their disparateness through sharing information and coordinating their activities. The trust that functions develop from internal collaborative processes may become a foundation for building external collaborative programmes.

2.3.4 External Collaboration

Since some of the key objectives of SCM include customer satisfaction, profitability and organisational success, a significant number of large organisations are outsourcing some operational activities. These activities include manufacturing, distribution and warehousing. This allows organisations to inject a good portion of their resources (time, efforts and finances) into their core competencies (Liu & Lai, 2016:263). The advancement of technology has facilitated organisations in expanding their horizons and growing on a global scale, shifting their target markets not only to domestic but also to foreign markets (Li & Li, 2017: 71-2). Raza and Kilborn, (2017:2) found that the exposure to local and international competitors made organisations' survival quite complex. Competition becomes more intense in markets and customers' demands become more volatile and less predictable. Thus, the need for organisations to have their supply chain partners work closely with them (Raza & Kilborn, 2017:2).

Wong, Wong and Boon-itt (2013:566) define external collaboration as involving the strategic alignment of business processes, the sharing of information and joint collaboration with supply chain partners and final customers in ways that permit organisations to establish well-synchronised, information-rich, trust-empowered relationships. Mello (2015:17) points out that internal collaboration develops an acute level of trust that may become the foundation upon which organisations can build external collaborative relationships. The alignment of functions (internal collaboration) is a key precursor for the successful development of external collaboration as it lessens internal complexities (Monczka et al., 2016:114). This suggests that collaboration within supply chains should be not only balanced but also complementary. This

would allow the full exploitation and usage of internal resources as well as the efficient linkage of external processes in ways that will eliminate bottlenecks for the entire supply chain (Wong et al., 2013:567). Complementary collaboration will ensure that the entire supply chain will take full control of its strengths and resources successfully with the aim of ensuring the effective connection of inter-organisational and intra-organisational processes (Liu & Lai, 2016: 265).

Liu and Lai (2016:266) suggest that the successful implementation of well collaborated external relationships may help alleviate the bullwhip effect. The bullwhip effect is a phenomenon described as the uneven and inefficient distribution of forecasting information across a supply chain that leads to demand and supply becoming increasingly out of synch (Van Deursen & Mello 2015:8). Monczka et al. (2016:114) state that external collaboration promotes the sharing of key information amongst supply chain partners and joint agreement to key responsibilities for each partner, requiring large doses of trust amongst all partners. This allows supply chain partners to make joint agreements regarding forecasts and scheduling of production as well as shipment times and quantities (Monczka et al., 2016:114-5). Many powerful organisations and supply chains such as Procter and Gamble, Walmart, Kmart, Sara Lee, Nabisco, Hewlett-Packard and Kimberly Clark take advantage of external collaboration to better their supply chains (Van Deursen & Mello, 2015:9). These organisations have established successful collaborative relationships by making use of any of the many programmes that have been developed for the success of external collaboration (Mello, 2015:18).

Wong et al. (2013:567) found that internal integration and external integration have the ability to significantly improve the operational performance of a supply chain. Huo (2012:596-7) found that external integration is considered to be more effective with regard to time-based key performance areas such as delivery lead times and flexibility. Internal integration, on the other hand, affects the KPIs that are less dependent on time such as quality or products and/or services and costs (Huo, 2012:596). In summary, it can be concluded that the pillars of SCM consist of the collaboration and cooperative management of supply chain partners' human capital, technological systems and intra and inter-organisational operations. This allows for the effective and efficient flow of materials, services, data, finances and decisions to provide the final customer with the best value at the lowest cost and highest speed.

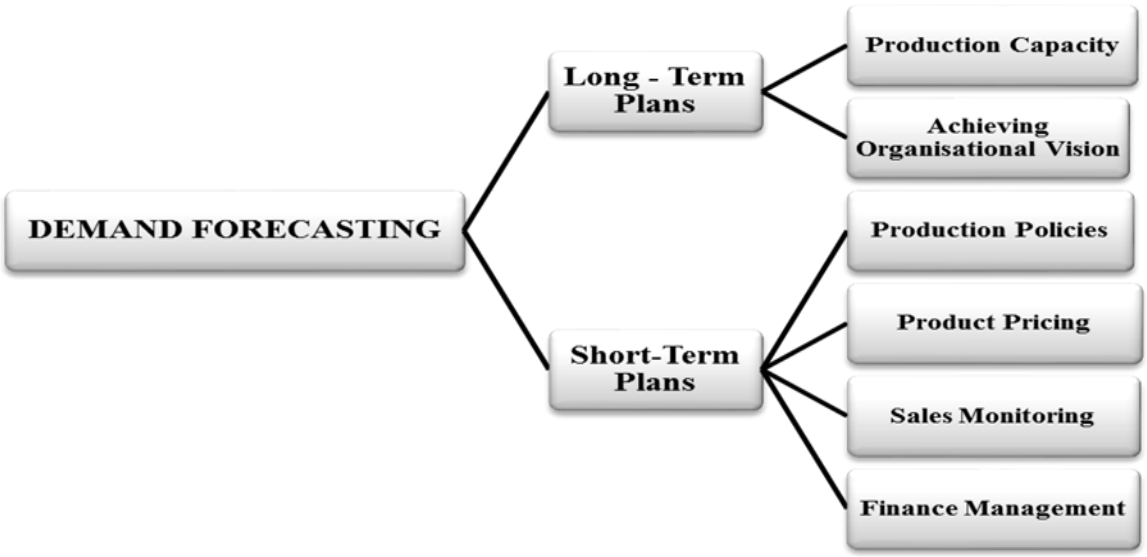
2.4 WHAT IS DEMAND FORECASTING?

One of the basic components of SCM is demand forecasting as it directly impacts on organisations' inventory levels, their profitability and their competitiveness within the market (Liu et al., 2016:825). Predicting the exact outcome of the future or what it may look like has never been easy for businesses. Predicting and planning for future demand has not been easy as much research is required in order for the business to sufficiently prepare for its customers' demands (Dong et al., 2014:245).

Saint-Leger (2019: internet) describes the forecasting of demand as an "imperfect science" as forecasting of future demand is complex. Nonetheless, organisations need to put in place appropriate SCM strategies that will ensure that they have enough supply on hand to satisfy their customers' demands. Yu, Choi and Hui (2011:7373) describe demand forecasting as a systematic method that involves the anticipation of demand for products and services to be offered by an organisation in future under a number of unforeseen and competitive influences. Forecasts that are more accurately predicted may assist with the management of inventories, and maximisation of customer service delivery (Gray & Dougherty, 2017:5). Therefore, it is of fundamental importance that organisations try as much as possible to implement effective forecasting processes.

Effective forecasting of demand enables a supply chain to efficiently make long-term and short-term plans as well as sound business decisions. Some of the plans and decisions include planning the production policies, procurement of adequate materials, monitoring of sales, management of funds and product pricing decisions (Nenni et al, 2013:3). All these decisions help the organisation to allocate resources efficiently during its operations in that it will allow it to meet anticipated demand as well as to remain competitive within its market (Liu et al., 2016:827). Demand forecasting plays a vital role when it comes to ensuring that the organisation has the right amounts of the right products stocked in the right place for the right customer at the right time (Rakicevic & Vujosevic, 2015:4). The long lead times that have been brought about by globalisation mean that production of goods needs to start early, thus further increasing the importance of demand forecasting. Figure 2.2 summarises the objectives of demand forecasting and shows how it influences an organisation's long-term and short-term plans with regard to production capacity and organisational vision achievement, production policies, the pricing of products, monitoring of sales and management of finances.

Figure 2.2: Objectives of Demand Forecasting



Adapted from: Nenni et al., 2013; Knowledgiate, 2017.

Slone et al. (2010:6) pointed out that the goal of organisations is to be profitable and to lead within their respective industries. In order for that to happen, organisations have to ensure that they manage their finances well by having the appropriate policies in place and monitoring the performance of their products and services within the market. Gray and Dougherty (2017:4) found that forecasting and planning for future demand helped organisations avoid issues of under-stocking, which will lead to a loss of sales, or over-stocking, which may lead to a significant amount of inventory storage costs. Furthermore, organisations may incur costs as they may end up having to "mark down" the price of the product or even having to return the product to the supplier (Moisanen, 2014:17). Unsatisfied customers who could not get the products they wanted or who found products they were not happy with will be forced to go to the organisation's competitor. Accurate demand forecasting is aimed at eliminating all of these challenges.

Demand forecasting enables organisations to plan efficiently for production and to ensure that the procurement decisions made by the organisation correlates with the production schedules (Dong et al, 2014:247). In addition, demand forecasting allows management of budgets, the making of cost-saving investment decisions, monitoring of the return on investment made and safeguarding of the amount of inventory held by the organisation. This increases the chances of satisfying the ultimate customer. Organisations require a sound understanding of the

objectives of demand forecasting in order to plan and prepare for the demand forecasting methods that appropriate for their supply chain.

The next section of this study briefly outlines an overview of the fundamentals that organisations should keep in mind when preparing their forecasts.

2.4.1 Fundamentals for Demand Forecasting Preparation

The holding of excess inventory or not having enough inventory comes with a number of costs, and this has made demand forecasting a vital way of controlling inventory management for organisations (Liu et al., 2016:826). Warren-Liao and Chang (2010:528) found that the inaccurate forecasting of demand results in supply chains ordering too much or too little of a product. Inaccurate forecasting leads to obsolete inventory or a loss of sales and/or customers, thus resulting in loss of profitability within a supply chain.

Organisations find it more cost effective to retain current customers than to try and gain new ones. This has made efficient demand forecasting a necessity in order to ensure that the right quantities are available to satisfy customers' demands (Slone et al., 2010:7). Therefore, to avoid the incurring of costs and the loss of profits, organisations are learning to prepare well for the forecasting of their future demand. Crawford and Di Benedetto (2014:82) suggested three types of forecasts that organisations should assess before making any decisions pertaining to the forecasting of a product. These forecasts include:

- ***Environmental forecast*** – Organisations should always have an understanding of what is happening within their environments (Fisher & Raman, 2010:32). This forecast considers the intensity of external factors and the effects they have on an organisation's performance such as economic issues (these may include, inflation, interest rate fluctuations, tax increases and so on), seasonal changes (examples include the weather, holidays), unemployment rate, the rate at which customers spend and save their money, government expenditure as well and net exports (Crawford & Di Benedetto, 2015:262-7);
- ***Industrial forecast*** – To be a market leader an organisation needs to assess what is happening within its marketplace, thoroughly understand its industry and to observe and identify its target market's requirements and behavior (Thomassey, 2010:471; Crawford & Di Benedetto, 2015:407). This may include the evaluation of surveys of customers' intentions, emergence of new competitors (locally and internationally) and seasonal trends as well as the analysis of statistical trends.

- ***Sales forecast*** – To ensure that the organisation has enough for an upcoming sale period, it is necessary to look at historical sales data to determine future sales (Crawford & Di Benedetto, 2015:262). Therefore, as a guideline for future sales, goals and budgets, organisations may assess their past performances, scrutinise their competitors' current and previous performances as well as analyse their historical data (Fisher & Raman, 2010:32; Acar & Gardner, 2012:843).

Understanding of and preparation for future demand helps organisations with inventory management as well as scheduling of staff (Thomassey, 2010:471). Organisations may have enough products to satisfy demand, but a lack of manpower to provide customer service may irritate customers and push them to the competitor (Huo, Ye, Zhao & Shou, 2016:132). As a result, adequate preparation of demand forecasting is a must, as a lack of it may be costly for an organisation. Furthermore, understanding the environment and the industry in which an organisation operates helps it to make better decisions with respect to the most appropriate forecasting technique to use (Fisher & Raman, 2010:33).

The criteria for selecting the appropriate forecasting technique is presented in the next section.

2.4.2 Criteria for Selecting a Good Forecasting Technique

SCM affects a number of factors (such as purchasing decisions, inventory management, manufacturing scheduling, location of facilities, and transportation and distribution decisions). Therefore an efficient demand forecasting technique may improve supply chains' operations (Moisanen, 2014:4). Selecting the ideal demand forecasting technique will improve the supply chain's service delivery levels as well as increase the competitiveness of the supply chain within its industry (Dong et al., 2014:247). Furthermore, it will ease production planning for the suppliers and make it easier to provide immaculate service to the ultimate customer for retailers. However, choosing the ideal forecasting technique is not easy, as all techniques come with limitations (Liu et al, 2013:3).

Table 2.1 provides a brief description of the different criteria that supply chains can make use of when selecting a demand forecasting technique.

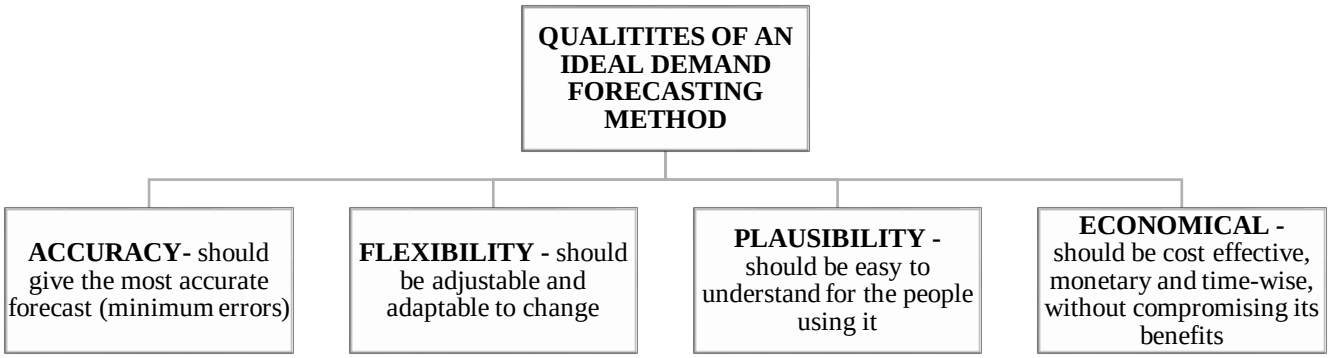
Table 2.1: Criteria for Selecting Demand Forecasting Methods

CRITERIA	DESCRIPTION OF METHOD
Convenience	Although used by number of organisations, this criteria of selecting forecasting methods is based on "what's easy". It may be inexpensive, but is also a high risk method as it may lead to a number of errors**.**
Market Popularity	This criterion used by organisations to make decisions is based on "what others do", which may sound appealing but what works for one does not necessarily work for all (Armstrong, 2009:3).
Structured Judgment	This is a better criterion for selecting forecasting methods as it takes a look at experts' opinions, which may be more promising since the organisation may start by first developing explicit criteria that it can then compare against other various methods
Statistical Criteria	This is a favourable criterion when looking at "what should work". However, this criterion is only useful when making a decision after the general type of forecasting method has already been selected.
Relative Track Records	Armstrong (2009:5) describes this method as methodical, unbiased, and dependable as it looks at what has worked in this situation. This makes the criterion quite expensive as the organisation may need to conduct a number of evaluation studies. The method evaluates and makes use of forecasting methods that have successfully worked within similar organisational settings in the past; in addition it analyses the data patterns of previously analysed data (Rojas, Rojas, Valdés-González & Martín, 2015: 1064).
Guidelines from Prior Research	This criterion looks at "what works in this type of situation". It is fully dependent on published research and therefore offers a more cost-effective approach to selecting a forecasting method. The forecaster may derive guidelines from the research available that pertains to the relevant industry, environment or market, making a decision based on the results obtained by other forecasters in a similar situation.

Adapted from: Rojas, Rojas, Valdés-González and Martín, 2015; Armstrong, 2009:1-8.

The technique selected by the organisation should be the one that enables the supply chain to anticipate future uncertainties without compromising its market share, service delivery and cost-efficiency (Armstrong, 2009:3). Benton (2014: 18) suggests that management should look for the elements presented in Figure 2.3, when selecting a demand forecasting technique. Heizer et al., (2017:332) also describes a good forecasting technique as one that is timely, accurate, reliable and most importantly be easy to understand and use.

Figure 2.3: Elements of a Good Demand Forecasting Technique



Adapted from: Benton, 2014:18.

Types of Demand Forecasting Techniques

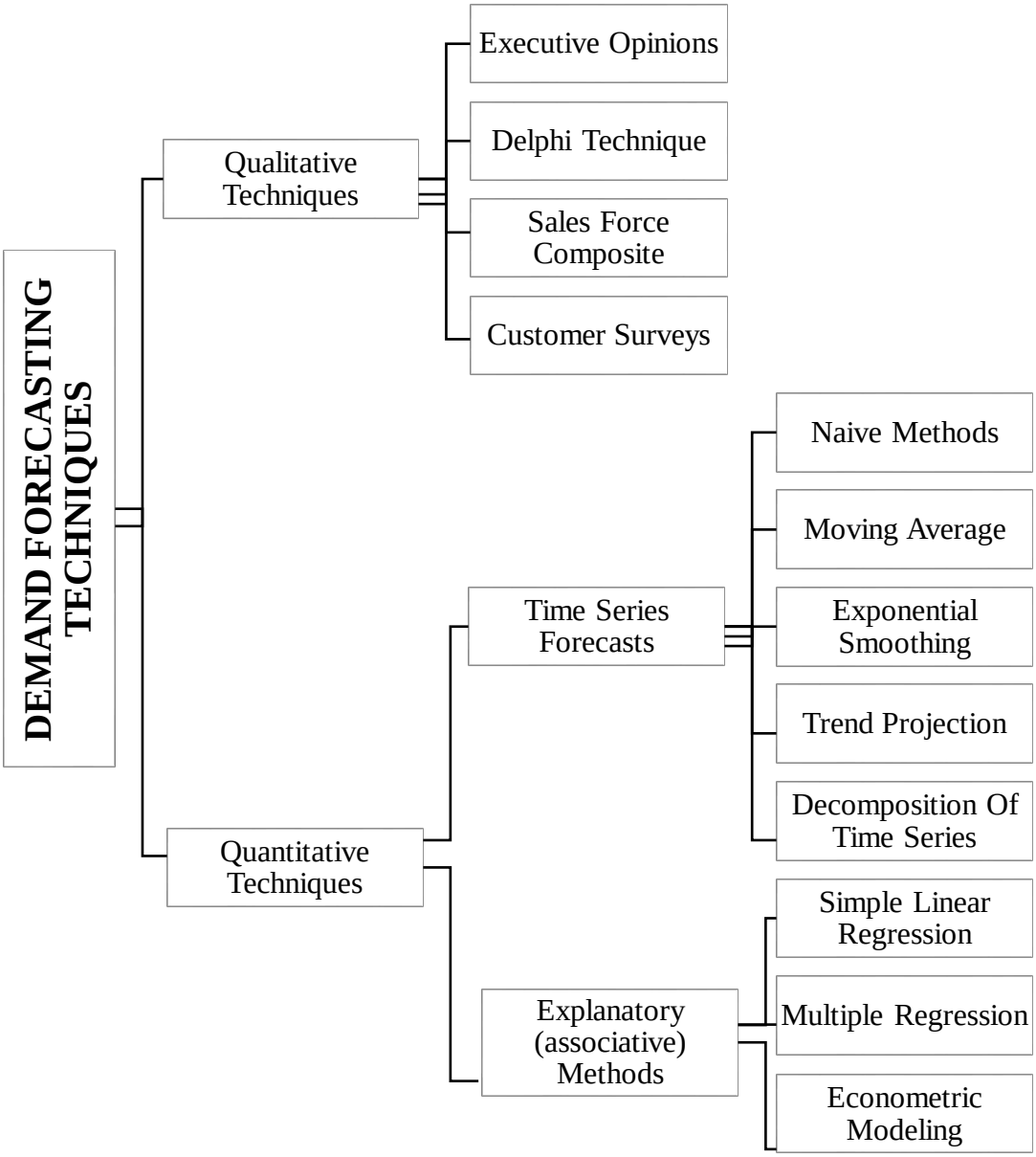
Customers today have irregular purchasing patterns as the internet conveniently allows them to access any product, from any part of the world. The internet has also given customers the ability to compare prices between competitors and chose the best price, thus complicating the prediction of future demand. Poor demand forecasting technique choices may affect the entire supply chain's efficiencies and may result in increased supply chain costs. Many of these costs can be resolved through the implementation of efficient forecasting techniques within organisational operations. Jaipuria and Mahapatra (2014:2395) found that a number of uncertainties with regard to demand forecasting within supply chains can be reduced with effective forecasting models and methodologies.

Accurate demand forecasting is vital for improving a supply chain's performance within its respective industry (Jaipuria & Mahapatra, 2014:2396). However, Lawrence, Goodwin, O'Connor and Önkal (2006:493) argue that, even with sophisticated forecasting technologies and methods in place, forecasting within today's supply chains is difficult to achieve as it requires human judgement. Human judgement can provide a supply chain with the opportunity

to forecast more accurately (Lawrence et al., 2006:494). To order the right quantities of products, it is vital to select the forecasting model that is most appropriate for the industry in which the supply chain is operating. Singh (2018:12-3) remarked that organisations should not only understand and plan well for demand but also link their supply with future demand to avoid or minimise forecasting costs. Forecasting techniques also affect budgeting and staff scheduling decisions and also supply chain productivity. Therefore, technique selection should be carefully done.

Singh (2018:11) argues that many organisations fail to incorporate demand uncertainty when forecasting for their future demand and this results in the selection of a forecasting method that is inappropriate. Therefore, it is important that organisations and their supply chain partners familiarise themselves with the factors that lead to variability within their supply chain. Figure 2.4 presents the different forecasting techniques that can be categorised into qualitative and quantitative techniques, which employees may make use of to determine future demand.

Figure 2.4: Types of Demand Forecasting Techniques



Adapted from: Benton, 2014:25-40; Heizer et al., 2017:108-27.

Each of these techniques is briefly described and explained in the following subsections.

2.4.2.1 Quantitative Forecasting Techniques

Quantitative forecasting involves the prediction of future forecasts using numerical and historical data as well as past experiences to project future outcomes (Benton, 2014:24). This form of forecasting can be further divided into two other categories, namely quantitative and qualitative forecasting. Quantitative forecasting consists of time series forecasting methods (that are entirely based on historical data) and explanatory methods (also known as casual

methods), factoring in other inputs from historical data that may change the prediction derived. Such inputs, for example, may include improved marketing techniques or new entrants into the market (Heizer et al., 2017:109).

Time Series Forecasts – These are methods based on historical data; time series forecasts include the following:

- ***Naive methods*** - One of the most cost effective, quantitative, forecasting techniques is the naive approach of forecasting. Carbonneau, Laframboise and Vahidov (2008: 1142) describe this technique as one that assumes the period that the organisation is forecasting for will yield the same demand as the previous period, without attempting to adjust the previous period's results or factoring in possible complexities.
- ***Moving average*** – Sanders and Manrodt (2003:513) describe the moving average technique as one that estimates the average of a data set and is best used for short-term forecasts. Carbonneau et al (2008:1143) observe that the term "moving" denotes the fact that, as new demand numbers are being calculated for upcoming time periods, the last number within the set at hand is removed in order to keep the time periods locked. This technique works best when there is little or no trend available.
- ***Exponential smoothing*** - This technique is a type of weighted moving average that has weights that decline exponentially (Heizer et al., 2017:112). This technique is intermediate between the naïve technique and the moving average technique and is best suited for forecasting the demand of a product without a trend and/or a seasonal pattern (Bayraktar et al., 2008:194).
- ***Trend analysis*** – This technique works best for organisations with historical data available. The historical data can be put together chronologically and can demonstrate the presence of a persistent demand trend (Heizer et al., 2017:120). Christopher et al. (2011:91-3) noted that the trends may be seasonal (with respect to weather seasons, social habits or holidays), cyclical (such as a boom or depression within the economy) or random (for instance, unexpected natural disasters).
- ***Decomposition of time series*** – This technique is considered by a number of researchers as the most important of the time series as it factors in the effects of seasonality and trends on demand (Caro & Gallien, 2010:260; Cachon & Swinney, 2011:779; Bonnefoi, 2012:27). The technique looks at seasonal fluctuations that occur from year to year during holidays and natural seasons and indicates how these patterns impact on demand. This knowledge

helps with estimating the effects that expected seasonal and/or trend changes may have on demand and with making the necessary forecasting adjustments in relation to the data at hand (Heizer et al., 2017:110).

Explanatory (Causal) Forecasts – These forecasting techniques attempt to find a correlation between variables and future demand according to existing market information (Armstrong, 2001:17). Sucarrat (2009:1) found that explanatory forecasting methods may be used in, "stress-testing, event analysis, conditional forecasting and counterfactual analysis". When setting product prices, explanatory methods provide a more detailed approach to defining the price variations of the products. Explanatory forecasts also take into account the impact of different variables when pricing the products. Hyndman (2009:2) added that when making policies or operational decisions within a supply chain, explanatory methods may be used to make well-informed policy decisions. For example, they highlight the impact of changes within the economy, or the entrance of new competitors within the market, or changes within trading regulations, and so on. Heizer et al. (2017:127) included the following amongst these forecasting methods:

- Simple linear regression,
- Multiple regression, and
- Econometric modeling.

2.4.2.2 Qualitative Forecasting Techniques

The qualitative forecasting technique does not use numerical analysis but instead relies mainly on estimations based on past experiences (Saunders et al., 2016:540). This methodology is highly subjective as it is based on personal insight, educated guesses and opinions; hence it would be best for products without a historical data. The following are the types of qualitative forecasting methods:

- ***Executive Opinions*** – This forecasting method is based on the subjective opinions of experts and/or executives within the different functions of the organisation (Davis & Mentzer, 2007:476). The experts get to sit together, discuss their views, and arrive at a forecasting average that can be used to generate the ultimate forecast for future decision making. This technique is quick and easy to use and ideal when there is not enough data for forecasting.

However, the personalities of some experts may be more dominant than those of others, which may lead to a biased decisions (Boone & Kurtz, 2009:262).

- ***Delphi Technique* –** Kozak and Iefremova (2014:37) indicate that this forecasting method involves a panel of experts who are individually questioned about their opinions regarding the future performance of a product or service. For this method, the experts do not meet. The aim is to decrease the chances of strong personalities' influences; instead, the arguments or perceptions of the experts are collected and summarised by an outsider (with the help of a questionnaire) until a consensus is reached (Sekaran & Bougie, 2016:339). This eliminates the chances of biased decision making.
- ***Sales Force Composite*** – Boone and Kurtz (2009:263) indicate that a sales force composite involves the use of organisational sales teams who are in continuous contact with the ultimate customers. This may give them a significant understanding pertaining to the customers' future behaviour. This method may be used with other forecasting techniques. It is also easy to understand and use and makes it easier to access real time information as sales teams are in constant contact with the customers (Heizer et al., 2017:108). Information can be easily broken down into vital categories such as geographical locations, types of products and socio-economic groupings.
- ***Customer Surveys*** – Sekaran and Bougie (2016:350) describe this method as market research and/or survey of buyer intentions, as the method is based on conducting market surveys through the distribution of questionnaires directly to the target market via telephone calls, emails and interviews.

In order to accurately forecast demand, organisations should select forecasting techniques that are reliable, flexible, quick, accurate and user-friendly for each of their supply chain partners. Dweiri, Khan and Jain (2015:38) observed that it is not recommended for organisations to use one specific technique for forecasting of demand. Organisations should mix different forecasting techniques in ways that will enable maximisation of possible benefits of demand forecasting. Organisations see the need to make justified decisions regarding the demand forecasting techniques they choose (van Wassenhove & Pedraza-Martinez, 2012:307). Once the forecasting methods are decided, organisations are able plan for their future demand.

