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FACTORS IMPACTING THE EFFICIENCY OF THE DISTRIBUTION OF FINISHED GOODS TO MULTIPLE CUSTOMERS AT A FAST-MOVING CONSUMER GOODS COMPANY

Mmatholo Blantina Malema

Student number: 1789294

Supervisor: Bernadette Sunjka

A Research Report submitted to the Faculty of Engineering and Built Environment, University of the Witwatersrand, in fulfilment of the requirements for the degree of Master of Science in Engineering

October 2019

Declaration

I Mmatholo Blantina Malema student number 1789294 am a student registered for the degree of Maters of Science in Industrial Engineering in this academic year 2018

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Mmatholo Blantina Malema

Student number 1789294

4 October 2019

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Abstract

Today, an organisation's successful operations and bottom line is impacted by logistics management. Effectively organized logistics can help reduce costs and time spent to move products from one point to another. According to KPMG (2016) FMCG is characterised by companies that supply low-cost products that are in constant high demand. These products include food, beverages, personal hygiene and household cleaning utensils (KPMG, 2016). Due to complexity and customer requirements in the FMCG industry, the final part of transporting goods to customers is a very inefficient and highly expensive part of logistics. FMCG companies, thus, face high transport costs and inefficiencies in the distribution of finished goods to customers.

The aim of this research was to identify the factors impacting the efficiency of the distribution of finished goods to multiple customers at an FMCG company. Nine valid interviews were used for data analysis. Interviews were transcribed and hand coded into themes to identify the factors. Secondary data was analysed from the company's database using Microsoft Excel. Seven factors that impact the efficiency of the distribution of finished goods to multiple customers were identified. These included minimum order quantity and full truck loads, planning and process, resource management, inventory management replenishment, supply network, delivery frequency, truck turnaround time and booking slot.

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FMCG – Fast-Moving Consumer Goods

CHAPTER 1

INTRODUCTION

1.1 Background

The fast-moving consumer goods (FMCG) sector represents one of the largest industries worldwide (KPMG, 2016). According to KPMG (2016) FMCG is characterised by companies that supply low-cost products that are in constant high demand. These products include food, beverages, personal hygiene and household cleaning utensils (KPMG, 2016). FMCG have a short shelf life and consumers spend a good portion of their income on these products for everyday use (UKessays, 2015). The Telegraph (2015) stated that FMCG companies are identified by their ability to give the consumer products that are highly demanded. According to Bala & Kumar (2011) FMCG industry is a quick and agile industry with a wide range of products, hence FMCG sector is an important industry to consumers for everyday consumption of products.

Well known FMCG companies include Unliever, Procter and Gamble, Nestle, Coca Cola, Johnson & Johnson (KPMG, 2016). According to UKessays (2015) many companies are looking at this sector as a profitable venture. This leads to the importance of unique products gaining a position in the market and remaining sustainable. It is therefore, important that companies should develop a good relationship with customers for continued trust and loyalty (Tryzub, 2018).

Geodis (2017) stated that consumer goods suppliers must manage large volumes and fast rotation rates with distributors, so that they can demand a transport and logistics chain capable of constant agility. According to Geodis (2017) FMCG industry faces supply chain challenges such as:

- Inability to ensure permanent on-shelf product availability due to unreliable tracking and alert information for uninterrupted goods supply to anticipate and implement backup solutions whenever needed.

- Cost and investment optimisation related issues due to poor advice and strategic intelligence on the organization of transport plans and industrial processes at logistics sites.
- Challenges in anticipating and organizing during peak periods and achieving year-round operational excellence especially during promotional offer periods.
- Environmental and social concerns that are not given enough attention.

According to Kumar (2013) research has shown that supply chain challenges in FMCG industry includes product proliferation, supplier unreliability, manufacturing complexities, bullwhip effect and lower supply chain adaptability.

Although FMCG industries generate innovative ideas for their supply chain, they are still faced with complexities during the distribution of finished goods to customers. According to the author of this study, research has not fully focused on the factors that impact the efficiency of the distribution of finished goods to multiple customers at FMCG companies. The Logistics Bureau (2015) stated that as freight transportation costs continue to rise year on year, organisations that are part of a supply chain must think smarter about pushing down the cost of moving goods from one point to another. For reduced costs, efficiency and customer satisfaction, logistics processes must be analysed and change must be implemented.

1.2 Problem Statement

According to Robinson (2017), transportation costs generally represent the largest contribution to total logistics spending. Robinson (2017) further stated that the average costs of logistics across all industries and company size accounts for close to 10% of total sales revenue. These logistics costs are high enough to justify the question “what can be done to reduce these costs” (Robinson, 2017). Customer expectation and requirements have an influence on the costs of delivery as the organisation must fulfil customer requirements for increased customer satisfaction (Robinson, 2017). Robinson (2017) emphasised that there are many experimental initiatives to fulfil the essential last mile more cost effectively without affecting the consumer’s experience.

Organisations must understand the key drivers of inefficiencies in distributing finished goods to customers to reduce logistics costs. Poor logistics planning and decision making can result in excessive expenditures, missed delivery deadlines and damaged

goods hence affecting the efficiency of the distribution of finished goods to customers (A & A Customs brokers, 2017). Due to complexity and customer requirements in FMCG industry, the final part of transporting goods to customers is often the most inefficient and expensive aspect of logistics (LTX Solutions, 2018).

A well know FMCG company faces high transportation costs, inefficiencies and low productivity in the distribution of finished goods to customers (Tryzub, 2018). This research sought to identify the factors that impact the efficiency of the distribution of finished goods to customers and to make recommendations that can be implemented to ensure efficiency and increased productivity that will lead to reduced costs.

1.2.1 Critical research question

This research addresses the following question:

What are the factors impacting the efficiency of the distribution of finished goods to the customer at an FMCG company?

1.3 Research objectives

The key objective of this research was to:

> Identify key factors that contribute to efficiency in the distribution of finished goods to customers at an FMCG company.

This was achieved by:

1. Evaluating the current state of operations in the distribution of finished goods to customers at an FMCG company.
2. Identifying factors that are contributing to inefficiencies in the current state.
3. Making recommendations on how these key factors need to be managed to ensure efficiency.

1.4 Summary of Research Method

Mixed method research was used for this study. Qualitative data, which comprised of a questionnaire that was used to interview respondents, was collected. Data was

transcribed and coded into themes to identify factors impacting to the efficiency of the distribution of finished goods to multiple customer. Based on the most prevalent theme, quantitative secondary data from the company's database from January 2016 to December 2017 was extracted. Data was analysed using Microsoft Excel and reliability was tested using coefficient correlation.

1.5 Limitations or Scope

This research was conducted with limitation issues such as

1. Confidentiality issues which resulted in some information critical to research not made available.
2. Only one organisation in South Africa was used for this research.

1.6 Outline of Chapters

The research is comprised on 6 chapters:

Chapter 1: Introduction • Introduction to FMCG industry and the challenges faced in the FMCG industry. • Problems that are faced in an FMCG company include high transportation costs, inefficiencies and low productivity. • The research question: what are the factors impacting the efficiency of the distribution of finished goods to customers in an FMCG company? • They key objective: to Identify key factors that contribute to efficiency in the distribution of finished goods to customers at an FMCG company.
Chapter 2: Literature Review • Understanding the concept of logistics management and distribution management. • Reviewing the different distribution channels and selection criteria of distribution channels. • Identifying factors that impact the efficiency of the distribution of finished goods to customers.
Chapter 3: Methodology

Research Design: Mixed method research was conducted in identifying factors impacting the efficiency of the distribution of finished goods to customer. ***Sampling:*** For qualitative research method, expert sampling was used in the form of in-depth interviews with 10 subject matter experts who are highly skilled in operations management, distribution management and customer service within the FMCG industry. For quantitative research method, secondary historic operational data across multiple customers from January 2016 – December 2017 was collected and analysed. ***Data collection:*** For qualitative research method, semi-structured interviews were conducted with subject matter experts. For quantitative research method, secondary historic operational data across multiple customers was collected and analysed.
Chapter 4: Data Analysis and Results ***Analysis Procedure:*** For qualitative research method, interviews were transcribed and hand coded into themes to identify factors impacting the efficiency of the distribution of finished goods to multiple customers at an FMCG company. For quantitative research method, data was analysed using Microsoft Excel. Reliability was tested using coefficient correlation.
Chapter 5: Discussion: Research findings and results were discussed in detail.
Chapter 6: Conclusion and Recommendations: The research was concluded and recommendations to the factors impacting the efficiency of the distribution of finished goods to customers were provided.

CHAPTER 2

LITERATURE REVIEW

This chapter provides an overview of Logistics Management and Distribution management. This chapter comprises of the review of available research in Logistics Management covering the definition, its origins, the importance, goals and objectives, activities in logistics, modes of transportation in logistics and classification of FMCG products. This chapter will also cover an in-depth review of distribution management, covering the definition, importance of distribution channels, selection criteria of distribution channels and factors impacting the efficiency of the distribution of finished goods to customers.

2.1 Logistics Management

An organisation's successful operations and bottom line, is impacted by logistics management (PLS Logistics services, 2018). A & A Customs brokers (2017) emphasised that effectively organized logistics can help reduce costs and time spent to move products from one point to another. Efficient operations in logistics management can be improved through effective logistics management, ensuring customer satisfaction, increased productivity and reduced costs (Robinson, 2017). Organisations often overlook factors that contribute to inefficiencies in the distribution of finished goods to customers which lead to increased logistics costs and low productivity. According to PLS Logistics services (2018), 40% can be saved on logistics costs by making quick and informed decisions, thus adopting best practices to reduce inefficiencies and logistics costs.

2.1.1 What is logistics management

The Council of Supply Chain Management (2018) defines logistics management as: "that part of supply chain management that plans, implements and controls the efficient, effective, forward, reverse flow and storage of goods as well as services and related information between the point of origin and the point of consumption to meet customers' requirements" (PLS Logistics services, 2018, 2). The definition of logistics management is also well described by Bardi, Coyle & Langle (2008) as a process that

includes all the activities that have an impact on making goods and services available to customers as and when they wish to acquire those goods and services. Attwood (1992) states that from a distribution context, logistics involves tactics or day to day operations to achieve distribution objectives resulting in central decision-making at an operational level. The basic definition of logistics management is getting the right product, in the right quantity and right condition at the right place at the right time for the right customer at the right price (Academy for international modern studies, 2018).

Logistics management is part of Supply Chain Management. Supply Chain Management is defined by Hugos (2011) as the coordination of production, inventory, location and transportation among the participants in a supply chain to achieve the best mix of responsiveness and efficiency for the market being served. It is evident from this definition that supply chain management requires efficiency and effectiveness from all the functions starting from production (including the flow of information) up until the product is in the hands of the customer. The definition of supply chain management is also well defined by APICS Dictionary (2013) as the design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally (Robinson, 2013). According to North Carolina State University (2017) the concept of supply chain management is based on two core ideas:

- The supply chain functions that involves the transformation, movement and storage of goods and materials.
- The entire chain of activities that delivers products to the final customer.

The picture below depicts the functions of supply chain and the flow of information, products and finance (Nobilis (2011).

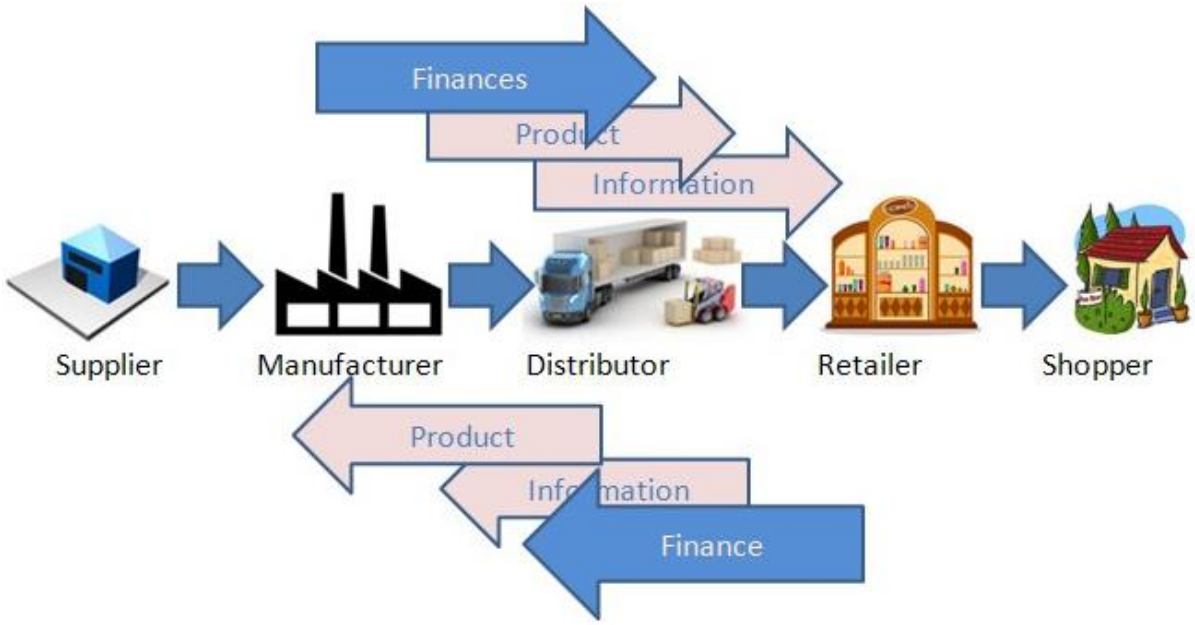


Figure 2-1: Supply chain Functions (Nobilis, 2011).

Nobilis (2011) stated that supply chain management plays an important role within the company as it generates most of the costs of the company. The width and complexity of the supply chain functions (manufacturing, warehouse, distribution) can create tremendous negative impact to the company if there are any inefficacies (Nobilis, 2011). North Carolina State University (2017) also stated that disjointed, less managed and understood supply chain activities that delivers products to final customer often lead to ineffective supply chains.

This research will focus on the chain of activities that distribute finished goods to customers in an FMCG company.

2.1.2 The importance of Logistics Management

Logistics management is an important element of every business (big or small) success of making money, outperforming competitors and meeting customer's needs and requirements (Kumar,2011). PLS Logistics (2017) stated that the important benefits of good logistics management include:

- Meeting customer demand and providing superior service.
- Creating visibility into a company's supply chain through advanced transportation management systems (TMS) that analyses historical data and track real-time movement of goods into and out of a business.

- Increased revenue because of a good reputation to a company's brands through improved customer service.
- Cost saving opportunities in operations through supply chain visibility.

Rouse (2018) validates that the importance of good logistics management ensures that products are shipped in the most economical, safe, efficient and timely manner which results in cost savings for the company and more satisfied customers. In contrast to good logistics management, (Rouse, 2018) stated that poor logistics management can result in damaged or delayed shipments which can lead to dissatisfied customers, returns and scrapped products. Rouse (2018) further stated that consequences of poor logistics management include higher costs and customer relation problems. To avoid poor logistics management careful planning, proper software system selection, proper vetting and selection of outsourced vendors, and adequate resources to handle the processes must be implemented by management (Rouse, 2018).

It is evident from the different sources that logistics management is important for customer satisfaction, good business reputation and increased cost savings for the business, and therefore necessary to be highlighted in this research.

2.1.3 Logistics activities

Logistics Management is one of the most dynamic and challenging part of supply chain management involving various elements such as selecting appropriate vendors with the ability to provide transportation facilities, choosing the most effective routes for transportation, discovering the most competent delivery method, using software and IT resources to proficiently handle related processes (Academy for international modern studies, 2018). Logistics activities that must be properly managed to bring efficiency and effectiveness to the supply chain of the organisation include (Mukit, 2017):

- Inbound and outbound transportation management.
- Fleet management.
- Warehousing.
- Materials handling.

- Order fulfilment.
- Logistics network design.
- Inventory control.
- Supply/demand planning and management of third-party logistics services providers.

Organisations manufacture products that must be transported from the point of origin to the point of consumption. Bhasin (2018) stated that goods that are regularly produced by companies must be transported to dealers and distributors and lastly to the end consumer. Logistics has been stated by Bhasin (2018) as the means to transport the goods from the organisation to the middleman or the end consumer. According to Bhasin (2018) logistics does not mean transport only as it entails many different activities that companies might use. Bhasin (2018) gave an example that if you deliver goods from your warehouse, then you need to adjust the inventory that you have in your warehouse because goods are leaving. Similarly, you need to have entries that the goods have left from your warehouse and reached the dealer. Bhasin (2018) further stated that organisations need to also ensure that goods are handled in an appropriate manner and they can reach the dealer in the desired condition.

It is evident from above that companies need to understand the flow of logistics activities to ensure that there are products to service customers and that products reach customers in the right quality, quantity and at the right time and condition.

Bhasin (2018) highlighted logistics activities that organisations might use for products to move from the point of origin to the point of consumption. The following section will discuss logistics activities which include order processing, materials handling, warehousing, inventory control, transportation, packaging, customer service, demand forecasting/ planning and logistics communications (Bhasin, 2018):

i. Order processing

Order processing involves customers placing orders and making payment to the company. According to Bhasin (2018) the commercial team ensures that the payment terms and the delivery terms have been met and the order is processed within the organisation. The order processing activity also ensures that the order has been entered in the system and is visible on the warehouse management system for the

warehouse to deliver the stock to the customer. Quia (2019) stated that order processing is a broad and highly automated area including checking inventory status, customer credit, invoicing and accounts receivables. The order processing activity is an important step in logistics activities because any mistakes in this step such as wrong entries of quantity, delivery dates and addresses can affect the whole logistics processes (Bhasin, 2018).

ii. Materials handling

Materials handling activity involves the movement of raw material, work in process and finished goods within the warehouse (Quia, 2019). Bhasin (2018) stated that materials handling is the movement of goods within the warehouse in such a way that the warehouse can process orders efficiently. Materials handling activity is important for ensuring that products are stored efficiently in the warehouse and could be easily found and picked. The primary objective of materials management as stated by Quia (2019) is to eliminate handling wherever possible by minimising travel distance, bottlenecks, inventory levels and loss due to waste, mishandling, pilferage and damage. Bhasin (2018) verifies that material handling is an important activity in logistics management for properly arranging materials within the warehouse to allow for easy movement and dispatch of material.

iii. Warehousing

Warehousing is an important activity of logistics management for ensuring that products are delivered to customers in short lead times, right quantity and quality. The location of the warehouse is important as distributors' warehouses need to be closer to customers for quick deliveries of goods. Bhasin (2018) stated that the location of the warehouse reduces the pressure on the mother warehouses which are large warehouses that stock most of the products. Bhasin (2018) further stated that during peak or if there is a drop in production, warehouses closer to customers can take the pressure of deliveries and they can become independent to ensure delivery of goods to customers.

iv. Inventory control

According to Bhasin (2018) inventory control activity ensures that there is enough inventory in the organisation to meet demand requirements. Too much inventory will

lead to increased inventory carrying costs as the organisation will be carrying high inventory and less inventory will lead to loss of opportunity costs as the inventory will not be enough to meet demand requirements (Bhasin, 2018). Bhasin (2018) stated that an organisation must continuously monitor the demand and have enough stock ready without investing too much in manufacturing. Bhasin (2018) further stated that "inventory management is one of the most important functions of logistics especially after the adoption of various production techniques such as, Just-in time manufacturing, Lean manufacturing or other manufacturing processes where the cost of inventory management is brought down" (Bhasin, 2018).

v. Transportation

Transportation is an important logistics activity of moving products from the point of origin to the point of consumption. According to Bhasin (2018) transportation is one of the highest variable expenses of any company due to fuel which is mostly consumed in transportation activities. Quia (2019) verifies that transportation is frequently the largest single cost among logistics activities. Bhasin (2018) stated that transportation involves the physical delivery of goods from the company to the customer. Quia (2019) noted that transportation involves the selection of the modes of transport such as air, rail, water, truck and pipeline, the routing of the shipment, assuring of compliance with regulations in the region of the country where the shipment is accruing and selection of the carrier.

vi. Packaging

Bhasin (2018) categorised packaging into two types:

- One which the customers see in the stores, that appears attractive.
- The other is the transport packaging where the product is packed in bulk to avoid damages and to transport huge volumes safely from one point to another.

