UNIVERSITY OF KWAZULU-NATAL

AN EVALUATION OF THE OUTBOUND LOGISTICS

CUSTOMER SERVICE OF A MULTINATIONAL COMPANY

IN THE SOUTH AFRICAN FMCG INDUSTRY

By

Darryl Dominic Kader

DECLARATION

I declare that this study represents my own original work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the University of KwaZulu Natal, Pietermaritzburg Campus. It has not been submitted before for any degree or diploma to any university.

Darryl Dominic Kader

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ABSTRACT

Companies seeking competitive advantage in the highly competitive fast moving consumer goods (FMCG) industry can no longer differentiate themselves from competitors on products and pricing alone. Customer service and the perceived value that customers gain from suppliers is key in staying ahead. The FMCG industry in South Africa (SA) does not place much emphasis on evaluating customer service.

This study is an evaluation of the outbound logistics customer service of Unilever Home and Personal Care (UHPC), a multinational FMCG company in SA. The study focuses on attributes of customer service that major retail customers with distribution centres (DC's) consider important and evaluates logistics customer service against key competitors.

A survey of three major retail customers' of UHPC was conducted in the major regions of SA. Thirty self-administered questionnaires were sent out to staff at Shoprite, Clicks and Spar DC's across SA. Staff targeted were those associated with inbound logistics and included people as senior as DC Managers to Receiving Controllers. As these are specialised job functions, the sample size comprised of only 30 respondents. A total of 24 responses were analysed to determine the attributes of customer service which UHPC customers consider important and also to determine the perceived performance of UHPC against other competitors.

The results revealed that DC customer consider order accuracy, timeliness of delivery, order quality, product availability, order fulfilment, personnel contact, cooperation of supplier, alerts on transportation delays, relationship with supplier and service level agreements to be the ten most important attributes of logistics customer service. The different customer groups did not rank the attributes in the same way. Shoprite and Clicks perceive UHPC's logistics customer service to perform from good to excellent on all 32 attributes whilst Spar felt that UHPC under-performed on 8 attributes. UHPC was highly rated amongst key competitors in the local FMCG industry and outperformed competitors on 28 attributes of logistics customer service. The following areas of improvement were identified for UHPC: order discrepancy handling after delivery, quality/durability of packaging, personal contact knowledge and ability and helpfulness in solving problems and supplier innovation in improving delivery.

Recommendations for improvement in UHPC's logistics customer service were made based on the results and the literature review which included repeating the survey at least quarterly on attributes needing improvement so as not having to wait for at least 3 years for another competitor benchmarking survey.

ACKNOWLEDGEMENTS

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List of Abbreviations

3PL:	third party logistics providers
AI:	artificial intelligence
AMET:	Asia, Middle East & Turkey
B2B:	business-to-business
CEO:	Chief Executive Officer
CMP:	customer management programme
CPFR:	collaborative planning, forecasting and replenishment
DC:	distribution centre
DLA:	Defense Logistics Agency
DOT:	delivery on time
DRP II:	demand resource planning two
DRP:	demand resource planning
DSS:	decision support systems
ECR:	efficient consumer response
EDI:	electronic data interchange
FMCG:	fast moving consumer goods
GDC:	Gauteng Distribution Centre
HC:	home care
HPC:	home and personal care
IT:	information technology
JIT:	just-in-time
KVI:	known value item
LCS:	logistics customer service
LSQ:	logistics service quality
MRP II:	materials resource planning two
MRP:	materials resource planning
OOS:	out-of-stock
OSQ:	order service quality
P&G:	Procter & Gamble
PC:	personal computer
PC:	personal care

PDSQ:	physical distribution service quality
POD:	proof of delivery
POP:	point-of -purchase
RF:	radio frequency
S.A:	South Africa
SKU:	stock keeping unit
SLA:	service level agreement
TAT:	turnaround time
U.K:	United Kingdom
U.S:	Unites States
UHPC:	Unilever Home and Personal Care
UPC:	universal product code

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CHAPTER 1 - INTRODUCTION

1.1 CHAPTER OVERVIEW

This chapter begins with a brief background into the rationale for conducting the research, states the research questions and objectives and concludes with a brief overview of the remaining chapters in this dissertation.

1.2 BACKGROUND AND MOTIVATION

Today's companies face the impact of competitive forces that make continued growth, differentiation and long-term business stability far more difficult than ever before. An explosion of consumer choice, nearly ever-present information, floods of targeted market messages, and an increasingly sophisticated and demanding customer have united to dilute the traditional product and service advantages companies once enjoyed (Venetica White Paper, 2004, p.3).

Customers of today have a larger variety of products to choose from than in the past, and this increased competition has raised customer expectations on the quality of products and the services they will receive (Thompson, 2000, Inside cover). Strong product innovators were once perceived as untouchable companies; today, a great product or service often provides only temporary protection from rising competition. The reality is that many products have been homogenized, making them difficult to distinguish by design, function and price (Venetica White Paper, 2004, p3).

Many of today's forward-looking companies, across a number of industries, are now looking to customer service as an important way to strengthen long-term, profitable customer relationships and a sustainable competitive advantage (Zineldin, 2004, p.286).

Logistics researchers have also recognized customer service as an important topic. Any world-class organization must provide high levels of logistics service to

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customers to achieve excellence and to remain highly competitive. Hence, it is imperative that the organization knows customer expectations and has an understanding of its performance relative to competitors on logistic service attributes. As competition both on the domestic and international market increase with customer demands, management of organizations must use logistics as a weapon to create sustainable competitive advantage (Bienstock, 2002, 636).

Customer service represents the output of the logistics system and the place component of the company's marketing mix (American Marketing Association, 1985, p.1). It is a measure of the effectiveness of the company's logistics system in creating time and place utility for a product or range of products. Industry has generally failed to recognize the importance of customer service, as provided by physical distribution to customer satisfaction and, not effectively integrated customer service with other components of the marketing mix (La Londe & Innes, 1994, p.1).

The level of customer service has a direct impact on an organization's market share, as it determines not only whether existing customers will remain customers but also, how many potential customers will become customers (Stock & Lambert, 2000, p.96). Thus, it is imperative that customer service be an integral part of the design and operation of any logistics system.

For many firms, providing excellent customer service may be the best method of gaining a competitive advantage (Fuller *et al*, 1993, p.87). A firm spending more money than its competitors on customer service and logistics may be able to improve its market share and profitability. The firm, however, may improve service and reduce the total cost of logistics by systematically adjusting the customer service package. Effective management and real cost savings can only be accomplished by viewing logistics as an integrated system with marketing and minimizing its total cost, given the firm's customer service objectives (Stock & Lambert, 2000, p.96).

According to Cheales, author of the book "*I was your customer,*" most companies that invest heavily in customer-care programs in a bid to improve service levels

seldom know how to measure results (Cheales, 1993, p.94). And if you can't measure them you can't manage them. Of the companies that do measure results, the majority does not do so often enough or measure the wrong variables.

The inaugural Supply Chain Foresight research report, conducted in the last quarter of 2003, is an independent study of the trends and factors influencing logistics and supply chain operations in South Africa (Supply Chain Foresights, 2003). The shortage of information and knowledge about the practices of local supply chains, and their efforts to achieve the twin goals of cost reduction and service enhancement, was a key motivation for undertaking the research. The study revealed an under-representation of participants from retail and FMCG companies, considering the importance of supply chain and logistics management to their businesses. The report suggested that this could be attributed to a lack of continuing engagement with supply chain performance improvement in the sector, or a more secular view of own needs.

The research work undertaken in this dissertation was customer service-based on the Outbound Logistics Department of Unilever Home and Personal Care (UHPC), South Africa - a division of one of the world's largest FMCG companies. Unilever South Africa comprises of Unilever Foods and UHPC. UHPC manufactures Home and Personal Care (HPC) products such as detergents, fabric and household cleaners, soaps and personal care products. The company with OMO and Surf as its strong local brands is fast growing international brands such as Dove in the local market in line with Unilever's "Path to Growth" strategy.

Customer development and the management of relationships with customers are crucial in growing and protecting the company's share of the HPC market. The two key trade channels in the grocery sector are the Retail and Wholesale channels which include familiar customers like Shoprite Checkers, Pick n' Pay, Spar, Clicks, Makro and Metro. These particular customers contribute too more than eighty percent of UHPC's annual sales (SAP: UHPC Sales Reports, 2004). For this reason the company places greater emphasis on customer service for these top six customers.

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The customer relationship with the top six customers is managed by the Outbound Logistics Department, which is responsible for:

- Managing the storage, order processing and delivery of finished HPC goods to the customer in an efficient and cost-effective manner.
- Identifying, initiating and implementing supply chain initiatives with the customer to reduce supply chain costs and to improve customer service levels.

Although monthly/bimonthly service level meetings are held with individual Distribution Center (DC) customers, no formal evaluation of UHPC's logistics customer service, i.e. perceived versus expected levels of service, has been done. Such an exercise would be most beneficial to the company, as it would help identify performance gaps and to evaluate service levels against competitors. Addressing deficiencies and continually differentiating itself from competitors can help UHPC leverage itself in the highly competitive South African FMCG sector.

1.3   THE RESEARCH QUESTIONS

1. What attributes of logistics customer service (LCS) do Retail DC considers important?

2. Are there similarities in the way that various Retail customers' rank attributes of LCS?

3. How do these different customers perceive UHPC LCS?

4. How do these different channel customers rate UHPC LCS against competitors?

5. What can be done to improve UHPC LCS?

1.4   OBJECTIVES OF THE RESEARCH

The objectives of this research follow on from the research questions:

1. To understand what Retail customers perceive as attributes of good LCS.

2. To determine if there is any correlation between the various customer groups in ranking attributes.

3. To determine how well UHPC is meeting customer expectations.

4. To determine how UHPC LCS compares to that of other competitors.

5. To identify areas of improvement for UHPC LCS.

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1.5 OVERVIEW OF THE RESEARCH REPORT

The dissertation is structured as follows:

Chapter 2- *Logistics*

This chapter defines logistics and looks at its historical development and factors underlying the development of interest in logistics management. The various components of logistics management and major logistics activities are then discussed and the chapter concludes with the relationship of logistics activities to logistics costs leading into Chapter 3.

Chapter 3- *Customer Service*

This chapter expands on customer service being an output of the logistics system and starts off looking at services, customer service in the context of logistics and, past research undertaken in the field of logistics customer service.

Chapter 4- *Unilever*

This chapter provides a background into Unilever, the multinational company, and its South African operation with specific emphasis on the Outbound Logistics Department and its customer service role within the organization.

Chapter 5- *Research Methodology*

This chapter provides an overview of the methodology used in undertaking the logistics customer service study of UHPC's DC Customers.

Chapter 6- *Research Findings*

In this chapter data received from the questionnaire is analyzed and results stated including areas of LCS where UHPC can improve.

Chapter 7- *Conclusions*

This chapter discusses how the results are interpreted in terms of the theoretical framework presented in the literature review and the objectives of the study.

Chapter 8- *Limitations of the Study*

Limitations of the study are discussed. as well as areas for future research are discussed in this the final chapter.

Chapter 9- *Recommendations*

In this chapter recommendations based on the conclusions are made.

Chapter 10- *Areas of Further Research*

In this chapter areas of further research is discussed.

CHAPTER 2 - LOGISTICS

"Logistics is unique: it never stops! It is happening around the globe, twenty four hours a day, seven days a week, fifty two weeks a year."
Bowersox & Closs (1996, p.3)

2.1   CHAPTER OVERVIEW

This chapter is the start of the literature review. It explains what logistics is and briefly reviews the history and development of logistics management and the reasons for the increased focus on logistics. The chapter then briefly covers the different components of logistics, the various logistics activities and, also the key outputs of logistics. The chapter concludes by discussing the relationship of logistics activities to logistics costs.

2.2   WHAT IS LOGISTICS?

Few areas of business operations involve the complexity or span the geography typical of logistics (Stock & Lambert, 2001, p.2). Logistics is relevant to all types of organisations in both the manufacturing and service sectors (Smith *et al*, 1991, p.xvii). Manufacturing entities include all types of companies producing goods as divergent as automobiles, computers, cosmetics, pharmaceuticals, aircrafts, household and food items, to name a few. The service sector includes government organisations, hospitals, banks, universities, retailers, and wholesalers.

Logistics can be expressed most simply as:

"The process of strategically managing the movement and storage of materials, parts, and finished inventory from suppliers, through the firm and on to customers." (Christopher, 1985, p.1)

Cooper (1990, p. xiv) further expanded on this definition by stating that:

"Logistics is the process of strategically managing the acquisition, movement, and storage of materials, parts, and finished inventory (and the related information flows) through the organisation and its marketing channels in such a way that

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current and future profitability is maximised through the cost effective fulfilment of orders."

In 1988, the Council of Logistics Management, a leading organisation for logistics professionals explicitly declared that logistics management is only a part of supply chain management (www.clml.org):

"Logistics is that part of the supply chain process that, plans, implements, and controls the efficient, effective flow and storage of goods, services and related information from the point-of-origin to the point-of-consumption in order to meet customer requirements."

Gattorna and Walters (1996, p.21) suggested that logistics is a component of strategic management responsible for managing the acquisition, movement and storage of materials, parts and finished goods through an organisation and its marketing channels to meet customer expectations- thereby meeting the company's profit objectives.