2.5 WHAT IS DEMAND PLANNING?

Demand planning is a supply chain process that gives organisations the opportunity to steadily reduce costs within the network, improve the management of inventories across the supply chain and improve speed-to-market (Szozda & Werbinska-Wojciechowska, 2013:73). Zepeda and Valenzaela (2012:1) describe demand planning as a management process which enables an organisation to tailor its resources, capacity, finances and information for production and/or services in ways that allow the organisation to meet the variations in demand within its market. Organisations cannot plan for demand without researching the needs and wants of the market and production cannot go ahead without the certainty of a demand for the product (Bóna & Lénárt, 2014:98).

Zara is benchmarked as one of the best apparel retailers across the global apparel industry as the organisation's demand planning strategies allow it to design and supply finished products in less than two weeks (Zhang, Onal & Das, 2017:31). At such speed the organisation plans for its demand in ways that allow it to keep minimum levels of inventory but also ensures its stores get two replenishment shipments each week. For better accuracies, Zara has been able to combine their knowledge of their products' performances in the market and assigning production to local manufacturers that are in close proximity; thus allowing the organisation to react to market's demand timely (Nucamendi-Guillén, Moreno & Mendoza, 2018: 726).

Demand planning plays a vital role in the running of an organisation and a supply chain since it produces input data for other key strategic and operative planning areas such as production planning, resource planning and financial budgets (Bóna & Lénárt, 2014: 97). Selecting and planning for a new apparel product for the upcoming season is quite a challenge (Choi, 2018:162); however, Zara's strategies have worked well for them as the organisation does not need to produce too much until demand is known. Rego (2011: 31) notes that inaccuracy in demand planning results in uncertainty within supply chains, which may negatively impact on the supply chain as a whole. Choi (2018:163) found that today's apparel retailers depend on demand and to stay profitable organisations have to invest in the constant improvement of demand planning strategies. Therefore, effective forecasting methods can only implemented in supply chains with a clear and concise demand plan in place. In order to do this efficiently, it is imperative that organisations have a clear definition of what the demand planning process is and how to make use of it.

2.5.1 The Demand Planning Process

Szozda and Werbinska-Wojciechowska (2013:77) observe that planning for demand has become a significant component for supply chain success. Zepeda and Valenzaela (2012:1-2) state that demand planning is aimed at summing up the different forecasting results obtained by the different organisational functions, with the intention of generating a credible plan that will ensure timely production. Szozda and Swierczek (2013:1-2) break down the demand planning process into three stages:

- Collecting information about the future demand of products,
- Making use of qualitative and quantitative methods to forecast demand,
- Checking the feasibility of the calculated demand forecasts through the verification of resources such as budgets, planned marketing campaigns, storage space, capacity, labour, system compatibility, and the availability of transport.

Boult (2014:20) suggests that to plan efficiently for demand, an organisation requires close, strong and trustworthy relationships with internal and external stakeholders. In addition, Huang et al (2014:510) found that having skilled human talent and well-integrated information systems in place enabled the organisation to efficiently plan for demand.

2.6 CONCLUSION

This chapter has provided an academic discussion of the meaning of SCM. The four pillars of SCM were highlighted and their crucial roles with regard to the efficient implementation of demand forecasting and planning methods discussed. In addition, succinct and concise definitions of demand forecasting methods were noted, as well as a brief description of the demand planning process.

Chapter 3 will present a theoretical discussion with regard to the factors influencing demand forecasting and demand planning in the apparel industry from both a global and local perspective. Subsequently, initiatives for alleviating these factors will be discussed and the conceptual framework of the study described.

CHAPTER 3: FACTORS INFLUENCING DEMAND FORECASTING AND PLANNING IN APPAREL SUPPLY CHAINS

3.1 INTRODUCTION

Liu et al (2013:1) defines the apparel industry as the business of retailing fashion products, such as clothing, footwear and fashion accessories. Within this industry, the number of competitors and counterfeits is continuously increasing, and there are rapid changes in trends, which are easily influenced by the opinions of celebrities and socialites, thus biasing customers' loyalty to brands (Taplin, 2014:246; Ma, Lee & Goerlitz, 2016:308). Demand forecasting and planning in the apparel industry involves the sourcing and procurement of raw materials, conversion of the raw materials into the final product and distribution of the product to its target market (Jin et al., 2015:200). Products in the apparel industry are characterised by short life-cycles that are season-sensitive, volatile demand and little historical data (Liu et al., 2013:2); this excludes the core apparel products that are available throughout the year. The uncertainty in the industry has made inventory management significantly important to apparel supply chains since optimal inventory levels enable them to decrease costs and maximise profitability (Oliva & Watson, 2009:139).

To remain competitive within the market, apparel supply chains strive to shorten their lead times, to incorporate efficient inventory replenishment systems, and to improve product quality without increasing products' prices (Choi, 2016: 240). A study by Ma et al. (2016:309) showed that customers' demand power has increased tremendously as technology has made shopping easy and prices comparable. Organisations should accordingly ensure that their supply chains are adaptable, responsive and flexible in a rapidly changing and competitive global market (Ma et al., 2016:309). The next section of the study will focus on reviewing literature related to the planning and forecasting of demand within apparel supply chains.

The lack of historical data, volatile customer demands, vast product selection and multiple channels of product acquisition has made apparel SCM very complex (Choi, 2012:104). Research by Taplin (2014:246) showed that competition is no longer located amongst organisations, but instead amongst supply chains, thus forcing organisations to create alliances with their supply chain partners. A study by Dong et al. (2014:245) showed that organisations have started venturing into collaborative demand forecasting where supply chain partners jointly share demand forecasting information to enable better production planning and product replenishment decisions. However, implementing the decisions is a constant challenge since

supply chain partners struggle to resolve their forecasting differences and to share the collaboration costs that allow processes within the supply chain to be technologically and physically integrated (Dong et al., 2014:246-8). Furthermore, Askoy et al. (2012:221) found that there is not enough research carried out on planning for and forecasting for demand within the apparel industry.

Chen and Blue (2010:587) found that the decisions and plans that need to be made regarding supply chain processes and procedures significantly depended on the forecasting and planning of future demand. Hence the importance of seamless, reliable and dependable communication amongst supply chain partners. Ramathan and Muyldermans (2010:539) state that management should thoroughly research and plan for the market's demand first before making any decisions. Thereafter, decisions and planning around production, capacity levels required, amount of inventory to order and hold, and transportation and distribution of merchandise may be made (Rakicevic & Vujosevic, 2015:4). The apparel supply chain involves the flow of information, products and services as well as money amongst the partners, which has forced organisations to source resources beyond the borders of their countries of origin as they seek low labour costs and cheaper material that do not compromise the quality of their final products. Ngai et al. (2014:82) break down the apparel supply chain into three main categories, namely, textile production, apparel manufacture, and distribution and sales. Each of these categories is briefly described below:

3.1.1 Textile Production

Apparel products are mainly made from textiles. The production of these textiles is described by Moon and Ngai (2010:722) as the conversion of raw materials (fibres in this case) into the final textile product (fabrics and yarns). When the fabrics or textiles are ready and meet the requirements of the client, production of the final product begins.

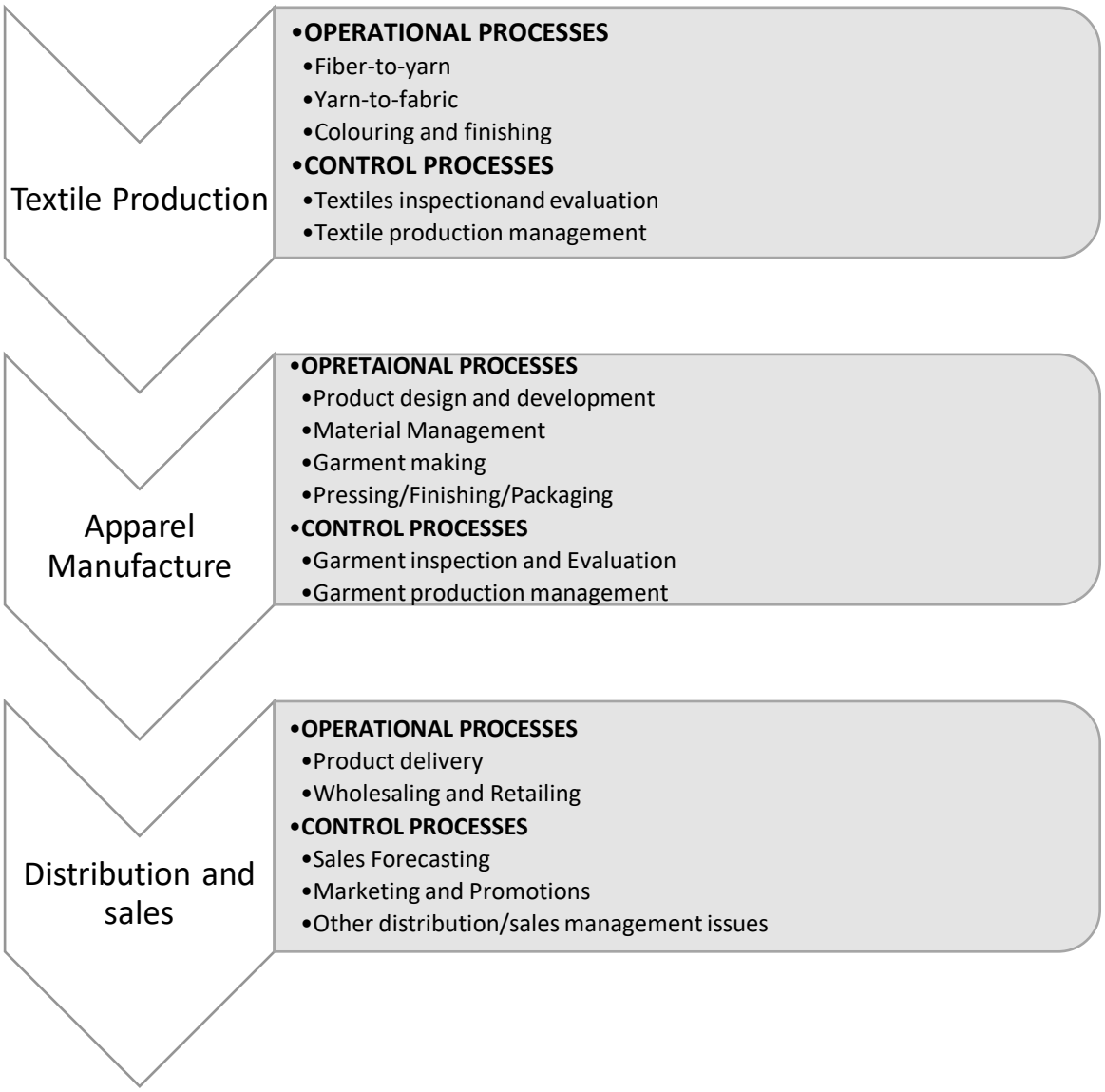
3.1.2 Apparel Manufacture

This sector of the supply chain deals with the transformation of textile products into the final garments, according to the clients' specified requirements. This sector may be subcategorised into six areas. These include product design and development, material management, garment making, garment inspection, evaluation and production management, and finally pressing, finishing and packaging.

3.1.3 Distribution and Sales

Ngai et al (2014:82) describe distribution and sales as the last stage of the apparel supply chain since it involves moving the finished products into the target market to generate sales. Organisations need sophisticated information systems and logistical distribution strategies to outperform their competition (Sen, 2008:571). This final stage of an apparel supply chain involves the movement of the final product from where it is produced to its point of consumption. Figure 3.1 summarises the processes involved in textile and apparel supply chains. The figure also shows the flow of information, processes and final products within a supply chain.

Figure 3.1: Classification of Textile and Apparel Supply Chain Research



Adapted from: Ngai et al., 2014:83.

The next sub-sections of this study assess the different ways in which apparel supply chains operate within a global as well as the South African apparel market.

3.2 THE APPAREL INDUSTRY FROM A GLOBAL PERSPECTIVE

High product variety, short demand histories as well as high demand variability make it challenging to predict future sales in apparel industries throughout the world (Belvedere & Goodwin, 2017:653). Furthermore, the ever-changing fashion trends, strong seasonal patterns, macroeconomic influences short product life-cycles, high product assortment and short

planning horizons that cannot be controlled, make accurate demand forecasting and planning even more difficult for the industry.

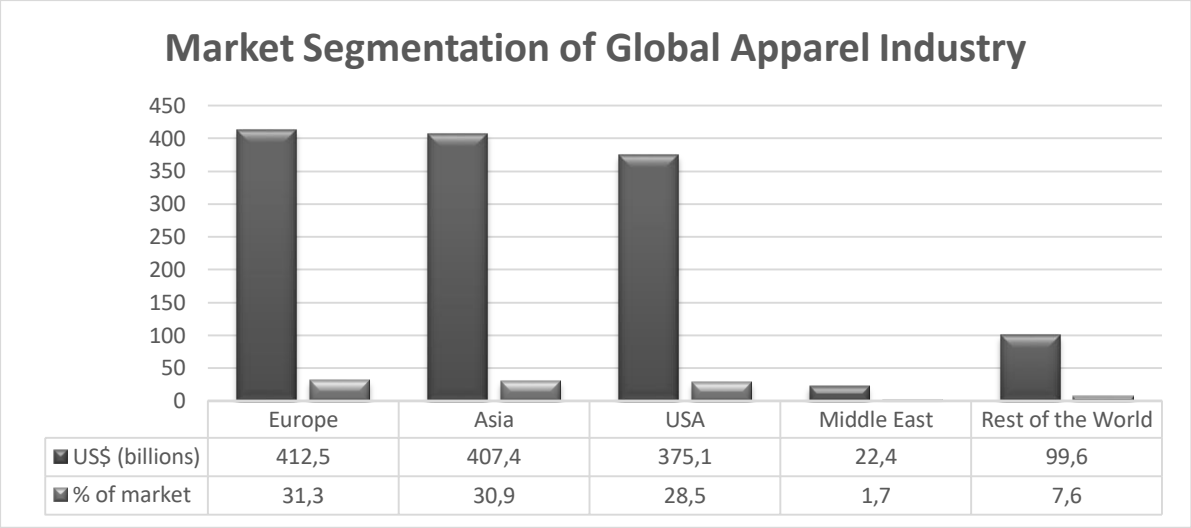
A study by Nucamendi-Guillén, et al (2018: 726), found the success of apparel retailers to be highly dependent on the organisation's flexibility and responsiveness to market demands due to the high volatility and significantly low predictability of the demands. It was aimed at facilitating the control of inventory shortages and overages as each inventory issue translates into significant costs for an organisation. Unsuccessful products require multiple price reductions for inventory to clear (Zhao et al., 2017:3139). Although SCM has been extensively researched over the years, Nucamendi-Guillén et al. (2018:727) stressed that areas such as demand planning as well as operations, inventory and transport management within the apparel still need to be investigated more.

To avoid losses of profits Zhao et al., (2017: 3139-40), found that apparel retailers are learning to practice quick response sourcing and data driven channel switching (a process in which the retailer monitors demand data in order to adopt new and customised SCM strategies such as omni-channel and multi-channel retailing that allows organisations to combine virtual and physical stores). Having to select a new product in the apparel industry for the upcoming season is a challenge as demand for the product is unknown and volatile, making "new product selection decisions," difficult to make (Choi, 2018:162); this also highlights the significant importance of inventory and demand management in the apparel industry (Nucamendi-Guillén et al., 2017:729).

Demand growth in the apparel industry is becoming more centred on the latest fast fashion trends than physiological needs. This has changed the market into a battlefield as retailers fight to fill the gap in the market for customers with a desire to keep up with the trends at value prices (Marketline Industry Profile, 2015:8). Retailers like Zara, H&M and GAP have put in place responsive business models that allow for quick response to customers' demands with an in-season assortment, alluring store environments and competitive prices (Caro et al., 2010:72). The various types of clothing styles and materials vary with media influences, customers' traditions, geographical locations, religion, and laws (Armstrong & Le-Hew, 2011:30). A combination of a number of these influences has led to unpredictable demand (Caro et al., 2010:74-5). Wen et al (2019:34) describe the apparel industry as a highly competitive industry that specialises in the production of clothing; and requires quick responsiveness to customers' demands as well as a high degree of efficiency. Europe, Asia, The United States of America

and the Middle East were the giants with respect to market share within the global apparel industry, taking over 31.3%, 30.9%, 28.5% and 1.7% of the market segments respectively; leaving the rest of the world to share 7.6% of the market segment (Marketline Industry Profile, 2015:10-12). This is depicted in Figure 3.2 below.

Figure 3.2: Market Segmentation of the Global Apparel Industry in 2015



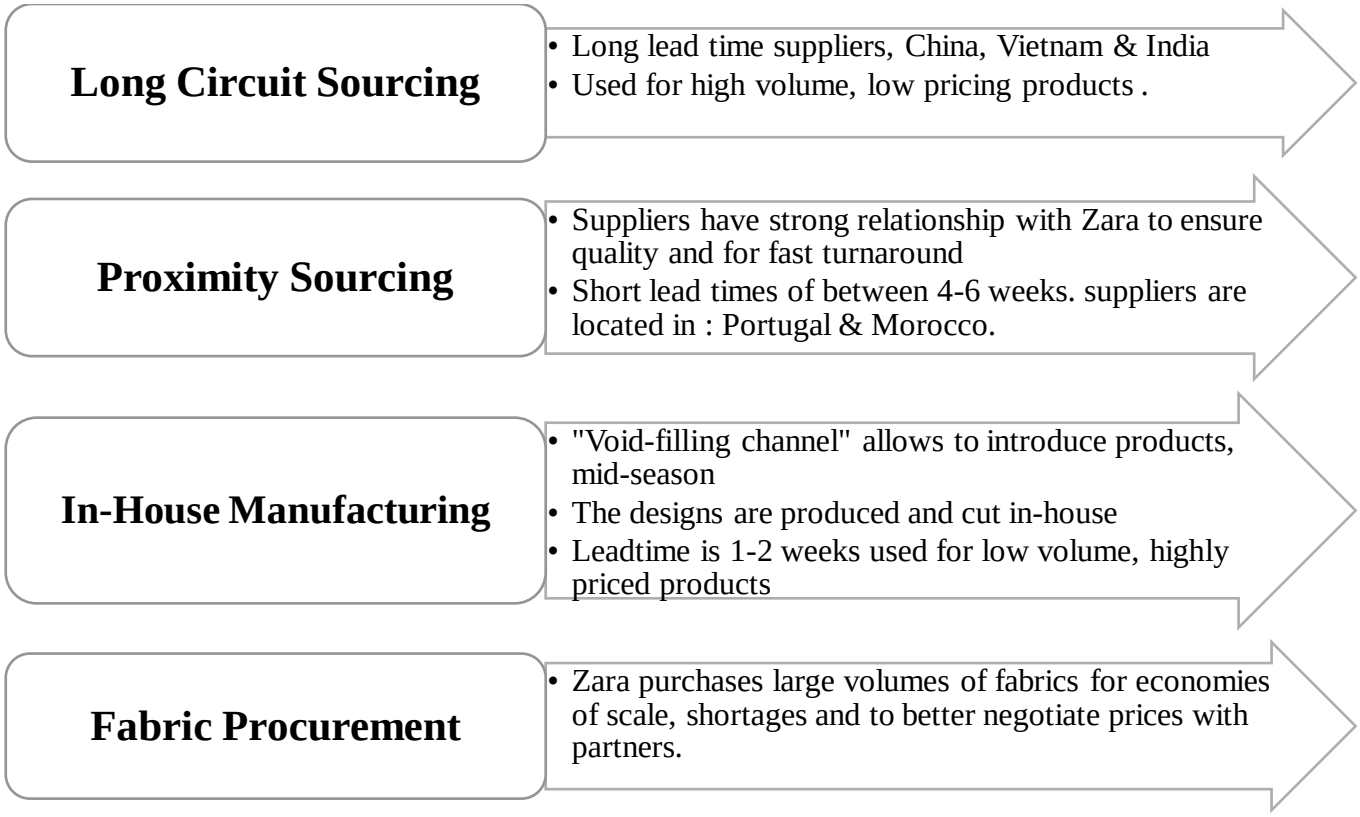
Source: Marketline Industry Profile, 2015.

Due to high demand uncertainty, the apparel industry is faced with three highly critical lead times it has to meet, namely, time to market, time to serve, and time to respond (Xiao & Jin, 2011:257). With these three lead times in place, supply chains may improve the management of their inventory and become more agile, responsive and flexible, decreasing their supply chain costs and, furthermore, bettering the management of their resources (Lee, Udin & Hassan, 2014:32). The apparel retailer Hennes & Mauritz (H&M), based in Sweden, restructured its supply chain model in 2007 and moved its in-house designing, buying, logistics and warehousing departments to a separate organisation, namely, H&M Hennes & Mauritz GBC AB (Marketline Industry Profile, 2015:19). When all supply chain partners understand their specific roles in the network, this aids with the challenges that come with demand forecasting and planning strategies of changes in market (Moon & Ngai, 2010:721).

Inditex made Zara its hub for technological innovations; most of the innovative projects that are aimed at improving the supply chain's distribution efficiencies and in-house operations are implemented at Zara before being rolled out across all other divisions (Garcia, 2014:14). Zara develops some of its software and systems in house so as to be able to customise them according to the needs of the organisation and to keep the control over its supply chain

centralised (Inditex Annual Report, 2018: internet). Figure 3.3 summarises Zara's sourcing strategies. Many of these strategies can be implemented by apparel retailers that are not yet making use of them, to improve the operation of their supply chains, as these strategies have helped Zara to become one of the leading international apparel retailers. Zara has not only developed fast and efficient supply chain strategies but managed to mimic luxury fashion brands at a lower cost, create short supply lead times of less than 10 weeks, thus allowing the organisation to successfully manipulate and align its supply quantities in response to the market's demands (Zhang et al., 2017: 32-3).

Figure 3.3: Zara's Sourcing Strategies



Adapted from: Inditex Annual Report, 2012; Bonnefoi, 2012; Garcia, 2014.

The next section looks at the apparel industry from a South African perspective.

3.3 THE SOUTH AFRICAN APPAREL INDUSTRY PERSPECTIVE

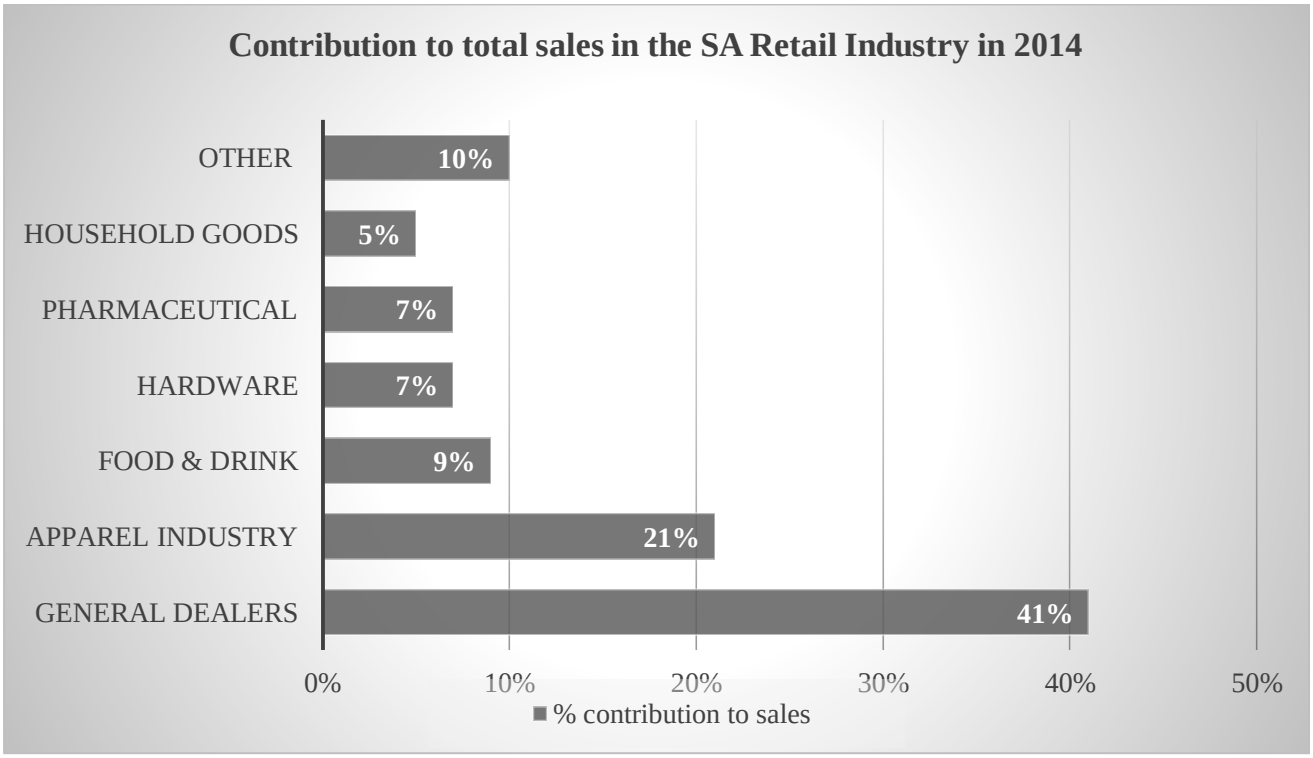
Generally, seasons, runways, fashion shows and socialites play the most significant roles when influencing current fashion trends (Bhardwaj & Fairhurst, 2010:165). The evolution of the apparel industry has been significant due to the technological development and improvement, increase in competition and the number of fashion seasons, as well as the ever-changing and

complex structures of today's supply chains (Ayers & Odegaard, 2018:14). The South African apparel retail industry has grown at a healthy pace over the years as the industry showed a compound annual growth rate (CAGR) of 8.7% from 2013 to 2017 (South African Apparel Marketline Report, 2018: 7). The industry is forecasted grow by 52.6% by 2022 (compared to 2017) giving it an industry value of US$14,266.7million (South African Apparel Marketline Report, 2018: 13).

South African apparel retailers are beginning to re-evaluate the structure of their supply chains in order for them to keep up with their international competitors. The retailers have revolutionised and expanded their product range and introduced "fresh" market trending products that the market wanted in comparison to focusing on cost efficiencies (Matsoma & Ambe, 2016:195) South African apparel supply chains have become more responsive to the "newness" of the market trends, and their strategies have become more efficient (Natrass & Seekings, 2012:11). In this way it has been possible to maintain profitable positions in a market that has become increasingly dynamic and demanding. Apparel organisations are learning to maintain close relationships with their supply chain partners which allow for the development of low-cost supply chains that are highly responsive and improve the supply chain's flexibility and speed to market (Ayers & Odegaard, 2018:52).

The South African apparel industry is one of the leading distribution channels within the country's entire retail industry (Raza & Kilbourn, 2017:2). In 2014, revenue within the South African apparel industry grew by 9.6% reaching a value of US$7.4 billion; an amount that is forecasted to increase by 41.9% by 2019 (South African Apparel Marketline Report, 2015:8). A study conducted by Statistics SA (StatsSA, 2015:internet) showed that in 2014, 21% of the R707 billion contributed by the retailing industry to the economy belonged to the apparel industry, making it the second biggest contributor in the retailing industry as depicted in Figure 3.4.