Packaging is an important activity in logistics to ensure that products are not damaged in transit to customers. According to Bhasin (2018) the packaging cost may only account for 1% – 2% of the value of the product but if it is damaged during transportation, it will result in 100% cost due to damage and loss of the product.

vii. Customer service

According to Quia (2019) “customer service involves getting the right product to the right customer at the right place, in the right condition and at the right time, at the lowest total cost possible” (Quia, 2019). Good customer service and satisfaction is important to the company for continued revenue and customer loyalty.

viii. Demand forecasting/ planning

Demand forecasting/planning is an important activity in logistics for ensuring that the company meets demand requirements. Quia (2019) stated that demand forecasting deals with how much should be ordered from suppliers through purchasing and how much of finished products should be transported to warehouses.

ix. Logistics communications

According to Quia (2019) logistics communication must occur between:

- “The organisation and its suppliers and customers.
- The major functions within the organisation such as logistics, engineering, accounting, marketing and production.
- The various logistics activities such as order processing, packaging, customer service, warehousing, inventory control, materials handling and transportation.
- The various aspects of each logistics activity such as coordinating warehousing of material, work in process and finished goods.
- Various members of the supply chain such as intermediaries and secondary customers” (Quia, 2019).”

Quia (2019) further stated that communication is key to the efficient functioning of the logistics system.

2.1.4 Goals and objectives of Logistics Management

The Academy for International Modern Studies (2018) summarised the goals of logistics management that managers and leaders must establish for the success of the organisation as:

- Responding rapidly to changes in the market or customer orders.
- Minimizing variances in logistics service.

- Minimizing inventory to reduce costs.
- Consolidating product movement by grouping shipments.
- Maintaining high quality and engaging in continuous improvement.
- Supporting the entire product life cycle and the reverse logistics supply chain.

In simple terms, Magoci (2017) stated that the first and main goal of every logistics company is to get things from one point to another in a timely, efficient and cost effective manner. Magoci (2017) further stated that there are hundred other goals to be reached to accomplish the first and main goal.

Further to the goals, The Academy for international modern studies (2018) stated that an effective logistics management strategy depends on the following tactics:

- Coordinating functions (transportation management, warehousing, packaging) to create maximum value for the customer.
- Integrating the supply chain.
- Substituting information for inventory.
- Reducing supply chain partners to an effective minimum number.
- Pooling risks.

According to the author of this research, Organisations need to ensure that logistics goals and objectives are set and visible to all employees for better performance and achievement of the goals.

2.1.5 Five modes of transportation in Logistics

The transport industry has several modes of transport, that are, road, railway, marine and air transportation (Philpott, 2017). According to Philpott (2017) the type of mode selected depends on factors such as the weight of the products, location and distance. The following section discusses the five modes of transportation in logistics.

I. Road Transportation

Road transportation is a fast mode of transport for goods that are meant to be transported immediately. According to Philpott (2017) road transportation provides door-to-door or warehouse-to-warehouse services and can be cost-effective.

II. Railway Transportation

According to Philpott (2017) railway transport offers huge carrying capacity and is hardly affected by weather conditions. Philpott (2017) stated that the disadvantage with railway is that there are delays in the transportation of goods.

III. Marine transportation

Philpott (2017) stated that marine transportation is suitable for products that have a long lead time because it's a slow mode of transport. According to Philpott (2017) the disadvantage of marine transport is that it can be difficult to monitor the exact location of goods in transit.

IV. Air transportation

Air transportation is a fast, convenient mode of transportation that can travel long distances in a short time (Philpott, 2017). According to Philpott (2017) the main disadvantage of air transportation is that planes can easily be affected by inclement weather conditions which may cause delays.

V. Intermodal transportation

Intermodal transportation uses more than one mode of transportation for products to reach their destination. According to Philpott (2017) Intermodal transportation can be a combination of marine transportation and road transportation, railway transportation and road transportation or air transportation and road transportation. Philpott (2017) stated that intermodal transportation offers the best of both worlds as it combines various transportation modes to give the fastest shipping time possible.

2.1.6 Classification of FMCG products

Fast moving consumer goods have been described by Spacey (2016) as non-durable goods that sell quickly at low cost. Telegraph (2015) verifies that fast moving consumer goods are items that are quick to leave the shelves and tend to be high in volume but low in cost. According to Telegraph (2015) fast moving consumer goods are household products that are used daily such as food items, cleaning and laundry, over the counter medicine and personal care products.

Due to limited shelf of fast moving consumer goods, some items require refrigeration when stored or transported. Study.com (2019) stated that foods that spoil quickly and require refrigeration are classified as perishable foods. Study.com (2019) further stated that those foods that take long to spoil and don't require refrigeration are classified as non-perishable foods. According to Study.com (2019) perishable foods include products such as dairy products, meat, vegetables, fish and poultry. Jensen (2018) classified non-perishable foods as products such as canned food, canned fruit and vegetables, cereal and oats.

Fast moving consumer goods companies must ensure that items that are classified as perishable foods are moved in refrigerated trucks and stored at temperature controlled warehouses to keep them fresh. Non-perishable products have a long shelf life and are less costly to transport as they do not need to be transported in refrigerated trucks and stored in temperature controlled warehouses, they are transported in normal trucks and stored in normal temperature warehouses.

2.2 Distribution Channels in the FMCG Industry

Distribution channel is defined by Pore (2018) as the distribution networks through which producer's products flow to the market. According to Pore (2018) the main objective of a distribution channel is to deliver products to the end user at the right time in the right quantity with the right quality at the right place. Pore (2018) stated that a distribution channel can consider a combination chain of manufacturers, marketers, wholesalers, distributors, retailers and customers.

FMCG industries get their products to customers through two main channels (Olivia, 2011):

- Modern Trade channels which are big retail chains in the form of hyper stores and multi-brand shops in the malls. This channel has changed the retail space with the way business is conducted electronically on the net with far less constraints of space and infrastructure. Customers can purchase products online and products delivered directly to the customers.
- Traditional Trade channel buys and sells through traditional means of trading by buying items from retail stores and selling the items in small simple stores. Traditional trade also includes roadside vendors and food stalls on highways,

cities and villages in all parts of the world and people opening shops in garages or in the front section of their homes to do retailing.

Intermediaries in distribution channels can improve the efficiency of the process by managing all activities of routes of transactions properly (Pore, 2018).

According to Boakye et al. (2013) for organisations to be effective there should be effective distribution management processing to convey finished products from the manufacturer to the final customer. Organisations would not be able to deliver goods to customers without distribution management. Boakye et al. (2013) stated that firms are increasingly adopting supply chain management to reduced costs, increase market share as well as sales and building of solid customer relations. It is evident that supply chain management ensures that organisations can perform activities that lead to efficient delivery of goods starting from production to all the procurement activities involved up until the product is consumed by the customers.

Boakye et al. (2013) stated that distribution plays a vital role in affecting the sales turnover and profit margins of the organisation by ensuring that products reach the chosen destination at the appropriate time, therefore enabling competitive advantage and customer retention.

According to Boakye et al. (2013) the retail industry is responsible for the distribution of finished products to the consumer. Boakye et al. (2013) stated that retail industries face challenges such as customers being impatient with the waiting period of suppliers to supply the stock. These challenges have led to organisations investigating and trying to implement distribution strategies and practices that can reduce product lead time to customers (Boakye et al., 2013).

Boakye et al. (2013) stated that a distribution channel is a process in which producers use intermediaries to bring their stock to the market. Boakye et al. (2013) further stated that effective distribution provides customers with convenience in the form of availability such as having the right product at the right place and at the right time, access such as customers' awareness of the availability and authorization to purchase and support such as pre-sales advice, sales promotion, merchandising and post service repairs. Boakye et al. (2013) noted that poor distribution can cause product failure in the market leading to loss of market share and competitive advantage.

Boakye et al. (2013) described different distribution channels below which goods and services transported:

- Directly from the manufacturer to the consumer.
- Via a retailer and then to a consumer.
- From the manufacturer via a wholesaler and then directly on to the consumer.
- From manufacturer via a wholesaler to the retailer and then directly to the consumer.
- From the manufacturer via an agent, to a wholesaler and then to the retailer and then directly to the customer.

The figure below depicts different types of distribution channels (Boakye et al., 2013).

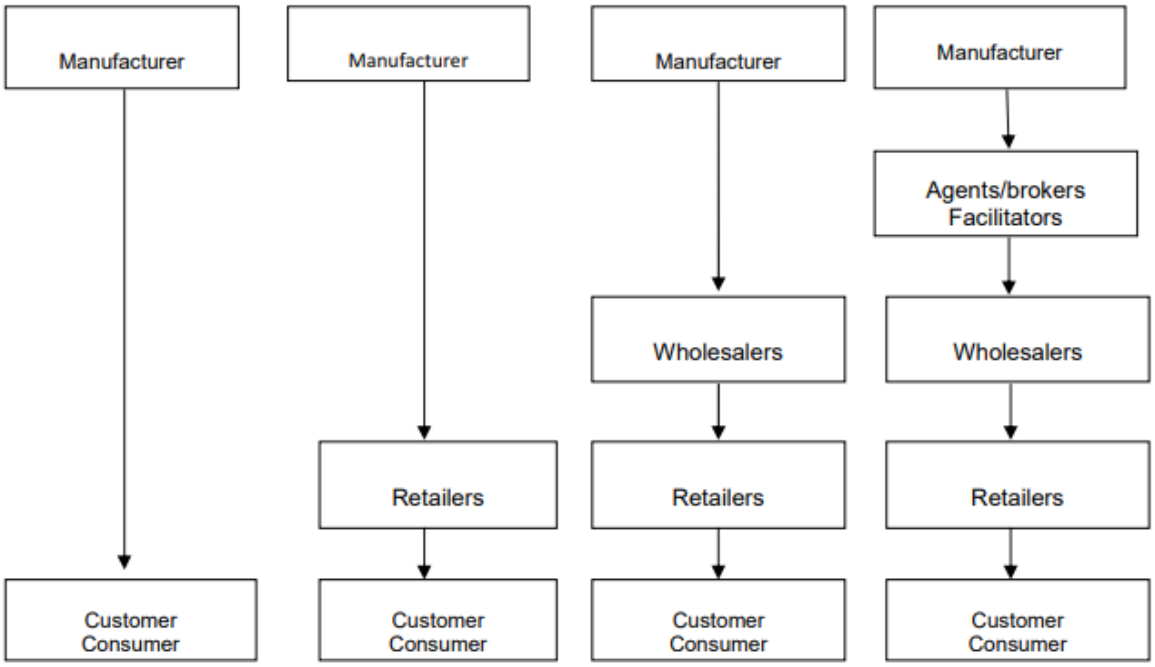


Figure 2-2: Distribution Channels (Boakye et al., 2013).

2.2.1 Selection Criteria of a Distribution Channel

UKessays (2016) states that organisations must consider the following factors when selecting a distribution channel:

I. Market Consideration

Market consideration looks at the nature of the market and the following features of the market should be considered to determine the channels (UKessays, 2016):

- Consumer or Industrial Market – If the product is meant for industrial users, the channel of distribution will be a short one because industrial users buy in a large quantity and the producer can easily establish a direct contact with them. For consumer goods, retails may have to be included in the channels of distribution because consumers buy in small quantities.
- Number and location of buyers – direct selling is easy and economical when the number of potential customers is small or the market is geographically located in a limited area. The use of wholesalers and retailers become essential in cases of large number of customers.
- Size of order – Direct selling is convenient and economical where customers place their order in huge quantities through big retail stores. Middlemen are used to distribute products sold in small quantities or to small retailers.
- Customers buying habits - The customer buying habits such as the time they are willing to spend, the desire for credit, the preference of personal attention and one stop shopping, significantly affect the choice of distribution channels (UKessays, 2016).

II. Product Considerations

Product consideration looks at the type and nature of the product that influences the number and type of middlemen to be chosen for distributing the product, the following factors of the product should be considered (UKessays, 2016):

- Unit value – Products of low unit value and common use are generally sold through middlemen because they cannot bear the cost of direct selling. Expensive consumer goods and industrial products are sold directly by the producers.

- Perishability – short channels are for perishable products such as vegetables, fruits and bakery items as they cannot withstand repeated handling.
- Bulk and weight – Heavy and bulky products are distributed directly to minimize handling costs.
- Standardisation – Custom-made and non-standardised products usually pass through short channels because of their need for direct contact between the producer and the consumers. Standardized and mass-made goods can be distributed through middlemen.
- Technical nature – Industrial products requiring demonstration, installation and aftersales service are often sold directly. The consumer products of technical nature are generally sold through retailers.
- Product line – it is economical for entrepreneur producing a wide range of products to set up their own retail outlets. It is profitable for firms with one or two products to distribute through wholesalers and retailers.
- Age of the product - A new product is handled by few middlemen because of greater promotional effort that is needed. More middlemen may distribute a product that has gained acceptance in the market (UKessays, 2016).

III. Middlemen Considerations

The cost and efficiency of distribution depend largely upon the nature and type of middlemen, the following factors must be considered when selecting a middleman (UKessays, 2016):

- Availability – Entrepreneurs may have to establish their own distribution network when their desired middlemen are not available. Middlemen may not be available when they are handling competitive products.
- Attitudes – Middlemen may refuse to handle a firm's products due to their marketing policies such as wholesalers and retailers who demand sole selling rights or a guarantee against fall in prices.
- Services: Organisations are profitable when they use middlemen who provide services such as financing, storage, promotion and aftersales.
- Sale Potential – Organisations prefer middlemen who offer the greatest potential volume of sales.

- Costs – organisations choose middlemen after they have made a comparison of distribution costs with other alternative channels (UKessays, 2016).

IV. Company Considerations

According to UKessay (2016) the nature, size and objectives of the business also play an important role in the selection of distribution channels. UKessay (2016) stated that financial resources, market standing, volume of production, desire for control of channel, services provided by manufacturers' also play a key role in selecting middlemen. UKessay (2016) noted that a company with substantial financial resources does not need to rely too much on middlemen because they can afford to reduce the levels of distribution. Similarly, a company desiring to exercise greater control over a distribution channel will prefer a shorter channel (UKessay, 2016).

Organisations must consider the following factors when they are selecting wholesalers or retailers (UKessay, 2016):

- Location of dealer's business premises.
- Financial position and credit standing of the dealer.
- Knowledge and experience of the dealer.
- Storage and showroom facilities of the dealer.
- Ability of the dealer to secure adequate business and to cover the market.
- Capacity of the dealer to provide aftersales service.
- General reputation of the dealer and their sales force.
- Willingness of the dealer to handle the entrepreneur's products.
- Degree of co-operation and promotion service the dealer is willing to provide.
- Nature of other products, if any handled by the dealer.

Boakye et al. (2013) confirmed that the factors to consider when selecting distribution channels are the product characteristics factors and how they affect methods of distribution; customers and their requirements; location of the customer; how, when and where customers want to buy the products, the cost of the distribution and the legal and regulatory constraints of the distribution.

2.2.2 The importance of a Distribution Channel

According to UKessay (2016) distribution channels are important for producers that are either too small or too large to handle all the necessary functions needed to get their products to the market. UKessay (2016) stated that distribution channel members such as wholesalers and retailers are useful because they are best at specific aspects of sales in their market, leaving manufacturers to do what they want to do best which is to turn out the best possible product. UKessay (2016) noted that having a distribution channel breaks the whole buying and selling process and all its related negotiations into manageable tasks, each performed by companies that specialize in certain skills. UKessay (2016) made an example of using an import wholesaler and said that import wholesalers can be handy because they know the laws and customs of the suppliers' nations and they offer their own lines of credit so that the retailer won't have to deal with currency exchange or negotiate payment terms with a bank in another country. Another advantage of a distribution channel stated by UKessay (2016) is the ability of some channel members to store excess goods until they are needed and to stockpile goods in anticipation of seasonal sales peaks.

Vkbandar (2016) stated three important aspects of distribution channels as:

- Creating exchange efficiency by reducing the number of contacts needed.
- Performing many functions like transportation, storage, selling, scale of operation and advertising better than manufacturers.
- Help with reducing time and costs for large manufacturing company's products to reach customers.

Vkbandar (2016) further stated that the functions of a distribution channel include information, communication, negotiation, ordering, financing, risk taking, physical distribution, payments and transfers.

Management Study Guide (2019) summarised the importance of distribution channels in the following sections:

- Distribution channels offer salesmanship – According to Management Study Guide (2019) sales agents help in creating new products in the market; specialise in word of mouth selling and promotion of products and assure pre-sale and post-sale services to the consumers. Management Study Guide

(2019) stated that salesmanship provides true and valuable feedback to the producer which can help producers make improvements to their products.

- Distribution channels increase distributional efficiency – Management Study Guide (2019) stated that the intermediary channels ease the sales process as they are in direct contact with the customers and they narrow down the gap between producers and consumers both economically and efficiently. Management Study Guide (2019) further stated that these intermediaries reduce the number of transactions involved in making products available from producers to consumers.
- The channels offer products in required assortments – Management Study Guide (2019) noted that the wholesalers specialize in moving and transferring products from various producers to a greater number of retailers. Management Study Guide (2019) further noted that the presence of distribution channels makes it possible for consumers to buy the required products at the right time from a store conveniently located (geographically closer) rather than ordering from a far located factory. According to Management Study Guide (2019) intermediaries break the bulk of the products and meet the less quantity demand of the customers.
- The channels assist in product merchandising – Management Study Guide (2019) states that the merchandising by intermediaries fastens the product movement from the retail shop desk to the customer's basket.
- The channels assist in executing the price mechanism between the firm and the final customers – According to Management Study Guide (2019) the intermediaries help in reaching a price level which is acceptable to the producers as well as to the consumers.
- Distribution channels assist in stock holding – The intermediaries perform various other functions like financing the products, storing the products, bearing of risks and providing required warehouse space (Management Study Guide, 2019).

Management Study Guide (2019) concluded by stating that the distribution channels are a vital constituent of a firm's comprehensive marketing strategy and they assist in expanding product reach to customers and availability of products, as well in increasing revenue for the company.

2.3 Factors impacting the efficiency of the distribution of finished goods to customers

Supply chain efficiency is an organization's core standard of performance and measures the ratio of work performed in a process, that is, whether the process is using the best practices and making the most of available resources (PLS Logistics Services, 2013).

Distribution of goods to customers is very crucial to the success of any business. According to UKessay (2015) the survival and success of a business in a competitive market is dependent on a distribution channel which has no problem at any point of the distribution channel. While most people consider sales, marketing or employee satisfaction to be elements that make a business successful, Glenn (2013) argues that the most crucial element of a successful business is the ability to adapt to new technologies as well as to create and distribute products to the end user. Although marketing can convince a customer that they need a product, customers are unlikely to return if that product is not delivered in a timely and efficient manner (Glenn, 2013).