Similarly, Bowersox & Closs (1996, p.xvii) state that logistics includes all the activities to move product and information to, from, and between members of a supply chain. It involves the integration of information, transportation, inventory, warehousing, material handling, and packaging. The supply chain provides the framework for businesses and their suppliers who join to bring goods, services, and information efficiently to ultimate consumers.

The most commonly accepted term for logistics is Logistics Management. However, it is sometimes also referred to as distribution, business logistics, channel management, industrial logistics, logistical management, materials management, physical distribution, quick-response systems, and supply chain management (Stock & Lambert, 2001, p.3). To understand the important role of logistics management in today's business enterprise, it is worthwhile to examine its historical development.

2.3 HISTORICAL DEVELOPMENT OF LOGISTICS MANAGEMENT

Logistics activity is literally thousands of years old, dating back to the earliest forms of organised trade yet as an area of study only began to gain attention in the early 1900's (Stock & Lambert, 2001, p.11). Table 1, below, provides an interesting overview of the developments that have occurred in logistics since the early 1900's.

Table 1: Historical Development of Logistics Management

Year (s)	Event/Article/Book	Significance
1901	John F Crowell, Report of the Industrial Commission on the Distribution of farm products, vol. 6 (Washington DC: Government Printing Office)	The first text to deal with the cost and factors affecting distribution of farm products.
1916	Arch W. Shaw, An approach to Business problems (Cambridge, MA: Harvard University Press)	Text discussed the strategic aspects of logistics.
1916	L.D.H. Weld, The Marketing of Farm Products (New York: Macmillan)	Introduced the concepts of marketing utilities and channels of distribution.
1922	Fred E. Clark, Principals of Marketing (New York: Macmillan)	Text defined marketing as those efforts that affect transfers in the ownership of goods and care of their physical distribution.
1927	Ralph Borsodi, The Distribution Age (New York: D. Appleton)	One of the first books to define the term *logistics* similar to its present usage.
1941-45	World War II	Military logistics operations demonstrated how distribution activities could be integrated into a single system.
1950s	Development of the marketing concept.	Corporations began to emphasize customer satisfaction at a profit. Customer service later became the cornerstone of logistics management.
1954	Paul D. Converse. "The Other Half of Marketing." *Twenty Sixth Boston Conference on Distribution* (Boston: Harvard Business School)	A leading authority pointed out the need for academicians and practitioners to examine the physical distribution side of marketing.
1956	Howard T. Lewis, James W. Culliton, and Jack D. Steele, The Role of Air Freight in Physical Distribution (Boston: Harvard Business School)	Introduced the concept of total cost analysis to the area of logistics.
Early 1960s	Introduction of Raytheon Company's "Unimarket" concept	Earliest reported company effort to adopt and implement logistics management concept. Raytheon utilized one distribution center for U.S. market in combination with an airfreight transportation system.
Early 1960s	Michigan State University and Ohio State University institute undergraduate and graduate programs in logistics	First formal education programs developed to train logistics practitioners' education.
1961	Edward W. Smykay, Donald J. Bowersox, and Frank H. Mossman, Physical Distribution Management (New York: Macmillan)	One of the first texts on physical distribution. Discussed the systems approach and total cost concept.

1962	Peter F. Drucker, The Economy's Dark Continent, Fortune 65, no. 4 (April 1962)	A leading authority pointed out the importance of distribution in the United States. It is felt by many that this article had a significant impact on practitioners.
1963	National Council of Physical Distribution Management founded (became Council of Logistics Management in 1985)	The first organization to bring together logistics professionals in all areas of logistics for the purpose of education and training.
1972	Michael Schiff, Accounting and Control in Physical Distribution Management (Chicago: National Council of Physical Distribution Management)	Created awareness of the importance of accounting and financial information for making optimal logistics decisions.
1976	Douglas M. Lambert, The Development of an Inventory Costing Methodology: A Study of the Cost Associated with Holding Inventory (Chicago: National Council of Physical Distribution Management)	Identified the cost components of one of the largest logistics expense items and developed methodology whereby firms could calculate inventory-carrying costs.
1976	Bernard J. La Londe and Paul Zinszer, Customer Service: Meaning and Measurement (Chicago: National Council of Physical Distribution Management)	First comprehensive state-of-the-art appraisal of the customer service activity in major corporations.
1970s - 80s	Development and implementation of materials resource planning (MRP), MRP II, demand resource planning (DRP), DRP II, Kanban, and just-in-time (JIT)	Widespread implementation of these techniques highlighted the need for integrating logistics activities and maximizing their effectiveness. They also pointed out the relationships between logistics and other business functions such as marketing and manufacturing.
Late 1970s - early 1980s	Deregulation of United States (U.S.) transportation	Significantly reduced the economic regulation of the transport sector. Increased competition and had substantial impact on prices and service levels of carriers. Made the transportation aspects of logistics significantly more important. Provided a model for other countries in their deregulation efforts.
1980s	Use of computers, especially personal computers (PCs), increased dramatically	Technological advances, coupled with declining prices, allow organizations to utilize computers. Provided the capability to more effectively integrate logistics activities. Allowed cost trade-off decisions to be made more quickly and optimally. Improved logistics efficiency and productivity.
1985	Michael E. Porter, Competitive Advantage (New York: The Free Press)	Introduced the "Value Chain" concept that provided a framework for organizations to develop competitive strategies. Significantly, it included inbound and outbound logistics as key components of marketing strategy. Created major awareness that logistics could help organizations create and maintain competitive advantage.
1987	Malcolm Baldridge National Quality Award established by U.S. Congress	Promoted quality awareness - recognized quality achievements of U.S. organizations and publicized successful quality initiatives. A significant portion of the scoring system for the award was based on logistics outputs, including an organization's knowledge of it's customers, and responsiveness and ability to meet

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		customer requirements and expectations.
1990s	Market restructuring occurs in global regions of Asia, Europe and North America	Events such as NAFTA, Europe 1992, and the Asian financial crisis result in major changes in global markets and infrastructures.
1990s	Electronic commerce (e.g. Internet, Electronic Data Interchange (EDI), electronic mail (e-mail) becomes globally accepted for communications	Instantaneous and low-cost communication systems allow organizations to develop and maintain contact. Such systems allow for the development of 24-hour, seven-day-a-week business hours.
1993	Michael Hammer and James Champy, Reengineering the Corporation: A Manifesto Business Revolution (New York: HarperCollins)	Many organizations evaluate their business processes to determine if there is a better way of performing them. Logistics is a major functional area where reengineering efforts result in significant improvements.
Mid-1990s	Supply Chain management approach is recognized as an important concept. Its development and implementation are initiated in many industries.	The notion that multiple organizations and functional areas can integrate their efforts to optimize their individual and combined performances leads to the development of a systems approach throughout the entire channel of distribution.

(Logistics Management, 1997, p.52)

Table 1 identifies some of the most important events in the development of logistics management. In a short space of time "*physical distribution management*" became "logistics management" which in the 1990's, was seen as an integral part of "supply chain management."

A number of factors underlie the acknowledgement of the importance of logistics management - these factors are discussed in the next section.

2.4 FACTORS UNDERLYING THE DEVELOPMENT OF INTEREST IN LOGISTICS MANAGEMENT

"We should not ignore the past. Instead we should understand that the future is an extension of the present based upon the background of the past."

(Tompkins, 2003, p.15)

Over the last half century, the role of logistics in business has increased in both scope and strategic importance (Rafele, 2004, p.280). Factors underlying the development of interest in logistics management include:

2.4.1 Cost and Service Impacts of Logistics

In the 1980s and 1990s, many organisations found it increasingly difficult to maintain traditional profit levels and growth rates because of increasing domestic and foreign competition, saturated markets and government regulations among other factors (Stock & Lambert, 2001, p.17).

Despite all the talk and emphasis on quality and customer service, a survey of Chief Executive Officers (CEOs) of Fortune 500 manufacturing and service organisations indicated that CEOs believed that the most important way to improve company profitability was through cost cutting or cost control (Fortune, April 1994, p.14). Quality and customer service was rated second and third respectively.

Organisations have looked inward, in an attempt to identify areas for cost-savings and/or productivity increases (Stock & Lambert, 2001, p.17). Many have found it difficult to reduce costs in manufacturing because they are already mechanised and highly efficient. Firms realised that through increased efficiency in logistics management, significant cost savings could be realised (Johnson and Wood, 1984, p.6).

The first step in achieving recognition for logistics was through identifying the cost and service impact of the logistics process. According to Stock & Lambert (2001, p.18) there are many cost associated with sales, such as the cost of goods sold and logistics related costs. For example, a one-dollar increase in sales does not result in a one-dollar increase in profit yet any dollar saved in logistics does not require sales increases or decreases in any other costs to generate savings. Therefore, a one-dollar reduction in logistics costs is a one-dollar increase in profit. As a result, a reduction in logistics cost has much more leverage, dollar for dollar, than does increase in sales (Stock & Lambert, 2001, p.18).

2.4.2 Computers and Information Technology (IT)

Before the birth of computers and IT, information flow was largely paper-based and resulted in slow, unreliable and error prone information transfer (Bowersox & Closs, 1996, p.185). The IT explosion in the 1970s gave organisations the ability

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to better monitor and optimise intensive activities such as ordering and the movement and storage of goods and materials (Johnson and Wood, 1985, p.7).

Computerised systems such as Materials Resource Planning (MRP, MRPII), Distribution Resource Planning (DRP, DRPII), and Just-in-Time (JIT, JIT II) allowed organisations to link materials management activities, from order processing to inventory management, ordering from the supplier, forecasting and production scheduling (Stock & Lambert. 2001, p.18). Organisations, through advances in electronic commerce (i.e. Internet, extranet, electronic data interchange (EDI) and e-mail) have enabled better management of their activities and a national and/or global market presence (Stock & Lambert, 2001, p.18).

IT allowed organisations to systematically study the quality of service received from suppliers (vendors) and to pinpoint substandard levels of physical distribution (Johnson and Wood, 1985, p.7).

2.4.3 Competitive Pressures

In the 1970s, with rising interest rates and increasing energy costs, logistics received attention as a major cost driver in organisations (Johnson and Wood, 1984, p.6). In addition to the volatile economic climate, logistics costs became a more critical issue for many organisations with globalisation of industry (Stock & Lambert, 2001, p.19).

With the development and expansion of global competition since the 1970s, firms have become increasingly more international, as evidenced by the growth in foreign sourcing of raw materials, component parts, subassemblies, and labour (Sharman, 1985, p.52). Stock & Lambert (2001, p.19) describe the affect of globalisation on organisations as follows: Firstly, organisations have been forced to look for new ways to differentiate their organisations and product offerings due to the growth of the world-class competitors from other nations. Logistics is the most logical place to look because domestic organisations should be able to provide more reliable, responsive service to nearby markets than overseas competitors can. Secondly, excellent logistics management is needed to fully

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leverage global opportunities as organisations increasingly buy and sell offshore. The supply chain between the organisation and those with whom it does business becomes longer, more costly, and more complex.

2.4.4 Shifts in Channel Power

Within the supply chain, the shifting of channel power from manufacturers to retailers, wholesalers, and distributors has also had a profound impact on logistics (Stock & Lambert, 2001, p.19).

When competition rises in major consumer goods industries, there is a shakeout of many suppliers and manufacturers, so that few leading competitors remain, as was the case in the United Kingdom with Tesco and Sainsbury dominating the grocery market (Christopher, 1985, p.3). Those remaining are intensely competitive and offer very high quality products. In many cases, the consumers see the limiting brands as substitutes for each other resulting in a reduction in brand loyalty reducing manufacturers power (Stock & Lambert, 2001, p.19). This increases retailers' power, because sales are determined by what is in stock rather than by what particular brands offer.

2.4.5 Conclusion

Firms that identified the cost and service impacts of logistics were able to increase their profitability through improved efficiencies in logistics management. The birth of computers and information technology enabled better management of activities on a national and global level, which also allowed companies to become internationally competitive. The increasing competitiveness of the industry has resulted in a shifting of channel power away from suppliers further down the supply chain.

The various components of logistics management and integrated activities will be discussed in the next section.

2.5 COMPONENTS OF LOGISTICS MANAGEMENT

A major deficiency of traditional logistics management was a failure to develop an integrated treatment of individual logistics activities (Bowersox, 1974, p.16). Modern logistics, by contrast, is very much a system approach having a network of activities with the purpose of managing the orderly flow of materials and personnel within the logistics channel (Stock & Lambert, 2001, p.3).

Bowersox (1974, p.17) describes the systems approach as a number of components (functions or activities) combined in an integrated system to enhance the performance of the total system. Stock & Lambert in Figure 1 illustrate the systems approach to logistics management.