Figure 3.4: Contribution of Retailers to Total Sales in the South African Retail Industry in 2014



Adapted from: Statistics SA, 2015.

The increase in competition in the market affected sales in the market which in turn complicated the forecasting and planning of demand in the South African apparel industry (Kim, 2012:1285; Rotunno, Vezina & Wang, 2013:2). This has made South Africa's apparel industry leaders not willing to share information about how they run their supply chains as compared to international apparel market leaders like Zara. This is illustrated in Table 1.1, by the studies that have been carried out in the industry but retailers' names are not shared.

The South African apparel industry is highly dependent on imported products, with China being the main and biggest supplier; this makes demand planning and forecasting crucial for the local industry (Raza & Kilbourn, 2017:5). Accurate forecasting systems allow supply chains to plan efficiently and effectively and to align their strategies. This improves the quality of operations and allows them to plan and make sound decisions with respect to production capacity, resource alignment and organisational operations (Zhang, 2009:2806-7). The growth of global competition has pushed apparel organisations to plan effectively for their production and constantly to improve the efficiencies and flexibility of their supply chains (Ivanov et al., 2018:3361). South Africa's sophisticated and significant change in technology has improved the country's transportation and communication infrastructure, allowing the apparel industry

to source products cheaper and faster from across the borders (Ayers & Oodegard 2018:3). However, responding to the volatile apparel market has proved to be one of the biggest challenges to South African apparel supply chains. South African apparel organisations are making demand planning and forecasting key investment areas since they have had to develop demand-driven supply chain strategies that are customer focused (Raza & Kilbourn, 2017:1).

Vlckova and Patak (2011:1000) have suggested that apparel supply chains should attempt to acquire information contributions from functions across their members' organisations. This would allow them to create demand plans that are aligned with the supply chain's financial goals and inventory management plans. Moisanen (2014:8) supports this advice by pointing out that failure to plan and forecast appropriately may lead to the development of a mismatched supply chain design. Trade liberalisation has left South African apparel customers with a number of options with respect to choices of channels for shopping shop (Xiao & Jin, 2011:258). This has increased the competition faced by South African apparel retailers since cheaper clothing is coming in from their international, local and cyber rivals.

The next section of this study will focus on the factors influencing demand forecasting and planning in apparel supply chains from a global and local perspective.

3.4 FACTORS INFLUENCING DEMAND FORECASTING AND PLANNING IN APPAREL SUPPLY CHAINS

Chaudhary (2011:2) describes clothing as one of the basic human needs for survival, but today's customer looks at clothing rather as a sign of lifestyle, taste and social status. Aksoy, Azturk and Sucky (2012:222) and Thomassey (2010:471) found that fashionable clothing is demanded by the majority of customers in the clothing industry, whilst basic clothing is sought by the minority. Such inconsistencies in customers' demands makes demand forecasting and planning a complex process for apparel supply chains since demand is influenced by trends, runways and socialites (Matsoma & Ambe, 2016:195). The accurate forecasting of demand becomes significantly important for the flexibility and responsiveness of a supply chain (Nenni et al., 2013:2). Market leaders have made demand forecasting their focal point as poor forecasting techniques lead to inefficient inventory management, poor service levels and inaccurate use of resources (Aksoy et al., 2012:221). The apparel industry is one industry that has realised the significant importance of demand forecasting and planning as apparel products

have high demand uncertainty, lack historical data and have short seasonal trends that lead to short product life cycles (Nenni et al., 2013:1).

One of the aims of the apparel industry is to provide an appealing and desirable connection between a customer and the product that satisfies the customers' needs and wants and, most of all, results in recurring sales (Gharde, 2016:1). Supply chains in the apparel industry are having to invest in better strategies and structures that allow them to create, manufacture and deliver products on a real time basis (Nenni et al., 2013:2). The accurate prediction of demand has become such a vital issue in SCM that organisations are investing in better forecasting systems and improving their supply chain structures for better performance (Chan & Chan, 2010:1195). Figure 3.3 depicts how Zara successfully worked on their supply chain structure to cut their lead times as a competitive advantage, thus giving them a top spot in the market that appears to be difficult to overtake.

Demand has become customer driven, making it vital for organisations to observe the way in which customers adjust to trends as well as to changes in demand patterns, lifestyles and preferences (Gharde, 2016:1). Although it may appear simple, forecasting and planning for demand is a challenge (Liu et al., 2013:1). In addition to having to deal with competitors and the rapid change of the business environment, apparel organisations are faced with a number of factors that influence operations within their supply chains (Matsoma & Ambe, 2016:195). One of the main aims of forecasting and planning for demand effectively is to lessen the adversative impact of these factors (Gharde, 2016:2).

EbscoConnect (2018) describes MarketLine as one of the major business information organisations that cover the "automotive, consumer, energy, financial services, healthcare and technology sectors," in addition to supplying information that is accessible through the Company Profiles link giving access to industries' leaders' databases. Using the local and international apparel industry reports given by MarketLine (2015 and 2018 respectively), the factors that influence demand forecasting and planning within the industry, include technology, globalisation, political unrest, socio-economic issues, legislation and environmental unpredictability. Each of the factors that influence demand forecasting and planning in apparel supply chains, within both international and local supply chains are dealt with.

3.4.1 Technology

Sanders and Mandrodt (2003:515) describe information technology (IT) as the backbone of SCM since most SCM processes are highly dependent on IT. Davis-Sramek, Germain and Iyer (2010:42) state that IT developments are the most profound and prominent change in the business environment; they go to suggest that organisations invest in their IT systems to avoid future costs or losses. In addition, Belvedere and Goodwin (2017:652) agreed that technology helped the forecasters improve their forecasts. However, the researchers found that a number of adjustments had to be made by the forecasters in order to take into account changes that may be occurring in the market. The successful implementation of IT systems results in benefits that make it easier to keep up with the level of competition which organisations face in this technology dominated era (Wen et al., 2019: 34). IT allows supply chains to successfully function, from the management of relationships between supply chain partners all the way to the management of relationships with final customers (Davis-Sramek et al., 2010:42).

On the other hand, Belvedere and Goodwin's (2017:656) study found that the forecasters' emotional reactions toward their products as well as their involvement with the products tends to distort the accuracy of forecasting results when judgmental adjustments are done by the forecasters. Similarly, a study by Berg (2016:433) found that the most accurate were achieved when the forecasters had no knowledge of the products being forecasted and thus no emotional reactions would be triggered to exaggerate the products' performance in the market. Table 3.1 summarises the ways in which technology positively impacts on demand forecasting and demand planning.

Table 3.1: Ways in which IT Impacts on Demand Forecasting and Demand Planning

IMPACT	DESCRIPTION
Communication	- Alerts all stakeholders of what is trending in the apparel industry via media; and may in turn, show the market's response to the new product before production. - Allows supply chain partners to share real time information increasing supply chain responsiveness. - Helps monitor and tackle quality issues via real time communication. - Helps monitor inventory capacities across supply chain to avoid overstocking and understocking.

	- Allows customers to compare prices of products across the industry via online shopping. This increases competitiveness in the market, and kills customers' loyalty to brands thus increasing customers' buying power
Transportation	- Makes the supply chain more responsive by providing different channels of distribution with respect to delivery of products (road, sea, air and so on). - Gives the opportunity to outsource and offshore production and services to more competent organisations providing better skills and priced resources; saving on costs. - Allows for secure tracking and monitoring of how products travel across the supply chain - Provides the supply chain with the flexibility to challenge lead time issues and allowing for better response to any form of demand (expected/unexpected).
Collaboration of Internal & External Relationships	- Allows the different functions and supply chain partners to share real time information pertaining to customers' demand for a product via systems such as point-of-sale (POS) thus allowing for efficient replenishment of the products based on demand. - Helps manage the bullwhip effect - Allows for flexibility that decreases variability in customers' orders making it easier to respond to demand - Allows for the creation of cross functional teams within organisation and across supply chains thus eliminating the silo effect. - Lowers storage costs within the supply chain as capacity held will only be based on the market's demands.
Planning, Organising, Leading and Controlling of Operational & Production Processes	- Exploits demand by facilitating mass customisation of products and services - Decreases customer service costs and transactional costs by changing the speed and nature of business processes

	- Provides the supply chain with real time demand and customer preference information that displaces inventory in the supply chain as optimal quantities are held. - Allows the supply chain to quickly respond to the market's demands as real time information is shared - Due to the "short life cycle" nature of apparel products, technology allows supply chains to quickly manufacture trending products and deliver them to the market.
Multiple Seasonal Trends	- The internet and social media gave birth to multiple seasons in the apparel industry as celebrities, socialites and fashion weeks and runways release new styles and designs that set the new trends. This makes the market's demand fluctuate uncontrollably.

Adapted from: Davis-Sramek et al., 2010; Xiao & Jin, 2011; Mostard, Teunter & de Koster, 2011; Ivanov et al., 2018.

Moreover, Scott (2013:176) drew attention to how the internet has been the main medium of communication amongst customers, thus leading to demand changes in the market. A study by Shen, Qian and Choi (2017:90) revealed that the buying behavior of fashion followers in their study was driven by fashion leaders via the internet; the more fashion leaders bought and shared the purchase of a particular product, the more fashion followers bought it too. Shen et al., (2017:89) described customers as fashion leaders and fashion followers and pointed out how these two group drastically influenced each other's purchasing behaviours. Furthermore, Mustafa (2014:internet) found that Instagram and Facebook significantly influenced the change of demand in the market through a shared picture or comment which could either increase or decrease demand, thus resulting in volatility of demand in the market.

3.4.2 Globalisation

Globalisation can be described as the practice of interconnectedness and interaction development amongst organisations from different countries that allows the organisations significantly to increase trade, economic development and humans' physical well-being within societies as well as cultural exchange. Globalisation came about to assist developing nations with the generation of wealth through allowing the free movement of products, services and finances with the help of efficient IT systems (Herrmann & Hauschild, 2009:13). Globalisation has helped industries by removing boundaries, cutting costs, and improving product quality

and pricing as well as achieving a great improvement in service delivery (Hua, Cheng & Wang, 2011: 178). Ye and Lau (2017:199) confirmed globalisation's role in motivating apparel supply chains to further improve the efficiency of their SCM strategies through the reduction of lead-times in order to successfully satisfy the rapid and highly volatile apparel industry's demands. A number of factors of how globalisation has positively and negatively affected demand forecasting and planning in organisations are listed below:

- ***Cutting costs to increase lead times*** – The outsourcing and offshoring of operations affects responsiveness of a supply chain, especially in industries with products that have short life cycles like the apparel industry (Raza & Kilbourn, 2017:2). The geographical distance between supply chain partners increases lead times.
- ***Growing the economy but with a chance of damaging the nation*** – Globalisation is aimed at improving countries' economies and relationships. It allows them to source cheaper resources, such as labour, which in turn stimulates capital injection and infrastructural development in the chosen country (Wen et al., 2019: 37-8). However, unfair labour practices can become an issue. Zara customers reported having found notes inside the pockets of their new clothes that were left by unpaid workers (Petter, 2017:1).
- ***Building massive production plants, leading to the possible extinction of small scale industries –*** Globalisation has contributed to the decline of certain industries within certain countries, the textile and clothing manufacturing industry in South Africa being one of them (Matsoma & Ambe, 2016:194). The elimination of borders and lowering of import tax duties within countries has also contributed to organisations' choosing to look for resources from cheaper global markets rather than locally (Nattrass & Seekings, 2012:10).
- ***Increase in technological investments and unemployment rates*** – Technological advancement has led to the automation of a number of skilled jobs, thus reducing the need for human capital and increasing unemployment (Kim, 2017:1). Thus, while developing the technological infrastructure makes a supply chain more responsive to demand uncertainties since production is done faster by machines, this development may come at a cost.
- ***Cutting supply chain costs while perhaps increasing environmental costs*** – Globalisation may be cost efficient; however, the savings come with environmental and social sustainability costs (MoosaviRad, Kara & Hauschild, 2014:41). Research has led to a call for organisations across all industries to work on their strategies for decreasing their carbon emission in order to alleviate global warming (Hua et al., 2011:178).

- ***Giving customers access to cheaper products while increasing counterfeits*** – The breaching of borders has given organisations access to cheaper resources and customers to cheaper products. Because suppliers have direct access to final customers, the number of counterfeits in the market has increased, giving rise to demand planning inconsistencies (Wen et al., 2019:47).

Table 3.2 summarises the opportunities and challenges that have been brought about by globalisation.

Table 3.2: Opportunities and Challenges Brought About by Globalisation

ISSUES BROUGHT ABOUT BY GLOBALISATION	
OPPORTUNITIES	**CHALLENGES**
New market for goods and services	There is an increase in the number of customers, making supply and demand highly volatile
Increased access to resources and cheaper suppliers	The need to monitor suppliers' operational procedures increases SCM complexities
Organisations able to concentrate on their core competencies	The creation of supply chains intensifies competition as organisations compete on a supply chain level
Increased pools of labour	A decreased amount information is available as the network grows. It becomes risky to share real time information
Stimulation by means of a continuous improvement in technology	Increased lead times result since supply chain partners are spread over vast distances
Increase in the exchange of knowledge and capital	The amount of control that parent organisations have has decreased as they have to depend and rely on their partners

Adapted from: Mihm, 2010; Bhardwaj & Fairhurst, 2010.

3.4.3 Economic Factors

Demand forecasts are mainly based on the following: customer and market surveys (Boone & Kurtz, 2009:263); experts' opinions (Shah, 2009:167); finding the correlation between

variables and future demand (Armstrong, 2009:17); and making use of historical data (Carbonneau et al., 2008:1142). Some of these methods are based on past occurrences; however, most apparel products lack historical data due to their short life-cycles, thus making the forecasting of demand complex (Mostard et al., 2011:140). Changes in the economy are not always expected; for instance, an increase in fuel prices, currency fluctuation, and changes in interest rates and inflation are all potential issues that could lead to an increase in the prices of products, thus shifting demand unexpectedly (Xiao & Jin, 2011:257-8). These changes add to the complexity of demand forecasting and planning.

The growth of an economy can stimulate a stable increase in household income thus improving consumers' living standards within a country which may motivate a shift from buying basic apparel to diverse apparel (Ye & Lau, 2017:198). On the other hand, poor management of the economy by a government contributes to the inconsistent fluctuation in the economy (peaks, troughs and inflation), which may lead to an increase in taxes implements in an effort to stabilise the economy. For example, in 2004, import tax duties were lowered in South Africa based on agreements that had been made during the negotiation of the country's trade agreements with other countries (Nattrass & Seekings, 2012:10). The South African apparel market found itself with an increased number of competitors, which in turn affected organisations' sales expectations since forecasting and planning for demand became a challenge (Kim, 2012:1285).

3.4.4 Environmental Unpredictability

The global expansion of supply chains has allowed supply chain partners to efficiently allocate their resources in ways that allow them to maximise their core competencies (Ye & Abe, 2012:6). The unpredictability of the business and natural environment has, however, weakened the efficiencies of IT systems, supply chain processes, human capital and collaboration strategies (Davis-Sramek et al., 2010:42). Unexpected natural disasters, such as earthquakes, tsunamis and floods, disturb the flow of materials and information within a supply chain in the form of delays, losses or both (Alhassan, 2014:383). This exposes a supply chain's distribution and logistical strategies to risks and delays.

In addition, a study by Adhikari, Bisi, and Avittathur (2019: 1) found a reduction in global apparel production between 2015 and 2017 (by approximately 5-6%) which had been influenced by a decrease in cotton production that had mainly resulted from adverse climate conditions and changes in regulations and technology. The overall performance of the textile

and apparel industry partially depends on cotton production and the uncertainties that are brought about by climate issues lead to unexpected fluctuations of cotton prices thus disturbing organisations' forecasts.

3.4.5 Political and Legal Matters

Heywood (2004:6) defines politics as the upholding and the revision of the general rules by which governments manage the affairs of their respective countries. Poor political management may lead to a lack of investment, which may devalue a country's currency and thus increase the pricing of imports, disturbing anticipated demand (Ingram, Tabari & Watthanakhomprathip, 2014: 94).

Most apparel production has been moved to developing countries such as India, Vietnam and Bangladesh as many of the developing countries do not have organisational structures in place that will hold apparel retailers accountable for pollution. Even if there were structures in place many of them are ineffective and allow apparel retailers to get away with simply paying fines that do not equate to the amount of damage being brought about by the pollution (Deshmukh & Mohan, 2017: 322). Furthermore, government corruption opens doors to political and economic instability and negatively impacts on the legitimacy of running a business since laws and regulations are not followed by organisations. Irresponsibility on the part of government may lead to fraudulent organisations' possessing documentation that should not be in their possession, thus making these organisations a major risk to potential partners, for instance, in the case of the collapse of the Rana Plaza, Primark's supplier in Bangladesh (Dhaka, 2013:1). This issue called for the re-evaluation of Primark's supplier selection policies and, since then, the organisation has started contributing £325 000 towards the independent inspection of factories and their safety measures in Bangladesh (Butler, 2016:1).

Organisations have to deal with local and global regulations before penetrating into certain new markets and should examine the sustainability laws (Choi, 2010:110; Gereffi & Lee, 2012:24). Parent organisations in apparel supply chains are making use of social compliance programmes in their suppliers' factories to ensure respect for local and global labour standards, for the empowerment of workers, and to eliminate labour unrest (Anner, 2018:75). An organisation's failure to follow the laws in place may result in government's detaining and delaying the movement of its products, thus delaying delivery-to-market. Moreover, failure to abide by the laws may result in the tarnishing of the parent organisation's reputation, payment of fines/penalties, or even a loss of market share (Anner, 2018:77). These consequences are

instanced in the case of Zara and its association with sweatshops and child labour issues in Brazil, Turkey and Argentina, in 2011, 2013 and 2017 respectively (Butler, 2016:1).

3.4.6 Social Issues

Today's organisations are obtaining a larger portion of their profits from the global markets they operate as compared to their home markets (Stremersch & Tellis, 2004: 421). The globalisation movement and rapidly increasing competition within the apparel market is forcing organisations to introduce and sell their products locally and internationally (Auer, Borio & Firlardo, 2017:1-2). Environmental instability has made business increasingly uncertain as the number of natural and man-made disasters increase (Choi et al., 2017: 1). Organisations are learning the importance of investigating, analysing and understanding the social backgrounds of new markets before penetrating so as to better understand customers' culture, lifestyle and purchasing behaviours for demand forecasting and planning purposes (Kumar, 2014:318; Stremersch & Tellis, 2004:421). Poor investigation may lead to civil boycotts against products, services or even advertisements. H&M, for example, faced a series of protests against their stores over an online advertisement that the community deemed as racial (Spies & Mitchley, 2018:1).

South Africa is one of the top ten countries with the highest unemployment rate (Omarjee, 2018:1). With such high unemployment figures, criminal activity is likely to increase as people try to make ends meet. Edmeston (2015:1) states that, as the unemployment rate increases in South Africa, so do truck hi-jackings; statistics showed the unemployment rate going up to 26.6% and the truck hi-jackings consequently going up by 16%. In addition to an increase in truck hi-jackings, the rate of other criminal activities has increased as well, and this may decrease the amount of capital being injected into the country by external investors. With cyber-crime on the rise, customers find it difficult to trust the process of online shopping out of fear of having their data security compromised (Olenski, 2016:1). Ship hi-jackings by pirates, taxi strikes, truck driver strikes, and workers' strikes are all social issues that delay supply chain productivity and come with significant costs.

3.4.7 Poor Collaboration (Internally and Externally)

Banerjee and Golhar (2017:1107) found that organisations from across all industries are aiming to develop global alliances with their supply chain partners in order for them to be competitive and retain, as well as grow, their market share. The volatility of the apparel market has made the estimation of optimal inventory quantities a challenge. Apparel retailers are choosing to

incur high costs (that is, with manufacturers) for shorter lead times as demand uncertainty is high in the industry and also to decrease leftovers and markdowns (Xiao & Jin, 2011:258; Choi et al., 2017:1).

Fashion supply chains have become customer driven. Short life cycles, increasing product varieties, impulsive customer behavior, and inherent uncertainties increase the need for efficient coordination amongst partners for better responsiveness (Wen et al., 2019:35). Technological advancement has improved communication across supply chains and has assisted with the integration of activities and processes, internally and externally (Jayaram, Tan & Nachiappan, 2010: 6837); however, the sharing of all relevant information among supply chain partners must be done in a timely manner. Furthermore, to maximise of the benefits of information sharing, supply chain partners may collaboratively plan together (Flynn et al., 2010:58). However, Vedel and Ellegaard (2013:509) argue that the transparent sharing of information externally is still "an elusive goal." Additionally, researchers found that fashion designers and apparel retailers sometimes delay the sharing of information deliberately to stop counterfeiters from flooding the market with knockoffs (Banerjee & Golhar, 2017:1109). These delays may come with legal implications, such as could follow the introduction of child labour and sweatshop exploitation, as suppliers fight to meet last minute demands (Felice, 2011:220-2). On the other hand, Simchi-Levi and Zhao (2003:888) found that manufacturers benefited more from information sharing did retailers since the delay caused by the sharing of information by the latter results in increased production and logistical costs. However, trust is still a challenge due to issues of fashion piracy, which makes the forecasting and planning of demand difficult (Banerjee & Golhar, 2017:1108).

Christopher et al. (2011:67) found that effective collaboration of IT systems across functions in an organisation may assist with the elimination of opportunistic behaviour by competitors and deceitful supply chain partners. Integration of systems within organisations contributes to successful performance since real time information is shared across all functions, ensuring the accurate, reliable and timely sharing of information to eliminate demand and supply mismatches (Lee, So & Tang, 2000:626; Lee & Wang, 2000:373). Efficient collaboration allows for the effective management of supplier risks and quick reaction to supply chain disruptions, improving the flow of information, products and finances between the final customer and the supply chain (Choi et al., 2017:3).

3.4.8 Supply Chain Structures

From the late 1980s to the early 2000s, SCM has been described as the active management of supply chain activities by a group of organisations that allow for the maximisation of value for customers by encompassing upstream and downstream activities of a supply chain with the aim of achieving a competitive advantage (Jangga et al., 2015:263). Over the recent years, globalisation and technological advancements have SCM redefined as supply chain activities driven by markets and not by organisations (Ye & Lau, 2017: 201). Ye and Lau (2017:198-9) state that supply chain strategies of creating lean and agile supply chains are no longer good enough to cope with the new and volatile demands coming from the markets. Furthermore, SCM and supply chain designs are now highly influenced by demand differentiations thus redefining the concept to a term known by researchers as "demand chain management" (Hilletofth, 2009: 16; Ye & Lau, 2017: 201).

Implementation of SCM strategies incorporates the integration of customers' demands downstream with that of partners' resources upstream, via the integration of IT systems across the supply chain (Sukati et al., 2011:167). Supply chain structures (SCSs) are transforming the previous flow of information, goods and finances to the mobilisation and management of supply chain partners' capabilities (Golini & Kalchschmidt, 2011:87). The structures of supply chains vary depending on the level of collaboration between the organisations in the supply chain network (Choi et al., 2017:6). Sartori and Federico (2017:18-9) describe the most important dimensions of SCSs as being the width and length of the network, the physical location, the number of facilities and the operational capacities. Flexible SCSs allow supply chains to be more responsive to the volatility of the apparel market (Wen et al., 2019:47).

The efficient establishment and adoption of flexible SCSs allows for a quick response to market demands, thus providing the supply chain with a competitive advantage within an industry (Ivanov et al., 2018:3360). One of these value adding activities is the ability to plan and forecast for demand efficiently as robustness and supply chain flexibility serve as an "uncertainty cushion," in SCM (Ivanov et al., 2018:3360). Demand in the apparel industry is highly unstable, thus making the structure of a supply chain substantially important since it also determines the speed with which a supply chain reacts to market demands (Jangga et al., 2015:264). Sukati et al. (2011:168) have identified components of supply chain practice as outsourcing, supplier partnership, information sharing, cycle time, continuous process flow,

quality management, purchasing and customer relationship, all of which require rigid supply chain structures.

3.5 INITIATIVES FOR ALLEVIATING THE EFFECTS OF VARIOUS FACTORS ON DEMAND FORECASTING AND DEMAND PLANNING

This section of the study aims to illustrate how the factors mentioned above can be alleviated when forecasting and planning for future demand in the apparel industry. The previous section looked at how technology, globalisation, economic factors, environmental unpredictability, political and legal matters, social issues and lastly poor collaboration can influence the forecasting and planning of future demand. Apparel products have very short life cycles with demand that is constantly changing due to high volatility. This volatility may be due to any of the factors mentioned above, and the initiatives below have been found to help alleviate the effects of these factors.

3.5.1 Technology

Apparel supply chains aim to acquire fabrics, manufacture and start shipping within short lead times; however, delivery time performance is highly dependent on capacity and the operating efficiency of each partner in the network (Nagurney & Yu, 2012:532-3). With technology allowing customers to access products easily (due to ease of communication and transportation), apparel retailers are finding significant fluctuations occurring with regard to demand in the market, since customers are easily influenced by the comments they find online. In their study, Shen et al. (2017:90) found how vital it was for apparel retailers to find ways of adjusting their supply chain strategies in ways that could help them react to market demands more easily or maximise profits. The researchers also suggested that retailers make use of social media influences as a strategy to maximise their profits by re-structuring their operational strategies accordingly (Shen et al., 2017:97). Jacobs and Chase (2018: 406) describe apparel products as innovative products as they have short life cycles, with high market competition thus requiring apparel supply chains to be technologically advanced and responsive in order to satisfy short-lived demand.

3.5.2 Globalisation

Although globalisation has stimulated the growth of bigger supply chains, it has also eliminated the smaller organisations from their respective industries. Smart Arts Development Limited (SADL) in China is an organisation that specialises in the outsourcing and offshoring of processes such as designing, manufacturing and delivery of products to a number of apparel

retailers, mainly in Europe (Zhao, Choi, Cheng & Wang, 2018:1062). Instead of owning factories for production, SADL has established partnerships with high-tech factories in China that can secure production for the organisation's clients for comparatively short lead-times of 2-3 weeks at low product quantities of about 2-3 units; however, this is done at a high profit margin (Zhao et al., 2018:1063). Smith (2019:internet) described a "spot-market" as a market that allows commodities and products to be traded for immediate delivery that can be real time or close to real time once current market demand is known. Supply chains are using collaborative planning, forecasting and replenishment (CPFR) to provide vital information across the network to improve the supply chain's response to market demands (Heizer et al., 2017:110). Improving the agility of the supply chain powers it to advantages in product innovation, faster speed to market and greater profits as flexibility has become an important strategy to achieve competitive advantage (Janggaa et al., 2015: 262).