According to Glenn (2013) there are three common problems that supply chains face.

- Firstly, lack of visibility in the supply chain where companies may not understand the source of their products and how they are getting to their customers.
- Secondly, lack of accountability where no one is held accountable when problems arise in the supply chain. Employees perform better when they know they are accountable.
- Thirdly, lack of innovation where companies are not adapting to new technologies to become more efficient and automated.

Abivin (2018) noted that, lack of visibility introduces risks such loading lead times becoming longer than desired leading to the need for extra shipment time; difficulties in managing capacity, product quality and lack of flexibility in transportation methodologies. Abivin (2018) further noted that without an optimal route plan, the delivery vehicle can take longer to reach customers leading to higher delivery costs. According to Abivin (2018) lack of visibility causes problems in tracking products at

every hand-off point, vehicle routing and detecting. Other problems stated by Abivin (2018) include the difficulties in replenishing stock promptly and reviewing product movements due to lack of visibility.

PLS Logistics Services (2013) stated that unreliable distribution networks where customers are unable to get products at any time for consumption leads to inefficiencies in the supply chains. Poor transport solutions are other factors leading to increased costs and a decrease in service levels (PLS Logistics Services, 2013).

Millennium Logistics (2016) emphasised that inefficiencies in the distribution of goods is because of poorly managed inventory leading to unexpected running out of inventory damaging the delivery day radius and the supply chain design.

According to Techopedia (2018) poor logistics planning, the implementation of ineffective logistics software and improper decisions related to outsourcing such as selecting the wrong vendor or carrying out delivery tasks without sufficient resources are main contributors of inefficiencies in the distribution of finished goods to customers.

Most companies do not realise the effects of inefficiencies in the distribution of finished goods to customers, PLS Logistics services (2018) affirms that the distribution of finished goods to customers is a difficult process to handle and most companies do a poor job in managing it. Distribution of finished goods to customers can have a big impact on costs due to inefficient processes and non-value adding ways of working resulting in low productivity and dissatisfied customers.

It is therefore important in this research that these inefficiencies are identified and solutions for improvement are stated.

2.4 Conclusion of Literature Review

Logistics management has been an important part of supply chain of moving goods from the point of origin to the point of consumption. Since the 1950s, logistics has been used in organisations to meet customer's needs, requirements and ensuring that products are available to customers at the right time and place, in the right quality, quantity and condition. Distribution management is an import function of logistics

management in ensuring that products flow into the market. Inefficient distribution of finished goods to customers can lead to increased costs, low productivity and poor customer service.

Research has shown that good logistics management will ensure that products are shipped in the most economical, safe, efficient and timely manner which results in cost saving for the company and more satisfied customers; However poor logistics management can result in damaged or delayed shipments which can lead to dissatisfied customers, returns, scrapped products and increased costs for the organisation.

The literature review enabled the researcher to understand the concept of logistics management, to identify different distribution channels, selection criteria of distribution channels and the importance of distribution channels (see Figure 2.3 and Fig 2.4 below). The literature review also helped in identifying gaps in research on the factors that impact the efficiency of the distribution of finished goods to customers. Previous research has focused on the broad concept of logistics management and distribution management, however research has not entirely focussed on inefficiencies in the distribution of finished goods to customers that lead to increased costs and low productivity in FMCG organisations.

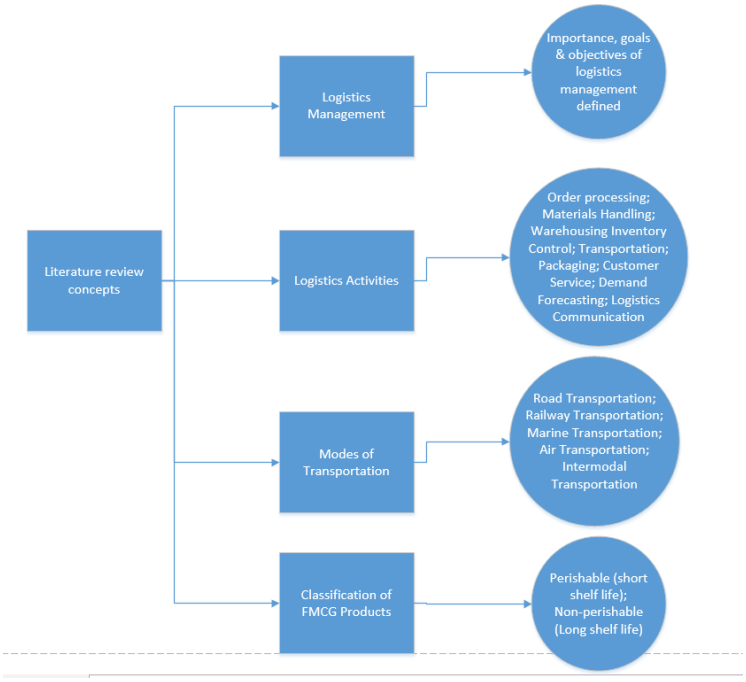


Figure 2-3: Summarises concepts discussed in the literature review (Developed by author).

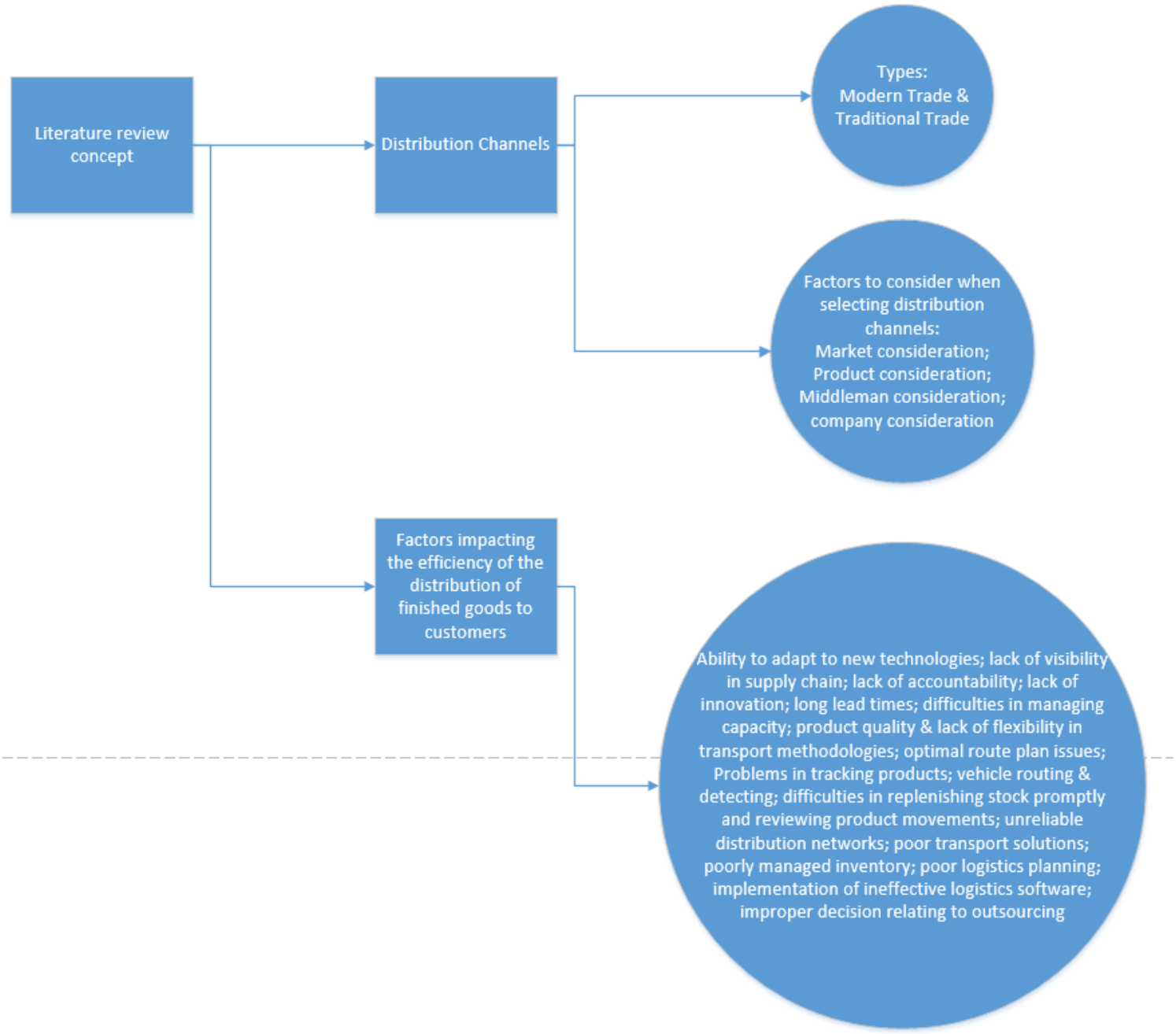


Figure 2-4: Summarises concepts discussed in the literature review (Developed by author).

CHAPTER 3

RESEARCH METHODOLOGY

This chapter outlines the methodology used in this research to identify factors that impact the efficiency of the distribution of finished goods to multiple customers at an FMCG company. Research methodology has been described by Libguides (2018) as a technique to identify, select, process and analyse information about a topic, thereby answering the research question. The following section discusses the measures that were taken to answer the research question and to meet the objectives.

3.1 Research design

For a better understanding of the factors impacting the efficiency of the distribution of finished goods to customers leading to high costs and low productivity at an FMCG company, a mixed method research was used. According to Kumar (2014) mixed method research is both a method and methodology for conducting research that involves collecting, analysing and integrating quantitative and qualitative research in a single study. Mixed method studies have different strengths that would result in improving the depth and accuracy of the findings and aims to best achieve the objectives of the study (Kumar, 2014).

A mixed method research was used in the research for more detailed explanation of the findings and how processes work. Due to supply chain complexities, it is important to provide a complete and comprehensive understanding of factors affecting the efficiency of the distribution of finished goods to customers.

The study utilized information from literature and empirical data obtained through a questionnaire and secondary operational data obtained from an FMCG company.

3.2 Research Context

The research was conducted at a South African-based international Fast-moving consumer goods company. The company has approximately 579 employees in South Africa. The company delivers to customers in South Africa and in Africa. According to management, transportation costs can be reduced significantly if distribution of goods

to customers were handled more efficiently. Management elaborated that there are inefficiencies in distributing goods to customers that can be better managed and improved.

3.3 Sampling

Statistics Solutions (2018) described sampling as a statistical procedure that is concerned with the selection of the individual observation assisting in making statistical inferences about the population. A population can be defined as a whole that includes all items and characteristics of the research taken into study (Statistics Solutions, 2018). According to Kumar (2014) the focus of the study is to find answers to the research question relating to the total study population and not the sample.

In terms of a sample size for quantitative research methods, data from January 2016 to December 2017 across 6 customers within an FMCG company was used for more accurate estimates.

For qualitative research method, purposive sampling was used to identify subject matter experts. Statistics Solutions (2018) stated that in expert sampling research data is collected by conducting interviews with a panel of individuals known to be experts in a field.

3.4 Data Collection

3.4.1 Instrumentation

For this research, semi-structured interviews were conducted with the subject matter expert respondents. The purpose of conducting the interviews was to understand the factors that contribute to the efficiency of the distribution of finished goods to customers as well as achieve the objectives of this research stated in chapter 1.3. According to Kumar (2014) semi-structured interviews are flexible in structure, in depth in their search, free from rigid boundaries and at liberty to deviate from the predetermined course if need be. The type of semi-structured interviews that were used was in-depth interviewing. Eleven open ended questions were developed from the research objectives in chapter 1.3 and a conceptual framework in chapter 2 figure

2.4 (see appendix 1). According to Wengraf (2001) a conceptual framework is a set of concepts in terms of which questions can be asked and answers can be given, theories hypothesized and theoretical propositions tested. Figure 3-1, 3-2 and 3-3 below shows the questions developed from the research objectives in chapter 1 and conceptual framework in chapter 2 figure 2-4.

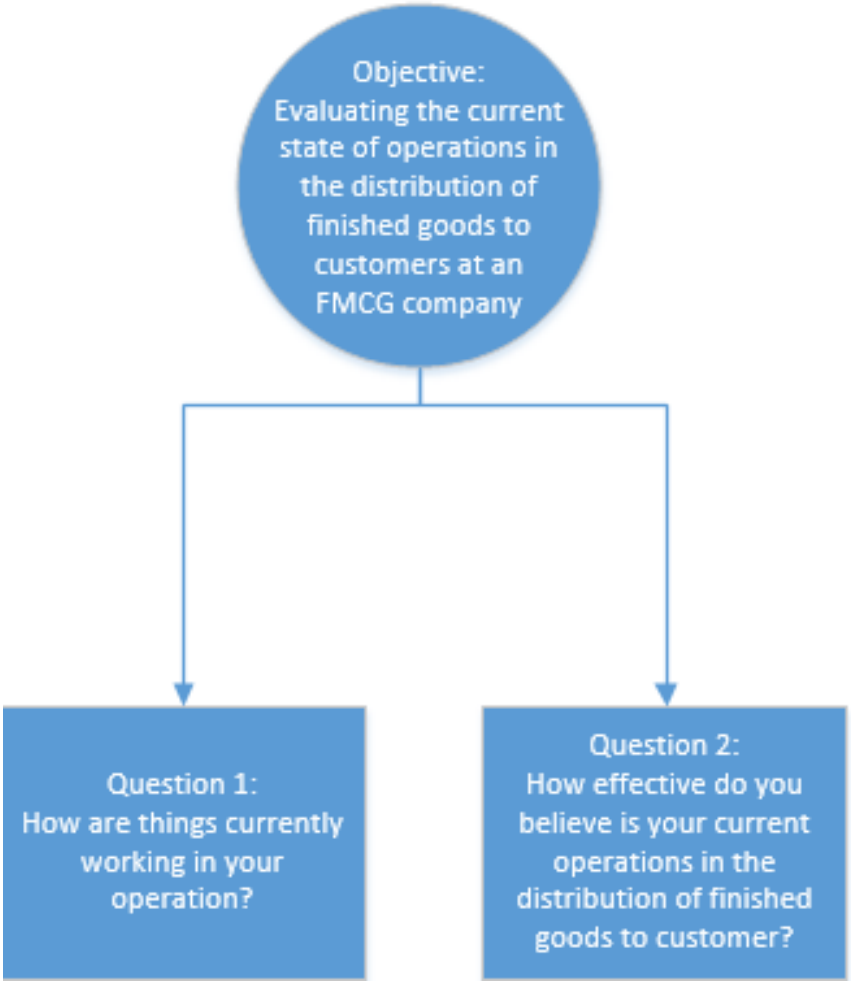


Figure 3-1: Questions developed from the research objective in chapter 1.

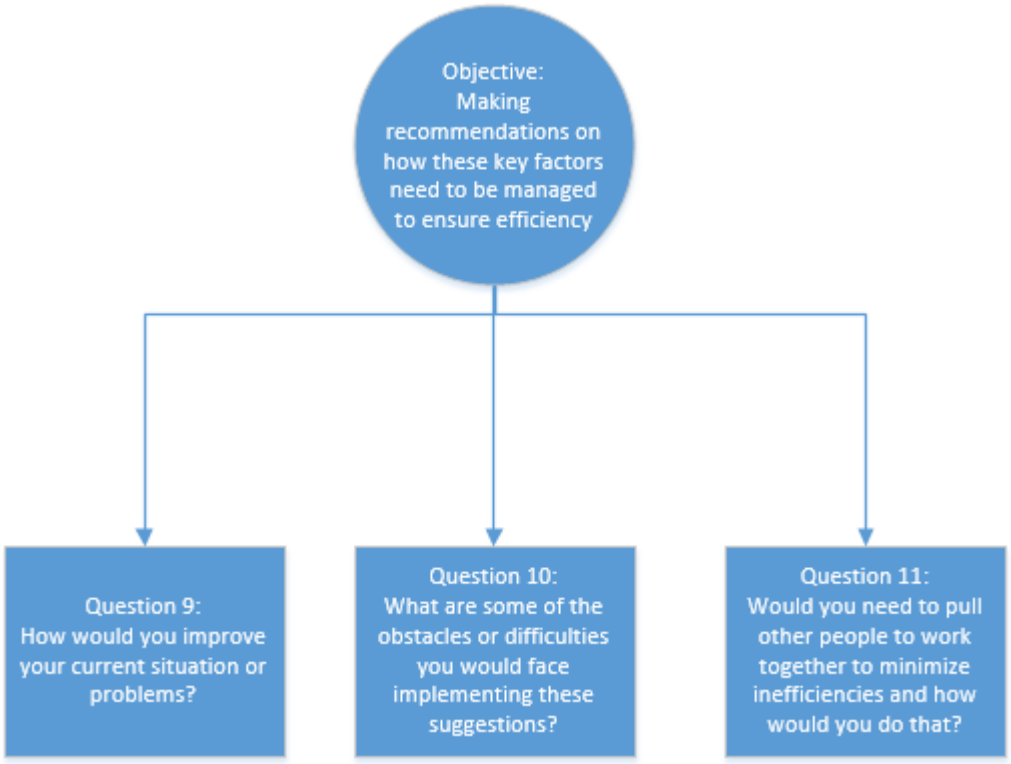


Figure 3-2: Questions developed from the research objective in chapter 1.

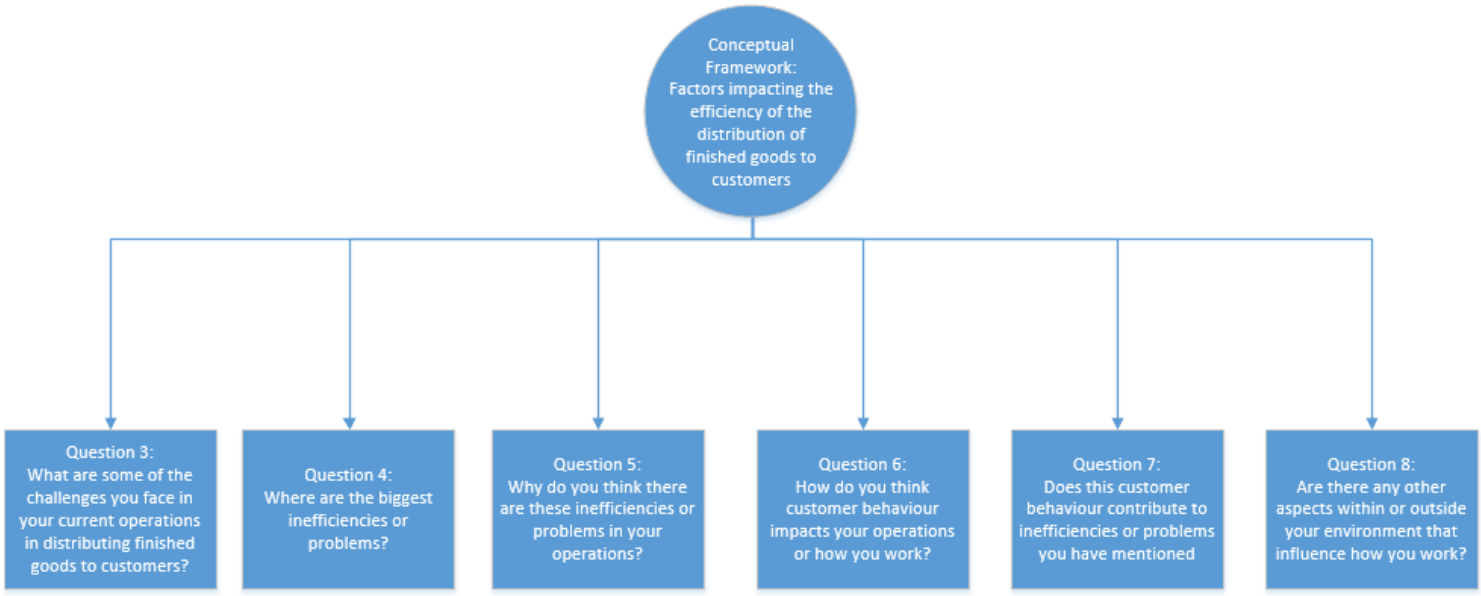


Figure 3-3: Questions developed from the conceptual framework in chapter 2 figure 2-4.