Figure 1: Components of Logistics Management
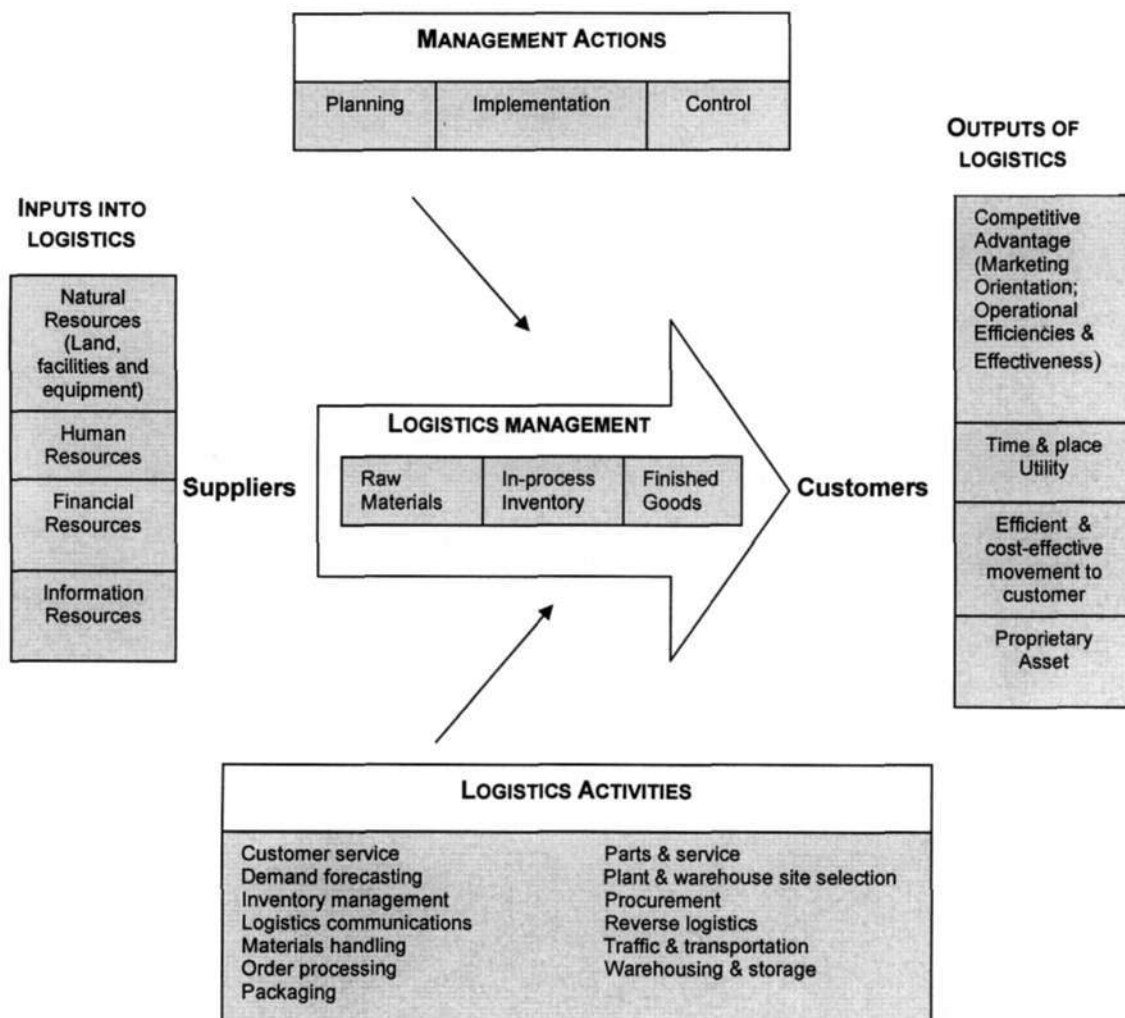
(Stock & Lambert, 2001, p.3)

The various components of the logistics system include:

2.5.1 Inputs into Logistics

Inputs into the logistics process include natural resources (land, facilities, and equipment), human resources, financial resources and information resources (Stock & Lambert, 2001, p.3).

Logistics practitioners' plan, implement and control these inputs in various forms, including:

- Raw materials (subassemblies, parts, packing materials, and basic commodities).

- In-process inventory (products partially completed and not yet ready for sale).

- Finished goods (completed products ready for sale to intermediate or final customers).

Thus practitioners are concerned with the integration and co-ordination of logistics activities to manage the physical flow, which begins with the sources of supply and ends at the point of consumption (Christopher, 1985, p.4).

2.5.2 Outputs of Logistics

The outputs of the logistics system include:

- **Competitive Advantage for the Organisation** - coupled with operational efficiencies and effectiveness, a marketing orientation provides organisations with opportunities to gain competitive advantage (Stock & Lambert, 2001, p.6). The success of an organisation depends on an integrated marketing effort of having the right *product*, at the right *price*, combined with the right *promotion*, and available in the right *place* - the 4 Ps (elements) of the marketing mix (Zineldin, 2004, p.286). Logistics plays a critical role, particularly in the support of getting the product to the right place.

- **Time and Place Utility** - The value or utility of making materials available in a completed state is called *form utility* (Gattorna and Walters, 1996, p.177). To the customer however, the product not only must have form utility but also must be in

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the right place, at the right time, and be available to purchase. The value-added to products beyond that added by manufacturing (form utility) may be called *place, time or possession utility* (Gattorna and Walters, 1996, p.177). The logistics activity provides *place and time utility*, while other marketing activities provide *possession utility*.

✓ Management is concerned with the value added by logistics, because improvements in *place and time utility* are ultimately reflected in the organisation's profits. Both cost savings in logistics and, a stronger marketing position due to an improved logistics system, can cause improved bottom-line performance. The more logistics contributes to the value of a product, the more important logistics management is (Stock & Lambert, 2001, p.9).

Efficient and Cost-effective Movement to the Customer

Plowman (cited in Gecowets, 1979, p.5) stated that: *"the "five rights" of a logistics system are supplying the right product at the right place at the right time in the right condition for the right cost to those consuming the product."*

The term *"right cost"* deserves consideration. While Plowman's first four *"rights"* are analogous to *form, time, place and possession utilities* created by manufacturing and marketing, the addition of the cost component is immensely important to the logistics process.

Donald Parker (1962, p.16) voiced the significance of the cost aspect almost four decades ago:

"Improvements in marketing efficiency and reductions in marketing costs still lie in the future, representing a major frontier for cost economies...There is room for substantial improvement, particularly in the performance of physical distribution functions of marketing which constitute a major part of the total marketing costs."

In a similar fashion Peter Drucker (1962, p.103) stated that:

"Almost 50 cents of each dollar the American spends for goods goes for activities that occur after the goods are made, that is, after they have come in finished form............ Economically.............distribution is the process in which

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physical properties of matter are converted into economic value; it brings the customer to the product."

While some might disagree with Drucker's 50 cents estimate, the cost involved in adding *time and place utility* is substantial. Because the control of costs is one of the top management's most significant concerns in the new millennium, efficient and effective control of the logistics function can have a substantial impact.

✓ **Logistics is a Proprietary Asset**

Competitors cannot readily duplicate an organisation's logistics competency (Stock & Lambert, 2001, p.11). An organisation providing its customers with products quickly and at low cost can gain market share advantages over competitors. Consequently, it might be able to sell its products at a lower cost because of logistics efficiencies or to provide a higher level of customer service, thereby creating goodwill.

The outputs of the logistics system are made possible by the effective and efficient performance of the logistics activities illustrated in Figure 2-1, Page 15. These activities will be discussed in the next section.

2.6 MAJOR LOGISTICS ACTIVITIES

As illustrated in Figure 2-1, page 15, logistics activities are concerned with the flow of products from point-of-origin to point-of-consumption. Not all organisations may explicitly consider all of these 13 activities to be part of logistics, however they all affect the logistics process. Each activity will be briefly discussed below.

✓ ### 2.6.1 Demand Forecasting

Bowersox (1974, p.103) states that the fundamental input into planning and co-ordinating logistical operations is a forecast of customer demand, which provides a link between the organisation and the external environment. Demand forecasting according to Stock & Lambert (2001, p.20) involves determining the amount of product and accompanying service that customers will require at some

point in the future. Such information is important to all aspects of the organisation's operations - marketing, manufacturing, and logistics. Promotional strategies, allocation of sales force, pricing, and market research activities are all determined by forecasts of future customer demands. Sales forecasts determine product schedules, purchasing and acquisition strategies, and in-plant inventory decisions (Simchi-Levi *et al*, 2000, p.241).

According to Logistics News (2004, p.5), logisticians need demand forecasts to enable their organisations to take advantage of economies of scale for product production or movement while meeting service objectives. (For example, organisation forecasts next month's sales in order to economically produce the product and get it positioned at the right distribution centre in anticipation of customer demand.)

Forecasting processes and techniques have achieved significant benefits in providing superior logistical performance in distribution channels (Logistics News, 2004, p.11). Recently, collaborative planning, forecasting and replenishment (CPFR) were initiated by the consumer products industry for supply chain partners for improved supply chain performance (McCarthy and Golicic, 2002, p.431).

2.6.2 Inventory Management

Manufacturing inventory is typically classified into raw materials, finished products, component parts, supplies, and work-in-process (Aquilano *et al*, 2001, p.513).

According to Stock & Lambert (2001, p.20), the inventory control activity is critical because of the financial necessity of maintaining sufficient supply of product to meet both customers' needs and manufacturing requirements. Inventory ties up capital, uses storage space, requires handling, deteriorates, sometimes becomes obsolete, incurs taxes, requires insurance, can be stolen, and sometimes is lost (Fogarty *et al*, 1991, p.156).

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✓ The objective of inventory management is to achieve the desired customer service with minimum inventory commitment, consistent with lowest total cost (Bowersox & Closs, 1996, p.30).

(Given the high costs of items such as high-tech merchandise) automobiles, and seasonal goods that rapidly become obsolete, organisations such as Hewlett-Packard, Xerox, and Sears (have increased their attention to inventory management) (Davis, 1993, p.35).

✓ Simchi-Levi *et al* (2000, p.43) outline the following key factors affecting an organisation's inventory policy:

- Customer demand - which may be known in advance or may be random.
- Replenishment lead-time - which also may be known at the time of order placement or it, may be uncertain.
- The number of different products stored at the warehouse.
- The length of the planning horizon.
- Costs, including order cost (cost of product and transportation) and inventory holding cost (including insurance on inventory, obsolescence cost and opportunity costs).
- Service level requirements, because if customer demand is uncertain it is impossible to meet customer orders 100 percent of the time. Hence, management must specify an acceptable level of service.

(Simchi-Levi *et al*, 2000, p.43)

2.6.3 Logistics Communication

✓ Accurate and timely communication is the vital link between the entire logistics process and the organisation's customers and is the cornerstone of successful logistics management (Stock & Lambert, 2001, p.21).

✓ Bowersox & Closs (1996, p.209) highlight the following applications of IT to enhance logistics management:

Some of the applications of IT which are important in order to enhance logistics mngt.

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✓ 1. **Radio Frequency (RF) Technology** - used in warehouses and distribution centres to facilitate two-way information exchange, for example with forklift drivers and material selectors.

2. **Satellite Technologies** - allows communication across a wide geographic region or even the world providing a fast and high-volume channel for information movement around the globe. For example, Wal-Mart uses satellite to transmit daily sales figures to activate store replenishment and to provide input to marketing regarding sales patterns.

3. **Facsimile (fax) and Optical Scanning Technology** - used to transmit and store freight bill information, proof of delivery (POD) receipts or bills of lading.

4. **Bar-coding Technology** - computer readable technology used for the identification of items.

5. **Electronic Data Interchange (EDI)** - used for transmitting orders directly from a buyer's computer to a seller's computer.

<div align="right">(Bowersox & Closs, 1996, p.209)</div>

(An increasing number of companies including retailers and manufacturers are using IT as a competitive advantage by providing value-added IT-based services to their customers as a way of differentiating themselves in the marketplace (Simchi-Levi *et al*, 2000, p.222).)

The following example from a Logistics Management and Distribution Report on Communicating in Real Time illustrates this point (Quinn, 1998, p.71):

Sequent Computer Systems a provider of "data-centre ready" open systems recognised the need to communicate order information quickly, clearly, and accurately to its third-party provider Sonic Air which delivers spares and replacement parts to customers. In combination with Sonic Air, Sequent developed a real-time electronic data interchange (EDI) system. When a Sequent customer requires a part, an order is generated identifying the part number, quantity, and customer information. The order is then electronically transmitted to the Sonic Air Facility and a confirmation is posted acknowledging the transmission. A dispatcher receives the order within a few minutes and sends back an order acceptance. Sonic Air then ships the order and sends conformation

<div align="center">21</div>

of delivery to Sequent upon customer receipt. The results have been faster response time, more accurate orders, and tighter inventory control.

✓ It is evident that, to improve their market standings, many logistics firms will have to keep pace with the information age by adopting and creatively deploying up-to-date technology to implement innovative methods and gain superior competitive advantage (Chapman & Soosay, 2003, p.641).

✓ **2.6.4 Materials Handling**

According to Bowersox & Closs (1996, p.422) materials handling in the logistics system are concentrated in and around the warehouse facility. Stock & Lambert (2001, p.22) expand further by stating that materials handling is concerned with every aspect of the movement or flow of raw materials, in-process inventory, and finished goods within a plant or warehouse.)

The objectives of materials handling according to Stock & Lambert (2001, p.22) are to:

1. Eliminate handling wherever possible since handling generally adds no value to a product. According to Hatton (cited in Gattorna, 1990, p.194) any type of goods movement performed more than a few times per hour is worth mechanising.

2. Minimise travel distance.

3. Minimise work-in-process.

4. Provide uniform flow free of bottlenecks.

5. Minimise losses from waste, breakage, spoilage, and theft.

(Stock & Lambert, 2001, p.22)

✓ By carefully analysing materials flow materials management can save the organisation significant amounts of money (Stock & Lambert, 2001, p.22).