3.5.3 Economic Factors

Rapid economic growth may stimulate the deterioration of the environment, which in turn leads to environmental problems such as air pollution that negatively influence human health and sustainable development. Du, Hu and Wang (2017:569) found that the growth of economies in developing countries resulted in the consumption of large amounts of energy and significant carbon emissions, the two main causes of global warming. In 2013, the National Commission for Disaster Reduction reported that China had faced a serious environmental panic when the country's major cities were covered in a thick haze due to air pollution (Renwick, 2017:27). Many organisations regard the protection of the environment and the improvement of sustainability levels within their supply chains not only as a way of gaining market share, adding more value to products, improving their brand image or gaining a competitive edge but also as their social responsibility (Benjaafar, Li & Daskin, 2013:100). Other organisations have chosen to produce low-carbon products; however, the cost of manufacturing these products is significantly high. Du et al. (2017:571) consider environmental performance of a product as a combination of efforts from all the supply chain partners since they all implement sustainable operational processes.

3.5.4 Environmental Unpredictability

Sukati, Hamid, Baharun and Yusoff, (2012:225) reveal that the success of SCM is highly dependent on the integration of strategies by supply chain partners in order to be more responsive and flexible to changes in the environment. Thus, organisations are seeking to gain

competitive advantage by competing at a supply chain level and not an organisational level. The apparel industry is a highly dynamic environment with rapid and unexpected changes. Jangaa et al. (2015:263) found that supply chain networks are faced with uncertain changes within the external environment that may cause organisations to be unable to estimate successfully the impact of these changes on the supply chain's performance, a process they describe as environmental uncertainty. Flexibility and responsiveness have become management strategies of significant importance that allow supply chains to be more agile in a highly unpredictable environment. Heizer et al. (2017:110) suggested that organisations invest in advanced technology that promotes rapid communication and the sharing of accurate data across the supply chain to reduce the impact of unexpected changes within the environment as well as to allow the partners to be more responsive.

3.5.5 Political and Legal Matters

It has become imperative for supply chains to become environmentally responsible. Society has been pushing governments to curb supply chain irresponsibility by calling for organisations to devise cleaner production methods and safer labour practices as customers' awareness of the environment catalyses dramatic changes in local and global, carbon and labour policies (Du et al., 2017: 570). This has forced parent organisations to ensure that they take care to select supply chain partners that are sustainable and conform to these policies, locally and internationally. Furthermore, organisations have found that "being green" does not only mean acquiring environmentally friendly technologies or using materials that are recyclable, but it also comes with the benefits of waste reduction during production and lowered resource usage, thus cutting down on costs within the supply chain (Jacobs & Chase, 2018:411).

3.5.6 Social Issues

The introduction of globalisation removed international boundaries and brought about elements that organisations now needed to consider before penetrating a new market. These are elements such as cultural differences, currency exchanges, climate changes, and political and legal systems. Ayers and Odegaard (2018:52) identified a conventional tool known as a country portfolio analysis (CPA) which can be used to assess foreign markets and to weigh market opportunities. Ayers (2006:105) lists four dimensions, namely, cultural, administrative, geographic and economic (CAGE); these elements were suggested by the researcher as determinants organisations may use when anticipating a move into a new market. The use of

one or both of these tools allows organisations to gain a better insight into the type of society they will be investing in.

3.5.7 Poor Collaboration

For better competitiveness, there is a growing need for the development of global alliances with supply chain partners since parent organisations are realising the volatility of demand within markets. To deal with demand uncertainty, apparel retailers are making use of option contracts, spot markets or both. Xue, Xu and Ma (2014:1) describe option contracts as contracts that allow retailers the flexibility of modifying the quantity of units in their order at need. This then gives the retailer the freedom to make an order quantity decision change after observing the customers' reactions in the market and gauging actual demand. Furthermore, the supplier gets to enjoy "early commitment" from the parent organisation, thus allowing the former to plan better for capacity and for materials that may require long lead times such as fabrics; this would result in a reduction of overall lead times within the supply chain (Zhao et al., 2018:1062).

Spot markets can also be used within supply chains to respond to updated real time demand signals within the market; however, spot markets expose supply chains to the risk of cost increments. Developing and managing supplier relationships to allow for quick response with respect to the acquisition of goods and services is described as strategic sourcing (Jacobs & Chase, 2018:404). The coming of globalisation and low-cost communication technology has altered the competitive nature of industries, since supply chains now have to compete against each other.

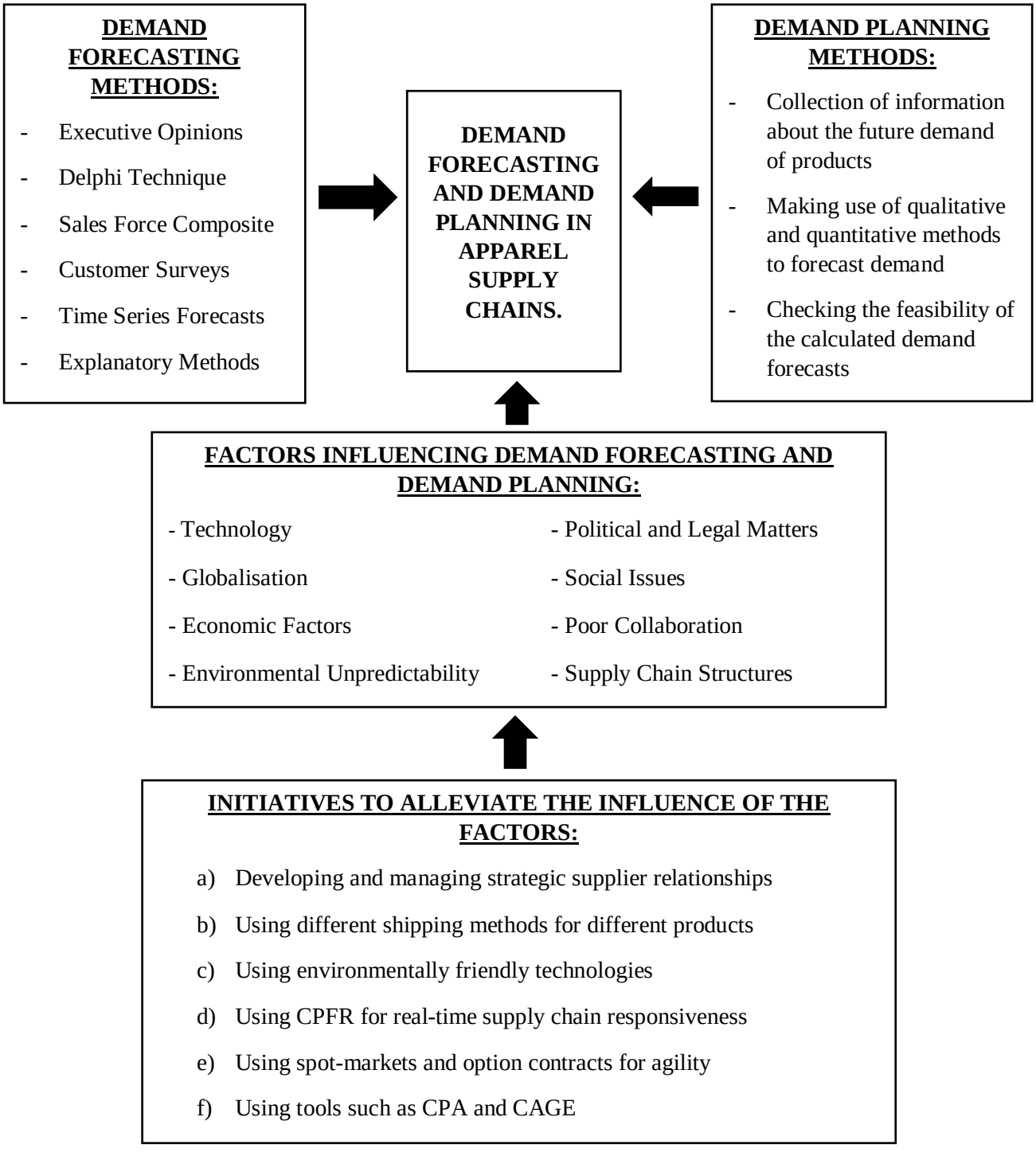
3.5.8 Supply Chain Structures

The structure of a supply chain influences the flow of inputs, outputs and finances across the network and significantly depends on the systems used to integrate and collaborate processes within the supply chain. Adida and Perakis (2014:3) found that the SCM decisions that were made by each partner across the supply chain did not solely affect the profitability of that particular partner but affected all members' profitability. As a result, the structure of the supply chain should allow the alignment of partners' strategies and resources to allow for efficient on-time delivery of goods to the customers. Heydari, Zaabi-Ahmadi and Choi (2018:394) proposed methods of improving the coordination systems used across a supply chain through controlling lead-times by considering the use of different shipping modes (that is using both fast and slow lead-times).

3.6 CONCEPTUAL FRAMEWORK

From the literature that was surveyed a conceptual framework was drawn up. The conceptual framework maps out how variables connect within the study, thus identifying the variables that will drive the investigation of this research, as denoted in Figure 3.5.

Figure 3.5: Conceptual Framework of the Study



Source: Compiled by researcher.

3.7 CONCLUSION

This chapter began by exploring the literature pertaining to the structure of apparel supply chains the forecasting and planning of demand in apparel supply chains. Information relating to the apparel industry from a global and local (South African) perspective was investigated with the aim of understanding the difference between the two industries. Thereafter, the factors that influence demand forecasting and demand planning in apparel supply chains were identified with the intention of recognising the impact these factors have on the performance of supply chains. The initiatives that could be used to alleviate these factors were then identified and in conclusion, the conceptual framework of the study was derived.

The next chapter deals with the research methodology that used in this study. Chapter 4 will re-visit the study's research questions and also provide a more detailed explanation of how the research was undertaken.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 INTRODUCTION

The previous chapters focused on the literature that this study has made use of in order to develop a conceptual framework. This chapter sets the stage of the research process that followed with respect to the study and the methodology that was used to answer the study's research questions. An in-depth explanation of the research methodology used in this study is provided in this chapter. A description, explanation and justification of the research design, the sampling method, and data collection methods used in this study are provided subsequent to revisiting the research questions and research objectives.

4.2 REVISITING THE RESEARCH QUESTIONS AND RESEARCH OBJECTIVES

Research questions are the driving force for empirical studies. Saunders et al. (2016:726) define research questions as the main questions that a research process focuses on. The research questions and the research objectives for the current study are provided in the sub-sections below.

4.2.1 Research Questions

- What forecasting methods does Apparel Retailer A use?
- What are the factors influencing demand forecasting and planning at Apparel Retailer A?
- What initiatives does Apparel Retailer A have in place in order to cope with and minimise these factors?

4.2.2 Research Objectives

The objectives of this study were:

- To determine the type of demand forecasting and planning methods that South African Apparel Retailers use based on Apparel Retailer A's operations.
- To identify the factors that influence demand forecasting and planning within the South African apparel industry using Apparel Retailer A as a case.
- To determine the initiatives Apparel Retailer A has in place to minimise the negative impact of these factors.

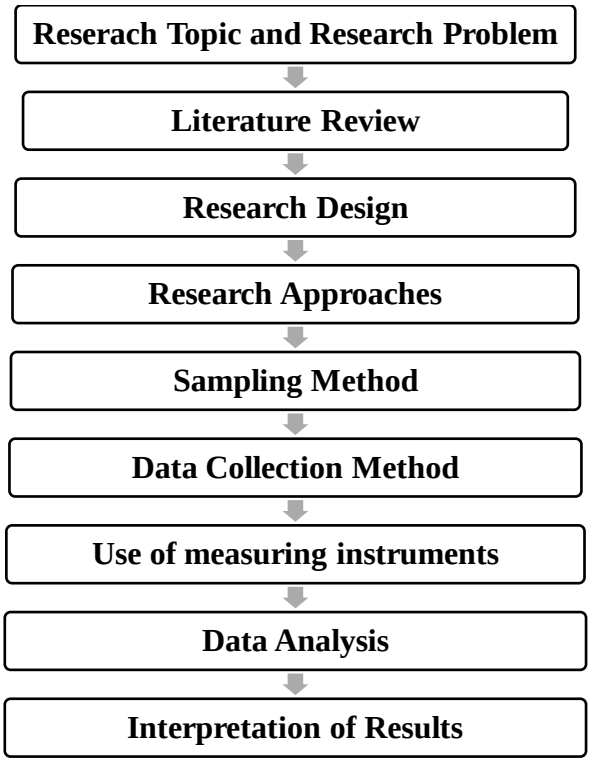
4.3 THE RESEARCH PROCESS

Kothari (2012:1) defines research as a systematic way of searching for information through the use of written, spoken or pictorial data. Sekaran and Bougie (2016:5) define research as:

- ***Applied research*** – this is research undertaken to solve current problems;
- ***Basic/ fundamental/ pure research*** – this is when organisations generate knowledge in order to better understand how to solve particular problems that may have occurred within the organisation. This is the type of research that was undertaken for this study.

Dudovskiy (2019:internet) describes the research process as a set of guidelines used during a study to plan, collect and analyse information with the intention of increasing the understanding of a topic or issue. The aim of conducting research may be to solve a problem, to evaluate and suggest improvements for certain processes, to answer a posed question or simply to add to knowledge (Creswell, 2012:3-5). To conduct this research efficiently, the study is guided by a set of guidelines. Figure 4.1 depicts the guidelines that were followed by the researcher during the research.

Figure 4.1: The Research Process



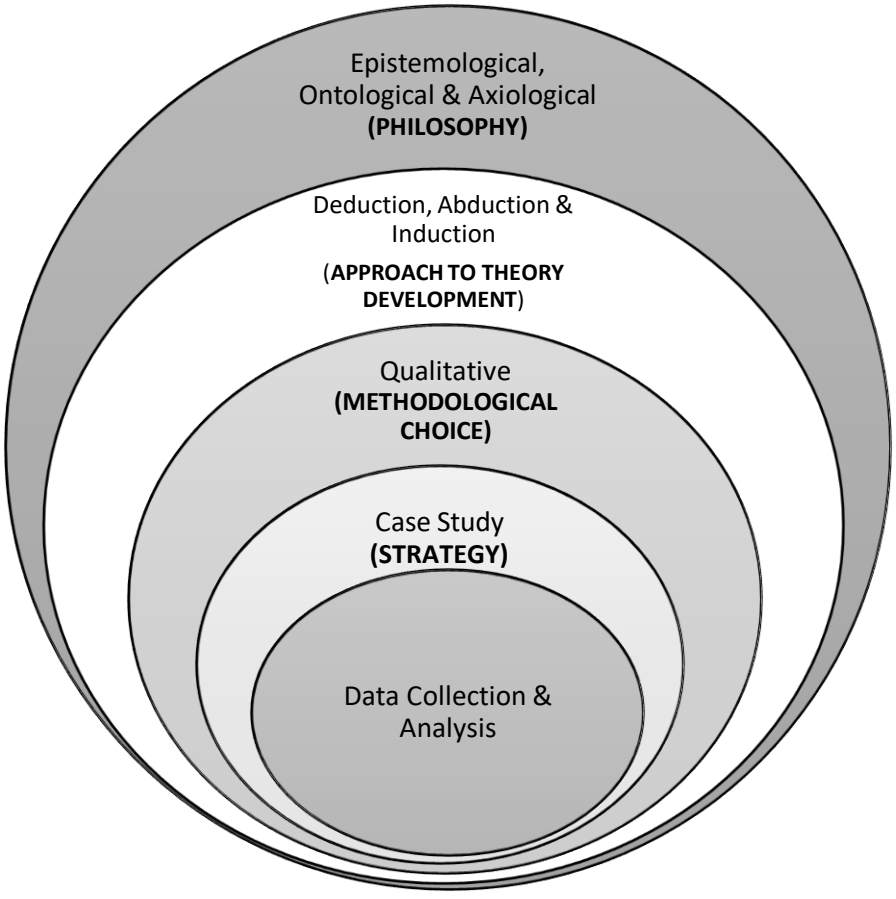
Source: Sekaran & Bougie (2016:124)

The stages shown in Figure 4.1 highlight the process followed by the researcher during the conduction of the study. Firstly, the researcher identified the research problem and then reviewed and analysed literature that was related to the study at hand. Secondly, the research design used to achieve the research objectives was drawn up and the sampling method identified. Lastly, primary data was collected from Apparel Retailer A's head office, and selected data analysis techniques were made use of to analyse further the collected data.

4.4 THE RESEARCH ONION

The purpose of this research is to comprehend the factors that influence demand forecasting and demand planning in the apparel industry with the aim of finding initiatives that may help alleviate these factors; thus, this study is pure research. The research process is depicted in Figure 4.1 above, and the research onion in Figure 4.2 below depicts the philosophy and methodological choice as well as the design of the study.

Figure 4.2: The Research Onion



Adapted from: Saunders et al. (2016)

4.5 RESEARCH PHILOSOPHY

Research philosophy represents the first layer of the research onion. Naude (2018:95) describes research philosophy as the blueprint for resolving research questions and fulfilling objectives since it consists of "well thought out" assumptions that will underpin a study's methodological choice and its research strategy as well as the data collection techniques and data analysis procedures used for the research. Saunders et al. (2016:124) adds to this by defining research philosophy as "a system of beliefs and assumptions about the development of knowledge." Concisely, it is developing new knowledge in a particular field when trying to solve a particular problem; thus, in an organisation, for instance, new information is being obtained. Saunders et al. (2016:127) state that at each stage of the study a researcher makes a number of assumptions:

- Some assumptions are based on realities encountered during the research, thus helping to define the way in which the research issue is seen or studied (**ontological assumptions**); these assumptions are believed to help the researcher determine the choice of study,
- Some assumptions are based on human knowledge regarding how one knows what one knows (**epistemological assumptions**)
- Other assumptions are based on how the research process is influenced by a researcher's own values and ethics (**axiological assumptions**).

With the researcher having worked within the apparel industry and identified a potential academic problem, these three assumptions influenced the development of the study. For instance, experience in the field may have influenced the way in which the research issue is studied. Therefore, to ensure lack of bias the researcher ensured not to make use of human knowledge and rather focus on the outcome after getting feedback from participants to ensure the study remained bias free. These assumptions allow the researcher to design a coherent study with the elements of the study complementing each other.

4.6 RESEARCH APPROACHES

This section represents the second layer of the research onion depicted in Figure 4.2. The field of research identifies three main types of research approaches, namely, deduction, induction and abduction. These are briefly described below:

- ***Deduction*** – involves the development of a hypothesis based on a theory that already exists; a research strategy is then designed to test the hypothesis (Saunders et al, 2016:146). This

approach deduces conclusions from the principles of the theory in question and is mainly used for scientific research (Eriksson & Kovalainen, 2015:23).

- ***Induction*** – Saunders et al. (2016:147) found that this approach was based on analysing or observing patterns and regularities in experiences with the aim of reaching a conclusion or generating a theory. The sole purpose of this approach is to generate meaning from collected data with the aim of identifying patterns and/or relationships with the intention of building a theory.
- ***Abduction*** – does not move theory to data (like deduction) or data to theory (like induction) but effectively combines deduction and induction by moving back and forth; it starts by observing a "surprising fact" and thereafter figures out a credible theory as to how the fact may have occurred (Saunders et al., 2016: 148).

The research approach that was undertaken for this study is the *deductive approach* as it is testing existing theory in a particular environment.

4.7 RESEARCH DESIGN

Sekaran and Bougie (2016:96) describe research design as the laying out of the conditions regarding data collection and data analysis. Myers, Well and Lorch (2010:3) describe a research design as an outline or a plan that researchers may make use of to fulfil their research objectives. Furthermore, Wiid and Diggines (2015:54) describe research design as the framework for a study that comprises of the specific procedures that make up the actual research process; these procedures include the collection of primary data, the analysis of the collected data and the write up of the findings and recommendations. Sekaran and Bougie (2016:95) similarly describe a research design as the stages that follow when gathering the required information for a study and analysing it to achieve the objectives of the research. Naude (2018:99) found research design to be the researcher's general plan, which aids in answering the research question, which has to be clearly defined to ensure that the research design is successful.

This study adopted an exploratory and descriptive research design. Sekaran and Bougie (2016:43) describe exploratory research as a type of research that is conducted when a problem has not been clearly defined; it helps derive the most ideal research design and data collection method. Saunders et al. (2016:174) describe an exploratory study as one that allows a researcher to ask open questions with the aim of gaining insight with regard to the topic of interest. Extensive research on demand forecasting and planning across international apparel

retailers such as Zara, H&M, Topshop and Cotton On has been conducted by researchers such as Garcia (2014), Lee & Goerlitz (2016), Choi (2010, 2016), Caro and Martinez-de-Albeniz (2010, 2012, 2014, 2015). This study was exploratory as South African apparel retailers are not willing to share their information about their supply chain strategies as well as demand forecasting and planning methods. Two studies by Matsoma and Ambe (2016 & 2017) were conducted on demand planning in the South Africa clothing manufacturing industry. However, both studies were limited to South Africa's Gauteng province. Therefore, it can be concluded that there is a dearth of research dealing with demand forecasting and planning in the South African apparel industry (see Table 1.1).

The descriptive research played the role of filling in missing aspects and describing others in greater detail. Saunders et al. (2016:175) describe descriptive research as answering the "what, who, how, when and where" questions as it tries to identify the characteristics of the population at study. Descriptive research attempts to provide a detailed description of a particular phenomenon; furthermore, it is used for the identification of factors that may exist (Sekaran & Bougie, 2016:43). Descriptive research may be conducted in three ways, through observational research, a case study or a survey (Iacobucci & Churchill, 2018:80). The use of the descriptive research approach is justified for this study since the research is primarily concerned with finding out the "what is" and it is also a case study.

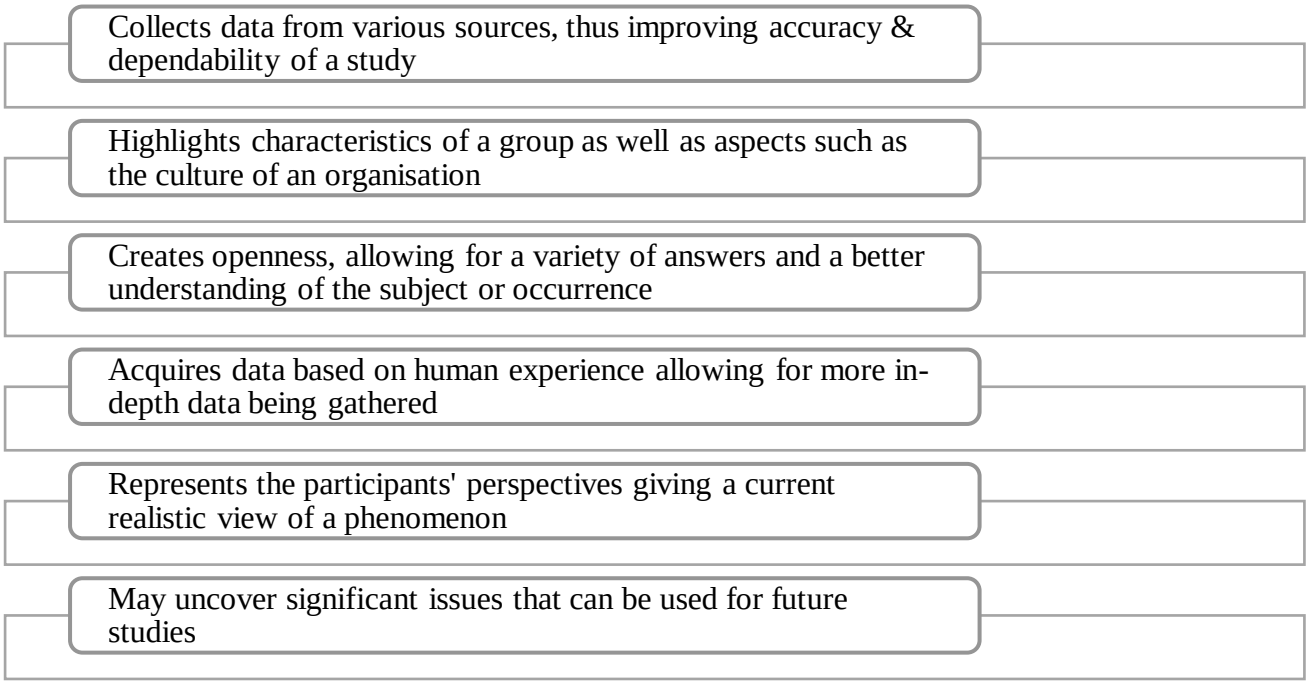
An analysis of existing literature was done to provide an understanding of the retail industry both locally and internationally. An overview of demand forecasting and demand planning in apparel supply chains was provided and the roles they play in retail supply chains were defined.

4.8 RESEARCH METHODOLOGY

Creswell (2013:77) identifies qualitative research as the collection, analysis and interpretation of information that cannot be summarised in numerical form. Yin (2015:7) found that qualitative research identified the views of people under real time conditions. Meaning that, qualitative research is about determining and providing insight into the "why and how" of decision making within particular method or technique and not just the "who, when, what and where (Tracy, 2012:3). Wagner et al. (2012:273) found that qualitative data was set to help understand phenomena with regards to the meaning it had to the participants; whereas Hoe and Hoare's (2012:55) described quantitative research as a research method that yields information that can be measured or counted to develop a conclusion. Furthermore, quantitative research can be used to define the relationships that lie between variables as well as for measuring the

frequency of observations (Hoe & Hoare, 2012:55). This study adopted a qualitative research method, and this is the third layer of the study's research onion. And the researcher deemed this research method as most ideal of the study as it allows one to understand the story through the participants' eyes and as put by Naude (2018:101), "examines the meanings, definitions, concepts, symbols, characteristics and descriptions of things." Other benefits of this method are depicted in Figure 4.3 below.

Figure 4.3: The Benefits of Qualitative Research



Adapted from: Sekaran and Bougie (2016:337)

The benefits of qualitative research assure that making use of this research approach was most appropriate to achieve the main objectives of this research. Conducting focus group discussions (FGDs) with the organisation in this study allowed for a variety of answers being obtained and gave a better understanding of subject in study. Furthermore, it gave the participants a platform to give their perspectives to the study thus allowing for a more realistic view of the study in question.

4.9 RESEARCH STRATEGY

Saunders et al. (2016: 177) define a research strategy as a plan that the researcher will make use of to answer the research questions of a study. Denzin and Lincoln (2011: 2) describe a research strategy as a "methodological link" that is between a researcher's philosophy and

choice of data collection and analysis methods. This study was exploratory and descriptive thus a case study approach was deemed appropriate. The choice of research strategy should be aimed at allowing the researcher to achieve coherence throughout the research design enabling the researcher to answer the research questions as well as meet the study's research objectives (Saunders et al. 2016:178). For this study, the researcher adopted a case study as a research strategy. Yin (2015:8) describes a case study as a detailed analysis of a topic within a real life setting. The "case" in case study may represent a person, group, organisation, association, process, or even an event. The researcher decided on a case study strategy as this research was solely focused on one organisation, Apparel Retailer A.

The reason for choosing one organisation was based on the size of the industry which consists of 93 apparel retailers that are formally registered, based on research done by ResearchAndMarkets.com in 2019 (Wood, 2019). Of these 93 organisations, MarketLine identified four of these organisations as the market leaders in the South African industry and Apparel Retailer A is one of them. Therefore the aim of using one organisation was to narrow the list down in the most ethical way possible. Financial limitations and time constraints, also contributed to the researcher decision to use Apparel Retailer A as a case study as it is the only major retailer located in close proximity to where the researcher lives. The other major retailers are between 6-18 hours away from where the researcher lives. Furthermore, being one of the top five largest apparel retailers in the country (Marketline Industry Profile: South Africa, 2018:7), also contributed to Apparel Retailer A being deemed as appropriate to use as a case study.