For quantitative methods, internal secondary data from an FMCG company was analysed. This secondary data related to historic operations data recorded from January 2016 to December 2017. This data was collected in Microsoft Excel spreadsheet format. The purpose of analysing secondary data collected from the company's data was to further investigate the most prevalent theme identified in the interviews.

3.4.2 Respondent profile

Subject matter experts who are highly skilled in operations management, distribution management and customer service within the FMCG industry were selected to take part of the interviews. These subject matter experts were selected from the company where research was conducted. The respondents comprised of five customer service specialists, one customer service manager, one distribution managers, one operations manager, one national warehouse manager and one supply chain director. Saturation was reached on the sixth interview. All respondents had over 5 years' experience in supply chain. Seven interviews were conducted face to face and three interviews were conducted telephonically. All these interviews were recoded and stored safely in password protected device. One interview out of the ten interviews that were conducted was excluded from the analysis because the respondent gave straight answers without elaborating.

3.5 Analysis Procedures

For qualitative data analysis Clark & Creswell (2018) stated that analysis begins with identifying the best approach to address the research question. Clark & Creswell (2018) further stated that the researcher then either hand or manually codes the data directly on a typed transcript or uses a qualitative data analysis software program.

According to Achievability (2018) qualitative data analysis is the process of examining qualitative data to derive an explanation for a specific phenomenon and it also provides an understanding of the research objective by revealing patterns and themes of the data. Content analysis which refers to the process of categorizing verbal or behavioural data to classify, summarize and tabulate data was used (Dudovskiy,

2011). A “code” which is described by Dudovskiy (2011) as a word or a short phrase that represents a theme or an idea was developed and analysed.

The researcher conducted ten interviews with ten respondents. The interviews were recorded and notes were taken during the interviews. The recordings were used to manually code the responses in Microsoft Word (see appendix 6). A streamlined codes-to-theory model was used to group the themes that impact the efficiency of the distribution of finished goods to customers. According to Saldana (2013) data may contain cluster of coded data that merit further refinement into subcategories. Saldana (2013) stated that codifying usually follows an ideal and streamlined scheme.

According to Dudovskiy (2011) quantitative data analysis turns raw numbers into meaningful data through the application of rational and critical thinking. Dudovskiy (2011) further stated that quantitative data analysis may include calculations of frequencies of variables and differences between variables.

According to Clark & Creswell (2018) analysing data consists of examining the database to address the research question or hypothesis. Clark & Creswell (2018) stated that in quantitative data analysis, the researcher analyses the data based on the type of questions or hypothesis and uses the appropriate statistical test to address those questions or hypothesis. Clark & Creswell (2018) further stated that the choice of a statistical test is based on the type of research question or hypothesis asked such as description of trends, a comparison of groups, the relationship among variables, the number of variables in the question, the types of scales used to measure those variables and whether the variables scores are normally or non-normally distributed.

For quantitative data analysis, data was extracted from the company’s database and edited, coded and analysed using Microsoft Excel. (see appendix 5). This data was analysed using Microsoft excel formulas and calculations.

3.6 Validity and Reliability Criteria

3.6.1 Validity

Construct Validity ensures that the research instruments i.e. the questionnaire is based on sound development of the questions from the literature. Construct validity was used in this research as the questionnaires were developed linking the research objectives in chapter 1.3 and conceptual framework in chapter 2 figure 2.2 (see figure 3-1, 3-2 and 3-3).

Validity was an important aspect of this research in determining accurate and quality results. According to Kumar (2014) validity is a concept of establishing appropriateness, quality and accuracy of the procedures adopted for finding answers to the research question. Kumar (2014) stated that construct validity is an indication of the quality of a research instrument to measure what is supposed to be based on statistical procedures. The questionnaires were piloted with the distribution manager, customer development specialist, warehouse manager and the operations manager. The researcher set up meetings with three respondents to go through the questionnaire and the respondents gave inputs into refining the questionnaire. Based on the feedback, grammatic and structure changes were made to the questionnaire to limit ambiguity. Based on respondent's answers, data based on the most prevalent theme was collected and analysed for further investigation.

3.6.2 Reliability

For reliability for qualitative data analysis, questionnaires linking the research objectives in chapter 1.3 and a conceptual framework in chapter 2 figure 2.4 were developed. Subject matter experts were interviewed and the interviews were manually coded into themes. Saturation was reached on the sixth interview.

Reliability is the ability of a research tool to be consistent, stable, predictable and accurate (Kumar, 2014). According to Kumar (2014) the greater the degree of consistency and stability in an instrument, the greater its reliability. To determine reliability in quantitative data analysis, external consistency procedures which compares findings from two independent processes of data collection with each other as a means of verifying the reliability of the study were used (Kumar, 2014).

To establish the reliability of quantitative data analysis, a correlation coefficient measure was used (see appendix 4). According to (study.com) correlation coefficient measures the association between two variables and correlations are shown as values between -1,0 and 1,0 from no correlation to positive correlation. (study.com) further stated that there is less correlation with a number closer to -1 and a higher correlation as you get closer to 1.

3.7 Ethical considerations

The University requires participants to be treated fairly under certain ethical standards during the data collection process. Ethical clearance for this research was granted by the school of Mechanical, Industrial and Aeronautical Research Ethics Committee at the University of the Witwatersrand, clearance number MIAEC 118/18. To ensure that ethical standards were met during the data collection phase, participants were told the following:

- They have the right to withdraw their assistance from this project at any time without penalty, even after signing the letter of consent.
- They have the right to refuse to answer one or more of the questions without penalty and may continue to be a part of the study.
- Audio-tapes and transcripts will be kept securely stored during the research and after the research has been completed.
- They may request a report summary, which will come because of this study.
- The privacy of the participants will be upheld that is, anonymity of participants will be guaranteed.

CHAPTER 4

DATA ANALYSIS AND RESULTS

This chapter describes the data analysis and presents the results of the research.

4.1 Interviews

For qualitative research method, a total of ten interviews were conducted with experts in operations management, distribution management and customer service.

Out of ten interviews that were conducted, nine valid interviews, with the respondents listed in Table 4.1 below, were used for data analysis.

Table 4-1: Respondents role's in organisation.

Respondents	**Role in Organisation**
Respondent 1	Operations Manager
Respondent 2	Customer Service Specialist
Respondent 3	Distribution Manager
Respondent 4	Customer Service Specialist
Respondent 5	Customer Service manager
Respondent 6	Customer Service Specialist
Respondent 7	Customer Service Specialist
Respondent 8	Supply Chain Director
Respondent 10	National Warehouse Manager

4.2 Current state of operations at an FMCG Company

For a better understanding of the factors that were provided by the respondents in the interviews, it was necessary to map out the current state of operations at an FMCG company where the research was conducted. Mapping the current state of operations formed part of data analysis and achieving objectives stated in chapter 1. Based on the interviews conducted, the current state of operations was established. In the current state of operations, the company produces stock from two factories, one

factory is based in Port Elizabeth, South Africa and the other factory is based in Swaziland.

The company also imports stock from different countries. These imports are transported from the port to the warehouse (3PL) in Port Elizabeth. The company makes use of third party logistics (3PL) providers to store stock in Port Elizabeth warehouse, Johannesburg warehouse and Swaziland warehouse. The 3PL warehousing facility in Port Elizabeth services Johannesburg warehouse facility, Western Cape customers and Eastern Cape customer. The 3PL warehousing facility in Johannesburg services Polokwane, Johannesburg, North west and KZN customers. Replenishment takes place between the two 3PL warehouse facilities in Port Elizabeth and Johannesburg depending on demand. Swaziland warehouse delivers stock to 3PL Johannesburg warehouse facility. Customers in respective regions deliver to stores. There are exceptions where the 3PL warehouse facilities in Port Elizabeth or Johannesburg delivers stock to stores. The company uses two distributors that distribute stock to customers.

Figure 4-1 below shows a graphical representation of current state of operations where research was conducted.

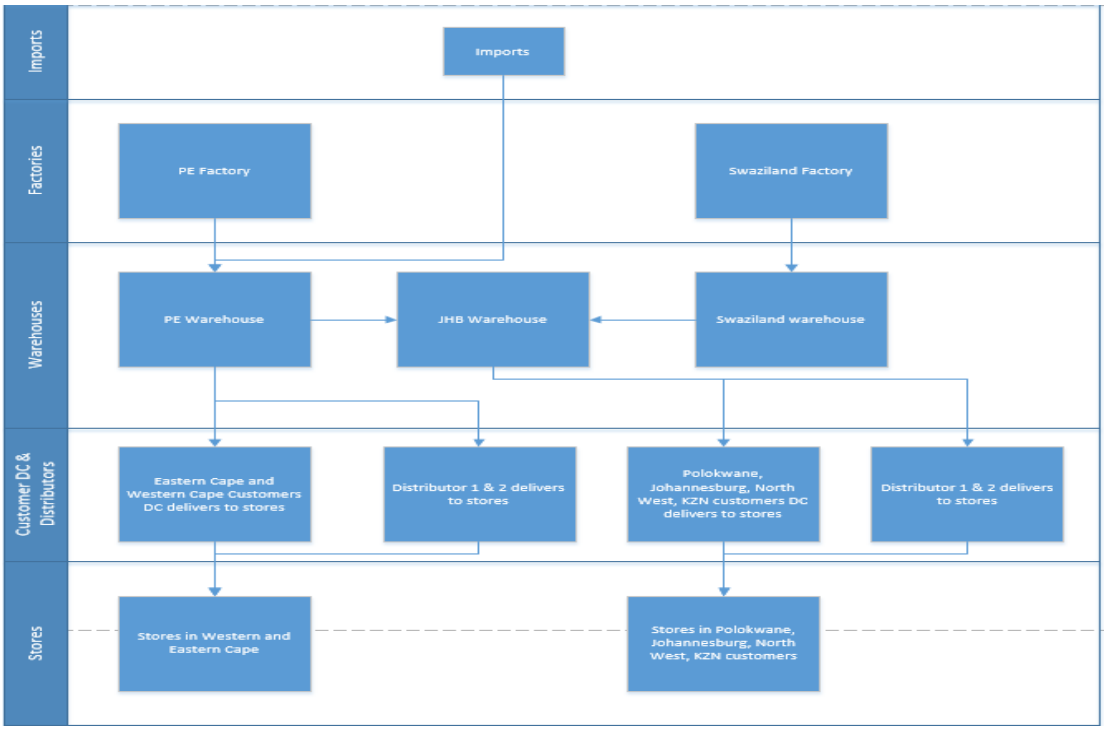


Figure 4-1: Current state of operations in an FMCG company where research was conducted (Developed by the researcher).

4.3 Thematic Analysis

For qualitative research method, thematic analysis using coding as outlined in chapter 3, section 3.5 was used to analyse interviews. (see appendix 6 where key themes/codes are highlighted in red). The themes impact the efficiency of the distribution of finished goods to customers were summarised and presented graphically below.

Figure 4-2 below summaries minimum order quantity, full truck load and planning & processes themes as well as how the themes impact the efficiency of the distribution of finished goods to customers.

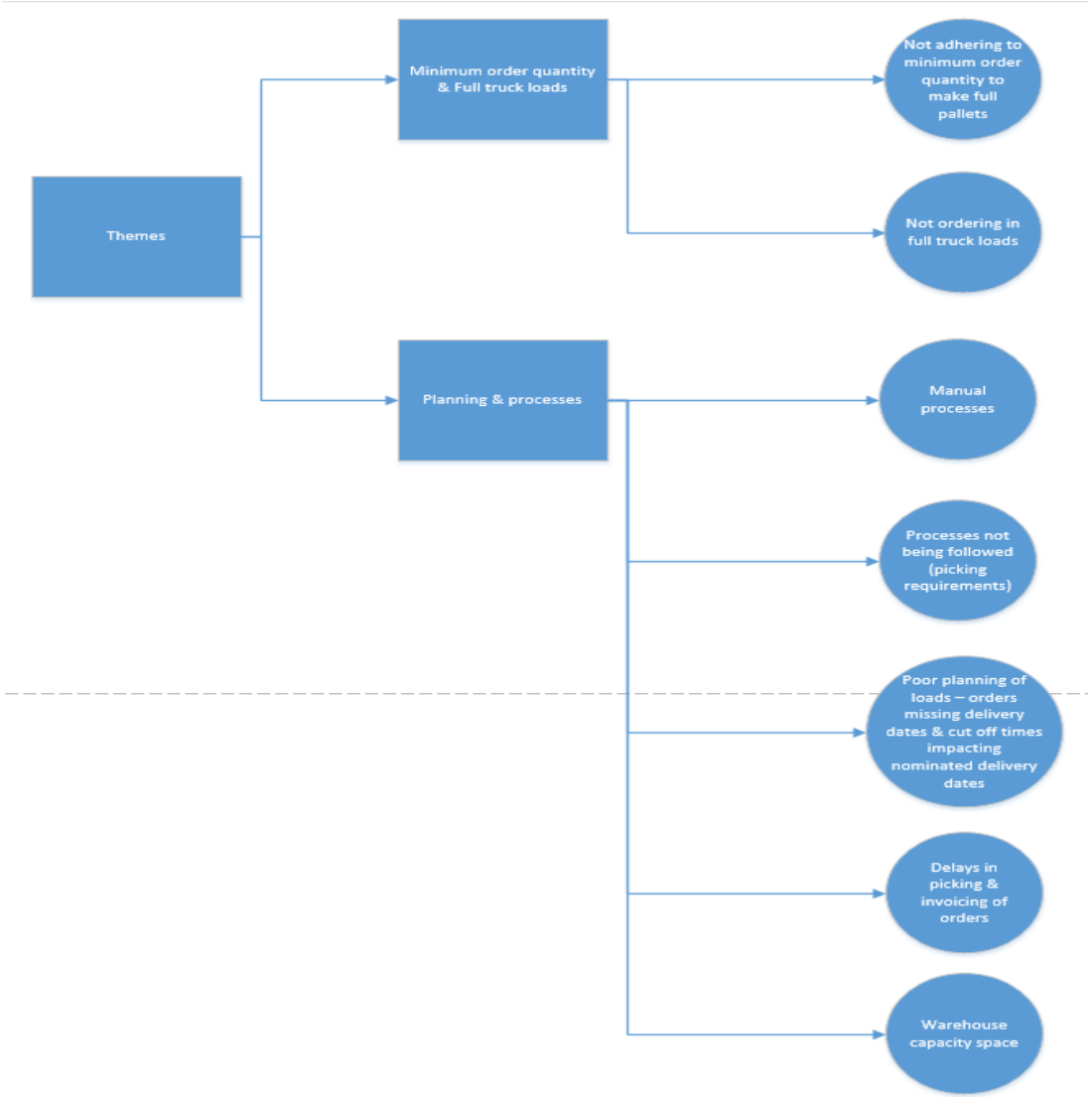


Figure 4-2: Summary of coded themes for Minimum Order Quantity, Full truck loads and Planning & Processes (Developed by the researcher).

Figure 4-3 below summaries resource management and inventory management & replenishment themes as well as how the themes impact the efficiency of the distribution of finished goods to customers.

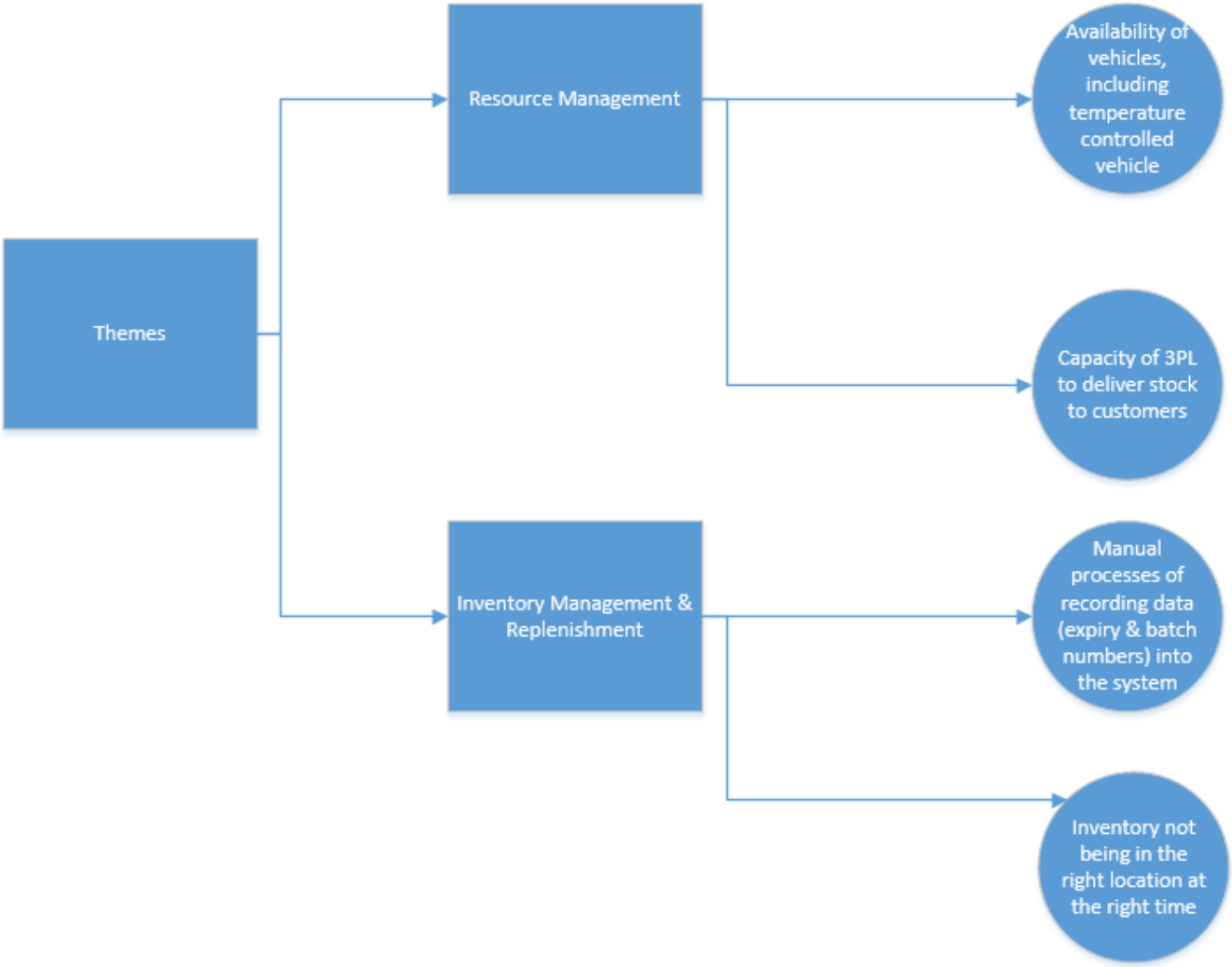


Figure 4-3: Summary of coded themes for resource management and inventory management & replenishment (Developed by the researcher).