2.6.5 Order Processing

A customer's order triggers the logistics process and directs actions to be taken in satisfying order demand (Stock & Lambert, 2001, p.22). Order processing according to Johnson and Wood (1985, p.66) is the time from when a firm receives an order to the time when the warehouse is notified to ship the order.

The components of order processing according to Kearney (1978, p.191) may be broken down into the following 3 groups:

1. **Operational Elements** - such as order entry/editing, scheduling, order shipping set preparation, and invoicing.

2. **Communication Elements** - such as order modification, order status inquiries, tracing and expediting, error correction, and product information requests.

3. **Credit and Collection Elements** - including credit checking, and accounts receivable processing/collecting.

(Kearney, 1978, p.191)

According to Shapiro *et* al (1992, p.113) the speed and accuracy of a firm's order-processing activities have a great deal to do with the level of customer service the organisation provides. The order processing cycle is a key area of customer interface with an organisation and therefore can have a big impact on a customer's perceptions of service, and ultimately satisfaction.

Computers and electronic commerce can help reduce the time between order placement and product shipment through the use of EDI or via other electronic means such as the Internet or fax machine (Stock & Lambert, 2001, p.22). The "best" order processing applications operate interactively in combination with order management to generate an order solution that satisfies both customer requirements and enterprise resource constraints (Bowersox & Closs, 1996, p.199). In this operational environment, the customer service representative and the customer interact to determine the combination of products, quantities, and performance-cycle length that is acceptable to both parties. Conflict in order processing can be avoided through adjusting delivery dates, product substitution or shipment from an alternate source (Bowersox & Closs, 1996, p.199).

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Procter & Gamble (P&G) standardised and streamlined the way retailers paid for and received shipments of products to increase savings for both retailers and P&G by decreasing the number of invoices generated (Stern, p.A12). The payment clock for retailers was reduced to 19 days across all categories for a 2% discount and started from the day the retailer received the merchandise giving the retailer a few extra payment days. Furthermore, retailers could order full truckloads of a single category or have the option of ordering a truckload containing a variety of products from different categories. According to P&G (Stern, p.A12) this would allow customers to better manage inventories by only receiving the quantities they needed. P&G said *"customers will place fewer orders and will be out of stock less often."*

✓ 2.6.6 Packaging

According to Bowersox & Closs (1996, p.436) packaging can be generally categorised into two types:

1. **Consumer Packaging** - which has a marketing emphasis with focus on customer convenience, market appeal, retail shelf utilisation, and product protection. The package acts as a form of promotion and advertising with its size, weight, colour and printed information attracting customers and conveying product information that generally makes very poor logistical packaging.

2. **Industrial Packaging** - which has a logistical emphasis with focus on organising, protecting and communication, that is for identifying the products and materials.

(Bowersox & Closs, 1996, p.436)

✓ Robertson (1990, p.38) lists within the general function of packaging the following six specific functions which packaging performs:

1. **Containment** - products must be contained before they can be moved from one location to another.

2. **Protection** - the contents must be protected from damage or from the external environment (moisture, dust and contamination).

3. **Apportionment** - the output must be reduced from industrial production to a manageable, desirable consumer size.

4. **Unitisation** - primary packages can be unitised into secondary packages (corrugate) which can then be unitised into a stretch-wrapped pallet and finally into a container loaded with several pallets thus reducing the amount of product handling.

5. **Convenience** - packaging allows products to be used conveniently with little wasted effort by customers (blister packs, dispensers).

6. **Communication** - packaging allows the use of unambiguous readily understood symbols such as Universal Product Code (UPC).

(Robertson, 1990, p.38)

Good packaging interfaces well with material handling equipment and allows efficient utilisation of both storage space and transportation cube and weight constraints (Stock & Lambert, 2001, p.462).

2.6.7 Parts and Service Support

Logistics responsibility does not end with delivery of the product to the customer but also includes providing the customer with after-sales backup, as part of its marketing activity (Stock & Lambert, 2001, p.23). For example, automobile dealerships equipped with efficient service departments and adequate supplies of spares and replacement parts must offer customers repairs and servicing. Logistics is responsible for ensuring that those parts are available when and where the customer requires them.

Stock & Lambert (2001, p.23) further elaborate on the industrial marketplace where the product may be a piece of equipment; downtime can be extremely costly to a customer. The firm supplying spares or replacement parts must be able to respond quickly and unfalteringly.

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2.6.8 Plant and Warehouse Site Selection

When warehouses are required in a logistical system, a firm can choose between obtaining the services of a specialist and operating its own facility (Bowersox & Closs, 1996, p.32).

The strategic placement of plants and warehouses, irrespective of whether they are leased or owned can enhance customer service levels due to a reduction in average travel time to customers (Simchi-Levi *et al*, 2000, p.18). According to Stock & Lambert (2001, p.24) proper facility location can also lower volume-related transportation rates in moving product from plant to warehouse, plant to plant, or warehouse to customer.

The economical location for manufacturing is often a considerable distance from major markets because of the requirements for factors of production such as power, materials, water, and labour (Bowersox & Closs, 1996, p.247). Consequently manufactured goods from various locations are collected at a single warehouse and then combined as a mixed-product shipment. For example, P&G use distribution centres to combine products from its laundry, food, and health care divisions to offer the customer a single integrated shipment (Bowersox & Closs, 1996, p.247).

2.6.9 Procurement

Procurement is defined by Stock & Lambert (2001, p.24) as *"the process of acquiring materials and services to ensure the operating effectiveness of the organisation's manufacturing and logistics processes."*

Every organisation relies to some extent on materials and services supplied by other companies. Depending on the situation, the acquisition process is commonly identified by different names. In manufacturing, the acquisition process of materials is called "purchasing" while in retailing and wholesaling, "buying" is the most widely used term for acquisition of finished product (Bowersox & Closs, 1996, p.35).

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Most organisations find it useful to have management teams responsible for the purchase of important materials from many vendors around the world (Simchi-Levi *et al*, 2000, p.157). In this way, it makes it easier to ensure that the quality and delivery options from various suppliers are compatible and to ensure the flexibility necessary to take full advantage of the global supply chain.

The goals of purchasing according to Stock & Lambert (2001, p.480) are to:

- Provide an uninterrupted supply of materials, supplies, and services required in running an organisation.
- Keep inventory investment and loss at a minimum.
- Maintain and improve quality.
- Find and develop competent suppliers.
- Standardise, where possible, the items bought.
- Purchase required items and services at the lowest total cost.
- Improve the organisation's competitive position.
- Achieve harmonious, productive working relationships within other functioning areas of the organisation.
- Accomplish the purchasing objectives at the lowest possible level of administrative costs.

(Stock & Lambert, 2001, p.480)

With the changing economic environment marked by wide variations in availability and cost of materials, procurement has become a very important activity in the logistics process resulting in organisations forming long-term relationships with fewer key suppliers (Stock & Lambert, 2001, p.24).

2.6.10 Reverse Logistics

The IQ Business Group in the paper on FMCG Reverse Logistics in South Africa (www.ecr.co.za) defines reverse logistics as:

"The process of managing the movement of specific goods (including unsaleable products, product returns, returnable packaging and other assets) away from their typical final destination in order to maximise its value for proper disposal."

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Buyers generally return items to the seller due to product defects, stock damaged in-transit, overages, shipping errors, trade-ins, stock becoming obsolete etc (Johnson and Wood, 1984, p.72). Compounding the problem for manufacturers is that returns policies at a retail level are seen as a competitive weapon in the marketplace and can influence product sales (Mukhopadhyay & Setoputro, 2004, p.70).

Most logistics systems are ill equipped to handle product movement in a reverse direction/channel with reverse logistics costs relatively higher than forward logistics costs (Stock & Lambert, 2001, p.24). Moving a product back to a supplier can involve as much as five to nine times the cost as moving the same product from supplier to consumer. This is usually a result of the returned goods not being easily handled, transported, or stored as the original goods (Stock & Lambert, 2001, p.48).

Devising a reverse distribution process for an organisation or product is difficult in instances where there are no forward distribution plans (Gattorna, 1990, p.462). For example, one can hardly underestimate the problem and cost involved in locating and recalling thousands of cases of soup from many distribution centres, hundreds of supermarkets, and thousands of small grocery stores.

reverse distribution proccesses

Most organisations outsource these activities to third party logistics providers (3PL) (Stock, 1998, p.87). Third-party logistics (3PL) is the use of an outside company to perform all or part of an organisation's material management and product distribution function (Simchi-Levi *et al*, 2000, p.126).

2.6.11 Traffic and Transportation

The traffic and transportation involves managing the movement or flow of goods from the point-of-origin to the point-of-consumption and perhaps their return as well (Stock & Lambert, 2001, p.25). This activity includes selecting the method of shipment (air, rail, water, pipeline, truck), choosing the specific path (routing), complying with various transportation regulations, and being aware of domestic and international shipping requirements (Stock & Lambert, 2001, p.25).

Transportation requirements can be accomplished in the following three basic ways (Bowersox & Closs, 1996, p.29):

1. **Private** - using a private fleet of equipment.
2. **Contract** - contracting transport specialists, and
3. **Common Carriage** - engaging the service of a variety of carriers that provide different transportation services on an individual shipment basis.

Bowersox & Closs (1996, p.29) describes the following three factors that are fundamental to transportation performance:

1. **Cost** - the payment for movement between two geographical locations and expenses related to administration and maintaining in-transit inventory. Logistical systems should be designed to make use of transportation that minimises total system cost.

2. **Speed** - the time required to complete a specific movement. Speed and cost are related in two ways. Firstly, transport firms capable of providing faster service typically charge higher rates and secondly, the faster the service the shorter the period during which inventory is in transit and unavailable. Balancing speed and cost of service is critical when selecting the most desirable method of transportation.

3. **Consistency** - refers to the variations in time required to perform a specific movement over a number of shipments. Consistency is a direct reflection of the dependability of transportation. With the advent of new IT to control and report shipment status, logistics managers have begun to seek faster service while maintaining consistency.

(Bowersox & Closs, 1996, p.29)

2.6.12 Warehouse and Storage

The warehouse or distribution centre is usually the point at which the organisation succeeds or fails in fulfilling the sales and marketing promise (Hatton, cited in Gattorna, 1990, p.175).

According to Stock & Lambert (2001, p.25) finished goods must be stored at the manufacturing site or in the field for later sale and consumption unless the customer requires them as soon as they are produced. The greater the time lag

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between production and consumption, the larger the level or amounts of inventory required.

✓ The warehousing of inventories is necessary for the following reasons (Stock & Lambert, 2001, p.391):

— ● To achieve transportation economies.

● To achieve production economies.

— ● To take advantage of quantity purchase discounts and forward buys.

● To maintain a source of supply.

— ● To support the firm's customer service policies.

← ● To meet changing market conditions (e.g. seasonality, demand fluctuations, competition).

— ● To overcome the time and space differentials that exists between producers and consumers.

~ ● To accomplish least total cost logistics commensurate with a desired level of customer service.

— ● To support the just-in-time program of suppliers and customers.

(Stock & Lambert, 2001, p.391)

Some warehouses refer to themselves as "distribution centres" placing emphasis on the distribution aspect of warehousing instead of storage operations (Johnson and Wood, 1984, p.357). Dawe (1995, p.102) draws clear distinctions between the term warehouse and distribution centre (DC) in Table 2.

Table 2: Differences between Warehouses and Distribution Centers.

Warehouse	Distribution Centre
1. Store all product	1. Hold minimum inventories and predominantly high demand items.
2. Handle most products in four cycles (receive, store, ship and pick)	2. DCs handle most products in two (receive and ship).
3. Perform a minimum of value-added activity	3. DCs perform a high percentage of value adding, including final assembly.
4. Collect data in batches	4. DCs collect in real-time
5. Focus on minimising the operating cost to meet shipping requirements	5. DCs focus on maximising the profit impact of meeting customer delivery requirements

According to Bowersox & Closs (1996, p.399), three different warehouse alternates are available:

1. **Private Warehouse** - operated by the firm owning the product however the actual facility may be owned or leased. The major benefits being control, flexibility, cost and intangible benefits with respect to market presence.

2. **Public Warehouse** - these are used extensively in logistics systems and are classified according to specialist operations including general merchandise, refrigerated, special commodity, bonded, household goods and furniture. Public warehouses frequently offer greater operating and management expertise since warehousing is their core business. These facilities offer financial advantages, adjustment flexibility and scale economy benefits.

3. **Contract Warehouse** - these combine the best characteristics of private and public warehouses. The long-term relationship and shared risk results in lower costs than a public warehouse. These operations provide the benefits of expertise, flexibility, and economies of scale by sharing management, labour, equipment, and information resources across clients in the same industry, for example the grocery industry. Contract warehouse operators also expand the scope of their service to include various other logistics activities including transportation, inventory control, and order processing, customer service and returns processing (Bowersox & Closs, 1996, p.399).

2.6.13 Customer Service

Each component of the logistics system can affect whether a customer receives the right product, at the right place, in the right condition, at the right cost, at the right time (Coyle *et al*, 1992, p.38). Thus, through successful marketing efforts and well integrated logistics management an organisation can provide the necessary level of customer satisfaction, of which customer service is an integral part at the lowest possible total cost.

✓ According to Mentzer and co-workers (2001, p.9) customer service has been a key focal area of logistics research for several years - logistics service capabilities can be leveraged to:

- Create customer and supplier value through service performance;
- Increase market share;
- Enable mass customization;
- Create effective customer response-based systems;
- Positively affect customer satisfaction and, in turn, corporate performance;
- Provide a differentiating competitive advantage; and
- Segment customers.