The empirical research carried out in this study consisted of conducting FGDs at the Apparel Retailer A's head office. The participants included fifteen planners who were split into three groups of five, six and four participants respectively.

4.10 DATA COLLECTION

Three FGDs were conducted face-to-face by the researcher to collect the primary data. Welman et al. (2009:196) describe focus groups as a type of qualitative research method used by academics to explore a specific population's understanding and knowledge regarding a particular topic. Koskan et al (2014:1-2) suggest that focus groups can be conducted through face-to-face meetings, telephonically or via video calling. Telephonic and video-calling focus groups are ideal for geographically dispersed participants. However, Cote-Arsenault and Morrison-Beedy (2004:1) pointed out that a good number of researchers perceive face-to-face

focus groups better. The reason for using this method was because the population was too large to conduct individual interviews. Furthermore, the method was deemed appropriate because it allowed the researcher to gather participants from a similar working experience to discuss a shared topic of interest. The consent forms were sent to the participants prior to conducting the discussion in order to inform them about the benefits of the study and how, when and where the discussion would be carried out.

4.10.1 Population

Sekeran and Bougie (2016: 236) refer to a population as people, business organisations, events, or things that a researcher has interest in and thus wishes to investigate. The elements of this study's population are leading South African apparel retailers as the retail industry is quite vast with over 95 organisations that have registered profiles. Of those 93 organisations, four were listed by MarketLine (a world leading research organisation with regard to commercial Intelligence that gives access to deep, sector-specific intelligence as well as real-time news about industries) as the leading organisations in the South African Apparel industry. Apparel Retailer A was one of them (Marketline Industry Profile: South Africa, 2018:24). The researcher could not conduct a multiple case study as the researcher works for Apparel Retailer A and this may not have been deemed ethically appropriate. With that, the study was only based on one case study, Apparel Retailer A.

4.10.2 Target Population

Sekeran and Bougie (2016:242) refer to target population as a group of people, event and/or matters of interest that an investigator, academic or researcher may want to investigate. The target population for this research included the ***Brand Merchants*** and ***Merchant Planners*** from the planning department of Apparel Retailer A's apparel division as they work with all major functions in the organisation (these include, Finance, Marketing, Operations, HR and IT) when making demand planning and forecasting decisions. The reasoning behind the selection of this particular organisation is because Apparel Retailer A is not only one of the biggest apparel retailers in South Africa, but the organisation's Apparel Division is the cash-cow of the business. Furthermore, the target population is responsible for analysing the information provided by the marketing department, looking at the suppliers at hand that are capable of delivering the required products at a fair price, evaluating the demand trends of the products in specific locations and then allocating the products to the different stores in different locations according to the various area demands.

4.10.3 Sampling Method

A sample is described as elements or subgroups that are selected from the population that is to be investigated (Sekaran & Bougie, 2016:241). In addition, Tailor (2005:148) describes a sample as a piece of a population. Sampling techniques are used to determine the appropriate elements of a population at study and can be categorised in two groups, known as probability and non-probability sampling.

4.10.4 Probability/Non-Probability Sampling

Walliman (2011:62), describes probability sampling as a technique in which every element in the population has an equal probability of being selected from the population or being made part of the sample. Each participant has a known "nonzero chance" of being selected for the study in a random selection procedure (Etikan, Musa & Alkassim, 2016:1). In addition, Sekaran and Bougie (2016:247) describe probability sampling as necessary when the population is large but all elements of the population have the information needed by the researcher. In contrast, with non-probability sampling, randomisation is not considered to be important when selecting a sample from the population in study.

A study by Marschan-Piekkari and Welch (2004:190) found that, in non-probability sampling, not all elements of a population have an equal chance of being selected to be a part of the sample. Etikan et al. (2016:1) found that subjective methods are made use of in non-probability sampling to make a decision pertaining to the elements that will be included in the sample. Non- probability sampling is a process where a sample that does not provide each element within a population an equal chance of participating (Etikan et al., 2016:2). For this study, a non-probability sampling technique was used. This sampling method was deemed appropriate, as a limited number of members in a population have the information that the researcher seeks, in this case employees in the Planning Department of Apparel Retailer A's apparel division. Kothari (2012:15) describes non-probability sampling as "deliberate sampling" as it involves the deliberate selection of units within a population. Sekaran and Bougie (2016:252) divide non-probability sampling into two categories:

- Convenience sampling – the collection of information from accessible members/elements
- Purposive sampling – used for the collection of information from specific participants as they meet the standards set by the researcher.

For this study, the non-probability convenience sampling technique was used. The convenience sampling method technique was deemed appropriate since the sample was drawn from a segment of the population that the researcher had access to. Etikan et al. (2016:3) describe convenience samples as "accidental samples" since the elements may be selected simply because they may be situated close to the researcher, as well as being easy and affordable. Creswell (2013:93) remarks that convenience sampling is ideal for a case study as it helps to ensure the collection of accurate and reliable data, with the sample under study able to be easily reached.

4.10.5 Participants

Five brand merchants and ten merchant planners from Apparel Retailer A were part of the FGDs. The participants were broken down into three groups of five, six and four participants respectively. Initially, the researcher had requested for 30 interviews as the department has 30 employees but the organisation could only allow half (15 participants) of the team to participate as this would have inconvenienced the organisation's operating hours. The participants were selected for the study as they are responsible for the day to day planning, forecasting and allocation of the organisation's products. Thus, the participants were deemed appropriate to be included in the study since they were able to provide the required data to answer the study's research questions.

4.10.6 Discussion Guide

Existing literature was collected from available resources in order to construct a focus group question guide. The researcher put together a question guide comprising five questions, which are each further broken down into probing questions. Palomba and Banta (1999:196) argue that the questions in the guide should be short, clear, open-ended and worded in such a way that participants may remain engaged in the discussion. FGDs allow participants to provide an insight into a group's line of thought and they provide the researcher with a wide range of opinions and ideas as well as the inconsistencies that may exist within a particular practice and/or experience.

Eliot and Associates (2005:3) broke down the questions in the guide into three sections, namely, engagement questions, exploration questions and exit questions, a method which was adopted also by the researcher for this study. The discussion guide contained five main engagement questions that were mainly focused on introducing the topics discussed in the study's research questions. The other questions were exploration questions (to gain insight into

the knowledge that the participants had pertaining to the topic in question) and exit questions (to allow the researcher to round up the discussion and move on to the next topic). The discussion was moderated, led, guided and monitored by the researcher.

4.11 ETHICAL CONSIDERATIONS

Ethics is defined as the study of moral principles in human behaviour (Wagner et al., 2012:270). At the outset, the researcher was required to obtain a gatekeepers letter from the organisation of choice, Apparel Retailer A, giving the researcher permission to obtain data from the organisation's employees. Once the gate keeper's letter had been granted, an application for ethical clearance was submitted to UKZN to ensure that the research met the ethical requirements both of the university and the company in question.

Emphasis on a consideration of ethics as well as of ethical behaviour during the research design and implementation processes is of paramount importance to ensure that participants are protected at each stage of the study (Saunders et al., 2016:220). The study should not have a negative impact on the participants, and the researcher should ensure that participants are physical, emotionally and intellectually protected at all times.

With full ethical clearance given and an approval letter granted (see Appendix 1) and before the FGDs could be conducted, the researcher requested each participant to complete a letter of consent. This was to ensure that the participants read, understood and were agreeable to participating in the FGDs. To maintain anonymity, the researcher has made use of pseudonyms to quote the participants. The data that was collected from the participants was not taken out of context; it was voice-recorded and transcribed word-for-word to preserve its integrity.

4.12 DATA QUALITY

Conducting FGDs allowed the researcher to elicit large amounts of data from the participants. To achieve this, the researcher ensured that rapport was established and maintained within each group and asked questions that were concise and unambiguous, carefully listening to the responses that were given by the participants and recording each discussion that was held (Adams, Khan & Raeside, 2014:150). The researcher aimed to obtain reliable, trustworthy and credible primary data and also to reduce the chances of eliciting the wrong information from participants. Hence Guba's 1981 model of trustworthiness was used (Lincoln & Guba, 1985: 301). The reason for using Guba's model was to ensure that rigour was maintained in order to

prevent errors within the study (Saunders et al., 2016:202). This model tests rigour with regard to four aspects, namely, "credibility, dependability, transferability and conformability," to ensure that quality of the data is maintained (Guba, 1979: 269).

For this study the researcher telephonically consulted with Apparel Retailer A's KwaZulu Natal Regional Operations Leader to identify the participants who would have the necessary expertise and knowledge of the topic at hand. The researcher was then referred to the Planning Director. The participants were able to provide evidence that supported the information they were providing as well as to validate the data itself by demonstrating how the system worked on their hardware equipment. However, transferability of the data or external validity of the data is not easy to confirm as the researcher was not given hard-copy and the study was based on one organisation. During the discussions, the moderator ensured that one individual does not dominate the group discussion as this may have created a bias in the results.

Each of the approaches in this model are discussed in the next section so as to provide for the establishment and assessment of the quality of the research.

4.12.1 Data quality control

The primary data that was collected by the researcher was qualitative data which was collected by means of FGDs. The data collected was subjective, based on opinions and expertise, and could not be quantified into numerical data; however, to ensure that the data that was gathered was reliable, trustworthy and credible, the researcher used Guba's 1979 model of trustworthiness (Lincoln & Guba, 1985: 289). The trustworthiness of this study is based on credibility, dependability, transferability and conformability:

- ***Credibility*** – Is there truth in the findings? Adams et al. (2014:100) describe credibility to be whether the claim, given what is known about the research that was conducted, can be judged to be true. The authors identified credibility as the ultimate goal of research, as it ensures confidence in the information being collected by the researcher. Credibility relates to internal validity, which Sekaran and Bougie (2016:172) describe as the extent to which the findings of a study are believable and trustworthy. Saunders et al. (2016:397) point out that the issue of concern when conducting qualitative data is bias from either the researcher or the participants. Thus, the comments given, tone and non-verbal behaviour of the researcher can bias the way in which the participants respond to the questions; the participants' perception of the researcher may also cause them to be reluctant to participate or respond to the questions truthfully.

In the current study, the researcher behaved professionally, was enthusiastic, and showed knowledge, confidence and articulateness in order to establish credibility, trust and rapport as well as to keep participants motivated and willing to respond honestly (Sekaran & Bougie, 2016:119). The right behaviour allows participants to be at ease to share truthful and informative information without any concerns or anxieties. The researcher asked open-ended questions that were broad in the beginning and then narrowed down to specific topics; participants were also offered clarification of questions and given time to consider before responding. The FGDs were audio-recorded and transcribed.

- ***Dependability*** – Is there consistency in the findings and can they be repeated? Dependability ensures that the study is reliable. This means that if the study is to be repeated in the same context, using the same methods and the same participants, the results obtained would be similar (Sekaran & Bougie, 2016:348). Dependability and credibility are closely related to each other since credibility cannot be achieved without dependability (Polit & Beck, 2018:539).

  In the current study, attention was paid to potential bias from the researcher and participants. The researcher could have demonstrated bias through the way in which the responses are interpreted; the participants could have provided partial information about the situation with the aim of presenting themselves in a positive light (Saunders et al., 2016:397). To alleviate these concerns, the researcher transcribed the audio recordings word-by-word and conducted three FGDs so as to evaluate the consistency of the results obtained from the three groups. The data collected from the different FGDs cannot necessarily be repeated in exactly the same words, but there would be similarities.

- ***Transferability*** – Are the findings applicable to other contexts? Transferability refers to external validity or generalisability, that is, the extent to which the findings of this research can be generalised to other apparel organisations (Sekaran & Bougie, 2016:188). Transferability refers to the ability of the proposed study to be applied to other situations (Adams et al., 2014:249).

  It was therefore the responsibility of the researcher to ensure that there was sufficient contextual material about the research area for the reader to make a transfer (Saunders et al., 2016:400). One concern about generalisation may arise from the fact that this study was based on only one organisation; however, Apparel Retailer A is one of the leading apparel retailers in South Africa and has over a thousand stores across the country and around the

world, and hence the findings from the study are likely to be valuable to the industry. Furthermore, another researcher may use the same research structure as used in this study to design an analogous study for a different apparel organisation.

- ***Confirmability*** – To what extent did the participants shape the results of the findings without bias from the researcher? Conformability refers to objectivity of the study meaning that the findings and conclusion drawn from the study are based on the facts derived from the findings of the study and not the researcher's subjective values (Sekaran & Bougie, 2016:21). This ensures that the steps taken to establish the study's findings are a result of the participants' ideas and experiences rather than the preferences of the researcher (Adams et al., 2014:245). Conformability ensures that the data reflects the information provided from the participant and not that of the researcher as the integrity, quality and objectivity of the research depended on the researcher being open and maintaining accuracy when interpreting the data collected (Saunders et al., 2016:243). To ensure that objectivity is maintained, the researcher has handed over the transcribed FGDs and a CD containing the audios to the supervisor of the study so that this material is available.

With the data collected, the researcher then interpreted and evaluated the gathered data. The next section of the study assesses the methodology used to analyse the collected data.

4.13 DATA ANALYSIS

Maguire and Delahunt (2017:3351) describe a qualitative researcher as the research instrument as his/her understanding, description and analysis of the participants' responses is key for revealing the meaning of the data collected. In the current study, use of an audio recorder during the FGDs allowed the researcher to transcribe all of the discussions, enabling the transcription extracts to be read and re-read in the analysis of the data collected. Creswell (2013:117) describes data analysis as the process of minimising a large amount of data and putting it in the form of succinct information. Data for this study was analysed using thematic analysis. Braun et al. (2018:1) describe thematic analysis as a method that identifies, analyses and reports patterns or themes within data and then minimally organises and describes the collected data in detail. The top-down/theoretical thematic analysis approach was used as it is driven by the study's research questions as well as the researcher's focus.

The steps taken to analyse the collected data are summarised in Table 4.1.

Table 4.1: Steps Taken to Analyse the Collected Data

Step 1: Become Familiar with Data	With the audio-recorded data transcribed, the researcher thoroughly read the transcription extracts to become familiar with the collected data. The aim of reading and re-reading was to note early impressions in reading through the information.
Step 2: Generate Codes	The researcher systematically organised the information into smaller meaningful chunks with the aim of summarising the information. At this stage, the research questions were kept in mind whilst the chunks of data were analysed. Each segment of data related to the research questions is coded accordingly.
Step 3: Generate Themes	Themes are patterns that capture something noteworthy about the collected data and research questions. The codes were examined and organised into the themes related to the research questions.
Step 4: Review Themes	The data relevant to each theme was put together, and thereafter the preliminary themes were reviewed, modified and developed.
Step 5: Define Themes	The essence of what each theme was about was developed, with the aim of finally refining the themes. This allowed for the development of clearer theme names signalled the "core of each theme" and for the development of a thematic map.
Step 6: Write Up	The researcher re-visited the research questions, the notes made during Step 1, the list of codes and the defined themes in order to answer the research questions.

Adapted from: Maguire and Delahunt, 2017; Braun et al., 2018.

This method allowed the researcher to identify and trace major themes from the information provided by the participants during the FGDs and to examine the data with regard to the topic under study in deductive and grounding manner. The themes that did not meet the line of study were excluded from the research.

4.14 CONCLUSION

This concludes Chapter 4 of this study. The aim of the chapter has been to provide an in-depth explanation of the research process during the study. This chapter has identified the research approach and the design as well as the strategies, methods and techniques that were used to

collect the primary data. Ethical considerations were explained. The methods used to analyse the collected data were also described.

The next chapter analyses and discusses the findings from this study.

CHAPTER 5: ANALYSIS AND DISCUSSION OF DATA

5.1 INTRODUCTION

This chapter presents, analyses and discusses the empirical data that was collected at Apparel Retailer A's head office. To collect the data, three FGDs were conducted with a total of fifteen participants from the merchant planning department at Apparel Retailer A's apparel division. Eleven of the participants were female and four were male. Of the fifteen participants, five were the team leaders for the merchandise planners (designated here as "brand merchants") and ten were merchandise planners (designated planners). All the participants work for the organisation on a full-time basis and are permanently employed.

A total of 182 minutes and 39 seconds (3 hours, 2 minutes and 39 seconds) was spent on conducting the FGDs, which were spilt into groups of five, six and four participants respectively. The discussions were guided by five open-ended questions, which started with engagement questions to introduce the topic. These were followed by exploration questions to gain more detail of the discussion. Finally, there were the exit questions to help check if anything had been missed during the discussion. All of the participants willingly contributed to the discussion.

5.2 REVISITING THE RESEARCH OBJECTIVES

Before the presentation of the data and findings, it is apposite to re-visit the study objectives. Table 5.1 represents a summary of the research objectives as well as the sections in the chapters that relate to the completion thereof.

Table 5.1: Research Objectives and the Sections that Cover the Objectives

RESEARCH OBJECTIVE	EXISTING LITERATURE	EMPIRICAL DATA
To determine the type of demand forecasting and planning methods that South African Apparel Retailers use based on Apparel Retailer A's operations.	Section 2.2 Section 2.3 Section 2.4 Section 2.5	Section 5.5.2.1 Section 5.5.2.2 Section 5.5.2.3

To identify the factors that influence demand forecasting and planning within the South African apparel industry using Apparel Retailer A as a case.	Section 3.3	Section 5.5.4 Section 5.5.4.1
To determine the initiatives Apparel Retailer A has in place to minimise the negative impact of these factors.	Section 3.4	Section 5.5.4.2

Source: Compiled by researcher.

5.3. ANALYSIS OF QUESTIONS AND RESULTS

Each question on the discussion guide focused on the key operations involved in the planning of demand for customers in the apparel industry: supply chain management; forecasting methods, processes and techniques used to plan for future demand, demand forecasting and planning systems; identification of the factors influencing demand; and lastly, the initiatives in place to alleviate these factors. The questions were modelled from the data derived from the conceptual framework in Section 3.7 of the study. Table 5.2 identifies the key question areas for each stage of the discussion.

Table 5.2: Focus of Each Question in the Focus Group Discussion Guide

QUESTION	FOCUS OF THE DISCUSSION
Question 1	Understanding Apparel Retailer A's supply chain and the participants' role in the supply chain
Question 2	Identification of demand forecasting and demand planning methods/techniques and systems used at Apparel Retailer A
Question 3	Understanding the role of internal and external stakeholders in forecasting and planning for demand
Question 4	Identification of factors that influence demand forecasting and planning as well as initiatives Apparel Retailer A has in place to alleviate these factors

Source: Compiled by researcher.

The purpose of each section of the discussion and the underlying questions are presented below before the results gathered from the research are presented. Any information that was not relevant to the objectives of the study has been omitted.

5.4 PROFILE OF PARTICPANTS

The participants who were selected for this study manage the forecasting and planning for future demand in Apparel Retailer A's apparel division. Seven of the participants had been in the organisation for three to four years, four of the participants for five to ten years, and the other four for eleven to seventeen years. Five of the participants were brand merchants (team leaders) and the rest were merchandise planners, meaning the participants had in depth knowledge of the forecasting and planning of apparel merchandise in the organisation. Six of the participants were from the ladies' department. Table 5.3 depicts the profile of the participants who took part in this research. The table includes a brief summary of each participant's position in the organisation, the department the participant works from and their years of service. The profiles of the participants in the focus groups are presented in Table 5.3.

Table 5.3: Profile of the Focus Group Discussion Participants

PARTICIPANTS (N=15)	POSITION	GENDER	DEPARTMENT	YEARS OF SERVICE	DISCUSSION DURATION
FOCUS GROUP 1					
Participant 1	Planner	Female	Ladies Brand A	4	1 HOUR 23 SECONDS
Participant 2	Planner	Female	Ladies Brand B	3	
Participant 3	Planner	Female	Ladies Brand C	4	
Participant 4	Brand Merchant	Male	**Team leader** – Ladies and Kids Brands	7.5	
Participant 5	Planner	Female	Kids Brand C and Men's Brands	5	

FOCUS GROUP 2					
Participant 6	Planner	Male	Men's Brand A and Kids Brand B	3	1 HOUR 3MINUTES 53 SECONDS
Participant 7	Planner	Male	Kids Brand A	4	
Participant 8	Planner	Female	Ladies Brand E and Kids Brand C	14	
Participant 9	Planner	Female	Ladies Brand D	3	
Participant 10	Brand Merchant	Female	**Team leader** – Men, Ladies and Kids Brands	13	
Participant 11	Brand Merchant	Male	**Team Leader** – Ladies Brands	11	
FOCUS GROUP 3					
Participant 12	Planner	Female	Big Boys	8	58 MINUTES 20 SECONDS
Participant 13	Brand Merchant	Female	**Team leader –** Men's Brands	17	
Participant 14	Planner	Female	Ladies and Men's Accessories Brands	3	
Participant 15	Brand Merchant	Female	**Team leader –** Kids Brands	7	

Source: Compiled by researcher.

5.5 FINDINGS

This section of the study presents the findings based on the thematic analysis of the FGDs. Table 5.4 provides a summary of the thematic analysis of the FGDs consisting of a thematic map of the themes, sub-themes and codes of the data collected. The contents of the thematic map are discussed in detail in Sections 5.5.1, 5.5.2, 5.5.3 and 5.5.4.

Table 5.4: Thematic Map of the Focus Group Discussions

THEME	SUB-THEMES	CODE
THEME 1: **Apparel Retailer A's supply chain** (Section 5.5.1)	Meaning of SCM	Management, alignment, product inception
	Roles of participants in supply chain	Forecasting, planning, internal and external collaboration
	Areas of improvement in supply chain	New systems, shorter lead-times, flexibility, consistency, communication

THEME 2: **Demand forecasting and Demand Planning Techniques** (Section 5.5.2)	Meaning of demand forecasting and demand planning	Market needs, reactability, supply vs demand
	Types of forecasting and planning techniques used at Apparel Retailer A	Forecasting tools, demand planning process
	Demand forecasting and planning techniques that Apparel Retailer A should be using	New systems, consistency
THEME 3: **External and Internal Stakeholders** (Section 5.5.3)	External Stakeholders that are involved when planning for demand	SCM and External collaboration, relationship management
	Departments involved in demand planning	Internal collaboration
	The role of the departments involved	Internal stakeholders
	Supply chain partners and real time replenishment	Supply chain integration, lead-times
THEME 4: **Factors influencing demand forecasting and planning** (Section 5.5.4)	Factors that influence demand forecasting and demand planning	Competitors, economic issues, weather and the environment, suppliers, system issues, social issues, poor collaboration, social media
	Initiatives to alleviate the influence of these factors on demand forecasting and planning	Lessening effects of factors above

Source: Compiled by researcher.

Each of the themes in the Table 5.4 are broken down in more detail in the sections that follow. The main themes of the study include: understanding the supply chain of Apparel Retailer A and the roles of the participants; identification of the demand forecasting and demand planning methods that are used by Apparel Retailer A; understanding the roles of internal and external

stakeholders; and the identification of factors that influence demand forecasting and demand planning at Apparel Retailer A and of initiatives that can alleviate these factors.

5.5.1 THEME 1 – Apparel Retailer A's Supply Chain

This section of the study is broken down into three sub-themes: what the participants understand the terms supply chain and supply chain management to mean; the roles of the participants in the supply chain; and the areas where Apparel Retailer A needs to improve in the supply chain. This part of the study aimed to clarify how the Apparel Retailer A supply chain operates, to establish what the term supply chain management meant to the participants, to identify the participants' key roles within the supply chain, and lastly, to determine if the participants had any suggestions on how the supply chain could be improved. In each sub-section, the analysis of the responses is given and then the responses from the participants for each question are tabulated (Tables 5.5, 5.6 and 5.7).

5.5.1.1 Meaning of SCM for Participants:

This sub-theme explores the meaning of SCM to the participants with respect to Apparel Retailer A's apparel division. One of the participants described SCM at Apparel Retailer A:

> *"We refer to it as the Critical Path. It is doing things in enough lead time to ensure the product arrives in the store. It's getting enough time to work the product from start to finish and get it to customers when they really need it. It's a collective effort, where the supplier is kept as a part of the plans"* (Participant 5).

The other participants described SCM as the management of their critical path, the alignment of the organisation's critical path to that of their suppliers, the management of product inception from start to finish and getting the product to stores on time, the understanding of the strengths and weaknesses of the supply chain partners, and ensuring that the right products are available to meet demand. Li and Li (2017: 72) found that an accurate definition of SCM would be mandatory for the successful implementation of supply chain strategies. As one of the participants stated:

> "*It's like you're talking alignment with your suppliers who can actually get to those quantities that you require down the line… And the efficiencies within the pipeline, and so where is it being sourced from. In terms of timing, how efficient is it, reactability, how quickly can we package and be out of stock, our DC and how efficient it is. It's multifaceted*" (Participant 7).

Table 5.5: Meaning of SCM for Participants

Meaning of SCM to participants.	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Management of the critical path.				✓		✓	✓				✓	✓			
Alignment of organisation's critical path with that of suppliers.	✓			✓	✓					✓	✓				
Management of product inception from start to finish.			✓	✓				✓	✓			✓	✓	✓	
Understanding of supply chain's strengths, weaknesses and capabilities.		✓		✓			✓				✓				
Ensuring the right products are available to meet demand.			✓	✓			✓								

Source: Compiled by the researcher

The APICS dictionary (2015:internet) describes supply chain management (SCM) as the running, controlling, and monitoring of supply chain activities with the objective of creating and building a competitive infrastructure that leverages global logistics, matching supply with demand and evaluating supply chain performance. From the findings and the research discussed in Section 2.2 of the study, it can be concluded that the participants appear to have an understanding of what SCM is. The responses given by the participants pertaining to their understanding of the term SCM are presented in Table 5.5. The codes of this theme featured predominantly in the results found in Section 2.2 of this study.

This concludes this subsection of the study. The next sub-theme identifies the participants' key roles within the supply chain.

5.5.1.2 Key Roles of Participants in Apparel Retailer A's Supply Chain

The second sub-theme helped define the key roles of the participants within Apparel Retailer A's apparel supply chain. In relation to the four pillars of SCM, Ahmed (2015:1) states that the talent within the supply chain should have well defined roles and responsibilities, so the supply chain operates efficiently and effectively.

The participants described their key responsibilities as: the management of supplier relationships, ensuring orders have been raised on time, management of services levels within the supply chain and ensuring the customers get what they want, maintaining a consistent and agile supply chain, understanding and managing the functionality and efficiency of the main forecasting tool, "**Tool A**", incorporation of other functions when it comes to making demand forecasting and planning decisions, managing their respective business portfolios and understanding the supply chain as whole with respect to who does what, when and how.

Participant 12 briefly described the roles of a merchant planner and a brand merchant as follows:

> *"So you need to know when to focus your different time frames and your energy on your different categories and that is going to influence what you do with your supply chain. So that's from the role of a merchant planner. And then as a brand merchant you need to know what we can get into the market, we can get out of it"* (Participant 12).

Slone et al (2010:12) indicate that it is imperative to have the right talent and to fulfil the right responsibilities in order to be able to align the best strategies within a supply chain. The responses given by the participants revealed a close relationship between the roles of the participants and their understanding of SCM. This correlation is set out below and the responses of the participants pertaining to their responsibilities are matched with the codes from Section 5.5.1.