Figure 4-4 below summaries supply network and delivery frequency as well as how the themes impact the efficiency of the distribution of finished goods to customers.

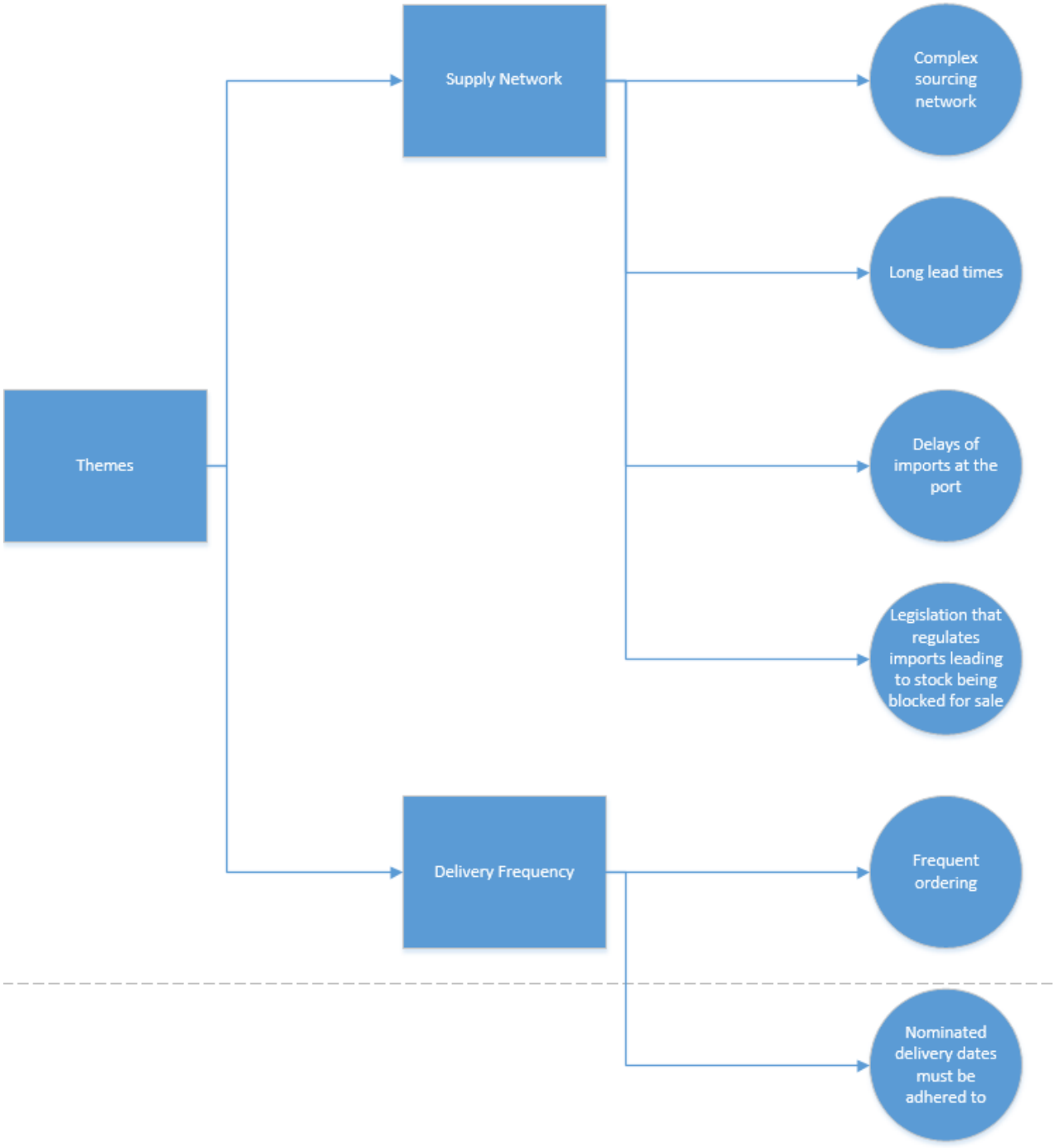


Figure 4-4: Summary of coded themes for supply network and delivery frequency (Developed by the researcher).

Figure 4-5 below summaries turnaround time & booking slots as well as how the themes impact the efficiency of the distribution of finished goods to customers.

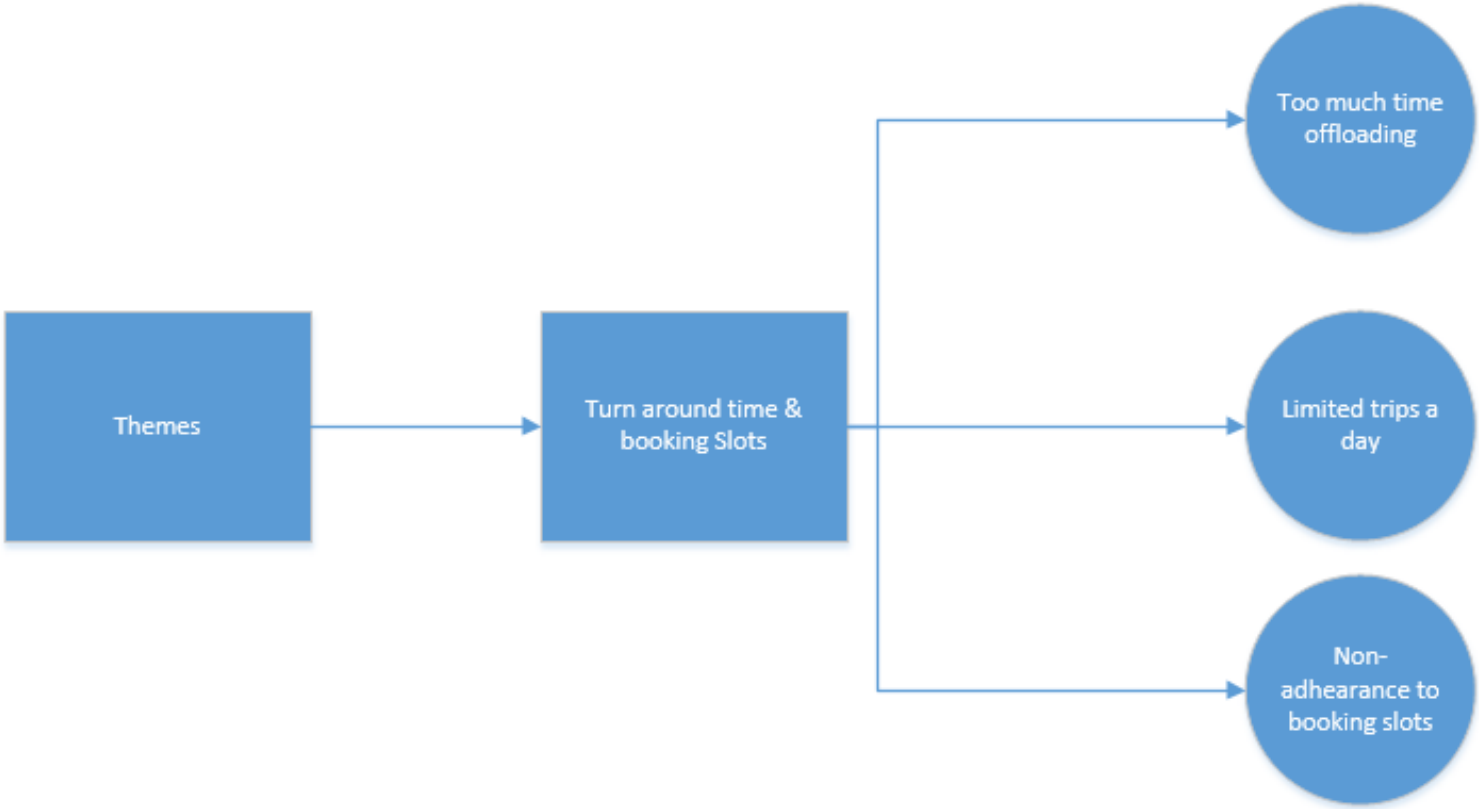


Figure 4-5: Summary of coded themes for turnaround time & booking slots (Developed by the researcher).

The number of responses with regards to the respective themes derived from the preceding analysis is shown in Table 4-2 below. The themes are also ranked according to the themes receiving the most respondent comments to the least comments. The analysis indicates that the minimum order quantity and full truck loads was the main factor impacting the efficiency of the distribution of finished goods to multiple customers in an FMCG company, followed by planning and processes, resource management, inventory management and replenishment, supply network, delivery frequency, truck turnaround time and booking slot.

Table 4-2: Ranking percentages of responses to themes.

Themes	Number of responses to theme	Total Population (n)	% of responses
Minimum order quantity and full truck loads	8	9	89%
Planning and processes	7	9	78%
Resource management	6	9	67%
Inventory management and replenishment	5	9	56%
Supply network	5	9	56%
Delivery frequency	5	9	56%
Truck turnaround time and booking slot	4	9	44%

The themes were then grouped into percentages and graphically presented in figure 4-6 from the theme with the highest responses to the theme with the lowest responses.

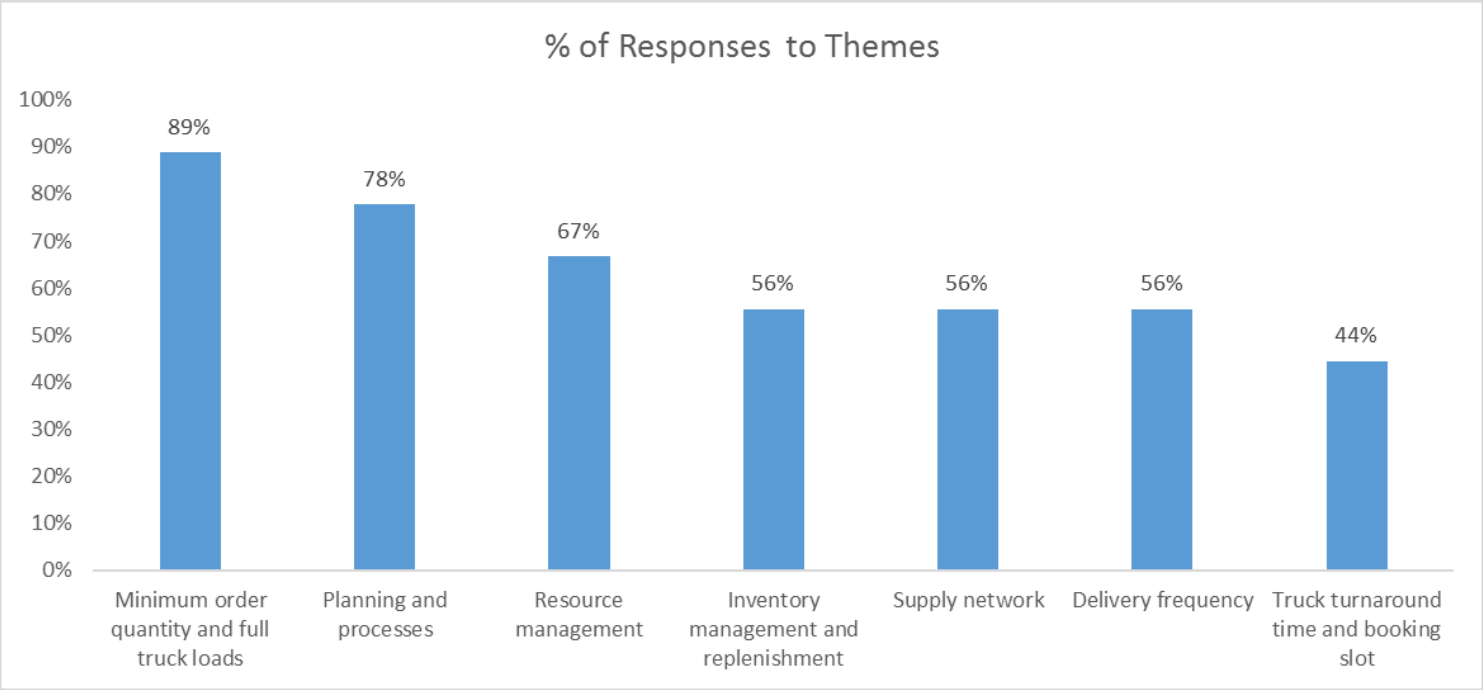


Figure 4-6: % of responses to themes.

Thus, Fig 4.6 shows that minimum order quantity and full truck loads (89%) was the most prevalent theme.

A brief description of what each respondent commented about the themes is presented next.

I. Minimum Order Quantity and Full Truck Loads

Respondent 4 stated that supplying in full truck loads is not always possible as customers do order full pallets. According to Respondent 2 cost of moving trucks has increased due to poor truck utilization and customer behaviour in terms of ordering in half pallets. Respondent 6 stated that customers do not follow processes and their minimum order quantity stretch operations as the supplier must deliver what the customer ordered within agreed lead times.

II. Planning and Processes

Respondent 3 stated that poor planning practices from when an order is placed to when an order is executed is an issue affecting efficiency. Respondent 3 mentioned that planning the distribution of goods to customers is outsourced to 3PL. According to Respondent 3, 3PL do not comply to the planning rules and procedures of the company and thus leading to deliveries not going as per schedule, orders not planned on time and orders missing delivery dates. Respondent 5 mentioned that there are manual processes that lead to human error affecting the picking, packing and checker accuracy processes. Respondent 5 emphasised that these manual process lead to high returns of stock as customers reject stock due to errors with the stock.

III. Resource Management

Respondent 3 stated that resource management is an issue as there are not enough vehicles to deliver stock to customers, people management in terms of having enough stuff to perform duties if people are sick and off work. Respondent 8 mentioned that vehicle availability and capacity affects the ability to deliver stock to customers. According to Respondent 1, stock that must be transported in temperature controlled vehicles is a bit of a challenge if the temperature controlled vehicles are not planned and available for delivery.

IV. Inventory Management & Replenishment

According to the Respondent 2 if the stock is not in the right location at the right time, orders fail resulting in stock not being delivered to customers. Respondent 8 stated that warehouse capacity that is not planned correctly and system parameters that are not set up correctly leads to stock not being at the right location at a point in time.

V. Supply Network

Respondent 4 stated that the network is complex in terms of bringing stock into operations with different shelf life. The company produces stock in Port Elizabeth plant and Swaziland plant and some of the stock is imported. Respondent 4 further stated that there are challenges with imports due to delays and long lead times that impact on stock being delivered to customers on time.

VI. Delivery Frequency

Respondent 5 stated that customers do not comply to trading agreements thus placing orders whenever they like. Respondent 4 stated that customer place orders frequently as they do not want to carry too much inventory to reduce inventory carrying costs.

VII. Turnaround Time & Booking Slot

Respondent 1 stated that truck turnaround time is an operational challenge where customers give suppliers booking slots but the customers do not adhere to good offloading practices. When the supplier arrives on time, customers take too long to offload the stock and to issue proof of delivery. In some instances, as mentioned by Respondent 1, customers withhold proof of delivery when there is a shift change and request that proof of delivery be fetched the next day. This type of behaviour leads to increased transportation costs for the supplier to come back the next day to fetch proof of delivery. Respondent 1 further stated that the long truck turnaround time affects delivery to the next customer as vehicles arrive late to the next customer. According to Respondent 1, if the vehicle arrives late for a customer delivery, the customer rejects the stock.

4.4 Quantitative results

To further investigate the most prevalent theme as identified in the interviews, quantitative data of minimum order quantity and full truck loads was extracted from the company's database over two years. This was important to gain a deeper understanding of the most prevalent theme and to verify the findings of the interviews. Due to data limitations and availability, the most prevalent theme could be confirmed.

For quantitative data analysis, data of orders placed by six customers comprising of two traditional trade customers, two modern trade customers and two cross border customers. These six customers are big > R20 000000 and small < R10 000000 in terms of the revenue they bring to the company and the volume of orders they place. This data from the six customers should provide an indication whether minimum order quantity and full truck loads are not adhered to as per the responses from the interviews. This customer data includes data of orders that were in pallets from January 2016 to December 2017. Figure 4-7 shows the profile of the customer's that was used for data analysis

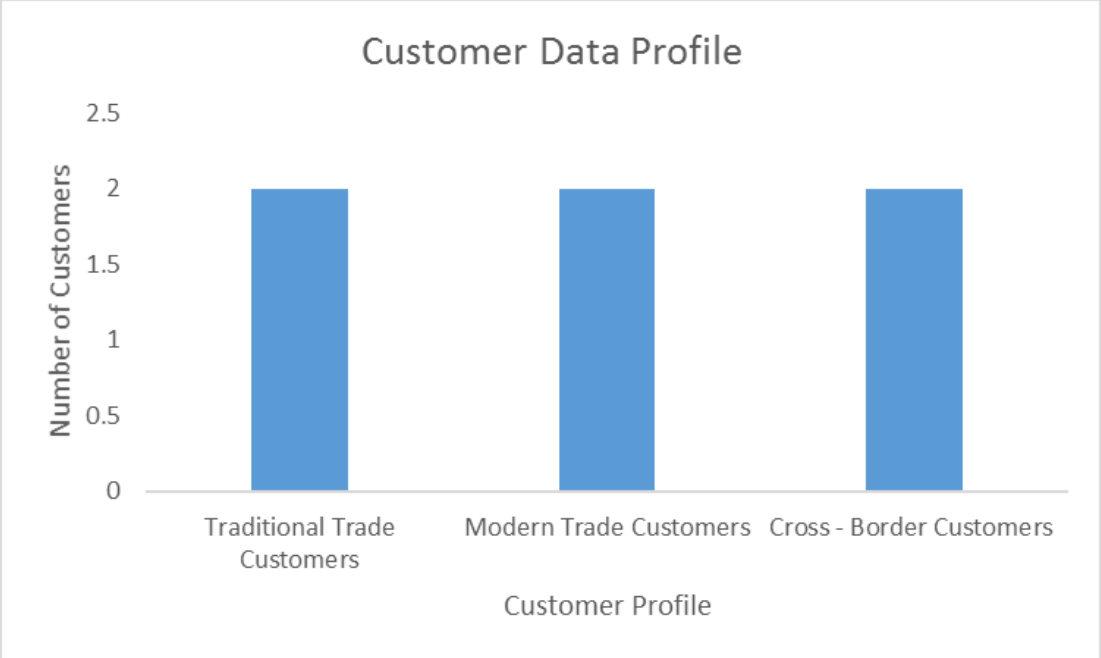


Figure 4-7: Customer data profile

Data from the company's database on six customers from January 2016 to December 2017 data was collected and analysed in Microsoft Excel (see appendix 5)

Two key performance measures that were analysed were the percentage of full truck loads and minimum order quantity for the full year of 2016 and 2017.

The data was summarised into a pivot table. Unique customer numbers were grouped to summarise total pallets ordered by customer per day.