(Mentzer *et al*, 2001, p.9)

Customer service acts as the binding and unifying force for all logistics management activities and will be discussed in greater detail in Chapter Two.

2.6.14 Conclusion

Demand forecasting, inventory management, logistics communication, materials handling, packaging, parts and service support, plant and warehouse site selection, procurement, reverse logistics, traffic and transportation, warehouse and storage, and, customer service are activities which not all organisations explicitly consider to be part of logistics. However all 13 activities affect the logistics process and contribute to an organisation's logistics costs. The relationship of logistics activities to logistics costs will be discussed in the next section.

2.7 THE RELATIONSHIP OF LOGISTICS ACTIVITIES TO LOGISTICS COSTS

Logistics costs are driven or created by six major cost categories that support the logistics process, namely customer service, transportation, warehousing, order processing and information, lot quantity, and inventory carrying as illustrated in Figure 2 (Stock & Lambert, 2001, p.29). The arrows in Figure 2 illustrate the interconnectivity or dependency of various cost categories.

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Figure 2: How Logistics Activities Drive Total Logistics Costs

PLACE/CUSTOMER SERVICE LEVELS
- Customer service
- Parts and service support
- Returns goods handling

INVENTORY CARRYING COSTS
- Inventory management
- Packaging
- Inventory of returned goods

TRANSPORTATION COSTS
- Traffic & transportation

LOT QUANTITY COSTS
- Materials handling
- Procurement
- Production set-up costs

Warehousing costs
- Warehousing & storage
- Plant & warehouse site selection

ORDER PROCESSING & INFORMATION COSTS
- Order processing
- Logistics communications
- Demand forecasting/planning

(Stock & Lambert, 2001, p.29)

Each of the six cost categories will be briefly explained in terms of logistics activities:

2.7.1 Customer Service Levels

The key cost trade-off associated with varying levels of customer service is the cost of lost sales (Stock & Lambert, 2001, p.28). This not only includes the lost contribution of the current sale, but also potential future sales. According to Stock & Lambert, customer service costs include order fulfilment costs, costs for parts

and service support, and costs associated with return goods handling. These costs have a major impact on a customer's perception of the organisation's service, as well as the ultimate level of customer satisfaction.

Hence, the best approach is to determine desired levels of customer service based on customer needs, and to consider how those needs will be affected by expenditures on other areas of the marketing mix (Stock & Lambert, 2001, p.28). The end goal is to minimise the total cost, given the customer service objectives.

2.7.2 Transportation Costs

Transportation costs can be categorised in several ways, namely: by customer, by product line, by type of channel, by direction (inbound or outbound) and by mode of transport used (Stock & Lambert, 2001, p.29). Costs vary according to modes of transportation used as well as with volume of shipment, weight of shipment, distance, and points of origin and destination, product density, stow ability, handling, liability, and market factors (Bowersox & Closs, 1996, p.366).

2.7.3 Warehousing Costs

These costs are created by warehousing and storage activities, and by the warehouse and site selection process (Stock & Lambert, 2001, p.29). Warehousing and distribution centre costs according to Simchi-Levy *et al* (2000, p.26) include the following three main components:

1. **Handling Costs** - this include labour and utility cost, which are proportional to the annual flow through the warehouse.

2. **Fixed Costs** – this is typically proportional to the size (capacity) of the warehouse but in a non-linear way. This cost is traditionally fixed in certain ranges of warehouse size.

3. **Storage Costs** - these represent inventory holding costs, which are proportional to average inventory levels.

2.7.4 Order Processing/Information System Costs

According to Stock & Lambert (2001, p.30) these are costs related to activities such as processing customer orders, distribution communications, and demand forecasting. Examples of order processing costs include, order transmittal, order entry, order verification, order handling, and related internal and external costs

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such as notifying carriers and customers of shipping information and product availability (Stock & Lambert, 2001, p.30). Organisations have to invest in order processing and information systems to support good customer service levels and control costs.

Shippers and carriers have invested in electronic data interchange (EDI), satellite data transmission, and bar coding and scanning for shipment and sales. There has also been a growth in decision support systems (DSS), artificial intelligence (AI), Internet access and other sophisticated information technology (IT).

(Stock & Lambert, 2001, p.30)

2.7.5 Lot Quantity Costs

The major lot quantity costs result from production and procurement activities (Stock & Lambert, 2001, p.30). These are production- or purchasing-related costs that vary with changes in production lot size or order size or frequency and include:

1. Production set-up costs, i.e. the time required setting up a line or locating a supplier and placing an order; scrap due to setting up the production line; operating inefficiency as the line begins to run, or as a new supplier is brought on board.
2. Capacity lost due to downtime during changeover of line or changeover to a new supplier.
3. Materials handling, scheduling, and expediting.
4. Price differentials due to buying in different quantities.

(Stock & Lambert, 2001, p.30)

2.7.6 Inventory Carrying Costs

According to Bowersox & Closs (1996, p.254) inventory carrying costs account for approximately thirty seven percent of total logistics costs for the average manufacturing enterprise. Inventory carrying costs can be influenced by logistics activities that include inventory control, packaging, and salvage and scrap disposal (Stock & Lambert, 2001, p.31).

Stock & Lambert list the four major categories of inventory carrying costs as:

1. **Capital Cost, or Opportunity Cost**, which is the return that the company could have made on the money that it had tied up in inventory.

2. **Inventory Service Cost**, which includes insurance and tax on inventory.

3. **Storage Space Cost**, which include those warehousing space-related costs that change with the level of inventory.

4. **Inventory Risk Cost**, including obsolescence, pilferage, movement within the inventory system, and damage. Proper packaging can reduce the cost of damage and pilferage, ease movement, and help prevent product obsolescence.

<div align="right">(Stock & Lambert, 2001, p.31)</div>

According to Lambert & Burdurologu (2000, p.7) managers should consider the total cost of all logistics activities instead of trying to reduce the cost of individual logistics activities so that real cost savings can be realised. If not, cost reductions in one logistics activity can lead to cost increases in others, and this may result in increased total cost.

An example from Stock & Lambert (2001, p.31), which illustrates this well, is that of a consumer goods manufacturer. The manufacturer produces large production runs, which may get good prices from suppliers, and have long efficiency production runs, but may also require more storage space to handle large runs. Customer service levels may suffer as order fulfilment declines, because goods are produced infrequently, in large batches, with inventory going to zero and creating stock-out situations in-between runs. This may increase information and order processing costs, as customers frequently call to check on availability of back-ordered products, and cancel back orders. Transportation costs may also rise as customers are sent partial or split shipments. Inventory carrying costs may rise as large quantities of inventory are held until depleted, due to large batch sizes. The impact on one cost on another must be explicitly considered.

Minimising total logistics costs while achieving a given level of customer service represents value creation for a company (Lambert & Burduroglu, 2000, p.7).

2.8 CONCLUSION

The level of interest in logistics has increased remarkably since the early 1900's because of increased competitive pressure, a better understanding of the costs and service impact logistics and ever-improving technology. Demand forecasting, inventory management, logistics communication, materials handling, packaging, parts and service support, plant and warehouse site selection, procurement, reverse logistics, traffic and transportation, warehouse and storage, and, customer service are activities which not all organisations explicitly consider to be part of logistics. However all 13 activities affect the logistics process and contribute to an organisation's logistics costs. Minimising total logistics costs while achieving a given level of customer service represents value creation for a company. Customer service acts as the binding and unifying force for all logistics management activities.

The following Chapter will look at customer service in more detail.

CHAPTER 3 - CUSTOMER SERVICE

"The first priority of business is to create and keep a customer." (Drucker, 1952, p.103)

3.1 CHAPTER OVERVIEW

Customer service as noted in Chapter Two is an output of the logistics system and the place component of the marketing mix. Chapter Three starts off by describing services and then presents a general overview of customer service. This is followed by a discussion of customer service in the context of logistics: in terms of its importance, the various elements of customer service and performance measures.

3.2 SERVICES

Even though the performance of services is done at an operative level, service is an important issue for the strategic, tactical, and operative business activities of companies (Svensson, 2004, p.278).

Kotler describes a service as any act or performance that one party can offer another that is essentially intangible and does not result in the ownership of anything (2000, p.428). According to Ziethaml (cited in Lovelock, 1984, p.191) it is harder for a consumer to evaluate services than goods because services are intangible and non-standardized. Being performances or actions, services cannot be seen, felt, tasted, or touched in the same manner as tangible goods can be sensed.

Berry (cited in Lovelock, 1984, p.29) captures the distinction well between products and services when he describes a good as an "object, a device, a thing," in contrast to a service, which is "a deed, a performance, an effort." According to Gröonroos (cited in Svensson, 2004, p.278) services differ from physical goods in several characteristics:

- Services are intangible and heterogeneous;

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- The production, distribution, and consumption of services are simultaneous processes;
- Service is an activity or process;
- Service is a core value created in buyer-seller interactions;
- Customers participate in the production of services;
- Services can not be kept in stock; and
- There is no transfer of ownership in service transactions.

(Cited in Svensson, 2004, p.278)

Therefore services are produced, distributed, and consumed in the interaction between the service provider and the service receiver. Accordingly, services must be viewed from an interactive perspective under the more appropriate topic of Customer Service, which will be discussed in the next section.

3.3 CUSTOMER SERVICE

"In the long run, the most important single factor affecting a company's performance is the quality of its customer service relative to that of its competitors." (Buzzel and Gale cited in Venetica, 2004, p.3)

Many companies have varying views of customer service. LaLonde and Zinszer (cited in Christopher, 1985, p.34) in a study of customer service practices found that in the industries they surveyed the following range of views existed as to the definition of customer service:

- All the activities required to accept, process, deliver, and bill customer orders and to follow up on any activity that could have gone wrong.
- Timeliness and reliability of getting materials to customers in accordance with customer expectations.
- A complex of activities involving all areas of the business which combine to deliver and invoice the company's products in a fashion that is perceived as satisfactory by the customer and which advances a company's objectives.
- Total orders entry, all communication with customers, all shipping, all freight, all invoicing and total control of repair of products.

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- Timely and accurate delivery of products ordered by customers with accurate follow-up and inquiry response including timely delivery of invoice.

(Christopher, 1985, p.34)

La Londe, Cooper and Noordewier (1988, p.5) define Customer service in terms of value-added:

"A process which takes place between buyer, seller, and third party. The process results in a value-added to the product or service exchanged. This value added in the exchange process might be short-term as in a single transaction or longer term as in a contractual relationship. The value added is also shared, in that each of the parties to the transaction or contract is better off at the completion of the transaction than they were before the transaction took place."

Therefore, customer service is a process for providing significant value-added benefits across the supply chain in a cost-effective way.

So why should companies focus on customer service?

Lambert and Burduroglu (2000, p.2) state the following reasons why companies should focus on customer service:

- Satisfied customers are typically loyal and make repeat purchasers.
- It can be at least five times as costly to attract a new customer, as it is to keep an old one. Tepe (2003, p.9) shares a similar sentiment in his paper on *Understanding the Customer, The Issues, Strategies and Solutions*, by stating that increasing customer retention is a profitable strategy.
- Customers who decide to defect are very likely to share their dissatisfaction with others.
- It is more profitable to sell more to existing customers than it is to find new customers for this same level of sales increase.

(Lambert and Burduroglu, 2000, p.2)

Hence, customer retention has a powerful impact on a company's financial performance.

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Still, many companies continue to under-invest in the customer service function, considering it a cost of doing business, rather than a strategic and differential function for locking in and growing critical customer relationships (Venetica, 2004, p.4).

However, not all customers need the same level of customer service. No product or service will satisfy every buyer nor does every organization have unlimited resources. Sterling and Lambert (1987, p.1) suggest that firm's can gain a competitive advantage through providing excellent customer service within the marketing mix by:

- Improving its market share and profitability through spending more than competitors on customer service and logistics.
- Strategically maximizing the firm's long-run profitability through systematically adjusting the customer service package for improved service at a reduced total logistics cost.

Christopher (1985, p.46) shares similar sentiments suggesting that companies can differentiate the nature of a product or service to meet the specific needs of a segment by varying other elements of the marketing mix such as price, promotion, or in this case customer service.

By the mid- 1980s, 'information' availability made it possible to differentiate customer service offers (Gattorna and Walters, 1996, p.6). Selective service packages began to form the basis of specific supplier/distributor relationships.

Cheales (1994, p.24) suggests that organizations should be selective about customer service, and get to know and nurture special relationships with those bigger customers that support the business. Manning (1989, p.111) is of the same opinion that with marketing costs rising, it is vital to identify the few customers that are most vital to the business, and focus on them. What is called the "80/20" rule frequently prevails, which suggests that 80 percent of an organization's total sales will come from 20 percent of their customers (Buchanan, 2002, p.67). According to Buchanan, it is natural to pay attention to the most valuable 20

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percent, i.e. today's key customers who provide the organizations income. The loss of someone within the "Top 20" is often disastrous, for not only does it mean a big loss in volume, but often that the big volume is more profitable than the same thing broken up into smaller bits (Buchanan, 2002, p.67).

Kotler (1999, p.138) noted that the "80/20" rule has been modified more recently into the "80/20/30" rule, which adds the observation that the poorest (unprofitable) 30 percent of the company's customers cuts the company's potential profits in half.