- ***Management of the critical path*** – "*Consistency and being agile. If you are not agile enough to react to those things that are coming up to the ball and having a plan for those, 'end of product life-cycles' and being consistent in every point of the way of the critical path*" (Participant 10).
- ***Alignment of organisation's critical path with that of suppliers*** – "*It's managing, your relationships with your suppliers…seeing if there is anything we may need to adjust according to the plan*" (Participant 2).
- ***Management of product inception from start to finish*** – "*Besides managing the supply chain to forecast your demand properly, you've got to have some knowledge of the product…so we kind of have product knowledge, supply chain knowledge, you've got to have marketing knowledge. So you kind of multifaceted*" (Participant 15).

- ***Understanding of supply chain's strengths, weaknesses and capabilities*** – "*You need to know your supply chain, know it in and out; who does what, when and how*" (Participant 12).
- ***Ensuring the right products are available to meet demand*** – "*You are responsible to know that an order is not arriving on time, you need to acknowledge it there and make a plan*" (Participant 10).

In addition, Participant 4 added: "*A planner is in charge of the forecasting and planning of demand for sales.*" This comment is further justification as to why the participants were ideal for the study.

Based on an analysis of the responses given by the participants and the data found in Section 2.3.1 of the study, the participants have well defined and established roles within Apparel Retailer A's apparel supply chain. Table 5.6 points out the responses given by the participants with respect to this theme.

Table 5.6: Key Roles of Participants in Supply Chain

Key responsibilities of participants in the Apparel supply chain	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Management of supplier performance and relationships	✓	✓	✓	✓	✓	✓						✓	✓		
Managing and using the organisation's main forecasting tool				✓				✓			✓				
Management of respective business portfolios	✓	✓	✓	✓					✓	✓					✓
Raising of orders in time		✓	✓	✓		✓			✓	✓					
Management of forecasts and plans for future demand	✓	✓	✓	✓	✓		✓			✓	✓		✓		✓
Management of product life cycles	✓		✓	✓						✓					
Management of service levels with respect to deliveries and meeting of customer's expectations		✓		✓	✓	✓				✓					

Source: Compiled by researcher.

The next section identifies the areas that require improvement within Apparel Retailer A's apparel supply chain.

5.5.1.3 Areas of Improvement in Apparel Retailer A's Supply Chain

This sub-theme examines the areas within Apparel Retailer A's supply chain that require improvement. Section 3.2.2 of the study highlights the significant growth and industrial changes that the South African apparel industry is facing due to the increase in competition and technological advancement. To cope with the new entrants in the market, South African apparel organisations will have to invest in the continuous improvement of their supply chains. According to the participants, Apparel Retailer A's apparel division could improve the performance of their supply chain by:

- Getting a replenishment system that may help with the current overbooking of stock which in turn overwhelms the organisation and its supply chain partners
- Getting a product life cycle management and analysis system to help with better visibility of a product's performance
- Becoming more consistent through sticking to their critical path so they will be able to communicate orders on time to their suppliers for quicker response and shorter lead-times
- Buying in categories and not in brands as a way of cutting costs and speeding product turnaround
- Having their own in-house production factory that will allow the supply chain to respond quicker to real time demands
- Using a real time trend turn-on system that would allow them to react faster to market demands.

Participant 14 gave a clear perspective and summed up the above by stating that:

> "*Being a fashion business, there's so many other unpredictable elements in terms of trends that come into play, which we need to be on top of. Shifting our product in order to optimise sales, to optimise the supply chain, so that we have supplier partnerships and sustainability with suppliers. We need to be doing things fairly. Right now we expect the impossible from our suppliers because we actually don't understand where they are at in the production lifecycle. So I definitely think a PLA (Product Lifecycle Analysis System) is what we need. So then we have the visibility of what's happening on the other side of the supply chain.*"

Additionally, for a fast fashion retailer, Apparel Retailer A's supply chain has very long lead times compared to their international competitors, such as Zara.

> "*Our supply chain isn't fast enough…Zara takes something like **21** days from inception to floor and we're still talking 140 days plus*" (Participant 4).

Thus, Apparel Retailer A's supply chain is seven times slower than that of their competitor Zara. The responses given by the participants pertaining to the improvement of the organisation's supply chain have been tabulated in Table 5.7. The responses show that the participants not only understand what SCM is and their roles within the supply chain but they are pay attention to areas that require improvement within the supply chain.

Table 5.7: Areas of Improvement within Apparel Retailer A's Supply Chain

Areas of improvement in Apparel Retailer A's supply chain	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Shortening of supply chain lead times				✓				✓	✓	✓		✓		✓	
Improving the flexibility of the supply chain			✓	✓		✓	✓			✓			✓		
Acquiring a product life cycle system					✓			✓				✓		✓	
Developing an in-house production factory	✓		✓				✓								✓
Improving and maintaining consistency in the supply chain					✓	✓	✓		✓	✓					
Acquiring a replenishment system		✓		✓	✓		✓		✓			✓	✓		✓
Improving communication and structure of supply chain	✓		✓	✓		✓	✓		✓					✓	
Buying in categories and not brands						✓				✓	✓				

Source: Compiled by researcher.

5.5.2 THEME 2 – Demand Forecasting and Demand Planning Techniques

The main aims of Theme 2 of this study were: to get insight into the types of systems Apparel Retailer A uses to forecast and plan for demand in the Apparel Division, to establish if the methods were shared across the supply chain, and to identify other types of forecasting and planning methods the participants think Apparel Retailer A should be using. The analysis of

the responses from the participants is given first and then the responses are tabulated in Tables 5.8, 5.9 and 5.10.

5.5.2.1 The Meaning of Demand Forecasting and Demand Planning for the Participants

The first sub-theme of this section of the study was aimed at exploring the meaning of demand forecasting and demand planning from the participants. Based on their knowledge and experience, the participants defined demand forecasting and demand planning as:

- **Demand Forecasting:**

  "*Demand forecasting is a 'blue-sky', because you can forecast what you ultimately want and you can plan it down to what realistically works*" (Participant 7).
  "*For me the forecasting refers to the sales line. In terms of trying to pin a number to it and saying where the future lies in terms of future forecast*" (Participant 11).

- **Demand Planning:**

  "*Demand planning is just giving the customer what they want, when they want it*" (Participant 6).
  "*So that reaction in the pipeline; how fast we act, react, change and swap the pipeline is critical to keep the demand going*" (Participant 10).
  "*The planning for me talks more to the nitty-gritty underneath what lies within the forecast…managing our service levels…in terms of saying, we know what this needs to be, how do we physically execute it through our supply chain into stores?*" (Participant 11).

The participants did not have much to share about demand forecasting within the supply chain as it is fully driven by a system across the entire organisation. Thus:

> "*Tool A is our forecasting tool and which goes right down to our subcategory levels. Tool A for us is the first critical responsibility, because it drives forecast overall for the business. Our starting point for us should always our 'bible', which is Tool A*" (Participant 11).

In summary, the participants recognised demand forecasting and demand planning as:

- Giving the customers what they want, when they want it
- The speed at which the organisation reacts in the pipeline
- The identification of "big calls" that need to be met in order to satisfy demand

- Always being aware of current trends and understanding customers' needs as well as what is immediately happening in the market
- Knowing when to "call off" a product that may not be performing well and moving on to the next
- Knowing how react when a product's lifespan has ended
- The effective management of the supply chain in order to meet demand in the market.

The responses given by the participants are tabulated in Table 5.8. The responses given in this table tally with the data given in Sections 2.4 and 2.5 of the study, thus showing that the participants understand what demand forecasting and demand planning is with regard to Apparel Retailer A's supply chain.

Table 5.8: Meaning of Demand Planning and Demand Forecasting for Participants

Meaning of demand forecasting and demand planning for participants	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Understanding what the needs are in the market	✓			✓		✓	✓		✓		✓				
The ability to react to market needs			✓				✓	✓		✓	✓			✓	
The ability to match supply and demand	✓			✓			✓				✓		✓		✓

Source: Compiled by researcher.

The next sub-section explores the different types of forecasting and planning methods used at Apparel Retailer A.

5.5.2.2 Types of Forecasting and Planning Methods Used at Apparel Retailer A

This sub-theme gives a concise description of the different types of forecasting and planning methods that Apparel Retailer A uses.

To begin with, the participants described a process they called the "merchandise cycle" as the method and technique the organisation uses to forecast and plan for demand. Firstly, the participants start by conducting what they called "a post-mortem" of the previous season to gain a better perspective of the previous season's performance and to understand what may have gone wrong, if things did not go according to plan. The participants analyse not only the problems that may have been experienced with the organisation itself but also the challenges

faced by the supply chain partners (such as late deliveries). Thereafter, the participants will do "zero-based planning", a process they described as analysing how the organisation could have performed had the challenges not occurred. This analysis is based on figures and graphs that the participants pull out from the forecasting tool, "Tool A," a system that is designed for the participants, and from Excel. The results obtained from the post-mortem and the zero-based planning are then used as the baseline for the next time they are forecasting and planning for that same demand.

Secondly, the participants have what they call a "strategy meeting" with the trend department; trend informs the participants of what is new and trending in the current season. The participants then sit with the buyers to strategise regarding the products they will be running with for the season, the fabrications, prints, sub-categories and quantities. If the product has been sold by the organisation previously, the participants pull out the baseline that was derived from the performance history. Once the final decisions are made, the leaders of the participants communicate with resource and suppliers for more insight with regard to production and capacity. At the end of the process, top management decides whether the products will go into production or not. Additionally, if the product is already part of the current trade, the participants use "Item Performance, E-focus and Excel," as tools to determine whether to order more of the product.

The participants pointed out that the forecasting and planning of demand is not based on any system and is fully dependent on them themselves, making them the system. This shows that Apparel Retailer A does not separate the forecasting and planning of demand. Thus:

> "*The weird thing is we are never at one point of the process at a time. So if you take it this week, we are currently strategising summer. We've just wrapped up review on July, August, September and we are currently trading April, and post-morteming January, February, March, all at the same time. So we are never in a one-time-space*" (Participant 4).

The participants noted nine types of forecasting and demand planning techniques that they concurrently make use of. Each of these techniques are similar to those mentioned in Section 2.4.3 of the study. The responses matching the theoretical data collected are shown below.

- **Qualitative methods:**

Executive Opinions – "*Top line management, the big bosses, they sit and discuss who they are drawing in and who they are not drawing in. They think about where the company is going and what other focuses that they have to change*" (Participant 13).

Delphi Technique – "*We are working in three different time zones. So you'll be working with each team in a different time zone. You'll be working with trend for strategy for the future and then you'll be working with location for now and also for the past. So you're working with everyone at the same time but for different time zones*" (Participant 15).

Sales Force Composite – "*We have a whole trend department that watches the catwalks, social media and also watches overseas retailers, and they kind of come to us and say, "These are the hot new things for the season*" (Participant 4).

Customer Surveys – "*We do get information from Nielsen's, they do marketing research for us and they present it in terms of market share. How often customers are buying, basket sizes, who's doing well in the market*" (Participant 12).

- **Quantitative Methods:**

Time Series Forecasts – "*We'll do what we call a zero-based planning, which in simple English is, if the season had gone exactly to plan what was the number would have actually done? We kind of take that as the baseline, kind of, it comes up to 'rand growth'. So if everything had gone perfect in the season, we should have done another 5% more sales and that becomes our base. So we know that next year we can't be lower than that 5% because that's what we should have picked up the previous year"* (Participant 4).

Explanatory Methods - "*Demand forecasting is at least one year ahead because you are doing zero-based planning the season you just passed, which is to say for example Autumn 2019. You are then strategising summer 2019, we just started reviewing, sorting and booking orders for spring 2019. we are currently trading winter 2019. So you're working with all four seasons at once and what you require for the demand forecasting and each of your four seasons is so different*" (Participant 14).

Table 5.9 illustrates the responses given by each participant pertaining to the types of demand forecasting and demand planning techniques used at Apparel Retailer A.

Table 5.9: Forecasting and Planning Methods Used at Apparel Retailer A

Forecasting and planning methods and systems used at Apparel Retailer A	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
The merchandise cycle	✓			✓										✓	
Season post-mortem				✓											
Zero-Based Planning				✓										✓	✓
Base lining				✓											
Strategy meeting				✓								✓	✓		
Executive opinions	✓											✓			
Supplier Involvement		✓	✓												
Tool A					✓	✓	✓	✓	✓	✓	✓			✓	✓
Excel					✓	✓	✓	✓	✓	✓	✓			✓	✓

Source: Compiled by researcher.

The main forecasting tool used at Apparel Retailer A is limited to the planning department. Thus:

> "*Tool A. It's just for merchandise planner.*" (Participant 6).
>
> "*Yeah, Tool A is just for the merch planning department*" (Participant 7).

This concludes the subsection on the demand forecasting and demand planning techniques used by Apparel Retailer A. The third and last sub-theme of this section will deal with the demand forecasting and demand planning techniques that the participants think Apparel Retailer A should be using.

5.5.2.3 Suggested Demand Forecasting and Demand Planning Methods for Apparel Retailer A

The aim of this sub-theme was to explore the different ways of improving demand forecasting and demand planning techniques that the participants may have thought of, worked with before at another organisation, or read and learned about on industrial platforms. Five participants clearly pointed out the need for a replenishment system for the improvement of efficiencies in the supply chain:

> "*Well, I think for me having worked in another retailer, I think one of the biggest differences being was having to work with a true replenishment system. Now none of this work is done manually on excel spreadsheets. So that will impact on our business just from a consistency perspective and may give a little bit more stability in terms of replenishment*" (Participant 9).

"*There's no, replenishment tool. So we have to physically raise orders based on the demand forecast that we think the item is going sell. There's no generating system for that*" (Participant 8).

"*Basically, a replenishment system*" (Participant 15).

"*You don't have a really good replenishment system, you've got different ones. You have manual ones where you need to be an IT graduate genius to understand*" (Participant 12).

Additionally, Participant 4 requested a replenishment tool that will allow the organisation to derive the real value of the product as it trades:

"*We don't have a proper replenishment tool that our real brand value can be derived from, it's not in detail, like what is the store going to sell in four weeks' time?*" (Participant 4).

A number of the participants found the use of Excel tedious and time consuming. Participant 8 suggested that Apparel Retailer A acquires a system known as Agility.

"*I worked with Agility which was a replenishment system. I know Apparel Retailer A is working on their own system and I don't know what it's called. I have seen better systems as opposed to the manual Excel spreadsheets*" (Participant 8).

To keep track of current trade with regard to the products that would be in-store, the participants have three main tools which are not integrated with their "bible" and hence makes them quite tedious to use.

"*We've got item performance, e-focus and Excel. All the three tools are used in the current trade plus obviously trying to look at Tool A, which is a financial model. You're looking at items and units, so trying to link units and Rands, really it's quite a challenge. If we had one system that brought it all together in terms of saying, here's your supply chain in terms of where you are from e-focus, here is your item performance in terms of what you're actually selling and meeting of minds in terms of what the forecast brings into it. We've done on excel, but it's very manual for us*" (Participant 11).

Another participant suggested that Apparel Retailer A considers using a system that EDCON (a local competitor) is currently using, known as "Pro-clarity," which integrates information from all the functions across the organisation up to the stores:

> "*At EDCON it was called 'Pro-clarity'. So what used to happen, it had all the POS systems, order systems and everything that's fed into the system. And it was actually just a steroid pivot system…And you could get all your strategy documents that were done by another department. All you had to do is go and click on your department, and everything used to populate. And that was that. And you spend the whole week analysing, you could just get so much info*" (Participant 12).

Conversely, other participants thought that the organisation simply needed to be consistent since it constantly changes things without following the basic house rules of the organisation or the intended critical path:

> "*We are not consistent in our business. I feel like we do these pendulums. We constantly running up and down and that's why demand is never really being fulfilled, because we're changing the way we do things quite regularly, which is great. We have to be innovative, but we could just have those basic house rulings and your business of the critical path, I think the agility will come through for us. But we don't in this business. We tend to swing quite a bit*" (Participant 10).

> "*And it speaks to what [Participant 10], was saying about consistency. One year we present two strategies and four reviews; the next year we present four strategies and four reviews. And it's just kind of stems from that critical path and managing the supply chain. It puts pressure not only on ourselves from getting stuff done, but also we hold off on suppliers for so long and then expect them to*" (Participant 7).

Furthermore, these participants pointed out that, if the organisation was to integrate its internal systems and for a time become conscious when making demand forecasting and planning decisions, there would be room for a much more agile supply chain for the organisation. In addition, two participants noted that a "product development department" and "product life cycle analysis tool" would help the organisation to come up with its own trends and not to have to base all their demand forecasting and planning decisions on current trends.

Table 5.10 below summarises the suggestions given by the participants pertaining to the improvement of demand forecasting and demand planning tools at Apparel Retailer A.

Table 5.10: Suggested Demand Forecasting and Demand Planning Techniques Apparel Retailer A Should Use

Suggested demand forecasting and demand planning methods Apparel Retailer A should use	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No new systems or methods; **Apparel Retailer A** should just improve on consistency						✓				✓	✓				
Acquiring a replenishment system				✓				✓	✓			✓			✓
Acquiring a product life cycle analysis system							✓					✓			
Integrating current systems or acquiring an integrated system.	✓										✓	✓			✓
Working on system limitations				✓											

Source: Compiled by researcher.

This concludes the second theme of this study. The next subsection gives insight into the third theme, which explores the roles of external and internal stakeholders in the forecasting and planning of demand at Apparel Retailer A.

5.5.3 THEME 3 – External and Internal Stakeholders

Theme 3 of the study was aimed at identifying the external and internal stakeholders that are involved in the forecasting and planning of demand in Apparel Retailer A's supply chain. This theme is broken down into three sub-themes which include: the identification of the external stakeholders and supply chain partners that Apparel Retailer A collaborates with when forecasting and planning for demand; the departments that the participants collaborate with when forecasting and planning for demand; and the roles of the departments involved. The analysis of the collected data is given first; thereafter, the responses given by the participants are tabulated in Tables 5.11, 5.12, 5.13 and 5.14.

5.5.3.1 External Stakeholders that are Involved When Planning for Future Demand

The first sub-theme of this section serves to identify the external stakeholders that Apparel Retailer A collaborates with when planning for future demand. Based on the analysis of the data given, the only external stakeholders that the participants deal with are the suppliers and

the marketing research companies. All the participants pointed out that they collaborate closely with selected suppliers, from when they were identifying their responsibilities within the supply chain. The involvement of the market` research Apparel Retailer A companies was mentioned only by participants from the third FGD, who pointed out that Apparel Retailer A does not conduct customer surveys but relies on information from market research companies. For a better understanding of customers' demands, the organisation pays close attention to what is happening on social media and uses information from Nielson's and from the Retail Leaders Circle (RLC) to get insight into other apparel retailers:

> "*We do get information from Nielsen's. They do marketing research for us and they present it in terms of market share, how often customers are buying, basket sizes, who's doing well in the market. So they'll give us a lot of insight because sometimes you do get fairly closed-in in your own perspective*" (Participant 12).

> "*RLC. So they're a company that all the retailers submit the numbers for the past season to. All the retailers kind of agreeing to share information with each other. But what each retailer will see is only their number, against the total market. You can then check that to see who is gaining market share, who is losing market share. And that's a good chapter to understand because then you start to unpack who your customer is, where the other customers are shopping, where the competition is at... it's only for retailers that submit, we pay for it and only if you pay and submit your results to RLC will you get RLC's information back but it's obviously limited*" (Participant 15).

On the other hand, Participant 7 emphasised the need for a customer relations manager:

> "*With regard to customers there is no customer relations manager right now. We get a lot of info from social media. We get inspiration from trend, in terms of what's working or not working. We look at the quarters but know there's no real customer insights.*"

The advancement of technology has allowed Apparel Retailer A to move from sourcing for production locally to sourcing internationally:

> "*In the past five years, w*e've *moved over into FOB which is when they hand over production in China*" (Participant 12).

When planning for future demand, the participants involve a few of their international suppliers, which they refer to as FOBs (Freight on Board), from China and Bangladesh as well as some of their local suppliers. This is done during the strategy meeting:

"*We work with FOBs, which basically means our suppliers overseas. At strategy stage, we do roll up the intention to our supplier as a business and then we do an assessment. And we'll say, who can do that product or what product that they're getting and we kind of balance the risk and the supply side*" (Participant 5).

"*At a strat stage, we let our intention known to our supplier as a business and then we do an assessment. At that stage we are just six months out, we start informing them, these are the units we want, these are the units you're getting for the season and we start hitting those discussions*" (Participant 2).

"*We involve suppliers at Strategy…you then split the business across the suppliers based on what their strengths are, where their units were last year and where the trends are going. And that's why we like to have suppliers that can do a lot of things and are not just one dimensional*" (Participant 10).

The participants do not only involve the suppliers to discover their capabilities or capacity but also to gain information about the production costs or changes that may be taking place on the production side of the supply chain. Thus:

"*Suppliers give us information on um, fabric price increases, orders increases, increases on cotton, and on the dollar... Um, they give us information on any changes in the market, like new ways of working what they are now doing if they have advanced*" (Participant 12).

However, not all suppliers are cooperative since the organisation shares some of its suppliers with other industrial competitors, which can make it a struggle to have orders in on time:

"*The local ones are hungry for business. FOBs are actually trying to get you out to put Woolies in. It's business. If they going to make money from Ackerman's, forget your orders*" (Participant 12).

"*We have one or two suppliers who are fully vertical so there's an example in kids-wear, where they literally make fabric, dye the fabric, print the fabric, produce and deliver; they are fully vertical that and their lead times are a lot shorter, but there's only two suppliers in the entire business that are on that level*" (Participant 4).

This suggests that the organisation's processes are not well aligned with those of their suppliers:

"*Our critical path is not necessarily aligned with some of the suppliers that supply us. And I think it's at that part were everything becomes a little bit blurry because we are not aligned with the supplier side*" (Participant 10).

"*And that's why then strategic partnering with suppliers is becoming so much more important*" (Participant 15).

Although all the participants identified suppliers as the external stakeholders Apparel Retailer A collaborates with, the responses given also highlight the fact that the organisation does not share close relationships with its suppliers. Even the systems shared within the supply chain gives suppliers very limited access to information and does not align the strategies amongst the partners:

"*We have a system called Tool B that's a portal which suppliers log on to. They can see all their orders, they receive their orders, accept their orders check their pricing, their dates, they are booking their orders into the DC, and that's about it*" (Participant 12).

The division lets its suppliers know of their intentions with regard to manufacturing and production only. Distribution and warehousing are handled internally since Apparel Retailer A has its own distribution centre (DC) in KwaZulu Natal:

"We take hold of this stock in China and we consolidate our own containers and we'd bring it in ourselves. We can see everything on the system, it shows that stock is coming in this week or next week" (Participant 12).

However, the DC only started operating a few years ago and there are a number of challenges:

"*Well, the strike, which sat us down for three weeks. It took us eight weeks to catch up*" (Participant 13).

"*There is also equipment issues, because uh, the conveyor belts breakdown quite often so they can't get things through as fast as they are supposed to*" (Participant 15).

The rest of the responses given by the participants are summarised in Table 5.11.

Table 5.11: External Stakeholders Involved when Planning for Future Demand

External stakeholders involved when planning for future demand.	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Suppliers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Market Research Companies												✓		✓	✓

Source: Compiled by researcher.

The next sub-theme looks at the internal departments that the participants collaborate with when planning for future demand.

5.5.3.2 Departments Involved when Planning for Future Demand

The purpose of this sub-theme was to find out more about the departments that the participants collaborate with internally when planning for future demand. The data collected from the participants pertaining to this sub-theme showed that each planner had to work with a buyer daily:

> "*The buyer has to be with the planner every day. They're the ones that then will have the confidence to pick that new silhouette and the new style and go with it and base the demand off of that*" (Participant 7).

There were five departments that were the most popular amongst the participants, with six or more participants mentioning the collaboration they share with these departments, which included:

- ***Trend*** *–"I'll tell you upfront its trend and resource"* (Participant 8).
- ***Resource*** *–"Trend, resource marketing, and finance"* (Participant 10).
- ***Buying*** *– "You've been given a portfolio and you've got to manage your business and you've got to do that alongside your buyer. And it's kind of like one's the left brain and one is the right brain because besides managing the supply chain to forecast your demand properly, you've got to have some knowledge of the product"* (Participant 14).
- ***Finance*** *– "There's buying inputs, there's also resource inputs because if we want a product that's not currently able to be supplied to us from a supply side, we're not going for it without risk's point of view. There are finance elements as well and obviously there's a corporate budget that we need to fit into"* (Participant 2).

- ***Marketing*** *– "So marketing needs to be involved and needs to know like where we are going in the market, what they are going to do, what we are highlighting as big calls or big trend."* (Participant 8).

In total, the participants identified eight internal departments that they closely collaborate with internally when forecasting and planning for demand; these include trend, resource, buyers, finance, senior management (directors), marketing, quality assurance and location planners. Other departments mentioned during the discussions were not as popular with the participants, namely, supply chain, graphics, operations and business analysts. Thus:

> *"Supply chain is definitely one, buying, um, trend, quality, resource. I know we were kind of with marketing as well, graphics is a big one as well. Kids is driven a lot by the graphics department…business analysts have become a really big one"* (Participant 12).
>
> *"Ops would give us feedback in terms of what new stores are opening, what sort of grade classification it would be"* (Participant 14).
>
> *"I'd say we are one of the more collaborative functions, in the merch flow. We are probably the most collaborative function with everyone else that we do nothing in isolation. We are like a massive multifunctional team"* (Participant 13).

These findings imply that the coming together of these departments is dependent on the participants. The responses given by the participants pertaining to the departments involved when they are forecasting and planning for demand are tabulated in Table 5.12.

Table 5.12: Departments Involved when Planning for Future Demand

Departments involved when planning for future demand.	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Trend		✓		✓				✓	✓	✓	✓	✓	✓		
Resource		✓		✓			✓	✓	✓	✓	✓	✓	✓		
Buyers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Finance		✓					✓		✓	✓	✓				
Senior Management							✓					✓			
Quality Assurance												✓	✓	✓	
Marketing							✓		✓	✓	✓		✓		
Location Planners	✓	✓	✓												✓

Source: Compiled by researcher.

This concludes the end of this sub-theme. The next sub-theme serves to explore the roles of the departments that the participants collaborate with internally.

5.5.3.3 Roles of the Departments Involved

This sub-theme highlights the roles of the departments that the participants collaborate with internally. The participants stated the following as the roles of the departments involved:

- ***Trend*** – "*So we have a whole trend department that watch the catwalks, social media and also watch overseas retailers, and they kind of come to us and say;* ***these are the hot new things for the season***" (Participant 4). "*We get inspiration from trend, in terms of what's working or not working*" (Participant 11).

  As a result, participants gain some insight with respect to what is happening in the market (market analysis).

- ***Resource*** – "*The resource guys will go and obviously will put a strategy in place for the suppliers based on where the units were last year and where they are currently in the businesses and how the business is growing*" (Participant 10).

  As a result, participants get to know suppliers' capabilities and capacity as well as the balancing and planning of product quantities and volumes (capacity planning).

- **Marketing** – '*So marketing is involved and needs to know where we are going to market, what are they going to do, what we are highlighting as big calls but no one else really*" (Participant 4).