Full truck loads (FTL) = Sum of total pallets ordered divided by number of trucks delivered * 30 pallets.

where:

- number of trucks = count of total pallets ordered per day by unique customer numbers
- 30 pallets = a full truck load takes 30 pallets

Full truck load opportunity costs = number of trucks used *transport rate * (100%-full truck load %). Customer 1 transport rate = R43000 cross border, customer 2 transport rate = R14500 cross boarder and customer 3 to 6 transport rate = 4500 local deliveries.

Minimum order quantity (MOQ) = full pallets ordered divided by total pallets ordered. Calculations of full pallets are explained in section 4.4

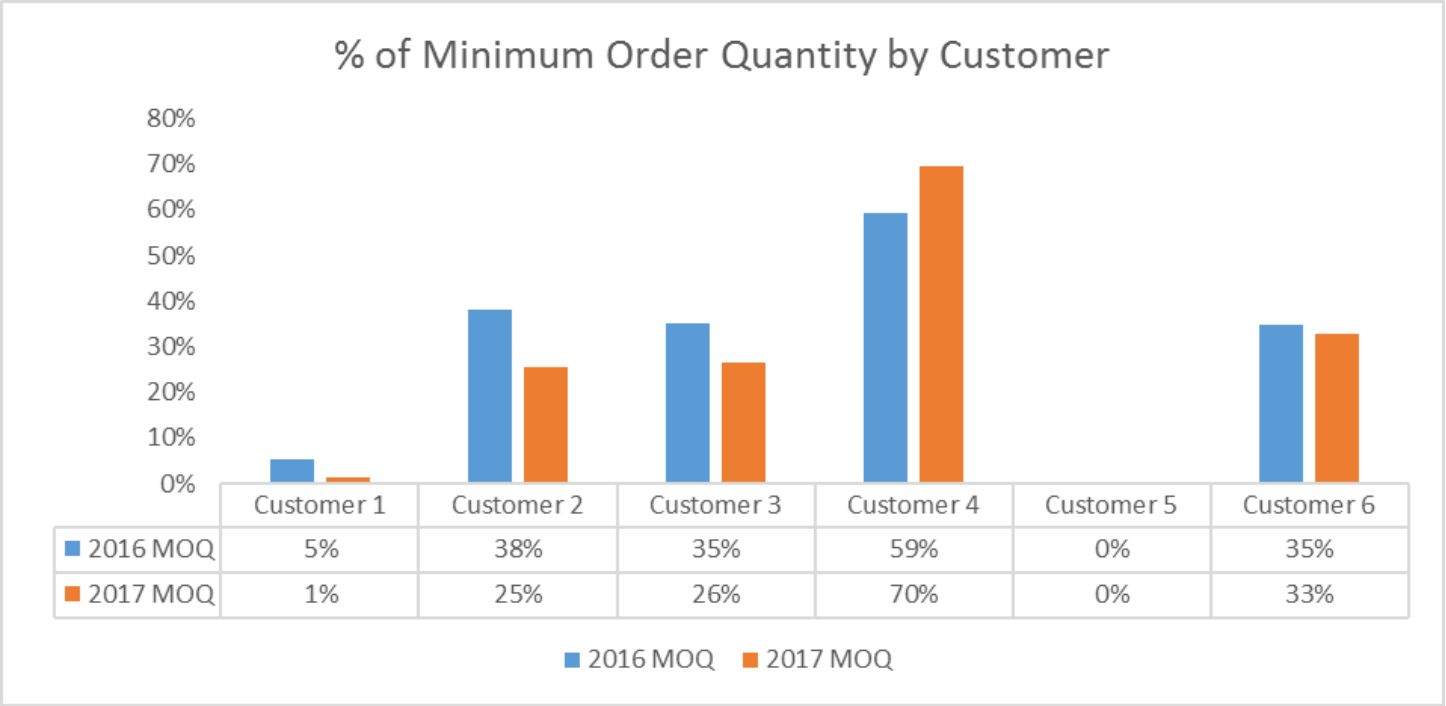
Customer 1 & 2 are cross boarder customers that are small in volume. These customers do not place orders daily.

Customer 3 & 6 are traditional trade customers that are big in volume and place orders frequently on a weekly basis.

Customer 4 & 5 are modern trade customers with customer 4 being big in volume and customer 5 being small in volume.

Figure 4-8 below shows a low minimum order quantity percentage for all customers. Generally, a good minimum order quantity is 95%. The graph below tells us that customers are not placing orders in full pallets as by case per cases per pallet by sku. The below graph shows that customer 1 has achieved less than 5% of minimum order quantity in a 2-year period. Customer 1 order in small volumes therefore they do not achieve minimum order quantity. Customer 5 shows that the customer does not order

in minimum order quantity as they have a 0%. Customer 5 is also a small customer that orders in small quantities. The graph below shows that big customers have a higher minimum order quantity than small customers. For instance, customer 6 achieved minimum order quantity above 30%.



	Customer 1	Customer 2	Customer 3	Customer 4	Customer 5	Customer 6
2016 MOQ	5%	38%	35%	59%	0%	35%
2017 MOQ	1%	25%	26%	70%	0%	33%

Figure 4-8: % of Minimum Order Quantity by customer from 2016 to December 2017

Figure 4-9 below shows the percentage of full truck loads delivered to customers. A good full truck load should be 95%. Customer 5 orders products in small volume with the lowest achieved full truck load percentage in a period of two years. Customer 4 orders in big volumes and achieved the highest full truck load percentage in a period of two years. The graph below tells us that trucks that were delivered to customers were not full therefore impacting costs and truck utilisation. Minimum order quantity and full truck loads are related because if customers do not place orders in full pallets, the truck will not be full leading to trucks not fully utilised.

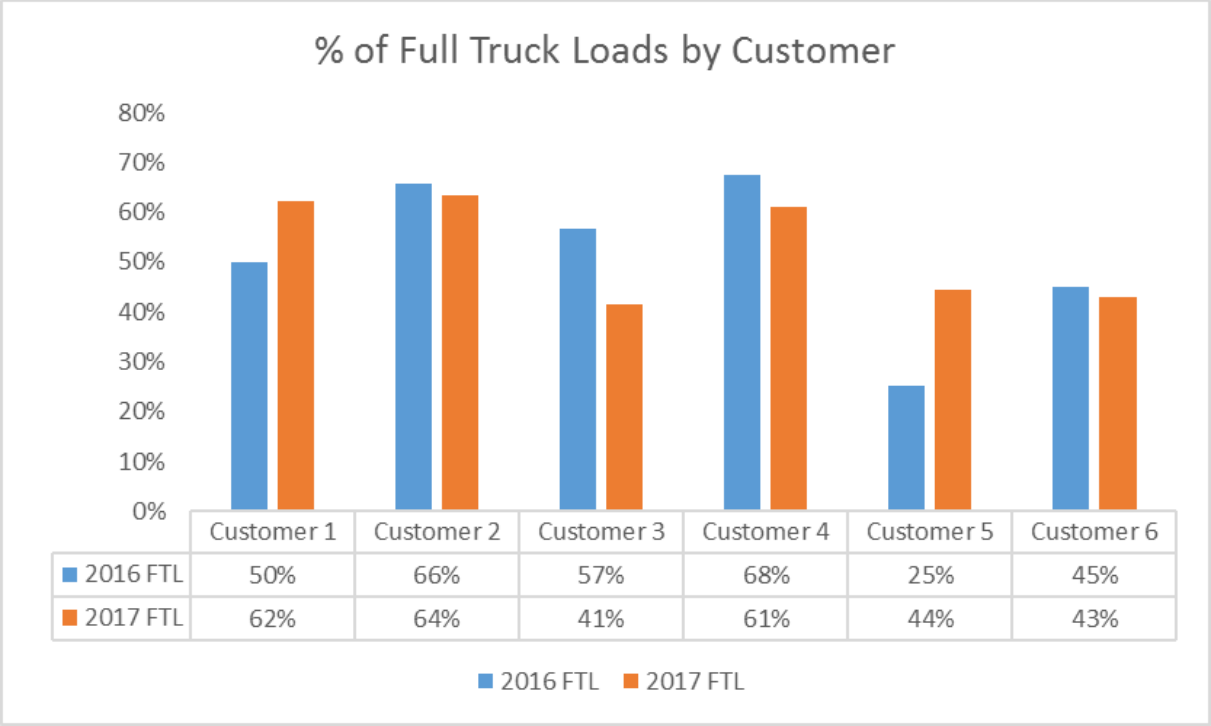


Figure 4-9: % of Full Truck Loads by customer from 2016 to December 2017

Figure 4-10 shows the lost opportunity costs associated with customers not ordering in full truck loads. The graph below indicates that there is money that the company spent that could have been saved if trucks were fully utilised and delivering at full capacity to customers. The graph shows that customer 1 and customer 3 had the most costs due to not delivering in full truck loads. Customer 5 had the lowest cost of not delivering in full truck loads.

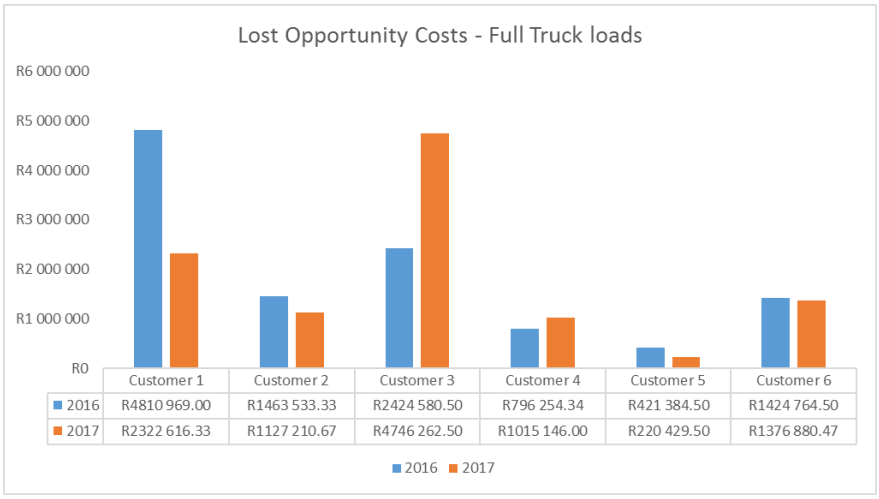


Figure 4-10: loss opportunity costs due to not delivering full truck loads

4.5 Reliability Test

Data from the company's database was used that comprised of orders placed daily from January 2016 to December 2017 to establish the reliability of the strength of the relationship between orders that are placed on full and non-full pallets, a correlation coefficient measure was used. The correlation coefficient was calculated using Microsoft Excel based on 6 customers who placed orders between January 2016 and December 2017. The relationship between orders placed in full and non-full pallets had a correlation coefficient (refer to appendix 4) of 0,8 which indicated that the measurement had good reliability based on the correlation coefficient measure that was calculated in appendix 4.

The study also revealed the current state of operations in the company where data was collected and analysed and interviews were conducted. The company has a complex supply network where they have two factories producing products and imports products from other countries, improvements of these factors impacting the efficiency of the distribution of finished goods to customers will assist in increasing efficiency and productivity and reducing costs. These are discussed further in the next chapters.

CHAPTER 5

DISCUSSION

5.1 Introduction

The objective of this chapter is to discuss what the research has revealed in terms of factors impacting the efficiency of the distribution of finished goods to multiple customers at an FMCG company. This chapter will also answer the research question and objectives stated in chapter 1.

Literature has shown that the Fast-Moving Consumer Goods (FMCG) industry faces complexities and inefficiencies in the distribution of finished goods to customers leading to increased transportation costs (LTX Solutions, 2018). These complexities and inefficiencies could be due to poor logistics planning and decision making resulting in excessive expenditures, missed delivery deadlines and damaged goods (A & A Customs brokers, 2017). Literature further shows that Fast-Moving Consumer Goods (FMCG) industry faces supply chain challenges such a product proliferation, supplier unreliability, manufacturing complexities, bullwhip effect and lower supply chain adaptability (Kumar, 2013).

This research, thus, investigated the factors impacting the efficiency of the distribution of finished goods to customers at an FMCG company.

5.2 Research findings

The research findings identified seven factors impacting the efficiency of the distribution of finished goods to customers. These seven factors are discussed in order of importance as ranked in table 4-2 in chapter 4:

5.2.1 Minimum order quantity and full truck loads

In qualitative research conducted, minimum order quantity and full truck loads was the most prevalent factor with 89% of responses. Minimum order quantity has been defined by Dear System (2017) as the lowest amount of stock that a supplier is willing to sell. According to Riley Life Logistics (2019) suppliers establishes minimum order

quantity with their partners to ensure that they earn a profit and become competitive. Quantitative research conducted shows a low minimum order quantity for all customers that were within scope. It is evident from the data presented that customers are not adhering to minimum order quantity and thus leading to half pallets being delivered. Not adhering to minimum order quantity leads to increased transport costs impacting on profits and waste in terms of truck utilisation. Respondents in this research stated that customers who don't order minimum order quantity stretch operations as the supplier must deliver what the customer ordered as per agreed lead times.

According to Ortec (2018) full truck load means enough products to fill a full truck load. If customers do not order in full pallets that can fill a truck, this leads to trucks delivering to customers half full or empty. Ortec (2018) stated that optimizing truckloads to full truck loads improves the utilization of trucks and reduces transportation costs, the number of deliveries, the risk of damage and empty mileage because of shipping less air in a trailer and the impact on the environment through less Carbon dioxide emissions. Quantitative research conducted has shown that trucks delivering products to customers are not fully utilised as they do not deliver in full truck loads. The costs associated with delivering trucks that are not full are higher by customer in a year as indicated in table 4-10 in chapter 4. Respondents in this research stated that costs of moving trucks have increased due to poor truck utilisation and customer behaviour in terms of ordering in half pallets.

Minimum order quantity and full truck loads relate to each other in a sense that if customers do not order in minimum order quantity, full truck loads cannot be delivered due to customers not ordering in full pallets.

Ortec (2018) verified that minimum order quantity and full truck loads that are not managed well impacts profitability and competitiveness of a company.

5.2.2 Planning and processes

In qualitative research conducted, planning and processes had 78% responses. Planning identifies the goal and objectives to be achieved and formulates strategies to achieve those goals and objectives. Respondents from the research conducted have indicated that there is poor planning of orders from when an order is placed to

execution leading to orders missing delivery dates, nominated days of delivery and arriving late at the customers. Poor planning impacts customer service and leads to delays in customers not getting products on time and in full.

Webster (2019) described a process as series of actions or steps taken to achieve an end. Processes that are not followed cause the end goal not to be executed well. The respondents in this research indicated that due to manual processes in the execution of delivering goods to customers, there is an increased human error which causes delays in customers getting their stock and leading to customers receiving wrong stock. Picking processes, checking processes and invoicing of order processes that are not followed adequately causes delays in products being delivered to customers and thus leading to returns and redeliveries. Due to the nature of the business, some customers require shelf life picking where the stock must be above a certain shelf life. This shelf life picking process is not followed adequately leading to returns and redeliveries of products and therefore contributing to increased transport costs and inefficiencies. Another picking process that is not followed that leads to increased costs in a form of waste is the first expiry first out (FEFO) principle. FEFO is a principle of dealing with perishable products where the first expiring products gets picked first to minimise aging stock in the warehouse. If the FEFO picking process is not followed, it leads to aging stock in the warehouse and therefore having an impact on customers not getting fresh stock.

Respondents in this research stated that poor planning practices from when an order is placed to when an order is executed is an issue affecting the efficiency of delivering to customers. Techopedia (2018) in 2.10 of chapter 2 literature also revealed that poor logistics planning is the main contributor of inefficiencies in the distribution of finished goods to customers.

5.2.3 Resource Management

In qualitative research conducted, resource management had 67% of responses. Hansen (2018) stated that resource management is the process of pre-planning, scheduling and allocating resources to maximize efficiency. Hansen (2018) further stated that a resource is anything that is needed to execute a task or a project. Interviews conducted in this research shows that poor resource management leads to the company's inability to deliver products to customers due to vehicle's not being

available. It is essential that the volume of products delivered to customers is planned efficiently for better allocation of resource management. Due to the nature of products that the company transports, temperature controlled vehicles are also a requirement for some of the products that are temperature sensitive. This requires good resource management as some of the products will not get delivered to customers if temperature controlled vehicles are not planned and allocated. Resource management is essential because the use of non-temperature controlled vehicles for perishable products will lead to poor quality of products and health risk for consumers. Ineffective resource management leads to delays in customers getting their stock as deliveries will not take place if there are no vehicles available. Respondents in this research stated that resource management is an issue due to not having enough vehicles to deliver stock to customers and people resources to perform duties if stuff is sick and not coming to work. Techopedia (2018) in 2.10 of chapter 2 literature revealed that insufficient resources to perform duties affects efficiency in the distribution of finished goods to customers.

5.2.4 Inventory Management and Replenishment

In qualitative research conducted, inventory management and replenishment had 56% of responses. TechTarget (2019) stated that inventory management is the supervision of non-capitalized assets (inventory) and stock. Inventory management is a complex process and involves stock being stored into a warehouse and then shipped to a customer when an order is placed. According to TechTarget (2019) inventory management methodologies uses several methodologies to keep the right amount of stock on hand to fulfil customer demand and operate profitably. TechTarget (2019) further stated that these methodologies include: stock review which involves a regular analysis of stock on hand versus projected future needs; Just-in-time in which products arrive as they are ordered by the customer; and ABC analysis which classifies inventory into three categories that represent the inventory values and cost significance of the stock. TechTarget (2019) defined replenishment as the movement of inventory from upstream (reserve) locations to downstream (primary) storage, picking and shipment locations. According to TechTarget (2019) the purpose of replenishment is to keep inventory flowing through the supply chain by maintaining efficient order and line item fill rate. Poor inventory management and replenishment

leads to stock not being in the right place at the time of picking and therefore causing out of stocks and poor service levels. Poor inventory management and replenishment can also lead to overstock of a distribution centre and therefore contributing to waste in a form of aged stock that sits for a long period in the warehouse without being moved. Research has shown that companies with more than one distribution centre need to replenish and rotate stock according to demand between distribution centres to prevent out of stocks at a point in time. Poor management of system also affects inventory management if stock is not visible on the system when an order is placed and picked leading to customers not getting their stock on time and in full. According to respondents in this research, warehouse capacity that is not planned correctly and system parameter that are not set up correctly leads to stock not being in the right location impacting the ability of the company to service customers. Millennium Logistics (2016) in 2.10 of chapter 2 literature revealed that poorly managed inventory leads to unexpected running out of inventory. Abivin (2018) in 2.10 of chapter 2 literature further revealed that lack of visibility in the supply chain leads to difficulties in replenishing stock promptly and reviewing product movements.

5.2.5 Supply network

In qualitative research conducted, supply network had 56% of responses. Adaptalift Group (2019) stated that supply networks describe the flow and movement of materials and information by linking organisations together to serve the end-customer. According to Adaptalift Group (2019) supply networks enables companies to look at the overall movement of materials and information from start to end, allowing companies to see the value in creating partnerships and the value in working together to ensure the best possible value is provided to the end-customer. This research has shown a complex supply network due to the sourcing and origins of the products. Products in the company were research was conducted are sourced from other countries around the world, via a factory in Port Elizabeth South Africa and a factory in Swaziland. Imports have increased lead times and delays that lead to products not being available on time and thus causing delayed deliveries to customers. Legislation that regulates products that come into the country (South Africa) has caused issues in terms of stock being blocked or embargoed at the port and thus affecting the ability of the company to sell and deliver stock to their customers. Incorrect forecasting leads

to out of stocks due to lead times of imports and production schedules as stock is not readily available. Incorrect forecasting also leads to overstock of products causing high inventory carrying costs, increased storage costs and potential ageing of the stock. Respondents in this research stated that the supply network is complex in terms of bringing stock from different locations into operations. PLS Logistics Services (2013) in 2.10 of chapter 2 literature revealed that unreliable distribution networks where customers are unable to get products at any time for consumption leads to inefficiencies in the supply chain.