However, Manning (1989, p.111) says that ranking customers by turnover provided is invariably a mistake and suggests the following criteria which he considers far more important in putting customers into the key customer category:

- They should contribute meaningfully to the organization's profits;
- They should operate in an area of the market important to the organization's future;
- Their market segment should be growing and have significant growth potential;
- They should want or need the products and/or services that the organization provides; and
- They should really want to become the organization's long-term partners.

(Manning, 1989, p.111)

The underlying philosophy is that it is insufficient to offer a blanket level of service across all market segments or trade sectors. The questions to be asked are:

- Do all our customers require the same level of service?
- Are all our customers equally sensitive to service?
- What are the different requirements of different market segments, or trade sectors, for customer service?

(Christopher, 1985, p.47)

These questions and more were answered in a study undertaken by Anderson and Narus (1995, p.75) on 22 large and medium-size U.S., European, and Japanese companies. The research revealed the following:

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- Suppliers typically provided customers with more services than they wanted or needed at prices that often reflected neither the value of those services to customers nor the cost of providing them.

- Many companies did not even know which services individual customers or groups of customers with similar needs really wanted.

- A surprising number didn't really understand which services should have been offered as a standard package accompanying either a product or a core service and which should have been be offered as options because individual customers valued them so much that they would have paid extra for them.

- Most companies did not even know the cost of providing many of their services and all too many continued to let salespeople give away whatever services they thought it would take to land a deal, at the expense of reduced profitability to the business.

- A relative handful of companies recognized that they could reduce the cost of providing services and use services to effectively meet customers' requirements, get more of their business, and enhance profits.

- "One size does not fit all," no matter how painstakingly a company segments its market into groups of customers that need similar packages of products and services, each customer will inevitably have requirements not shared by others in the segment. Suppliers are either unaware of this fact or avoid dealing with it by providing "standard" packages of products and services designed to meet the needs of the "average" customer in each segment

(Anderson and Narus, 1995, p.75)

In conclusion, it is important for organizations to understand their customer needs and to offer differentiated service offerings to meet such needs.

Arising out of Anderson and Narus's research was the development of a Flexible Service model to assist organizations in tailoring customer service packages.

3.4 THE FLEXIBLE SERVICE MODEL

Anderson and Narus (1995, p.75) developed a *"flexible service model"* for manufacturing and service companies that would enable them to figure out how to:

- Retain and expand business with most valuable customers;
- Reduce the number and cost of services they use to augment their core products;
- Charge more for those services on average; and
- Provide greater value to customers.

The *"flexible service model"*, which is briefly described below, divides services into the following three categories:

Existing Standard Services

This should vary by market segment and be limited to those services that are highly valued by all customers in the segment. The challenge is to reduce the cost of providing these services below that of the competition without undermining the perceived value to the customers. The authors found that suppliers were more reluctant to eliminate existing services than to add new ones and that customers refused to pay for something that was once free. A specialty chemical company dealt with this situation by offering a variety of costly services and by changing the level of services in its standard package. Customers who wanted higher levels of service had to increase their annual product purchases to a pre-specified amount.

Existing Optional Services

After re-evaluating standard levels of service, managers should turn to existing optional services. If the cost of an optional service exceeds the customer's willingness to pay for it, the service should be discontinued. A way to get around this problem is to encourage the customer to pay for the service with "bonus dollars" earned by concentrating his purchases with the supplier.

New Services

Adding new services as options has the following strategic advantages:

- It enables suppliers to gauge market interest/demand in new innovation;

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- It thwarts competition if delivered better than, and at a lower price; and
- It can help differentiate customers through different values for different Customers.

(Anderson and Narus, 1995, p.75)

According to Anderson and Narus, (1995, p.75) implementing flexible service offerings requires developing the most-difficult-to-acquire skill: the ability to proficiently say NO to customers that want full services packages at no frills prices.

This section has established that customer service should be focused on selected customers and that knowing what to offer depends on what customers' value.

3.5 CUSTOMER VALUE

Simchi-Levy (2000, p.200) defines customer value as the way the customer perceives the entire company's offering, including products, services, and other intangibles. According to Simchi-Levy, customer perception of value can be briefly explained in terms of the following dimensions:

- Conformance to requirements by providing what the customer wants and needs through product availability and selection.

- Product selection through a large variety of options, styles, colours, and shapes (variants).

- Price and brand - the price of products and the cost of services are a fundamental part of customer value. Another factor in the price is the brand of a product, which is perceived as a guarantee of quality in the buyer's mind.

- Value-added services which a means for a company to differentiate itself from competitors in a market with an overabundant supply of product. These include technical support and maintenance as well as information accesses, which is particularly beneficial in business-to-business (B2B) relationships between manufacturer and retailer. Allowing customers access to their own data - such as pending orders, payment history, typical

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orders, order status, turnaround times etc - enhances their experience with the company.

- Relationships and experiences help to lock customers in to a particular provider since a relationship requires an investment of time from both customer and provider.

(Simchi-Levi *et al*, 2000, p.200)

The objective is to go beyond what is expected and to provide service that is unexpected in a positive way and provides value to the customer (Haessler & Talbot, 1991, p.115). According to Anderson and Narus (1998, p.53), suppliers can use their understanding of value to strengthen performance and create competitive advantage in several ways:

- They can capitalize on the inevitable variation in customers' requirements by providing flexible market offerings.

- They can use value models to demonstrate how a new product or service they are offering will provide greater value.

- They can use their knowledge of how their market offerings specifically deliver value to craft persuasive value propositions.

- They can use value models to provide evidence to customers of their accomplishments.

(Anderson and Narus, 1998, p.53)

Hence it is up to suppliers to understand the needs of the customer and to tailor-make a persuasive service offering by using value models to demonstrate the strong customer value proposition.

Customer value in the context of logistics will be discussed in next section.

3.6 CREATING CUSTOMER VALUE IN LOGISTICS

Logistics companies today recognize the importance of high levels of customer service however one of the most difficult tasks of providing that service is often the determination of what the customer truly values (Mentzer *et al*, 1996, p.630). In pursuit of competitive advantage, it is increasingly important for an

organization to identify the demands and values of current and potential customers.

According to Bowersox & Closs (1996, p.57), the customer for logistics is:

- Any delivery destination ranging from consumers' homes to retail and wholesale businesses to the receiving docks of an organization's manufacturing plants and warehouses;
- In some instances, a different organization or individual who is taking ownership of the product or services being offered, or
- In other cases a different facility of the same organization or a business partner and a different location in the supply chain.

(Bowersox & Closs, 1996, p.57)

In the context of this review the customer is referred to in the business-to-business (B2B) context.

Value once determined has to be sold to customers and also top management (Lambert and Burduroglu, 2000, p.1). In order to obtain satisfactory reward for the firm's innovations and performance in logistics, managers have to measure and sell the value that is being provided to customers.

LaLonde and Zinser (1976, p.66) provide a good description of how customer service adds logistics value through the following three components:

1. An activity to satisfy customers' needs - suggesting that it is capable of being managed.
2. Performance measures to ensure customer satisfaction - has relevance provided it can be accurately measured.
3. A philosophy of firm-wide commitment - exemplifies the importance of customer-focused marketing.

The next section discusses customer service in logistics from the customers' perspective.

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3.7 CUSTOMER SERVICE ELEMENTS IN LOGISTICS

Tucker (cited in Emerson and Grimm, 1998, p.17) states, *"The key to customer service is understanding the customer and his perceptions. It doesn't matter what a supplier does, but rather what customers think the supplier does in the area of customer service."*

It is a common fault in marketing to fail to realize that customers do not always attach the same importance to product attributes as the supplier. Thus it sometimes happens that products are promoted on attributes or features that are less important to the customer in reality than other aspects (Christopher, 1985, p.37). The same principal applies in customer service in logistics, therefore it is important to gain insight into the particular attributes seen by the customer to be the most important.

The level of basic logistical service should be realistic in terms of customer expectations and requirements. Thus, managers must realize that customers are different and that services must be matched to accommodate unique preferences and purchase potential (Bowersox & Closs, 1996, p.10).

Bowersox & Closs describe basic logistical service in terms of the following criteria:

- **Availability** - this implies having inventory to consistently meet customer material or product requirements.

- **Operational Performance** - this deals with the elapsed time from order receipt to order delivery and involves delivery speed and consistency. Other aspects of operational performance that are important include flexibility in accommodating unusual and unexpected customer requests, and time taken to recover from malfunctions such as damaged products, incorrect assortments, or inaccurate documentation.

- **Service Reliability** - this involves the quality attributes of logistics, which is accurate measurement of availability and operational performance.

(Bowersox & Closs, 1996, p.9)

Several elements are commonly associated with the above criteria of customer service, namely pre-transaction, transaction and post-transaction elements. The

degree of importance attached to each may vary from company to company depending on customer needs (Stock & Lambert, 2001, p.98).

La Londe and Zinszer (1976, p.272) categorized the elements of customer service into the following three groups:

Pre-transaction Elements

These activities, although not specifically involved in logistics, have a significant impact on product sales. They tend to be non-routine and policy related and requires management input. The specific elements of pre-transaction customer service include a written statement of the customer service policy, which the customer receives; the organization structure; system flexibility and management services.

Transaction Elements

These are activities normally associated with customer service are most visible because of their direct impact on sales and include stock-out level; order information; elements of the order cycle; expedited shipments; trans-shipments; system accuracy; order convenience and product substitution.

Post-transaction Elements

These elements of customer service support the product after being sold and include installation, warranty, alterations, repairs and parts; product tracing; customer claims, complaints, and returns and also temporary product replacement.

(La Londe and Zinszer, 1976, p.272)

Christopher (cited in Gattorna, 1990, p.66) further elaborates on the transaction and post-transaction elements by identifying the following aspects of customer service that he considers most important:

- Order cycle time - How long from the receipt of order to delivery?
- Consistency and reliability of delivery - Is the delivery on time, every time?
- Inventory availability - Is the product ordered available from stock?
- Order-size constraints - Is there a minimum quantity or value on the order?

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- Order convenience - How easy is it for the customer to do business with us?

- Delivery times and flexibility - Can we deliver at the customer's convenience?

- Invoicing procedures and accuracy - Is the invoice correct and easy to process?

- Claims procedures - How do we handle complaints and claims?

- Condition of goods - What is our record of quality of goods on arrival?

- Visits by sales people - Do our sales people act as service ambassadors?

- Order status information - How well do we communicate with our customers about orders?

In conclusion, customer service in logistics includes policy-related elements even before the transaction takes, transaction elements that are more directly related to customer service, and post-transaction elements such as after-service support. All of which add value to the customer and which requires regular monitoring by having service measures in place. Customer service measures are discussed in the next section.

3.8 CUSTOMER SERVICE MEASURES IN LOGISTICS

Customer service has become a crucial measure of competitiveness in logistics markets throughout the world. Comprehensive performance measurement is necessary to determine if overall logistical operations are achieving desired service goals (Bowersox & Closs, 1996, p.10). Generally, firms tend to be overly optimistic when committing to average or basic customer service performance. Not being able to consistently meet an unrealistic high basic service target might result in more operating and customer problems than if less ambitious goals had been set at the outset. Unrealistic across-the-board service commitments can also dilute a firm's capability to satisfy special requirements of high-potential customers (Bowersox & Closs, 1996, p.10).

Examples of historical operational measures of logistics customer service include (Mentzer *et al*, 1989, p.53):

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- The percent of items in stock;
- The percent of orders delivered on time
- The percent of delivered items undamaged.

These attributes are considered the "value" provided by the logistics service dimensions of availability, timeliness, and condition (Mentzer *et al*, 1999, p.2).

According to Stock & Lambert (1992, p.73) knowing both customer expectations and understanding the firm's performance relative to that of competitors on logistics service attributes are vital to achieving service excellence. Lambert and Burduroglu (2000, p.1) share similar sentiments: while there are a number of approaches to the measurement and management of customer satisfaction, it is generally considered best to measure the firm's performance relative to specific competitors and identify gaps that represent opportunities for differentiating the company.

As competition has become more intense, service quality, has become the primary determinant for creating overall customer satisfaction (Harding, 1998, p.103). The service quality approach is an attempt to understand customer satisfaction from the perspective of the difference between customer perceptions and actual customer service on various attributes (Mentzer *et al*, 1999, p.2).

3.8.1 SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality

Service quality as defined by Parasuraman, Zeithaml, and Berry (1988, p.12) is the discrepancy between consumers' perceptions of services offered by a particular firm and their expectations about the firms offering such as services.

Parasuraman *et al* developed a 22-item instrument spread among five dimensions called SERVQUAL for assessing customer perceptions of service quality in service and retailing organizations. Parasuraman *et al* concisely defined the five dimensions of service quality as:

1. **Tangibles:** the appearance of personnel, physical facilities, and equipment.

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2. **Reliability**: the ability to perform the promised service dependably and accurately.

3. **Responsiveness**: the willingness to help customers and provide prompt service.

4. **Assurance**: the knowledge and courtesy of employees and their ability to inspire trust and confidence.

5. `Empathy`: caring, individualized attention, which the firm provides its customers.

(Parasuraman *et al*, 1988, p.23)

Practitioners like SERVQUAL because the gap analysis approach seems a logical and straightforward concept. However, there are many theoretical and operational shortcomings documented. The more commonly reported criticisms of the SERVQUAL approach are from a conceptual, methodological and research instrument include point of view (Bebko, 2000, p.9; Buttle, 1996, p.8; Carman, 1990, p.35).