- **Buyers** – "*The buyer has to be with the planner every day. They're the ones that then will have the confidence to pick that new silhouette and the new style and go with it and base the demand off of that*" (Participant 8).

- **Finance** – "*Finance has a five-year growth plan for the business, so they just give us feedback on where they see the growth*" (Participant 9). *"I think finance should happen before strategy so we can kind of get an idea. I mean they've got a five-year growth plan are really for the business, so finance is constant"* (Participant 5).

- **Location planners** – "*So the location planner is going to tell you where your opportunities sit at a store level. So for Apparel Retailer A right now, we are getting store growth naturally every year*" (Participant 3). *"So we have access to what we call Tool C, which means we can change and alter sales and add on markdowns on POS. Other people can have visibility*

into that, but they just can't alter our plans. As planners, we are the only ones that can alter and change our specific sub departments, sales planning and forecasting" (Participant 7).

- **Operations** – "*Ops would give us feedback in terms of what new stores are opening, what sort of grade classification it would be*" (Participant 14).
- **Quality Assurance (QA)** – "*It's broken down between QA and resource; but resource should be doing that. The QA is looking at it from a quality perspective and resources looking at from a production and an ethical perspective and the capacity*" (Participant 12). *"Resource goes and visits suppliers to ensure they are complaint and Quality Assurance department looks at products from a quality perspective. Resources look at it from a production and an ethical perspective and the capacity"* (Participant 13).

The responses given by the participants with regard to the roles of the departments involved have been tabulated in Table 5.13 below.

Table 5.13: Roles of the Departments Involved

The Roles of the Departments Involved	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Capacity Planning		✓		✓			✓	✓	✓	✓	✓	✓	✓		
Sales and Operations Planning				✓			✓		✓	✓	✓		✓	✓	
Financial Information Integration					✓		✓		✓	✓	✓				
New Product Development	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Contribution of Expert Perspectives							✓					✓			
Market Analysis		✓		✓				✓	✓	✓	✓	✓	✓		
Plan Alignment		✓		✓			✓	✓	✓	✓	✓	✓	✓		

Source: Compiled by researcher.

This concludes the end of this subsection of the study. The next sub-theme focuses on the real time replenishment within Apparel Retailer A's apparel division.

5.5.3.4 Supply Chain Partners and Real Time Replenishment

This sub-theme provides insight with regard to real time replenishment within Apparel Retailer A's supply chain. Demand in the apparel industry is highly volatile and thus requires that organisations and their supply chain partners become more responsive (Wen et al, 2019:35).

Having to keep up with the changes that take place within the industry entails that organisations invest in real time replenishment tools that will allow their business models to be more responsive. Section 3.2.1 of the study explains the need for flexible and responsive supply chains in the apparel industry for better organisational performance and profitability.

The data collected revealed that Apparel Retailer A has a system that supply chain partners can access but the information given on the portal is limited:

> "*Tool B allows suppliers to flip through of their specific product and see how it's performing. There's no replenishment tool. So we have to physically raise orders based on the demand forecast that we think the item is going sell*" (Participant 8).

However, the organisation is working on a tool that may help them to be more responsive to market needs.

> "*Um, there was a lot of discussion at the moment. We were told to present products where we wanted a more transparent system within, where suppliers have to start clicking, when they start producing, when they're cutting, and so on to give us more visibility*" (Participant 12).

> The SupplyIT portal produces items called "star-cards" that allow suppliers to see how their product is performing. However not all suppliers have access to the portal and those that do, do not really make use of it:

> *"They can see the 'star-cards' and they can see when their product is running out and then they'll email you and be like, 'I see this this product performed well' but not all suppliers have access. We have SupplyIT, a portal with current trade on it, but how many of suppliers use it is quite debatable*" (Participant 11).

Moreover, the organisation does not have any supplier that they allow to replenish stock when it runs out, the suppliers have to wait for the participants to order:

> "*They don't get to decide when to replenish that stock we tell them what to do, and they don't spend that money for us. But they will look at how their product is selling and they'll kind of ask, do you want more?*" (Participant 13).

The liaison between Apparel Retailer A and its supply chain partners then influences the organisation's lead-times. Compared to apparel industrial leaders such as Zara, Apparel Retailer A's lead-times are excessively long:

"*For lead-time, the kind of numbers we fight for are 140 days. That is realistically, enough time to do all the processes up front from briefing the supplier about what the garments ar,… how many units, what's the price we're going to need on it. It's giving them enough time to do all the buying elements and getting the colours right, the prints right, the fit of the garment right, the fabric and then also allowing for enough time for them to produce it, to put it on a ship and send it over if you're Chinese or Bangladesh suppliers. Most of our local suppliers ship the fabric in and then produce it this side…you can get orders in about a month or 30days or so, some can turn much faster just depending on what fabric or garment*" (Participant 4).

Having strategic relationships with supply chain partners does not only give an organisation the ability to operate seamlessly but also allows it to focus on its core competencies as it outsources some of its operations strategies to its partners. Concern was expressed with regard to the rate at which Apparel Retailer A's supply chain reacts:

"*And I think the challenge for me is how do we get that faster 'whooping' in the supply chain from reaction to in-store? Uh, I don't have the answer, but I think that's one thing we need to question as a fast fashion retailer*" (Participant 4).

In-house production for quicker response to demand was suggested:

"*Other retailers also have in-house production, like they have garments manufactured in-house. We don't have that*" (Participant 1).

"*We need to have like an in-house sample set or our own little manufacturing thing to get those new orders ran in-house straight away*" (Participant 15).

One participant revealed that the organisation had a concept they were working on; however, she did not sound confident about it:

"*It's the product development department, which they are trying to establish in the meantime. But it comes with false launches and false promises and then it dies*" (Participant 13).

The importance for Apparel Retailer A of coming up with a real time reaction tool was stressed:

"*So our customers are moving to real time fashion and there are some competitors that are doing well in the market like, The Fix. They are on the ball but that's because they*

manufacture in South Africa. We don't have that advantage and I think that really has to be addressed" (Participant 12).

"*Zara works on quick response, they literally turn things around two weeks. The fact that they've got a well set up PD that's constantly monitoring and providing what they want plus they have a factory. I think that's the biggest missing link for us is we actually need our own*" (Participant 14).

Table 5.14 summarises the responses given by the participants with regard to tools and processes they need to react more quickly to demand.

Table 5.14: Suggested Real Time Replenishment Needs

Suggested Real Time Replenishment needs	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Need for a replenishment tool	✓			✓				✓	✓		✓	✓	✓	✓	✓
Need for in-house production	✓												✓		✓
Need for strategic supply chain relationships							✓				✓		✓		✓

Source: Compiled by researcher.

This concludes Theme 3. The following section of the study examines the factors influencing demand forecasting and demand planning at Apparel Retailer A.

5.5.4 THEME 4 – Factors Influencing Demand Forecasting and Demand Planning

This section of the study deals with the fourth and final theme of the study. The purpose of this theme was to identify the factors that influence demand forecasting and demand planning within Apparel Retailer A's supply chain. Furthermore, this section serves to identify the initiatives that the participants think Apparel Retailer A should have in place in order alleviate the influences of these factors on demand forecasting and demand planning.

5.5.4.1: Factors that Influence Demand Forecasting and Planning

The first sub-theme of this section provides insight with regard to the factors that influence demand forecasting and demand planning in the supply chain. Research by Gharde (2016:1) found that the forecasting and planning of demand has become challenging due to the unpredictable factors that lessen the efficiencies of the forecasting and planning strategies in supply chains. This sub-theme encompasses internal and external factors:

- **Internal factors:**

***Poor Internal Collaboration* –** The level of collaboration within the organisation itself also contributes to the list of the factors influencing the forecasting and planning of demand. Participant 12 revealed how uninformed changes, miscommunication and neglect affects the plans the participants may have put together for future demand:

> "*We consolidate our own containers and we'd bring it in ourselves. We can see on the system, stock arrives this week…Only to learn that it hasn't been processed through the DC. Especially being in kids-wear, we are not prioritised; they would rather prioritise ladies wear first and then men's-wear and then we are last*" (Participant 12).

This compromises the seamlessness of the supply chain.

Consistent communication is one of the keys to maintaining a continuous supply chain; however, this can be a struggle in big organisations:

> "*We had this system…and it never took off …It took months eventually for people to sit and agree that 'Oh, it's not working,' leave it out and now to allocate jewellery, you do it through "system A" that you shouldn't be doing because it's actually a fashion item. So there are, some finer tweaks we really need to be doing*" (Participant 12).

Additionally, after assessing the performance of a product and finding that it is not performing as well as expected, the organisation may choose to discontinue the product and cut off orders with suppliers:

> "*In basic terms, if that item has been in our stores before that exact item, they can only resell after 6 months. But if it hasn't been in our store and we have cancelled the order they can sell it straight away. But then obviously they have to take off all Apparel Retailer A's labels and all that stuff*" (Participant 2).

Staff Turnover – Leon and Uddin (2016:20) identify human talent as the key differentiator for an organisation that competes on a global scale. The talent pool has to be driven and motivated for the organisation to grow. In 2018, Apparel Retailer A's DC was not operating for three weeks due to a wages strike. The three-week strike delayed the participants' plans by eight weeks:

> "*Well, the strike, which sat us down for three weeks. It took us eight weeks to catch up*" (Participant 13).

Furthermore, in some instances, fellow team members chose to leave the organisation without giving ample time for replacement:

> "*There are times but it's not every day where people leave and there's a gap in a team and strategically that's a hole in the business now*" (Participant 5).

Current trade – Customers' reactions to trends, which the participants referred to as "current trade", do not only bring profit onto the business but also serve as a challenge with regard to forecasting and planning of demand:

> "*The biggest thing for us currently is like we keep saying current trade, that's the biggest internal factor first, what's currently happening in the business. So we constantly, always reacting to now*" (Participant 5).

> *"Current trade is what embeds everything in the critical path …a jacket (for example) is flying and you called 50,000 units that come in on a Monday and the customer is like, no thank you. And now we are called to go back to the drawing board*" (Participant 7).

> "*You are reacting all the time… So it's difficult*" (Participant 13).

An explanation was provided as to how the plans in place for demand are based on assumptions and about the complexities that come with this:

> "*The difficulty in demand planning comes from all these unpredictable elements, it's based on* HUGE assumptions*. And as time goes on and as you factor in your plan's latest reality, the assumptions probability ends up being less and less, as it gets closer to being a fact rather than being assumption. That's if you are factoring in your latest information. The only thing we can do is taking into account where we're going vs the plan. You then find ways of managing the variances in your plan*" (Participant 15).

This then contributes to the increase of competition in the market as the cancelled product is sold to competitors at a fraction of the price stimulating the growth of competitors in the industry and creating a negative external factor:

> "*There are a whole handful of retailers who are just popping up, Fashion World, Fashion Fusion, The Hub, JET who are coming at us at a price and that's kind of our game; that's where we've taken on Edgars and Woolies in the past and they have played our game against us and that's kind of whoop lashed back into our supply chain*" (Participant 4).

"*Where they get cost-pricing is that they buy stock from us. So let's say we cancel something they can buy that for way cheaper. And then they sell that*" (Participant 1).

System Issues – The advancement of IT has permitted supply chains to work efficiently and most organisations look at IT as a competitive tool. Nevertheless, it sometimes involves limitations, complexities and challenges, as stated by the participants below:

"*I think it's just system constraints. So it is a big thing in our business. For me it's just system limitations of how deep you can get into information or not. Uh, yeah, that's the only thing really for me*" (Participant 4).

"*The systems from the DC and our IT systems are not where they need to be. And like sometimes they don't read each other correctly. We had this system called "System B," and it never took off and it never worked for months. And the, IT department was insisting that the system was sound and the DC was so confused with what it was doing. So we literally had like 30 to 40% of our stock stuck in the DC at any given time and you couldn't get it out*" (Participant 12).

The rectification of these system issues within the organisation is also quite complex and at times frustrating for the participants:

"*In terms of systems issues, we have the service desk were we can log a call if you do encounter an issue and they will rank it whether it's important or not. The arrangement can be frustrating, if you can't do something on the system then you have to go do something else until it's working again. And you wait until IT is ready to assist*" (Participant 5).

The next code to be tackled within this sub-theme refers to the external factors, many of which the organisation has no control over.

- **External factors**

Whilst trying to forecast and plan accurately, as well as deal with the internal factors influencing their plans, the participants also have to deal with the external factors.

Competitors – Eight out of the fifteen participants stressed the fact that competitors are the main factor of concern since Apparel Retailer A is forced to re-work its business model to remain competitive:

"*So the introduction of H&M, couple of years ago, Cotton On a couple of years before that, and Zara. We used to be able to go overseas, take these samples, bring them down, copy them and put them in but we can't do that anymore… We still got to come back re-engineer the product, change this change that's, that's gone straight into your critical path*" (Participant 10).

One participant described the coming of competitors as having given Apparel Retailer A the "middle child syndrome" since the organisation has to fight the industrial forerunners as well as the little man at the bottom:

"*I'll say we've got middle child syndrome because your older brother and sister come on board who are your Top Shop, H&M but on top of that and you've got a younger brother and sister which would be the factory stores that are coming on board with a thousand…one hundred stores across South Africa. They are doing what we did to Edgars, that's a real struggle for us. We are in a sandwich, there is big brother and sister watching over us and saying, hey, don't copy us. On top of that, we've got guys coming in for next to nothing underneath us that are not sustainable. They're doing nothing, they're not doing what it needs to be done from the building of future business point of view. But they are stealing market share, the Chinese shops*" (Participant 11).

Although the increase of competitors in the industry may influence the forecasting and planning of demand negatively, it did help Apparel Retailer A improve the quality and style of men's wear:

"*We used to struggle to sell high end fashion in men's wear. We used to sell cheesy statement tees but now it has improved…five years ago when all the international retailers came. They actually educated our customer on what fashion was. So actually, we thought they were going to come and hurt us but they actually helped us a little bit*" (Participant 2).

Suppliers – Choosing to outsource production and manufacturing to international suppliers came with cost saving advantages but, in some instances, a loss of sales due to delays from suppliers. Lead times did not only get longer but the ability to satisfy demand on time also became complex with delays to deliveries as well:

"*We had a pair of shorts that was supposed to come in September, arrived in February*" (Participant 15).

Furthermore, Apparel Retailer A is not a priority to its supply chain partners, to the extent that the organisation can have its suppliers attempting to cut off their orders to serve Apparel Retailer A's competitors:

> *"FOBs are actually trying to get you out to put Woolies in. It's business. If they going to make money from Ackerman's, forget your orders"* (Participant 12).

Economic issues **–** The peaks and troughs in the economy may be a result of the mismanagement of the economy by the government. This in turn leads to inconsistent fluctuations that may cause economic complexities. The participants identified issues with exchange rates, public strikes, load-shedding and changes in customers' purchasing behaviour as issues that negatively impact on Apparel Retailer A's supply chain:

> "*For me, the exchange rate is the biggest. It is the heart and soul of what we do at the end of the day because if the Dollar runs, we didn't make margin and things get tough. Dollar comes back in our favour, we smile and we make money. It affects our customer as well as not just us… Load shedding is a big thing. So now instead of buying clothing with their money now they think about candles, torches, a generator and takeaways instead of cooking food at home*" (Participant 4).
>
> "*So public strikes right now are affecting the teams as soon as the strike is on you know, no production and no deliveries, so those type of things come up about once a year*" (Participant 5).
>
> "*We used to have that kick on pay day, but now we only getting the kick after payday because customers are holding their money and they say, 'I'm going to pay bills, petrol and then I will see how much I have left, but right now I'm not going to go shopping.' We are seeing the shifts in shopping patterns and there's big dips and lows in the month as well. Whereas back in the day we never used to have those lows on our sales, we could still get those growths mid-month but we are not getting those anymore*" (Participant 10).

Social media **–** Technological advancement came with a number of advantages with regard to ease of communication, transportation and manufacturing but it also gave customers the upper hand with respect to product knowledge and perception. Social media platforms and celebrities have become the regulators of customers' decisions concerning fashion buying decisions:

"*Instagram… I don't know if this is going to sound silly, but Kim Kardashian at the moment is having a massive say on, uh, what young girls and young teens are wearing out there. Um, just from that, like if she makes a post on something, the next thing the girls are all wearing that. And its influence is done in one day, it's a day thing and ten and a half million people around the world are seeing that one post and it immediately causes a mind shift. And the next thing customers change their minds*" (Participant 6).

***Weather* –** Global warming has led to instability with regard to seasons and this has had a negative impact on the fashion industry. A delay in seasonal change cannot be anticipated and forecasting plans for the next season would have already been done by the organisation months in advance:

"Weather. Like now, winter is three weeks late this year versus last year. We've got winter stock coming out of our ears. So now we reacting to winter stock where we are overstocked" (Participant 13).

"*On the same breath with global warming, winter kicking in late. Where your winter product that you've imported isn't selling as quickly as we expected because it's 45 degrees outside and no one wants a polar fleece item*" (Participant 9).

In other instances, the seasons may arrive on time but deliveries are delayed because the ships cannot dock:

"*Weather as in when it's windy and it's raining and the ships can't dock, would have an effect on our orders, with our orders not being delivered on time*" (Participant 9).

The push to be more environmentally friendly is one that contributes to instability when planning for demand:

"*Oh, environmental issues, being green, sustainable. The sustainability vibe that's going on at the moment also affects demand, suppliers are all of a sudden supposed to be environmentally friendly, the fashion industry is quite connected a lot to pollution, from the factories and clothing wastage and all of that*" (Participant 7).

To summarise, the participants pointed out factors such as weather, social media, economic climate, public holidays, school holidays, current trade, local and global competition, load-shedding, the exchange rates, global issues that affect the economic climate, petrol prices, political issues, people leaving the organisation, strikes and system failures. These factors influence demand forecasting and planning in the apparel industry. The responses given by

the participants highlighted competitors, current trade, weather and economic issues as the top factors. The aim of every retailer is to retain their customers and grow their market share. All the factors that were stated by the participants match the factors given in Section 3.3 of this study, although the latter are derived from factors faced by international retailers. Table 5.15 summarises the feedback given by the participants pertaining to the factors influencing demand forecasting and planning in the apparel industry.

Table 5.15: Factors Influencing Demand Forecasting and Demand Planning in Apparel Retailer A's Supply Chain

Factors influencing demand forecasting and demand planning.	**Participants**														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Current trade					✓		✓					✓	✓		✓
Weather and the environment			✓				✓		✓				✓		
Social media						✓			✓						
Competitors	✓	✓	✓	✓	✓							✓		✓	✓
Economic issues		✓		✓						✓	✓	✓			✓
Staff turnover					✓										
Suppliers												✓			✓
Holidays								✓	✓			✓			
System issues				✓	✓							✓			
Poor collaboration									✓			✓			✓
Social and political issues				✓											
Strikes					✓			✓					✓		

Source: Compiled by researcher.

This concludes the end of this sub-theme. The following sub-theme examines the initiatives Apparel Retailer A has in place for the alleviation of the above-mentioned factors.

5.5.4.2: Initiatives to Alleviate the Influence of These Factors

The data collected from the participants pertaining to this sub-theme showed that the organisation does not have much control over most of the factors that influence the forecasting and planning of demand; however, for the factors they can control, the organisation has the following initiatives in place:

- **Weather and environmental issues**

  The organisation simply transforms the product into something that is ideal for the season:

"So weather is obviously is the easiest one. With long-sleeved dresses or fashion tops, you have the option to change it into a sleeveless dress or skirt for the summer. So that's one thing we can do for winter" (Participant 2).

"*Apparel Retailer A could make more if they could shout out that we are actually using factories and suppliers that are compliant and we are socially aware. We are using recycled polyester. I feel like that sort of thing. So just shouts out, get marketing involved and do a TV ad that Apparel Retailer A is not polluting the world or something like that*" (Participant 8).

- **Economic issues**

  The majority of the organisation's suppliers are overseas and so the organisation has a forex trading department within the building that buys foreign currency on behalf of the company to use for paying suppliers:

  "*On the exchange rate side, half of our business roughly is run on FOBs. We do have people upstairs who sit and buy Dollars at certain times of the year to make sure we are getting the lowest possible dollar because obviously we pay our suppliers in dollars, which affects the cost price*" (Participant 5).

- **Systems issues**

  To cope with glitches that may be experienced with the system, the organisation has an in-house IT team:

  "*In terms of systems, we have the service desk were we can log a call if you do encounter an issue and they will rank it whether it's important or not. With regards to coming to fix it and the IT team sits right upstairs so they handle that*" (Participant 6).

- **Poor collaboration**

  Participant 14 was the only one who mentioned an initiative that the organisation has in place with regard to functions working together to alleviate an issue:

  "*If we are overstocked we team with resource to try and mitigate that on the supply side, what we can get out off and what we can get into. And marketing if we need to run promotions to try and flash additional stock. Visual merchandising if we need to highlight a category that isn't working and it's like merchandise it better in stores*."

  The rest of the participants gave suggestions as to how collaboration could be improved across the supply chain:

  "*We can split up business in three quick response, which will take care of our big calls, then fast fashion which should be such a small portion of our business and it*

used to be 20% is now that 80% because we're so reactive all the time. And finally core, which is our biggest call. We ran half a million to a million units on our core line, but to do it last minute.com like we should be looking at longer lead times or so take those longer, longer outlooks on certain programmes, will get better costs and get efficiencies in our supply chain. Develop the word consistency and the DC" (Participant 11).

"*If you got good big suppliers, they can absorb costs in, and are not worried about where their cash flows, then you don't really like feel it as much. Whereas when you've got single supply bases and they are very small, you can close the supplier down*" (Participant 13).

- **Social media**

  Although the effects of social media are highly unpredictable, the organisation has found ways of working around the effects:

  "*Location helps to try and get better allocation and move stock out to better places and consolidate it*" (Participant 13).

  "*Graphics if a certain print direction isn't working, and you can change forward orders, they'll rework your prints based on current winners*" (Participant 14).

  With the factors being unpredictable and unexpected, the organisation does not really have defined initiatives in place to alleviate the factors. It is the responsibility of the planners to try and find ways of alleviating the factors as they come:

  "*We are, we are the system (laughter). If there were systems designed for that, they wouldn't need us*" (Participant 13).

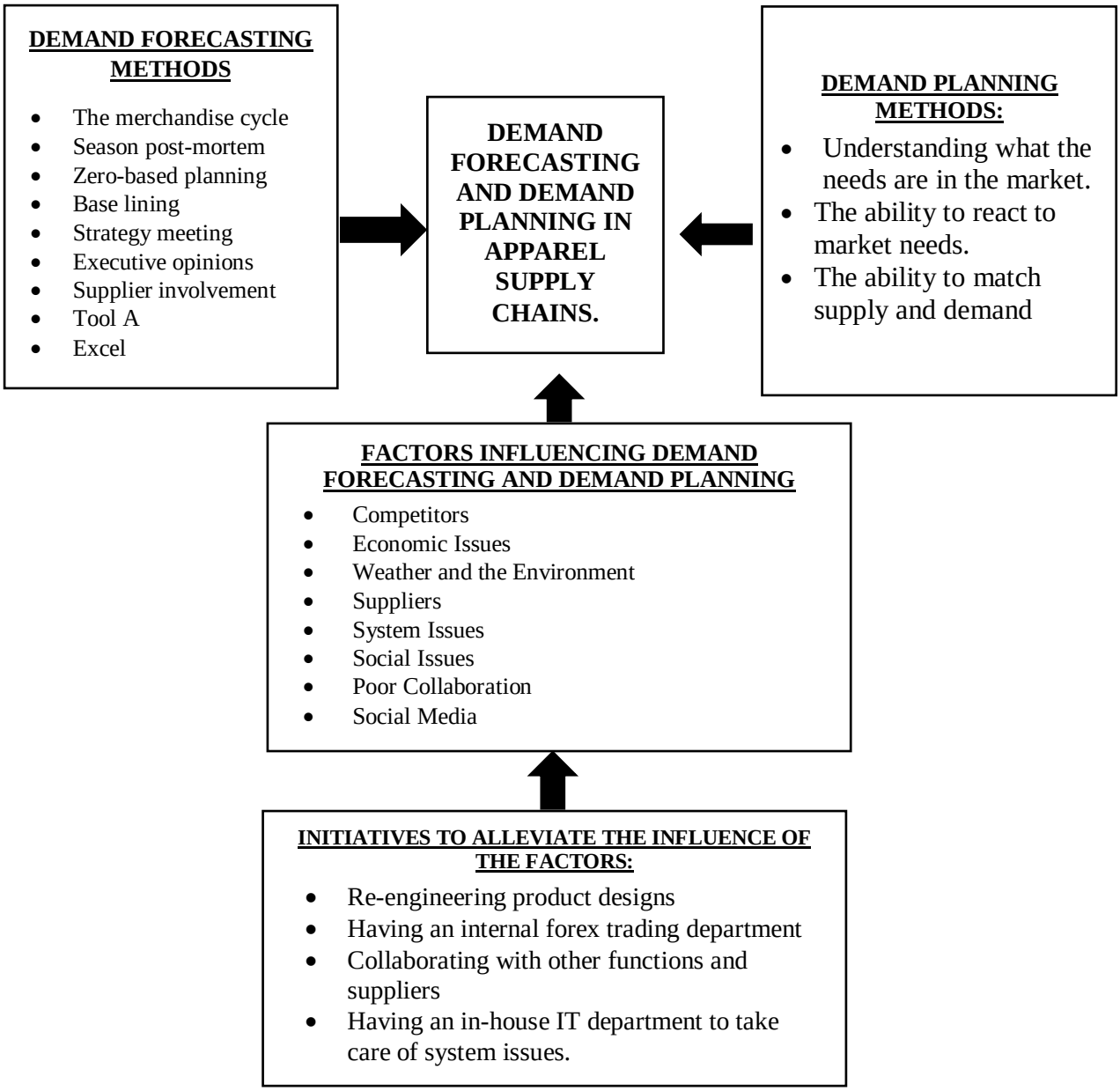
This section rounds off the analysis of the factors that influence demand forecasting and demand planning at Apparel Retailer A.

5.6 CONCLUSION

The aim of this chapter was to analyse the data that was collected for the study. To begin with, the chapter revisited the research questions and objectives; thereafter, an analysis of the questions, theoretical data and an analysis of the data was provided. Figure 5.1 presents the researcher's understanding and synthesis of the data that was collected based on the conceptual framework outlined in Section 3.7 of the study.

The next chapter concludes the study, reflecting on the objectives and findings of the study and suggesting recommendations.

Figure 5.1: Conceptual Framework of the Data Collected



Source: Compiled by researcher.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

The main aim of the first chapter of this study was to address the research questions and objectives of the research. Chapters 2 and 3 presented the literature review, and Chapter 4 presented the research methodology and methods that guide this study. Chapter 5 presented and analysed the research findings.

This chapter commences by revisiting the study research questions, its purpose and its objectives. Thereafter, a summary linking the study's objectives to the analysis of the collected data and findings is given, thus answering the main research questions of the study. The chapter concludes by providing the recommendations, the limitations of the study, and the areas for possible future research.

6.2 RESEARCH QUESTIONS, PURPOSE AND OBJECTIVES

6.2.1 Research Questions

The main questions of the research as presented in the first chapter of the study are:

- What forecasting methods does Apparel Retailer A use?
- What are the factors influencing demand forecasting and planning at Apparel Retailer A?
- What initiatives does Apparel Retailer A have in place in order to cope with and minimise these factors?