5.2.6 Delivery frequency

In qualitative research conducted, delivery frequency had 56% of responses. Delivery frequency is the number of times the company delivers stock to customers according the service agreement. In the company where research was conducted, different customers have different delivery frequency agreements. These delivery frequencies include everyday deliveries or nominated delivery dates. This research has shown that deliveries happen often to customers on less than full truckloads. Due to customer behaviour, customers place orders that are not full pallets and the company has to deliver within the required lead time as per the service agreement. Respondents in this research mentioned that customers do not want to keep high stock covers in their warehouses to reduce inventory carrying costs, therefore they order small orders frequently. The company who supplies these products must meet the lead times and cannot wait until a customer's order is in full pallets due to lead times and nominated delivery dates that they must uphold. The respondents in this research also mentioned that there are customer's whom the company does not have trade agreements with thus affecting how customers behave in terms of placing orders in small quantities frequently. Customers behaviour contributes to inefficiencies due to lack of terms and conditions that govern ways of working.

5.2.7 Truck turnaround time and booking slot

In qualitative research conducted, truck turnaround time and booking slot had 44% of responses. Parwani (2019) defined turnaround time as the time taken by the transport vehicles to complete the whole process of loading finished goods, starting from the point of entry to its exit from the customer's premises. Timocom (2019) stated that the

aim of booking slots is to avoid waiting time at the loading or unloading place. The respondents in this research highlighted the long-standing times when trucks delivery at the customer's premises. Taking too much time to offload, not having enough resources to offload vehicles or withholding proof of delivery when shifts change impact on efficiency as the trucks stand at the customer's premises for a long time and thus affecting their next deliveries to other customers. These long-standing times at customer's premises leads to trucks being late or not being able to deliver to the next customer on time. When booking slots are not adhered to, they impact the amount of times trucks can deliver to customers in a day, causing delivery delays to other customers and thus leading to increased transport costs due to cancelled deliveries and causing inefficiencies.

5.3 Conclusion of Discussion

The key objective in this research was to identify key factors that contribute to efficiency in the distribution of finished goods to customers at an FMCG company. This objective was achieved by evaluating the current state of operations in the distribution of finished goods to customers at an FMCG company as discussed in chapter 4.3. The objectives were also achieved in this research by identifying factors that are contributing to inefficiencies in the current state. These factors were identified by conducting interviews with subject matter experts and manually coding the data as discussed in chapter 4.4. The author also made recommendations to ensure efficiency in distributing finished goods to customers.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

In today's environment, organisations must understand the key drivers of inefficiencies in the distribution of finished goods to customers to reduce logistics costs, increase efficiency and improve customer service. Transportation costs generally represent the largest contribution of total logistics spent. Logistics costs rise year after year and it is important to know the drivers of the costs as well as solutions to reduce those costs. The research focused on identifying factors impacting the efficiency of the distribution of finished goods to multiple customers at an FMCG company.

The literature review gave an overview of Logistics Management and understanding the importance and all the activities within Logistics Management. The literature review also expands on available literature on distribution channels in the FMCG industry and the importance of distribution channels. The literature review further expands on available literature relating to factors impacting the efficiency of the distribution of finished goods to customers

A questionnaire with eleven questions was used to interview respondents who are experts in operations management, distribution management and customer service. This secondary data included 6 customer orders from January 2016 to December 2017. The factors that were identified in the research that impact the efficiency of the distribution of finished goods to customers are:

- Minimum order quantity and full truck loads
- Planning and processes
- Resource management
- Inventory management and replenishment
- Supply network
- Delivery frequency
- Truck turnaround time and booking slot

6.2 Recommendations

It is evident from the research that the company needs to make improvements to be more efficient, improve customer service and reduce costs. Below are recommendations made by the researcher:

- Improving the relationship with customers and building collaboration with customers is vital. Improving partnership and collaboration will assist in better cooperation and change in behaviour from customers in terms adhering to ordering patterns and minimum order quantities.
- Alignment of goals, strategies and action plans must be done with the supplier and customer.
- Working with customers to understand their challenges and how the supplier can improve on their services to minimise those challenges.
- Ensuring trading agreements are in place with customers and ensuring that customers adhere to the terms and conditions stated in the trading agreements.
- Internal collaboration of departments and teams to eliminate working in silo's and allowing for collaborative strategies to improve forecasting to minimise out of stocks.
- Training, learning and development of workforce to ensure that processes, planning and resource management are effectively and efficiently done.
- Empowering, supporting and motivating workers to do their jobs better. Employees must be held accountable for their work and their performance
- Monitoring and tracking KPI's so that they are achieved.
- Simplification of supply networks by delivering direct to customers in an ideal situation instead of shuttling stock between warehouses and then to the customer. Improving last mile distribution and reducing the number of touch points through distribution partners.

6.3 Suggestion for further research

Further research can be done with more companies instead of one company. More factors impacting the efficiency of the distribution of finished goods to customers can be uncovered at other FMCG companies.

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APPENDICES

I. Appendix 1: Questionnaire

Interview Questions on Research: **Factors impacting the efficiency of the distribution of finished goods to multiple customers at a fast-moving consumer goods company**

Researcher : Mmatholo Blantina Malema (MSc Student)

School : School of Mechanical, Industrial and Aeronautical Engineering, University of the Witwatersrand

List of questions for interview

1. How are things currently working in your operations?

2. How effective do you believe is your current operations in the distribution of finished goods to customers?

3. What are some of the challenges you face in your current operations in distributing finished goods to customers?

4. Where are the biggest inefficiencies or problems?

5. Why do you think there are these inefficiencies or problems in your operations?

6. How do you think customer behaviour impacts your operations or how you work?

7. Does this customer behaviour contribute to inefficiencies or problems you have mentioned

8. Are there any other aspects within or outside your environment that influence how you work?

9. How would you improve your current situation or problems?

10. What are some of the obstacles or difficulties you would face implementing these suggestions?

11. Would you need to pull other people to work together to minimize inefficiencies and how would you do that?

II. Appendix 2: Participation Information sheet

December 2018

Dear (Participant occupation/Name),

Re: Participation in Research on Factors Impacting the Efficiency of the Distribution of Finished Goods to Multiple Customers At A Fast-Moving Consumer Goods Company

Thank you for offering, via your response to participate in follow-up interviews.

I am a part-time MSc student in the School of Mechanical, Industrial and Aeronautical Engineering at the University of the Witwatersrand, under the supervision of Bernadette Sunjka. My MSc title is: ***Factors Impacting the Efficiency of the Distribution of Finished Goods to Multiple Customers at A Fast-Moving Consumer Goods Company***

My belief is that companies face high costs, inefficiencies and low productivity in the distribution of finished goods to customers. I would like to identify the factors that impact the efficiency of the distribution of finished goods to multiple customers as well as the impact of these factors on transportation costs.

I would like to formally invite you to participate in this study. As a Manager of the well-established Fast-Moving Consumer Goods Company in South Africa, your knowledge and experience would contribute significantly.

The study will be conducted between December 2018 and January 2019. Involvement in the study would entail one face-to-face interview with you, as the Manager, at your convenience. During the interview, I would like to understand how your company operates, map your processes, and understand more about the issues faced in the daily operations of your business and how you manage these issues. The interviews would be conducted at your company. The interviews is expected to take no more than 1.5 hours.

Participation in the study is voluntary, and you may withdraw at any time. Anonymity (regarding company name and any owner/manager/employee names) and confidentiality of information provided will be assured and respected. I would like to record the interviews, so I can later transcribe them. Your consent at the time of the interview will be requested. If you do not wish the interviews to be recorded this will be respected.

The results of the study will form part of my MSc dissertation report, and may also be reported in academic papers and at conferences. A summary of the results of the research will be made available to you on request.

If you have any questions or concerns about your rights or treatment as a participant, please contact the Chair of the School of Mechanical, Industrial and Aeronautical Research Ethics Committee at (011 717 7343) or Bruno.emwanu@wits.ac.za

Please contact me if you have any questions regarding the research and participation in the study.

I look forward to hearing from you.

Yours faithfully
Blantina Malema

Tel: 0735458448 Email: 1789294@students.wits.ac.za

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Supervisor: Bernadette Sunjka Tel: 011 717 7367
Email:Bernadette.sunjka@wits.ac.za

III. Appendix 3: Letter of Consent

Letter of Consent

I, _____, agree to participate in the MSc research entitled ***Factors impacting the efficiency of the distribution of finished goods to multiple customers at a Fast-Moving Consumer Goods Company*** to be undertaken by **Mmatholo Blantina Malema** under the supervision of **Bernadette Sunjka**, and certify that I have received a copy of this letter of consent.

I acknowledge that the research has been explained to me and I understand what it entails, as follows:

1. I agree to allow access to my company and manufacturing facilities for the purpose of this research.
2. There will be interviews, which is expected to take no more than 1.5 hours each.
3. The interview will be audio taped, and transcribed for analysis by the researcher.
4. I have the right to refuse to be audio taped without penalty and may continue to be a part of the study
5. The processes of my company will be mapped.
6. I have the right to withdraw my assistance from this project at any time without penalty, even after signing the letter of consent.
7. I have the right to refuse to answer one or more of the questions without penalty and may continue to be a part of the study.
8. I may request a report summary, which will come as a result of this study.
9. I am entirely free to discuss issues and will not be in any way coerced into providing information that is confidential or of a sensitive nature.
10. Pseudonyms will be used to conceal my identity, and that of my company, my employees, my suppliers and my customers. The information disclosed in the interviews will be confidential.
11. Audio-tapes and transcripts will be kept securely stored during the research and after the research has been completed.
12. This project was approved by the Faculty of Engineering and the Built Environment of the University of the Witwatersrand and the School of Mechanical, Industrial and Aeronautical Research Ethics Committee (non-medical) of the University.
13. If I have any questions or concerns about my rights or treatment as a participant, I may contact the Chair of the School of Mechanical, Industrial and Aeronautical Research Ethics Committee at (011 717 7343) or Bruno.emwanu@wits.ac.za

Signed: _____

Date: _____

Questions concerning the study can be directed to:

Researcher: Blantina Malema

Tel: 0735458448
Email: 1789294@students.wits.ac.za

Or

Supervisor: Bernadette Sunjka

Tel: 011 717 7367
Email: Bernadette.sunjka@wits.ac.za

IV. Appendix 4: Reliability Calculation

Customer	Full/Not Full	Difference	Cases Per Pallet	Order Quantity	
Customer 5	1	0	36	36	Correlation Coefficient Calculation
Customer 5	1	0	70	70	0,8
Customer 5	1	0	60	300	
Customer 5	1	0	80	80	
Customer 5	1	0	70	1050	
Customer 5	1	0	70	140	
Customer 5	1	0	70	140	
Customer 5	1	0	70	280	
Customer 5	1	0	70	420	
Customer 5	1	0	70	490	
Customer 5	1	0	200	400	
Customer 5	1	0	70	350	
Customer 5	1	0	70	140	
Customer 5	1	0	200	400	
Customer 5	1	0	60	60	
Customer 5	1	0	70	70	
Customer 5	1	0	200	400	
Customer 5	1	0	200	400	
Customer 5	1	0	60	60	
Customer 5	1	0	70	140	
Customer 5	1	0	70	140	
Customer 5	1	0	70	210	
Customer 5	1	0	70	210	
Customer 5	1	0	200	800	
Customer 5	1	0	200	1600	
Customer 5	1	0	70	350	
Customer 5	1	0	70	350	
Customer 5	1	0	70	350	
Customer 5	1	0	70	700	
Customer 5	1	0	70	700	
Customer 5	1	0	200	200	
Customer 5	1	0	60	60	
Customer 5	1	0	70	140	
Customer 5	1	0	70	140	
Customer 5	1	0	70	210	
Customer 5	1	0	70	210	
Customer 5	1	0	200	400	
Customer 5	1	0	70	70	
Customer 5	1	0	70	210	
Customer 5	1	0	70	210	
Customer 5	1	0	200	400	
Customer 5	1	0	70	70	
Customer 5	1	0	70	210	

V. Appendix 5: Microsoft Excel of extracted data

Customer	Created On	Order Quantity	Requested deliv.date	Cases Per Pallet	Total Pallets Ordere	Weeks	Month	Whole Pallet	Difference in pallets	Full/Not Full Pallets	year
Customer 5	2016/01/05	24	2016/01/11	170	0,14	3	1	1,00	0,86	Not Full	2016
Customer 5	2016/01/05	244	2016/01/11	1080	0,23	3	1	1,00	0,77	Not Full	2016
Customer 5	2016/01/05	13	2016/01/11	210	0,06	3	1	1,00	0,94	Not Full	2016
Customer 5	2016/01/05	30	2016/01/11	78	0,38	3	1	1,00	0,62	Not Full	2016
Customer 5	2016/01/05	336	2016/01/11	720	0,47	3	1	1,00	0,53	Not Full	2016
Customer 5	2016/01/05	11	2016/01/11	80	0,14	3	1	1,00	0,86	Not Full	2016
Customer 5	2016/01/05	2	2016/01/11	80	0,03	3	1	1,00	0,98	Not Full	2016
Customer 5	2016/01/05	1	2016/01/11	80	0,01	3	1	1,00	0,99	Not Full	2016
Customer 5	2016/01/05	21	2016/01/11	312	0,07	3	1	1,00	0,93	Not Full	2016
Customer 5	2016/01/05	50	2016/01/11	360	0,14	3	1	1,00	0,86	Not Full	2016
Customer 5	2016/01/05	18	2016/01/11	384	0,05	3	1	1,00	0,95	Not Full	2016
Customer 5	2016/01/05	31	2016/01/11	384	0,08	3	1	1,00	0,92	Not Full	2016
Customer 5	2016/01/05	7	2016/01/11	360	0,02	3	1	1,00	0,98	Not Full	2016
Customer 5	2016/01/05	15	2016/01/11	192	0,08	3	1	1,00	0,92	Not Full	2016
Customer 5	2016/01/05	3	2016/01/11	192	0,02	3	1	1,00	0,98	Not Full	2016
Customer 5	2016/01/05	9	2016/01/11	192	0,05	3	1	1,00	0,95	Not Full	2016
Customer 5	2016/01/05	4	2016/01/11	170	0,02	3	1	1,00	0,98	Not Full	2016
Customer 5	2016/01/05	38	2016/01/11	160	0,24	3	1	1,00	0,76	Not Full	2016
Customer 5	2016/01/05	7	2016/01/11	442	0,02	3	1	1,00	0,98	Not Full	2016
Customer 5	2016/01/05	108	2016/01/11	720	0,15	3	1	1,00	0,85	Not Full	2016
Customer 5	2016/01/05	2	2016/01/11	78	0,03	3	1	1,00	0,97	Not Full	2016
Customer 5	2016/01/05	46	2016/01/11	160	0,29	3	1	1,00	0,71	Not Full	2016
Customer 5	2016/01/05	114	2016/01/11	400	0,29	3	1	1,00	0,72	Not Full	2016
Customer 5	2016/01/12	95	2016/01/14	260	0,37	3	1	1,00	0,63	Not Full	2016
Customer 5	2016/01/12	547	2016/01/14	1080	0,51	3	1	1,00	0,49	Not Full	2016
Customer 5	2016/01/12	7	2016/01/14	210	0,03	3	1	1,00	0,97	Not Full	2016
Customer 5	2016/01/12	6	2016/01/14	80	0,08	3	1	1,00	0,93	Not Full	2016
Customer 5	2016/01/12	2	2016/01/14	80	0,03	3	1	1,00	0,98	Not Full	2016
Customer 5	2016/01/12	24	2016/01/14	312	0,08	3	1	1,00	0,92	Not Full	2016
Customer 5	2016/01/12	8	2016/01/14	192	0,04	3	1	1,00	0,96	Not Full	2016
Customer 5	2016/01/12	3	2016/01/14	192	0,02	3	1	1,00	0,98	Not Full	2016
Customer 5	2016/01/12	2	2016/01/14	192	0,01	3	1	1,00	0,99	Not Full	2016
Customer 5	2016/01/12	3	2016/01/14	192	0,02	3	1	1,00	0,98	Not Full	2016
Customer 5	2016/01/12	5	2016/01/14	170	0,03	3	1	1,00	0,97	Not Full	2016
Customer 5	2016/01/12	3	2016/01/14	320	0,01	3	1	1,00	0,99	Not Full	2016
Customer 5	2016/01/12	56	2016/01/14	160	0,35	3	1	1,00	0,65	Not Full	2016
Customer 5	2016/01/12	192	2016/01/14	400	0,48	3	1	1,00	0,52	Not Full	2016
Customer 5	2016/01/12	1	2016/01/14	160	0,01	3	1	1,00	0,99	Not Full	2016
Customer 5	2016/01/12	36	2016/01/14	442	0,08	3	1	1,00	0,92	Not Full	2016
Customer 5	2016/01/12	22	2016/01/14	78	0,28	3	1	1,00	0,72	Not Full	2016
Customer 5	2016/01/12	27	2016/01/14	78	0,35	3	1	1,00	0,65	Not Full	2016

The year, month and weeknum functions were used to separate year, month and weeks the orders were created on for the year 2016 and 2017. The year function on excel takes the date and returns the year component of that date whilst the month function takes the date and returns the month number that corresponds to the month of the year. The weeknum function takes the date and returns the week number that corresponds to the week of the year. The separation of the date into weeks, months and year was done for the data to be grouped into a pivot for a better view of orders that were created for the year. A ceiling function was used in excel to round up the total pallets ordered to the nearest full pallet. The ceiling function was useful in determining which orders were placed in full pallets and which were not ordered in

full pallets. The difference between total pallets and the nearest rounded up full pallet of what was ordered was calculated. To determine whether orders were in full or not in full pallets, the researcher subtracted total pallets ordered and the rounded-up pallets of what was ordered. If the difference = 0, then the order was placed as a full pallet and if the difference was greater than 0, then the order was not placed as a full pallet.

Where:

- Customer = the customer that placed an order
- Created on = the date in which the order was placed
- Order quantity = the amount of orders the customer placed (cases)
- Requested delivery date = the date which customers request their deliveries to be delivered on
- Cases per pallet = number of cases that makes a pallet (each product has different cases per pallet)
- Total ordered pallets = ordered quantity divided by cases per pallet
- Weeks = week number of the requested delivery date
- Month = month number of the requested delivery date
- Whole pallet = rounds up total ordered pallets to the nearest full pallet
- Difference in pallets = subtracts total ordered pallet and the calculated whole pallet
- Full/ Not full pallets = uses an “If statement” function that returns one value if the statement is true and another value if the statement is false under specified conditions. The condition of the “If statement” is to return “Full” if the difference in pallets is less than 0 and to return “Not Full” if the difference in pallets is greater than 0.
- Year = the year component of the requested delivery date

VI. Appendix 6: Transcription of interviews

Data transcription:

Question 1:

- How are things currently working in your operations?