From a conceptual point of view:

- SERVQUAL assumes customers evaluate service quality by comparing service received against that expected, which might not be so.
- Just because a service aspect exceeds expectation does not necessarily mean it is a desirable thing from the customer's point of view.
- By concentrating on measuring satisfaction and expectation there is a danger of not connecting customer needs and business activities. In other words, effective implementation and producing actionable findings may be neglected.
- The complex nature of service quality means that it is unlikely that any single approach can fully capture and explain it.

From a methodological point of view:

- Respondent's fatigue at having to rate all service attributes twice.
- They also tend to rate most dimensions as being highly important. Since they are unable to distinguish between aspects that are very and extremely important.

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- Respondents may interpret the expectation/importance question in different ways.

Concerning the research instrument:

- Dispute over which scale is most appropriate and the number of points to include on it.

- The number and dimensions of service quality vary depending on the context and culture involved.

The majority of marketing literature addressing customer service or more specifically service quality has been aimed at the end-use customer (Mentzer *et al*, 1999, p.1). Several authors have attempted to expand the theoretical domain of service quality to a business-to-business (B2B) context, particularly in the area of logistics service quality, which will be discussed in the next section.

3.8.2   Logistics Service Quality

Researchers have begun to examine whether the service quality model can be used to measure logistics service. They have modified the original service quality model by developing logistics attributes that were previously customer-defined dimensions and by identifying additional gaps that could be applied in the logistics context (Mentzer *et* al, 2001, p.12).

Bienstock *et al* (1997, p.31) developed a valid, reliable scale of what they termed physical distribution service quality (PDSQ) through surveying a broad range of purchasing managers.

Mentzer *et al* (1999, p.3) expanded on this research of the service quality domain into a logistics context. Their research investigated a particular focal organization, with multiple market segments in order to determine whether the general methodology used by Bienstock *et al* resulted in a similar reliable scale of logistics service quality (LSQ). The organization selected was the Defense Logistics Agency (DLA), which performs logistical functions for the military services. Thus, DLA acts in the role of a supplier in an industrial market context. At the

time of the study, DLA's environment was becoming increasingly competitive and a research team was commissioned to help improve measurement and management of its logistics customer service in order to compete more effectively.

Mentzer *et al* (1999, p.3) closely followed the methodology of Parasuraman *et al* and Bienstock *et al* to develop a LSQ scale which was used for DLA. The survey utilized a 5-point Likert "agree/disagree" scale, which limited findings - a 7-point scale would be more optimal (Mentzer *et al*, 1999, p.3).

The research of Mentzer *et al* (1999, p.7) revealed that business customer perceptions of LSQ are multidimensional and that logisticians need to be concerned with how customers perceive the following:

Personnel Contact Quality - the customer orientation of the supplier's logistics contact people. Specifically, customers care about whether customer service personnel are knowledgeable, empathize with their situation, and help them resolve problems. Hence, personnel contact quality is an important aspect of the customer-employee interface.

Order Release Quantities - related to concept of product availability. On the basis of several criteria, an organization can release certain order sizes and challenge customers' requests to ascertain the need behind their volume requests. Customers should be most satisfied when they receive the quantities they request.

Information Quality - customers' perceptions of the information provided by the supplier regarding products from which the customer may choose. Customers should use the information to make decisions if the information is available and of adequate quality.

Order Procedures - the efficiency and effectiveness of the procedures followed by the supplier in making order placement procedures to be both effective and easy to use.

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Order Accuracy - how closely shipments match customers' orders upon arrival. This includes having the right items in order, the correct number of items, and no substitutions for items ordered.

Order Condition - lack of damage to orders. If products are damaged, customers cannot use them and must engage in correction procedures with the supplier and/or other vendors depending on the source of damage.

Order Quality - how well products work. This includes how they conform to product specifications and customers' needs and the quality of the products being delivered.

Order Discrepancy Handling - how well the supplier addresses any discrepancies in orders after the orders arrive. If customers receive orders that are not accurate, in poor condition, or of poor quality, they seek corrections from the supplier. How an organization handles these issues contributes to customer perceptions of the quality of their service.

Timeliness - whether orders arrive at the customer location when promised. More broadly, timeliness also refers to the length of time between order placement and order receipt. Transportation time, as well as back-order time when products are unavailable can affect this delivery time.

(Mentzer *et al*, 1999, p.7)

The LSQ scale is another step towards enhancing logistician's efforts to measure the impact of their operations on customers - the scale is a measure of how the customer perceives the delivery (Mentzer *et al*, 1999, p.8).

Mentzer, Flint and Hult (2001, p. 11) further expanded on the above work by researching whether different customer segments value different aspects and levels of LSQ of the DLA.

The research revealed the following (Mentzer, Flint and Hult (2001, p. 11):

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- All nine components were found to be reliable and relevant across the market segments tested.

- LSQ should be conceptualized as a process because customers' perceptions of LSQ begin to form as soon as they try to place orders, and the perceptions develop until customers receive complete and accurate orders, in good condition, with all discrepancies addressed.

- Customer segments placed their emphasis on different components of LSQ.

Research undertaken by Grant (2003, p.1) on customer service, satisfaction and service quality in the United Kingdom (UK) food processing logistics provided an empirical study of a revised service quality model hypothesised by Parasuraman, Zeithaml, and Berry (1994, p.111-124). The research extended their model to include variables and constructs of relationships and validated their inclusion - see Table 3 (Grant, 2003, p11) below.

Table 3: Resultant Variables and Constructs.

Construct	Variable	Rank
Pre-Order (PRE)	Availability	9
	Appropriate Order Cycle Time (OCT)	11
	Consistent OCT	10
	On-Time Delivery	4
Order Service and Quality (OSQ)	Complete Orders	5
	Products Arrive Undamaged	1
	Accurate Orders	7
	Consistent Product Quality	3
	Products Arrive to Specifications	2
Relationship Service	After Sales support	9
	Delivery Time	4
	Helpful Customer Reps	8
	Customized Services	11
Relationship Quality	Trust	1
	Commitment	2
	Integrity	4

After comparisons with other recent studies, Grant proposed that logistics customer service pertain to the three constructs of pre-transaction, order service and quality, and relationship service and quality. The importance of trust, integrity and commitment to respondents also suggests that retailers and primary processors outside this study also need to develop better relationships to alleviate

issues of mistrust and power (Grant, 2003, p.12). Although the research was derived from logistics studies across many contexts and the findings considered valid for this industry sector, the external validity or generalization could not be determined.

According to Svensson (2004, p.270), the models of service quality described in the literature, such as SERVQUAL, can be used in various contexts but usually do not provide for managerial evaluation of the interactive nature of service quality in service encounters. The existing service quality models are thus usually based on the interpretation of the service receiver without considering the service provider's perspective (Svensson, 2004, p.270). Customer service audits by contrast, considers the service provider's perspective as well and will be discussed in the next section.

3.8.3 Customer Service Audits

Customer service audits can be used by management to identify elements of service that are important to customers' purchasing decisions, and to evaluate the level of services being provided by each of the major suppliers in the market (Lambert and Burduroglu, 2000, p.3).

According to Stock & Lambert (2001, p.110) audit procedures should comprise of the following four distinct stages:

1. An external customer service audit.
2. An internal customer service audit.
3. The identification of potential solutions.
4. The establishment of customer service levels.

Each of the stages will be briefly discussed.

1. The External Customer Service Audit

The key objectives are twofold:

1. To identify the elements of customer service that customers believe to be important when making the decision to buy and

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2. To determine how customers perceive the service being offered by each of the major vendors in the market.

For example, relevant customer service variables for a consumer packaged goods firm may include the following customer service variables:

- Average order cycle time
- Order cycle variability
- Number of orders shipped complete
- In-stock variability
- Accuracy in filling orders
- Order status information
- Action on complaints
- Returns policy
- Remote order transmission (computer-to-computer order entry)
- Ability to expedite emergency orders
- Billing procedures
- Palletized and unitized loads for handling efficiency
- Speed and accuracy in billing
- Handling of claims
- Availability of inventory status
- Freight pick-up allowances for distributors wishing to pick up freight at the manufacturers warehouse
- Back-haul policy
- Ability to select carriers

(Stock & Lambert, 2001, p.111)

According to Sterling and Lambert (1987, p.1) it should be emphasized that the variables used in the external audit must be specifically tailored to the industry under study. Using variables from past research instruments, especially those designed for different industries with different supply chain structures, would lead to misinterpretation and non-response. It is important to develop the list of variables from interviews with the firm's customers (Stock & Lambert, 2001, p.112).

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Once the relevant customer service elements have been determined, the second step in the external audit procedure is to design a questionnaire to gain feedback from a statistically valid sample of customers (Stock & Lambert, 2001, p.112).

According to Stock & Lambert:

- The questionnaire must be designed to determine the importance customers attach to the various variables of customer service.

- Customers must rate the importance of each variable on a scale of 1 to 7, with an important variable possessing significant weight in the evaluation of suppliers. (Research has shown that "importance scales" produce similar results to "expectation scales" with *strongly agree* and *strongly disagree* used in service quality research).

- Customers must also rate the performance ratings of major suppliers by asking respondents to evaluate major suppliers' performances on each of the variables in the questionnaire. Responses to the questions help the firm compare customers' perceptions of supplier performance.

- Before mailing the questionnaire, the firm should pre-test it with a small group of customers to ensure that questions are understandable and that important variables are not being ignored.

- Results of the survey will enable management to identify problems and opportunities.

According to research undertaken by Sterling and Lambert, (1987, p.1) most customer service studies emphasize the importance ratings of the variables being researched. This assumes that the variables rated the highest in importance determine the share of the business given to each vendor, but this may not be so for one of the following reasons:

- Distinguishing among all of the industry's major suppliers may be difficult if they are performing at "threshold" levels, or at approximately equal levels.

- Variables for which there are significant variances in supplier performance may be better predictors of market share than the variables described above.

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- Although customers may rate variables as extremely important, there may be few or no suppliers who are providing satisfactory levels of service for that variable. Such variables offer opportunities to provide differential service in the marketplace.

- Customers do not recognize the advantages of superior service for a variable that may be rated low in importance with a low variance in response. In addition, there may be no single supplier providing adequate service levels. Therefore, if one vendor improves performance it can lead to gains in market share.

Both importance and performance measures are necessary to determine what variables represent the best opportunity for increasing market share and /or profitability, (Stock & Lambert, 2001, p.116). This gives management insight into the relative competitive position of each supplier, as viewed by the firm's customers. In addition, this allows management to consider what actions should be taken to improve customer perceptions of organization's service. The company must then compare customer perceptions of service to internal measure of performance through an internal customer service audit.

2. The Internal Customer Service Audit

The overall purpose of the internal customer service audit according to is to identify inconsistencies between the firm's practices and its customers' expectations (Stock & Lambert, 2001, p.117). In addition, it is also important to verify customer perceptions since customers may perceive service performance to be worse than it really is. Should this be the case, the firm should change perception rather than the level of service.

According to Stock & Lambert (2001, p.117) the internal customer service audit should provide answers to the following questions:

- How is customer service currently measured within the firm?
- What are the units of measure?
- What are the performance standards or objectives?
- What is the current level of attainment - results versus objectives?

- How are these measures derived from corporate information flows and the order processing system?
- What is the internal customer service reporting system?
- How does each of the functional areas of the business (e.g. logistics, marketing) perceive customer service?
- What is the relation between the functional areas in terms of communication and control?

(Stock & Lambert, 2001, p.117)

Hence, the internal customer service audit must evaluate both the communication flow from customers to the company and the communication flow within the company, and it must review the customer service measurement and reporting system.

3. Identification of Potential Solutions

The external customer service audit enables management to identify problems an organization's customer service and marketing strategies. Used in combination with the internal audit, may help management adjust these strategies and vary them by segment in order to increase profitability. However, if management wants to use this information to develop customer service and marketing strategies for optimal profitability, then this data must be used to benchmark against its competitors. The most meaningful competitive benchmarking occurs when customer evaluations of competitor's performance are compared to each other and to customer's evaluations of the importance of supplier attributes (Lambert & Sharma, 1990, p.17). Once management has used this type of analysis to determine opportunities for gaining competitive advantage, every effort should be made to identify best practices, which is the most cost effective uses of technology and systems.

4. Establishing Customer Service Levels

This is the final step in the audit procedure, which is the establishment of service performance standards and the ongoing measurement of performance. Management would have to set target service levels for the various segments such

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as customer-type, channel, geographic area, distribution channel, and product lines. This would then have to be communicated to all employees responsible for implementing the customer service levels. Formal reports would have to be kept to document performance. It is imperative that the entire audit procedure be repeated periodically to ensure the customer service package reflects current customer needs.

3.9   CONCLUSION

Customer service is essential to any organization however the levels of service offerings should be based on the customer needs and differentiated accordingly. Several tools can be used to measure customer service including SERVQUAL, Logistics Customer Service and Customer Service Audits. Each tool has its own advantages and disadvantages.

The External Customer Service Audit was deemed most appropriate for the author to use in conducting a survey of Unilever Home and Personal Care (SA) Outbound Logistics Department.

Chapter Four will present a brief history of Unilever and the Outbound Logistics Department. The Research Methodology of the External Customer Service Audit conducted on DC Customers then follows this Chapter.

CHAPTER 4 - UNILEVER

"Let the language of our customers influence our operations and guide our strategic thinking."