6.2.2 Research Objectives

The primary objective of this study was to establish the factors that influence demand forecasting and demand planning in the Apparel Retailer A's apparel division; secondary objectives included:

- To determine the type of demand forecasting and planning methods that South African Apparel Retailers use based on Apparel Retailer A's operations.
- To identify the factors that influence demand forecasting and planning within the South African apparel industry using Apparel Retailer A as a case.
- To determine the initiatives Apparel Retailer A has in place to minimise the negative impact of these factors.

6.2.3 Linking Existing Literature with the Primary Data

In order to establish the foundation of the empirical research of the study, the literature was studied to determine the factors that influence the forecasting and planning of demand in the apparel industry. The information collected from the FGDs consisted of voice recordings that that were then transcribed word-for-word; these were explored in Chapter 5 of the study. Table 6.1 denotes how the literature collected in Chapters 2 and 3 links with the primary data. The first three columns present the data that was collected during the FGDs and the last column links the finding to what was reported in the literature review.

Table 6.1: Linking the Literature Review to the Data Collected

THEME	SUB-THEMES	CODE	ELEMENTS OF LITERATURE REVIEW
THEME 1: **Apparel Retailer A's supply chain** (Section 5.5.1)	5.5.1.1 Meaning of SCM	Management, alignment, product inception	2.2 What is SCM?
	5.5.1.2 Roles of participants in supply chain	Forecasting, planning, internal and external collaboration	2.3.1 Talent/Human Resources
	5.5.1.3 Areas of improvement in supply chain	New systems, shorter lead-times, flexibility, consistency, communication	2.3 Understanding and defining pillars of SCM
THEME 2: **Demand forecasting and demand planning techniques** (Section 5.5.2)	5.5.2.1 Meaning of demand forecasting and demand planning	Market needs, reactability, supply vs demand	2.4 What is demand forecasting? 2.5 What is demand planning?
	5.5.2.2 Types of forecasting and planning techniques used at Apparel Retailer A	Forecasting tools, demand planning process	2.4.3 Types of demand forecasting techniques
	5.5.2.3 Demand forecasting and planning techniques	New systems, consistency	2.4.1 Demand forecasting preparation

	that Apparel Retailer A should be using.		2.4.2 Selecting a good forecasting technique
THEME 3: **External and internal stakeholders** (Section 5.5.3)	5.5.3.1 External Stakeholders that are involved when planning for demand	SCM and External collaboration, relationship management	2.3.4 External Collaboration
	5.5.3.2 Departments involved in demand planning	Internal collaboration	2.3.3 Internal Collaboration
	5.5.3.3 The role of the departments involved	Internal stakeholders	2.3.1 Defining roles internally
	5.5.3.4 Supply chain partners and real time replenishment	Supply chain integration, lead-times	3.2 Demand forecasting and planning in apparel supply chains
THEME 4: **Factors influencing demand forecasting and planning** (Section 5.5.4)	5.5.4.1 Factors that influence demand forecasting and demand planning	Competitors, economic issues, weather and the environment, suppliers, system issues, social issues, poor collaboration, social media	3.3 Factors influencing demand forecasting and planning in apparel supply chains
	5.5.4.2 Initiatives to alleviate the influence of these factors on demand forecasting and planning	Lessening effects of factors above	3.4 Initiatives for alleviating the effects of the factor

Source: Compiled by researcher.

Existing literature and the primary data that have been collected ought to link in order to confirm that the objectives of the study have been answered. Table 6.2 reveals the linkage between the objectives and the data. The first column of the table lists the objectives of the study, the second column reflects the findings after data collection, and the last column displays the sections within the study where the details of the collected data can be found.

Table 6.2: Linking the Objectives to the Findings

OBJECTIVE	FINDINGS	APPLICABLE SECTION
To determine the type of demand forecasting and planning methods that South African Apparel Retailers use based on Apparel Retailer A's operations.	**Identified methods:** • The merchandise cycle • Season post-mortem • Zero-based planning • Base lining • Strategy meeting • Executive opinions • Tool A and Excel	Section 5.5.2.2
To identify the factors that influence demand forecasting and planning within the South African apparel industry using Apparel Retailer A as a case.	**Identified factors:** • Competitors • Economic issues • Weather and the environment • Suppliers • System issues • Social issues • Poor collaboration • Social media	Section 5.5.4.1
To determine the initiatives Apparel Retailer A has in place to minimise the negative impact of these factors.	**Identified initiatives:** • Re-engineering product designs • Having an internal forex trading department • Collaborating with other functions and suppliers • Establishing an in-house IT department	Section 5.5.4.2

Source: Compiled by researcher

Table 6.2 shows that the objectives of the study were addressed. The next section will discuss and reflect on the objectives of the study.

6.3 DISCUSSION OF RESEARCH OBJECTIVES

6.3.1 Research Objective 1

To determine the type of demand forecasting and planning methods that South African Apparel Retailers use based on Apparel Retailer A's operations.

One of the key objectives of the study was to determine the methods of forecasting and planning for demand that Apparel Retailer A makes use of. As the discussions began, the participants were asked to describe their understanding of what demand forecasting and demand planning meant. Thereafter, the participants were asked to state the type of methods the organisation used for demand forecasting and demand planning as this was the main aim of Objective 1. The methods given by the participants are listed and briefly described below, providing confirmation that the first objective was achieved.

- ***The merchandise cycle*** – This is a meeting were the brand merchants and the merchandise planners come together in their respective departments (for instance, ladies' wear or men's wear) to discuss the plans and forecasts they have (and have estimated) for future demand.
- ***Season post-mortem*** – At this stage the participants take a look at the season they have just completed, for instance, from summer to winter, in order for them to assess the challenges the organisation and its supply chain partners may have faced during previous season and how this has affected the department's performance.
- ***Zero-based planning*** – For this method, the participants attempt to assume and estimate how well the department could have done had it not experienced the challenges that were discussed during the post-mortem of the past season.
- ***Base lining*** – The results that are obtained from the post-mortem as well as the zero-based plan are then used as a baseline when forecasting and planning for the demand of a similar product when the season returns.
- ***Strategy meeting*** – This is a meeting that the participants have with the trend department and specific supply chain partners to gain insight into the new trends and whether the partners have the capacity to deliver.

- ***Executive opinions*** – The brand merchants (the team leaders) then meet with top management to discuss the new products that the departments would have decided on and to seek approval for production.
- ***Tool A and Excel*** – These are the two main technological systems that the participants use when forecasting and planning for demand.

6.3.2 Research Objective 2

To identify the factors that influence demand forecasting and planning within the South African apparel industry using Apparel Retailer A as a case.

The second objective was aimed at identifying the factors influencing demand forecasting and demand planning within Apparel Retailer A. The participants found the factors below to be the key factors that disturb the organisation's flow in the supply chain:

- ***Competitors*** – Globalisation did not only remove boundaries between countries but it also opened a doorway for the influx of competitors in the apparel industry. This emergence has resulted in Apparel Retailer A losing market share and has made demand highly unpredictable since customers are "spoilt for choice".
- ***Economic issues*** – Unexpected changes in the economy have led to a number of challenges for the organisation such as inflation, fuel price increments and an increase in tax or interest rates. These issues reduce the disposable income circulating in the economy and influence customers to spend less than expected. Furthermore, the depreciation of the South African rand makes it costly to acquire goods from suppliers overseas. Therefore, economic issues affect the decisions that the participants make regarding the forecasting and planning of future demand as customers may not end up spending as much as the participants anticipate.
- ***Weather and the environment*** – Although economic growth comes with a number of financial benefits, the speed at which it occurs may have environmental complications. Many of the manufacturing and distribution processes in apparel supply chains have led to an increase in global warming as well as to the deterioration of the ozone layer. Society and governments have started demanding that organisations become more environmentally responsible; hence the imposition of carbon tax by governments. Global warming has also brought about changes in seasons and triggered some natural disasters, thus Apparel Retailer A's lead-times and customers' buying behaviours.

- ***Suppliers*** – The organisation does not have strategic suppliers that work only with Apparel Retailer A. The organisation shares suppliers with a number of its competitors and, if it does not order products that will profitably benefit the suppliers, the organisation's order may be rejected or delivered late. This then upsets the plans that Apparel Retailer A would have put in place with regard to product delivery to the market.

- ***System issues*** – Glitches in the organisation's technology systems also affect the rate at which the participants respond to the changes in the environment. The systems that Apparel Retailer A uses also have limitations as the participants struggle to access certain information that could help them make better decisions. Moreover, the organisation does not have a replenishment system that can communicate the need for more products to its suppliers.

- ***Social issues*** – Load-shedding and increasing unemployment rates have also negatively impacted on the organisation's profitability. With regard to load-shedding, Apparel Retailer A misses out on sales for two main reasons: the first reason is that customers redirect their money to the buying generators, and the second is that stores in centres without generators have to close down for the hours that load-shedding takes place. Furthermore, the growing unemployment rate not only means less income to be spent in the market but also an increment in crime rates such as high jacking of delivery trucks and shoplifting in stores.

- ***Poor collaboration*** – Apparel Retailer A does not have any strategic relationships with its suppliers, nor any systems that are integrated with its supply chain partners. It does not have an in-house production factory to help it satisfy real time demand. This slows down the replenishment process in the organisation, thus resulting in the organisation missing out on potential sales when stock of a popular product runs out.

- ***Social media*** – Celebrities and fashion leaders can positively and negatively influence the performance of a new product in the organisation. If a product is not popular with a celebrity or a socialite, customers may respond to the comments made by individuals on social media by not purchasing the product, thus negatively impacting on expected demand.

6.3.3 Research Objective 3

To determine the initiatives Apparel Retailer A has in place to minimise the negative impact of these factors.

The third objective of this study was aimed at finding the initiatives that the participants used to alleviate the effects of the factors mentioned in the previous section.

- ***Re-engineering product designs*** – Due to the instability in seasons, Apparel Retailer A re-engineers the products and customises them for a different season to ensure that they sell. For example, a long-sleeved top and be transformed into a short-sleeved or sleeveless top and a dress into a skirt. This also helps eradicate the effects of the negative comments that may have been made by celebrities on social media about a particular product.
- ***Having an internal forex trading department*** – The fluctuations within the economy predictably lead to the appreciation and depreciation of the country's currency. This obliges Apparel Retailer A to watch the stock market closely as most of the company's business transactions are done in American dollars since their suppliers are based in China. The organisation has to acquire as much forex as it can when the rand is at its strongest as this saves on import costs. Having an internal forex team helps Apparel Retailer A buy dollars when they are cheaper, thus saving on costs when paying for services from international supply chain partners.
- ***Collaborating with other functions and suppliers*** – The functions in the Apparel Retailer A's apparel division spend a great deal of time together to share and integrate knowledge or ideas that will help the organisation operate efficiently and effectively. This is done through meetings such as the strategy meeting, where the resource, finance, trend, merchant planning and marketing department meet to share their expertise. This gives Apparel Retailer A an opportunity to plan better and forecast for future demand since the planning department can use the knowledge obtained from other functions for the efficient forecasting and planning of future demand.
- ***Establishing an in-house IT department*** – for ease of communication and keeping track with operations Apparel Retailer A has an in-house IT department that deals with any technical system issues that organisation may be facing across the organisation. This helps save time as the organisation does not need to wait for an outsourced partner to come in to solve the issues.

The next section of this study presents the recommendations that were made by the participants during the discussions.

6.4 RECOMMENDATIONS

Recommendations were made by the participants during the discussions as to how the Apparel Retailer A's supply chain can better forecast and plan for demand.

The participants felt that their supply chain was not responsive enough as the lead-times within the supply chain were over seven times longer than those of their competitors. To improve agility and responsiveness in the supply chain when expected demand changes in the market, the participants suggested the following:

- ***A product development department***: "*Zara works on quick response, they turn things around two weeks. If something trades well in their store, they literally have a two week turnaround time that that same item, cross-coloured, is back in their store. The fact that they've got a well set up product development department, that's constantly monitoring and providing what they want, plus they have a factory, is the biggest missing link for us as we actually need our own*" (Participant 4).
- ***A replenishment system***: "*Basically, a replenishment system. We need to have like an in-house sample set or our own little manufacturing factory to get those new orders ran in-house straight away*" (Participant 12).
- ***A product life cycle management system****:* "*Product Life Cycle Management System especially on trendy items, so we can know when to turn something off if it's not doing well*" (Participant 13).
- ***A product lifecycle analysis system (PLA)****:*"*So I definitely think a PLA is what we need. So then we have the visibility to what's happening on the other side of the supply chain*" (Participant 15).
- ***Better collaboration***: The lack of consistency in Apparel Retailer A's supply chain not only slows down the organisation's performance internally but that of its external partners as well. Improving on collaboration within the supply chain for real time communication helps avoid delays and long lead-times in the network:

  "*Maintaining consistency… we hold off on suppliers for so long and then expect them to deliver at the end of the day when in actual fact when we look at ourselves or reflect on how many days we've actually given them to deliver an order, we've actually, been a month late or, and then we blame them and not ourselves*" (Participant 7).

  "*I just think if we just followed the critical path, our performance would be better. And obviously everything we've discussed now there's a lot of things internally that affect our*

critical path. We do know that the suppliers need the orders by this date in order to get the delivery" (Participant 8).

"*Our suppliers have to wait for us to tell them what to do or to give them orders and yet strategic partnering has become so vital in the industry*" (Participant 15).

- ***Improvements in IT systems***: Participants pointed out that the organisation had system constraints even though it has an internal IT department to monitor its systems. The participants suggested improving the use of current systems as well as introducing new demand forecasting and demand planning systems and techniques that will allow the supply chain to operate at its best and to be more responsive to market demands:

  "*System constraints is a big thing in our business. For me it's just system limitations of how deep you can get into information or not. For example, we don't have a proper replenishment tool that our real brand value can be derived from*" (Participant 5).

  "*We don't really need anything new we just need to be consistent. We are not consistent in our business*" (Participant 11).

  "*EDCON has a system called "Pro-clarity." It has all the POS (point-of-sale) systems, order systems and everything that's feed into the system. And it is actually just a steroid pivot system. You can get all your strategy documents that were done by another department and all you do is go and click on your department, and everything just populates*" (Participant 13).

  "*We've learnt…, if something works in August, you repeat it for November, it's now dead. It will not sell again! Whereas in the past it would have sold for exactly the same if not at a higher rate on the second time round. Now it's now dead in the water, it's too late for the customer. She's done. She's not interested anymore. Customers are moving real fast. We need a PD (Product Development Department)*" (Participant 14).

A summary of the themes, key findings, managerial implications of the findings as well as the recommendations that have drawn from the study are given in table 6.3.

Table 6.3: Key Findings, Managerial Implications and Recommendations

THEMES	KEY FINDINGS	MANAGERIAL IMPLICATIONS	RECOMMENDATIONS
Theme 1 – Apparel Retailer A's Supply chain	-Organisation's critical path and that of its suppliers are not aligned and there is no consistency with regard to maintaining the critical path.	-This results in poor communication between the retailer and its suppliers, decreasing the organisation's responsiveness to changes in demand.	-Look into developing strategic relationships with particular suppliers to improve rate of response to changes in market's demand.
	-The lead-time from product inception to getting the products to store takes over 120days	-This limits the speed at which the retailer can react to real-time demand costing the organisation potential sales leading to a potential loss of customers.	-Develop an in-house manufacturing plant like Zara has that can get products ready for the market within 6-21 days; increasing demand satisfaction in the market.
	-Organisation does not have a replenishment system and/or a product life cycle analysis system	-This leads to a loss of sales or overbooking of stock which negatively impacts on the organisation's profits	-Consider investing in a replenishment/product life cycle analysis system for better product visibility and supply chain agility.
Theme 2 - Demand Forecasting and planning	-The organisation has 9 different tools and techniques it uses to forecast and plan for its demand.	-This results in different decisions being made at different times thus leading to miscommunication within the organisation or a delay in "reactability."	-Consider cutting down the number of tools used to make planning and forecasting for demand easier in addition to better reactivity to current demand.
	-The techniques used by the organisation are time consuming and make it difficult for the participants to pull out reports that may help them to make better demand forecasting and planning decisions.	- The time wasted trying to pull reports and analyse them slows down the speed at which the organisation reacts to the products' performance in the market.	-Consider investing in flexible tools that allow for better analysis of products' lifespan thus improving how the organisation reacts to changes in its pipeline.

Theme 3 – External and Internal Stakeholders	-The organisation's suppliers have very limited access to the organisation's system; with that, the suppliers cannot assist with replenishment or demand fulfilment.	-This limits the agility and responsiveness of the organisation with regard to current demand as the suppliers have to wait until the participants have checked their reports to do anything.	-Look into granting key suppliers controlled access into the system for visibility of the best products' performances to give the suppliers enough time to prepare for the change in demand.
	-The participants work closely with all the major functions of the organisation; however, the internal systems are separated therefore the other departments cannot see what is happening with regard to demand	-With internal systems not being in-sync, participants spend a lot of time in and out of meetings before any final decisions are finally made, thus resulting in long lead times as communication is only given to the suppliers much later.	-Try investing in an "umbrella" system that all functions have access to allow for timely reactions and communication. -Consider having the suppliers become a part of the internal decision making so communication moves faster.
Theme 4 – Factors influencing demand forecasting and	-Apparel Retailer A is not a priority to its suppliers and can have its orders replaced by orders from other retailers	- The lack of strategic relationships with suppliers costs the organisation sales as production is delayed by suppliers.	-Develop fair and strategic relationships with key suppliers to ensure their orders take priority. Strategic partnering is key.
	-The amount of competition in the industry is increasing quite significantly	-As new entrants into the industry increase, this decreases the market share thus cutting profits for the retailer.	-Tackle the issue with government about protecting the local apparel retailers from too many international entrants.
	-Social media influences unexpected rapid changes in current trade.	-This disturbs the forecasts and plans for demand that the organisation would have anticipated.	-Invest in an in-house production plant that will allow for quick response with regard to unexpected changes.

Source: Compiled by researcher.

In addition to the recommendations given by the participants, the literature that was collected in Section 3.6 of the study provided other methods that Apparel Retailer A could make use of to improve the performance of their supply chain with regard to these factors. These recommendations are briefly stated below but are given in more detail in Section 3.6:

- Developing and managing strategic supplier relationships
- Using different shipping methods for different products
- Using environmentally friendly technologies
- Using CPFR for real time supply chain responsiveness
- Using spot-markets and option contracts for agility
- Using tools such as CPA and CAGE.

6.5 LIMITATIONS OF THE STUDY

This study was limited to a single South African apparel retailer and focused on only one department in the entire organisation. Therefore, although the study identified the factors that influence the forecasting and planning of demand in the Apparel Retailer A apparel supply chain, the responses cannot be extended to all the apparel retailers in KwaZulu-Natal let alone the whole of South Africa. Furthermore, since the researcher only included one department within the organisation, the views from the other functions that also influence the forecasting and planning of demand in the organisation were not obtained.

6.6 FURTHER RESEARCH AREAS

The South African apparel industry is a highly profitable industry with profits that grew by 8.5% in 2017 and having an estimated growth of 52.6% by the year 2022 (Marketline Industry Profile: South Africa, 2018:2). The lucrativeness of the industry not only increases the chances of attracting new competition into the market, but it may also require all industry players to have a thorough understanding of the impact of each of the factors to retain or gain market share and profits. A number of the factors that were stated in the study are interlinked and some factors had a greater negative impact on Apparel Retailer A's supply chain, for instance, not having a replenishment system and having to share suppliers with other competitors. Initiatives such as finding the ideal replenishment tool for African apparel retailers, building exclusive strategic relationships with suppliers or even owning a local in-house apparel production plant could possibly be investigated through conducting further research since there is a need to help South African apparel retailers to identify and increase their market share with the rapid growth of international competition in the industry. Thus the suggested areas for future research may include the following:

- The study had participants from only the demand planning team at Apparel Retailer A; however, the study could include participants from other departments such as the resource

team, the distribution centre team, trend, marketing and operations team to identify whether the same factors impacted on their responsibilities.

- It could further be determined whether factors impacting on demand forecasting and demand planning vary between apparel organisations.
- With the factors identified, future research may focus on resolving the negative impact of factors or identifying tools and methods for improving the forecasting and planning of demand in the South African apparel industry.
- This study was solely based on Apparel Retailer A's apparel division (which is one of the organisation's five divisions); however, future studies may focus on identifying whether the factors identified are only experienced by Apparel Retailer A or are prevalent throughout the Retailer's Group (and/or the South African apparel industry).

6.7 CONCLUSION

This research was a case study of Apparel Retailer A apparel division. The study was not only aimed at identifying the factors influencing demand forecasting and demand planning in the organisation but also at recognising approaches and systems that the organisation could make use of to alleviate the effects of the identified factors. The first chapter of this dissertation introduced the topic, background of the study, research objectives and key concepts, and provided a brief description of the research methodology used. Chapter 2 then looked in detail at the literature with regard to SCM and its pillars as well as concisely defining demand forecasting methods and the demand planning process. Thereafter, Chapter 3 explored the literature pertaining to the factors influencing demand forecasting and demand planning in the apparel industry as well as to the initiatives of alleviating the factors. Chapter 4 then provided an in-depth description of the study's research methodology. The collected data was analysed in Chapter 5, and the research questions were re-visited and analysed against the results.

The aim of this chapter has been to provide a summary of the findings of this research and to confirm that the research objectives of this study were achieved. The main research questions of this study were aimed at finding the demand forecasting and planning methods that Apparel Retailer A uses, the factors that influenced the forecasting and planning of demand in the organisation, and the initiatives the organisation had in place to alleviate these factors. These questions were answered in this chapter. The information that was collected in Chapters 2 and 3 was linked with the primary data, with the aim of ensuring that the research questions were answered and research objectives were met. To conclude the study, recommendations of how

Apparel Retailer A can improve the forecasting and planning of future demand within the supply chain were given and future research areas that could stem from this study were suggested.

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APPENDIX 1: Ethical Clearance

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

20 January 2020

Ms Fadzai Adelaide Katemauswa (210510285)
School of Management, IT & Governance
Pietermaritzburg Campus

Dear Ms Katemauswa
Protocol reference number: HSS/0192/019M
Project title: Factors Influencing Demand Forecasting and Demand Planning: A Case at an Apparel Retailer

Approval Notification – Amendment Application

This letter serves to notify you that your application and request for an amendment received on 13 January 2020 has now been approved as follows:

- Change in title

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form; Title of the Project, Location of the Study must be reviewed and approved through an amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

Best wishes for the successful completion of your research protocol.

Yours faithfully

Professor Urmilla Bob
University Dean of Research

/ss

APPENDIX 2: Declaration of Professional Edit

15 Dale Road

Manor Gardens

Durban

4001

Email: carolinegoodier@gmail.com

Cell: 083 566 8036

21 August 2020

Declaration of professional edit

Factors influencing demand forecasting and demand planning: A case at an Apparel Retailer, MCom dissertation by Fadzai Adelaide Katemauswa:

I declare that I have edited this manuscript. My involvement was restricted to language usage, style, punctuation, formatting and checking of references. I did no structural re-writing of the content.

It was the responsibility of the student to apply any suggested editorial changes.

Sincerely,

(DR) C GOODIER

Associate member, Professional Editors' Group

Professional EDITORS Group

APPENDIX 3: Focus Group Interview Guide

Moderator: FADZAI ADELAIDE KATEMAUSWA

Title: Factors influencing demand forecasting and demand planning: A case at an Apparel Retailer

QUESTIONS

1. What do understand the term supply chain management to mean?

   1.1 What are the key responsibilities of your role in the Apparel Retailer A supply chain?

   1.2 What would you suggest for a better understanding of your role?

2. What types of forecasting methods does Apparel Retailer A use?

   2.1 Are the forecasting methods shared across the organisation?

   2.2 If so, with which departments?

   2.3 Are they shared across the supply chain?

   2.4 In your opinion, what types of demand forecasting techniques should Apparel Retailer A's apparel division use?

3. When planning for future demand, what sort of processes and techniques does your department use?

   3.1 Which other departments are involved in this planning?

   3.2 What is their role?

   3.3 Are supply chain partners involved when planning for demand?

   3.4 In your opinion, describe the types of demand planning techniques that Apparel Retailer A's apparel division should use.

4. Are the organisation's demand forecasting and planning systems interlinked with its supply chain partners' systems for real-time replenishment?

5. Which factors have you identified that influence on demand forecasting and demand planning?

    5.1 Do these factors negatively or positively influence forecasting and planning for demand?

    5.2 Are there any factors that have you identified that have not yet been identified by the organisation?

    5.3 What initiatives do you think the organisation should have in place that may help alleviate the influence of these factors on demand forecasting and planning?

THANK YOU FOR YOUR PARTICIPATION☺

APPENDIX 4: Informed Consent Form

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL

For research with human participants

Information Sheet and Consent to Participate in Research

Date: 10th March 2019

Good day.

My name is Fadzai Katemauswa. I am a Masters student from the University of Kwa-Zulu Natal in Pietermaritzburg. My contact details are: phone: 0782211230 email: 210510285@stu.ukzn.ac.za/ faff.ukzn@gmal.com

You are being invited to consider participating in a study that involves research of the forecasting and planning of demand. These are critical strategies that help with balancing the supply and demand of products within a supply chain. The aim and purpose of this research is to identify the factors that influence the forecasting and planning of the future demand of Apparel Retailer A's apparel products. This may help to accurately estimate supply quantities required to meet the organisation's market demand and to have a competitive advantage over competitors.

The study is expected to include thirty planners. It involves the following procedures: Apparel Retailer A was asked to sign a letter that confirms their participation to the study, an application for ethical clearance was made, and after the approval of the ethical clearance, the participants were contacted to set an appointment for data collection. The focus group interviews will last approximately one and a half hours.

The study is not funded. It does not involve any risks and/or discomforts. We hope that the study will assist the participants to understand the factors that influence demand forecasting and planning in the South African apparel industry.

In the event of any problems or concerns/questions you may contact the researcher at 0782211230 or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001
Durban
4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557- Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

Your participation in the study is voluntary and by participating, you are granting the researcher permission to use your responses. You may refuse to participate or withdraw from the study at any time with no negative consequence. There will be no monetary gain from participating in the study. Your anonymity will be maintained by the researcher and the School of Management, I.T. & Governance and your responses will not be used for any purposes outside of this study.

All the data collected will be stored in a safe and secure location and made accessible only to the researcher and the supervisor. On completion of the research study all interview transcripts will be handed to my supervisor for safe keeping. My supervisor will keep this data for a period of five years after which time the data will be destroyed.

If you have any questions or concerns about participating in the study, please contact me or my research supervisor at the numbers listed above.

ACADEMIC RESEARCH INFORMATION AND CONSENT FORM

I, _____ have been informed about the study entitled "Factors influencing demand forecasting and demand planning: A case at an Apparel Retailer " by Fadzai Adelaide Katemauswa.

- I understand the purpose and procedures of the study. I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.
- I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.
- If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at:
    - **Cellphone Number:** 0782211230
    - **E-mail:** 210510285@stu.ukzn.ac.za / faff.ukzn@gmail.com

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

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Private Bag X 54001
Durban
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KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557 - Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

I hereby provide consent to:

Audio-record my interview / focus group discussion YES / NO

_____ _____

Signature of Participant **Signature of Witness**