Respondent 1:

- They deliver to DC's instead of stores because retailers deliver to their stores as they mix different products – expedites receiving (intra company transfer), retailers quicker respond to the needs of their stores as they can see auto replenishment with the system
- Delivering to dc's has advantages of delivering big orders instead of small orders
- Customers asked for DC allowance as they must delivery to stores every day or every second day,
- Customers want to carry less inventory therefore supply must delivery to DCs daily but not full truck load
- Supply network (where products come from)– PE plant, imports, Swaziland plant,
- Swaziland plant– JHB DC
- PE plant – PE Dc – JHB DC
- Ideal world, cut JHB dc, Swaziland stock to go straight to customers every second week or once a week, PE stock to go straight to customers

Respondent 2:

- Network is structured with Imports - inbound costs – handling – warehousing and storage and outbound, outbound is the most expensive

Respondent 3:

- Work with value chain (warehousing perspective) – receiving and put away, cycle counts, picking and invoicing and dispatch, 3 factors that affect value chain is system, process and people. Order comes through from customer, order is planned and orders are combined on a certain route in a truck (transport lane - Sandton orders will be delivered in one truck)

Respondent 4:

- Delivering to DC's now instead of stores, company is not in the business of buying delivery trucks, they in the business of producing fast moving consumer goods and marketing it, the company gets experts to do distribution such as 3PL, its more efficient as 3PL delivers for other companies instead of the company delivering in small quantities. 3PL fees are lower than if the company was to do it themselves.
- Complicated business model - some stock is imported and packed locally and some stock is produced locally, import from various countries and pay various currencies and interest rates, the countries have different lead times to deliver to south African port, there are sometimes customs problems at ports that delays product from port to our warehouse making it difficult to deliver service levels to customers. Solution would be to have one plant, many sources of finished and half-finished makes it complex to get the model right

Respondent 5:

- Imported sku's, stock produced locally, imported sku's take up to 8 weeks to reach the port, then must be repackaged and distributed from PE warehouse. Complexity of bringing imported sku's. Plant in PE and Swaziland with PE being the mother DC

Respondent 6:

- Customers place an order, sales order is processed, order is picked, planned and delivered, POD is issued if not stock is returned

Respondent 7:

- 2 DCs costs in terms of direct shipment from PE to DC customers and small shipment from JHB.
- Too much stock in the warehouse costing more, additional warehouses due to space and shuttling costs. FIFO is not practiced correctly resulting in a lot of waste, increased costs because of shuttling and increased storage

Respondent 8:

- Customers place orders and orders are processed and delivered un 48 to 96hrs lead time

Respondent 9:

Respondent 10:

- 3PL to customers, stock movement, infill will determine if there will be direct deliveries from PE, DC orders are serviced from the closest warehouse within the region, orders are checked for and served from the best Infill dc and planned and delivered from there

Question 2:

How effective do you believe is your current operations in the distribution of finished goods to customers?

Respondent 1:

- 7 or 6 in terms of effectiveness and efficiency, space to improve

Respondent 2:

- Improving but some inefficiencies need to be dealt with

Respondent 3:

- Communication between systems is effective, if planning is executed well then everything falls into place – from time order is received to the time of the NDD, lead time must be considered – if lead time is 3 days, order must be picked, invoiced and dispatched.
- Operations can be improved, there is issues with planning done by 3PL which is not in line with the company requirements – lead time issues, planning of vehicles, picking no space on the floor or cage, trucks are full, breakdown of equipment such as reach trucks that needs to go and pick, labour requirements such as people being sick and not coming to work, machinery breakdown, transport breakdown, not enough vehicles to deliver the orders dispatch

Respondent 4:

- Effective but not efficient, there is only 2 DCs that must supply the whole of SA, not efficient because of increased distribution costs – big trucks going to customers empty because they must meet lead times from when an order is placed

Respondent 5:

- Not very efficient

Respondent 6

- Not that efficient as we have failures that can be avoided such as warehouse management, FIFO not being followed, stock being in the wrong DCs, incorrect customer invoicing

Respondent 7:

- Import operation is not so efficient because we have long lead time, local production can get efficient if we partner better with customers to have more full truck loads

Respondent 8:

- A lot can still be improved, not so effective in terms of demand and stock not being in the right places, having offsite location and stock not sitting in the right location, could it be because of not planning warehouse capacity correctly and are parameters on the system set up correctly to replenish to ensure depots are sitting above boundary and is demand from customers done at such a level that it can tie back to parameters set up on (system) to ensure that we replenish the correct stock at the right demand so that when customer orders we have sufficient stock available

Respondent 9:

- Not that efficient but getting there, 3PL must understand customers and how they work and incorporate into their distribution channels so that the service improves

Respondent 10:

- Room for improvement to be effective, stock availability gets confirmed with the 3pl and not on the system leading to poor infill leading to OOS, there is a miss alignment between system and on what is on hand with 3pl

Question 3:

What are some of the challenges you face in your current operations in distributing finished goods to customers?

Respondent 1:

- Operational challenges, trucks turnaround time, retailers give time slots for deliveries, supply must make sure they arrive on time for the booking slot, trucks may come too early when a booking slot is given, if truck arrives late, customers reject stock, issue on customer side is that customers take time to offload, check load and return POD, or customers start offloading they say their shift is done come tomorrow to fetch POD or truck, supply pays the cost of (transportation costs) trucks making one load due to time, truck could potentially make more loads but can't because of too much time to offload

Respondent 2:

- Poor planning practices in terms of planning loads (from when an order is placed to execution) and not compliant with the company rules and procedures, planning is done by 3PL, deliveries not going as per schedule, booking are not done as per the company, planning of **deliveries** by 3pl is poor. Orders not planned on time, orders that have missed their delivery date, order cut off where customers place orders after cut off impacting planning capability of the 3pl and NDD, trucks being stuck in traffic, customer turnaround time affecting deliveries to the next customer, drivers cannot leave inventory, they must wait for signed POD
- Inventory management is important in terms of distribution of goods, if the product is not in the right location at the right time and slot, orders fail resulting in stock outs, inventory ageing due to human errors in expiry dates and batch numbers, manual processes in recording batch and expiry dates

Respondent 3:

- Speed of getting products from our warehouses to the customers is slower (takes longer)
- No control over quality as we don't know what 3pl is using, loss of control of the product
- Service to customers, if there is an out of stock, there is a lead time for products to get to customers, sticking to delivery schedules and not being flexible to service customers anytime, not as adaptable as it used to due to NDDs

Respondent 4:

- Complex network in terms of bring stock into our operations. Stock being brought with different shelf life. Customers will not accept stock below a certain shelf life therefore we always should have fresh stock
- Supplying in full loads which is not always possible

Respondent 5:

- Warehouse challenges in terms of picking accuracy, checker accuracy before it gets loaded onto the vehicle as the processes are manual. Even after those checks there are still customers who identify short picked products and damages. Results in double handling if customer does not accept the stock (returns on average are about 30 deliveries)
- On customer side the challenge is related to offloading, truck standing times at the customer which costs more money, customers do not adhere to booking slots (6 – 13 hours before customer offloads the vehicles)

Respondent 6:

- Supply – not having stock, customers who don't follow processes, customers who's MOQs stretch operations, customers who don't know how to manage their systems, customers who abruptly change or cancel orders,

Respondent 7:

- Geography, we have a vast geography, some customers we deliver direct to store and some customer we deliver. It is more efficient when we deliver to Dc because the customer can determine the last mile delivery for their network.

- We get challenges when we deliver direct to store because that's where we lose a lot efficiency dependant on the order profile

Respondent 8:

- Vehicle availability and capacity (their ability to deliver)

Respondent 9:

Respondent 10:

- Challenges picking not according to customer shelf life requirement, delays at delivery points resulting in redeliveries and long standing times

Question 4:

Where are the biggest inefficiencies or problems?

Respondent 1:

- Delivery frequency and vehicle fill and size (full truck loads)
- Two temperature categories – ambient and temperature controlled, the type of product they order, one truck must be ambient and one temperature controlled, orders must be split, refrigerated trucks are more expensive – extra cost, planning done differently could have done it better
- Supply network – (how do we reduce number of touch points,) every time there is someone in between that's more cost and risk of damages and extra time

Respondent 2:

- Cost of moving trucks, number of pallets affect it, volume and weight, kilograms also have an impact as they affect cost per kilo – truck utilisation , truck efficiencies, the bulkier the product and less weight, the more expensive it is to distribute .
- Distribution costs is distribution as rate per kilo is more expensive due to bulkier products
- Temperature and non-temperature control products
- Number of drop points and agreement with customers and behaviour (full truck load and MOQ, order frequency – outbound costs
- areas delivering to (geography)

Respondent 3:

- Poor planning and poor inventory management

Respondent 4:

Service levels due to many distribution points or centres, it's up to the DC to ensure that they carry enough weeks cover of the fast selling items, if they run out they don't deliver items to the stores, we must carry more weeks cover of stock to meeting demand (costing more money to hold inventory) impacting an increase in the working capital

Respondent 5:

- Cost of delivering goods with half empty trucks, not being able to ship full trucks and in full pallets
- Customers do not comply with NDDs and NODs, customers place orders whenever they like.

- Due to contractual binding of lead times (contractually bound and service level agreements, the company is forced to deliver half full trucks, not being able to fill the trucks full
- Stock not being in the right DCs

Respondent 6:

- Customers order in loose units or cases and not on full pallets and frequency of orders

Respondent 7:

- When customers order half pallets, when factory/ supply is not able to give stock on time to the warehouses, many manual interventions catered rather than systems to manually build loads due to customer behaviour to build a full pallet due to customers ordering half and quarter pallets, 3PL not being able to deliver due to lack of trucks

Respondent 8:

- Incurring a lot of double handling for direct store deliveries in a sense that while we could be optimizing the use of mother Dc in PE, we are forced to utilize the JHB dc because of the geography of these direct store deliveries. Because of the direct store deliveries, we do not optimize our vehicles because transportation is not our core competencies and we rely on 3PL to do that for us

Respondent 9:

Respondent 10:

- Deployment of stock and inventory management in terms of shelf life requirement (parameters on what stock can be picked, an order will get cut when the order is loaded or picked), only during picking do they realise they can't fulfil an order after they have confirmed the order with the customer – standardising shelf life dates for customers, different customers have parameters in terms of shelf life requirement, before orders are planned, they should be able to see on the system that stock is not available due to minimum shelf life requirement – orders must not be confirmed and they cannot wait for picking to realise that there is no stock due to shelf life, system is not catering each customer requirement but more of a blanket approach

Question 5

Why do you think there are these inefficiencies or problems in your operations?

Respondent 1:

- Retailers focusing on internal supply chain, when they made the changes (dc allowance to customers) they were not interested in how it affects customers or supply failed to engage customers to see what is most practical, how do we sell and make a product appear on the shelf without making the cost to be out of control

Respondent 2:

Customer behaviour, complicated route to market, diverse product portfolio

Respondent 3:

- Change of 3PL and lack of resources from 3pl to delivery increased volume
- Poor human resource planning, poor transportation planning and acquiring new trucks and new people

Respondent 4:

- It's had to control what is in customers DCs and its up to them on how they order, they might reduce stock cover and ran out of stock, they can be controlled but the company can influence or recommend stock cover to them

Respondent 5:

- Historic trading agreements, no agreement with customers to order according to our efficiency plans, core expertise is manufacturing not distribution. If there is an agreement in place, customers who do not comply will pay a cost to not comply

Respondent 6:

Legacy ways of working and haven't adapted to change in the world and resistant to change (implement MOQ and order frequencies)

Respondent 7:

- People don't do what they are supposed to do at the time they are supposed to do it, if they are systems failures there is no communication as frequently or as it occurs so that a solution can be considered

Respondent 8:

- Led by the fact that our customers dictate a lot of activity to us and we have not matured as a business in how we engage our customers

Respondent 9:

Respondent 10:

- 3PL not having capacity to do deliveries
- Parameter set up on the system for different customers, not understanding customer needs or requirements, or distribution requirements and 3pl and our limitations when it comes to the inefficiencies and system limitations

Question 6:

How do you think customer behaviour impacts your operations or how you work?

Respondent 1:

- Customers are internally focused, they have inflexible systems with no manual intervention, the system gives a requirement and retailers execute it without allowing for human mind to

be applied – supply should have challenged the customers on their changes and what they lead to

- Customer setup which was not adjusted

Respondent 2:

- Poor ordering patterns - Some customers do not place orders on time according to the service level agreement
- Poor turnaround time - Customers have operational issues such as strikes where trucks can wait for long to be offloaded or no employees to offload therefore sending the truck back to be re booked

Respondent 3:

- Customers don't want to keep safety stock leading to potential out of stocks and especially in month end and peak seasons, reduced stock holing to shelf stock
- Expecting deliveries as frequent as they need them, customers want more flexibility and we giving less flexibility – service delivery

Respondent 4:

- Lack of willingness of customers to participate in joint business ventures or plans (ordering in full truck and agreement of supplier and customer on certain principles)
- Customer participation might come at a higher price than what the supplier can afford and therefore the joint business venture or plan might not be in place

Respondent 5:

- If we do not have a good relationship with the customers, we can't do joint business planning partnerships to implement change

Respondent 6:

- Customers who do promotions and expect the supplier to provide stock "make a plan", customers that don't pay on time, customers in violations in terms of MOQ and ways of working

Respondent 7:

- Customer behaviour in terms of not ordering in full trucks and MOQ, there should be a joint business plan for customers to start ordering in full truck loads

Respondent 8:

- Customers do not have line of sight of what our supply chain looks like because we do not partner very well with our customers, as such we do not influence them to be able to assist us in optimizing our supply chain e.g when they order we need to be able to tell them the minimum order quantity that they need to give us in order for us to deliver to them, we must deliver in full truck loads, we have not partnered very well with customers to communicate an efficient network

Respondent 9:

- No, behaviour is due to what we supply them

Respondent 10:

- Customers don't adapt to changes

Question 7:

Does this customer behaviour contribute to inefficiencies or problems you have mentioned?

Respondent 1:

- Yes

Respondent 2:

- Yes, due to poor turnaround time and ordering time that impacts service deliveries and levels to supply the customers

Respondent 3:

- Yes

Respondent 4:

- Yes,

Respondent 5:

- Yes, system not aligned in terms of reason codes not being flexible and allocating the right reason code

Respondent 6:

- Yes, customers take more or less of their forecast

Respondent 7:

- Yes

Respondent 8:

- Yes

Respondent 9:

Respondent 10:

- Customers requesting deliveries the next day or in 48hrs even for 72hrs lead time customers, customers want things their way and we must follow suit and sometimes it's not possible

Question 8:

Are there any other aspects within or outside your environment that influence how you work?

Respondent 1:

- Fuel makes inefficiencies worse

Respondent 2:

- Diesel or fuel price, storage space

Respondent 3:

- Incremental weather that affects ability to service customers and products that don't meet government approval (government legislation) and products are locked for a long time – red tape

Respondent 4:

- Intertest rate – cash flow system, fuel, political unrests - strikes (look up pestel model to look at external factors – Political, environmental, social, technological, economical and legal)

Respondent 5:

Respondent 6:

- Strike actions, unions, no orders can be accepted if there are strikes, material availability

Respondent 7:

Respondent 8:

- From a manufacturing perspective, because we run a semi-lean network, when manufacturing compliance to schedule is low or when they do not manufacture what has been put on the supply plan for manufacturing, it then creates inefficiency because we don't have the right inventory at the right place at the right time

Respondent 9:

Respondent 10:

Question 9:

How would you improve your current situation or problems?

Respondent 1:

- Make to order setup
- Delivering straight from plant to customers instead of having dc

Respondent 2:

- Cost and volume needs to be improved based on truck utilisation, not send trucks underutilised, better planning, customer collaboration, KPI monitoring

Respondent 3:

Improve poor planning by 3pl – affecting inefficiencies in deliveries, write offs and receiving

Respondent 4:

- Reduce pack formats and outer sizes, we deliver full outer but stores don't want to buy full outers so they break the outers into half leading to damages and breakages, sell the right size outers, it will improve distribution of range to smaller stores and reduce damages

Respondent 5:

- Improve collaboration with customers – Joint business planning
- Simplifying our network – deliver through distributors in the region instead of from the dc eg PE – CPT, instead of servicing a customer out of PE warehouse, deliver through a distributor that is based in cape town

Respondent 6:

- Back up supplier to supply raw material in case the other supply can't supply, invest in better processes in picking and debriefing, there will be errors because of human errors

Respondent 7:

- Improve demand forecasting, get as accurate as possible, respect the independency of every function, sales would want more sales, quality will try get quality products to the market, supply chain to make sure that customers get wat they want, collaborate and ensure that KPIs are aligned as per different functions, look at KPIs collaboratively

Respondent 8:

- Supply planning team to be closely linked to the plant and customer service and logistics function so there will be much sight of what production is planned, what safety stock will be available to mitigate against production misses, engaging customers and creating a team that is sorely responsible for making sure that we work with customers and deliver productivity will help drive out those inefficiencies

Respondent 9:

Respondent 10:

- Joint forecasting with customers to agree on quantities that they will be ordering

- Look at system parameters, getting stock to be in the right location, look at if demand is set up correctly and if parameters are set up correctly on the system

Question 10:

What are some of the obstacles or difficulties you would face implementing these suggestions?

Respondent 1:

- Customers don't want to do anything unless if they paid, they don't want change
- Costs obstacles
- Lack of understanding from teams of their networks and customers network

Respondent 2:

- Behaviour – customer don't want to change; customer buy in biggest one is customer behaviour

Respondent 3:

- Space constraints to pick, stage and dispatch of the product, when planning is improved

Respondent 4:

- Deliver stock on schedule days so that merchandisers can pack stock into shelf, if scheduled deliveries do not arrive within their slot, the merchandiser might not be there to pack stock onto the shelves.
- Giving customers what they order (case fill rate is a big issue; case fill rate is affected by the fact that we are trying to hold as little stock as possible to reduce costs.) (customers are complaining about service levels and lack of stock
- It will take people(resources), time and money

Respondent 5:

- Cost, not having aligned trading terms, customer rejections to change

Respondent 6:

- Cost, people

Respondent 7:

- Meeting KPIs

Respondent 8:

- Customer acceptance

Respondent 9:

- Getting experts in the room to set up systems and business willingness to assist and give support

Respondent 10:

- Will be challenging to get customers to agree, getting customer buy in

Question 11:

Would you need to pull other people to work together to minimize inefficiencies and how would you do that?

Respondent 1:

- Collaborate with teams to understand how our network is organised, wat are the cost drivers, where the optimisation opportunities, how many stores and how planning and replenishment is done, maximum inventory holding, what objectives and targets and KPI that retailer have, understand possibilities and restrictions and KPIs and see where opportunity sits, can't be a one sits all setup, understanding dynamics and network is key

Respondent 2:

- Team collaboration, customer collaboration - joint business planning, vendor managed inventory,

Respondent 3:

- Work with 3pl to ensure they follow procedures and they do what they supposed to be doing, people management

Respondent 4:

- Set up a cross-functional project team and see where we are, where we want to be and how we get there

Respondent 5:

- Cross collaboration exercise

Respondent 6

- Team collaboration

Respondent 7:

- Team collaboration and interaction

Respondent 8:

Respondent 9

- Different links in the supply chain, teams cannot work in silos, teams cannot work in isolation

Respondent 10:

- Team collaboration