(Antony Burgmanns, 2004, p.32)

4.1 CHAPTER OVERVIEW

This Chapter introduces Unilever the multinational company and looks at the business model it is structured upon. The chapter then outlines the Supply Chain Division at Unilever Home & Personal Care South Africa (UHPC) and focuses on the Outbound Logistics Department. The chapter concludes with a brief discussion on a past evaluation of customer service and then explains the rationale for further research work in logistics customer service.

✓ 4.2 COMPANY OVERVIEW

Unilever was created in 1930 through the merger of the British soapmaker Lever Brothers with Dutch-owned Margarine producer, Margerine Unie (Unilever 1, 2004). Unilever's corporate centers are in London and Rotterdam with operations organized into the Foods and Home and Personal Care (HPC) divisions headed by divisional directors. This structure allows the appropriate focus on Foods and HPC activities at both the regional and global levels (Unilever 2, 2004).

∪ 4.2.1 Corporate Purpose

At the heart of the corporate purpose, which guides Unilever in its approach to doing business, is the drive to serve consumers in a unique and effective way. This purpose has been communicated to all employees as follows (Unilever 3, 2004):

> **Our purpose in Unilever is to meet the everyday needs of people everywhere** – to anticipate the aspirations of our consumers and customers and to respond creatively and competitively with branded products and services, which raise the quality of life.

Our deep roots in local cultures and markets around the world are our unparalleled inheritance and the foundation for our future growth. We will bring our wealth of knowledge and international expertise to the service of local consumers – a truly multi-local, multinational.

Our long-term success requires a total commitment to exceptional standards of performance and productivity, to working together effectively and to a willingness to embrace new ideas and learn continuously.

We believe that to succeed requires the highest standards of corporate behaviour towards our employees, consumers and the societies and world in which we live. This is Unilever's road to sustainable, profitable growth for our business and long-term value creation for our shareholders and employees.

(Unilever 3, 2004)

4.2.2 Introducing Unilever

Unilever's mission is to add vitality to life by meeting the everyday needs for nutrition, hygiene, and personal care with brands that help people feel good, look good, and get more out of life. Unilever employs 234, 000 people in around 100 countries worldwide. The company's worldwide turnover in 2003 was 42 942 million euro. Over half the company's sales are generated by leading Food brands, which include Knorr, Flora/Becel, Hellman's, Lipton, Iglo/BirdsEye/Findus/Rama/ Blueband, Slim•Fast, Bertolli and the ice cream 'heart' brand which includes Magnum, Ben & Jerry's and Solero.

Unilever's supply chain delivers over 1 billion units of product to customers and consumers every week. Every day, 150 million people choose Unilever brands to feed their families and to clean themselves and their homes (Unilever 4, 2004).

Unilever is the leading home care brand in many parts of the world with brands such as OMO, Surf, Skip, Cif and Comfort. Leading personal care brands include Dove, Lux, Sunsilk, Pond's, Axe/Lynx and Rexona.

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Unilever has operations in major markets around the world including Europe, North America, Latin America, Middle East and Turkey, Asia & Pacific, and Africa including South Africa.

(Unilever 4, 2004)

4.2.3 Unilever South Africa

Unilever SA is not listed on the South African stock exchange and falls within the auspices of Unilever PLC (London) where it reports to the AMET Business Group (Africa, Middle East, Turkey).

Unilever SA's turnover topped R5 billion during 2000. As one of the country's foremost foreign investors, it has already spent more than R1 billion on new capital projects since 1990 to expand capacity and install state of the art manufacturing facilities. Exports into the African subcontinent in 2000 exceeded R220 million (Unilever 2, 2004).

Unilever SA's key strengths are the ability to successfully blend local and global knowledge, to focus on consumer needs in order to generate dynamic growth and to develop its people are. It is dedicated to meeting the needs of people everywhere, and aims to play an active role in everyone's every day lives by providing the washing powder, shampoo and toothpaste, teas, ice cream, oils and spreads which form an integral part of almost every day-to-day activity.

From the biggest city to the most remote village, one will find the brands that have made Unilever successful. In the smallest as well as the most luxurious homes across South Africa, you will discover international favourites such as *Dove, OMO, Magnum* and *Lipton* as well as many local brands such as *Mrs Balls* chutney and *Shield* deodorants. Unilever's aim is not only to make its brands the first choice among consumers, but also to ensure that they are always readily available in outlets ranging from small spaza shops to massive hypermarkets across South Africa.

Unilever's business interests in South Africa center around two categories - HPC (UHPC), and Foods (Unifoods, Bestfoods, Robertsons (UBR)) and ice cream

if Phones space

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(Ola). HPC combines strong international favourites such as *Skip*, *Axe*, and *Vaseline Intensive Care* with locally developed brands such as *Dawn* and *Impulse* reflecting the local & global culture of the country.

The range of margarines such as *Rama*, *Flora* and *Stork* forms the cornerstone of the Foods division, but the company is developing tea brands such as *Lipton*, *Glen* and *Joko*, as well as the popular *OLA* ice cream brand. Other popular brands include Robertsons, Knorrox, Hellman's and Knorr.

(Unilever 2, 2004)

4.2.4 Factory Sites

Factory production is based in the following five locations around the country:

- Unilever SA's head office is in Durban

- Boksburg (East Rand Gauteng): Washing Powder & Liquids, Yellow Fats & Oils

- Phoenix (KwaZulu Natal): Aerosols

- Maydon Wharf, (Durban, KwaZulu Natal): Soap & Personal Products, White Fats semi-processed

- Pietermaritzburg (KwaZulu Natal): Tea

Unilever South Africa outsources a substantial amount of its production to third party manufacturers.

4.3   THE UNILEVER REFERENCE MODEL: U1 MODEL

The U1 Business model Figure 3 below, is an integrated representation of the way Unilever works to achieve its strategic thrusts (Unilever 5, 2004). The model is very much a Value Chain (Porter, 1985), which identifies linkages and interdependencies between (and among) the various stakeholders.

Figure 3: The Unilever Reference Model: U1 Model
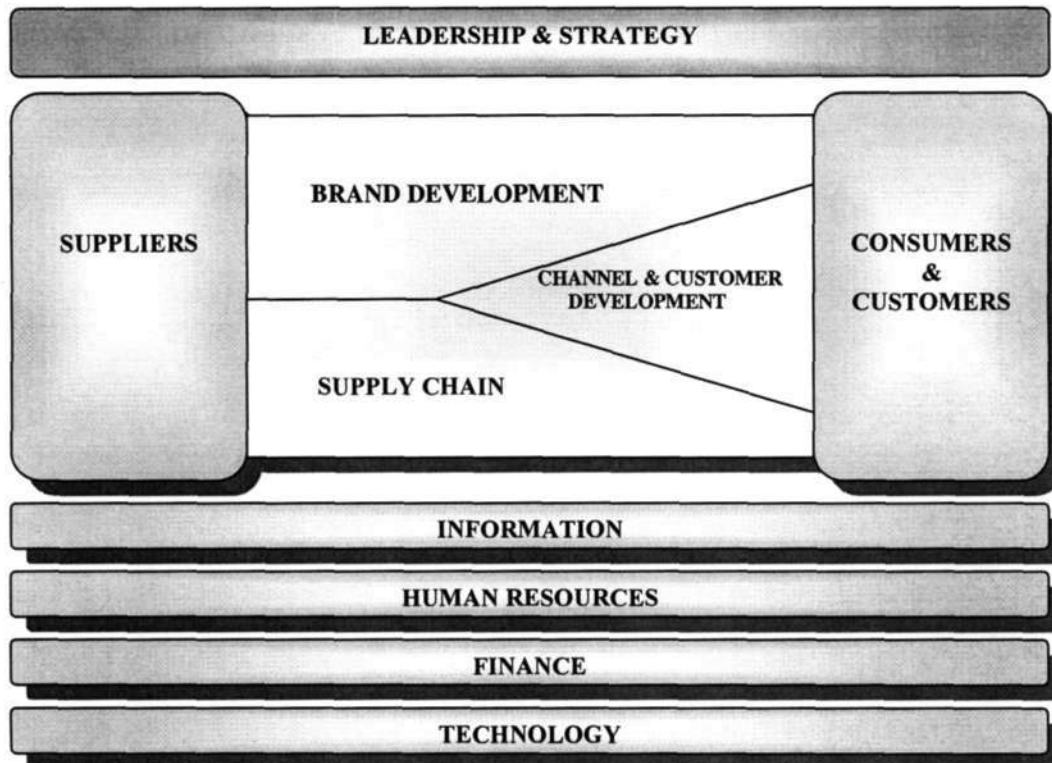
The U1 Model encompasses all the top-level activities that are required to run the business in order to deliver growth. The model provides the business with a common foundation for operational process mapping and redesign within the Global/Regional groups and Operating companies. (Eight top-level processes guide Unilever's organization to add value to its stakeholders:

- ❑ Leadership and Strategy,
- ❑ Information,
- ❑ Human Resources,
- ❑ Finance,
- ❑ Technology,

- Channel and Customer Development,
- Brand Management, and
- Supply Management.

The business activities for Unilever are grouped into three core processes namely,

- Channel and Customer Development,
- Brand Management,
- Supply Chain.

These processes are designed to satisfy stakeholders: consumers, customers, suppliers, shareholders, third parties (government, works council, associations, the community), and employees. Supporting the 3 core business processes are the 4 enabling processes: Information, Human Resources, Finance and, Technology.

Each of the core three processes is briefly described below:

4.3.1 Channel and Customer Development

The process enables, together with Unilever's customers, optimum availability and visibility of Unilever's branded products and services at places where Unilever's target consumers wish to buy, whilst ensuring the most cost effective route to market.

As the Channel and Customer Development Process ensures delivery of customer value, this logically implies close contact with the Supply Chain process involved in bringing the products to the customer, and co-operation with the brand development process.

4.3.2 Brand Development

The brand development process covers all activities relating to development and bringing to market of branded products, services and solutions that meet real consumer needs and has strong linkages with both Channel and Customer Development and Supply Chain.

4.3.3 Supply Chain

Supply Chain management is at the very heart of Unilever - today the supply chain is an integrated Unilever business partner which creates sustainable competitive advantage in supplying products and services to consumers and customers (Unilever 6, 2004). The supply chain process covers all the processes, including information flows, from sourcing of materials and services from suppliers to delivery of finished products to meet customer and consumer demand (Unilever 6, 2004).

From the U1 Business Model the company has derived the Supply Chain Process Model, which incorporates the 4 main sub-processes: plan, source, make, and deliver. Each sub-process is defined as follows:

Plan - planning links all the sub-processes together. Planning consists of:

- *Demand planning* - the capture, interpretation and use of demand drivers to create and communicate a relevant operational forecast of future consumer/customer demand.

- *Supply planning* - the consolidation of demand plans to produce feasible inventory, production and materials plans within supply chain constraints covering all activities from long-term planning to short-term scheduling.

Source - sourcing is the front end of the supply chain and is concerned with both raw and packing materials and finished goods sourcing. It consists of:

- *Supplier management* - the creation and management of a supply infrastructure through the selection of suppliers and the establishment of a supply framework for materials, products and services.

- *In-bound logistics* - the call-off and receipt of materials from suppliers within the contract framework, together with the subsequent release of these materials for use in the make process.

Make - takes place in either Unilever's own factories or third party factories. Making has 2 sub-processes:

- *Processing* - the transformation of raw materials into product intermediates in a form suitable for further finishing and packaging.

- *Packing* - the transformation of intermediate products and packaging material into finished packed stock available for delivery to customers and consumers.

Deliver - the processes of supplying the finished goods and services to customers to meet planned or actual demand. Deliver consists of:

- *Customer service management* - is the satisfaction of customers' requirements of the supply chain including: order management from capture/creation through invoicing and collection, the implementation of differentiated customer service policy, and customer integration activities that improve service and reduce extended supply chain costs.

- *Distribution management* - is the movement and care of finished product from manufacturing, usually through intermediate warehousing, to customers and consumers (Unilever 8, 2004).

4.4 OUTBOUND LOGISTICS (DELIVER)

The Customer Logistics Department (Outbound Logistics) at UHPC is responsible for the customer service management and distribution management of the company. The HPC supply chain vision was to optimize service and cost within the warehouse and transport network by forming a strategic alliance with a single service provider. This alliance was formed with Exel (formerly Tibbett & Britten), a multinational company with the global expertise to partner another multinational such as Unilever.

The infrastructure requirements required to deliver a customer-centric, cost effective supply chain solution is the responsibility of Exel. This alliance, in line with best practices adopted by large companies throughout the world that would allow UHPC to focus on manufacturing and Exel to focus on their core business,

which is warehousing and distribution. The alliance was to deliver competitive advantage to Unilever in the non-perishable FMCG market through:

- A world-class transport and network solution.
- Leveraging information technology and knowledge management across the supply chain.
- Benchmarked rates at lowest cost to serve the customer.

This vision was in line with the Unilever Strategic Thrusts to: simplify everything the company does and to close the gap to world-class supply chain within 3 years (Unilever 7, 2004).

4.4.1 Warehousing

It has already being indicated that the warehousing and distribution processes of the business have been outsourced to Exel. UHPC structural organization is in line with category management principles that categorize according to Home Care (HC) and Personal Care (PC) products. Similarly, with the same split used for manufacturing plants, the warehouse strategy recognizes that products need to be stored as close to the point of manufacture as possible. Centralized warehouses are located as close to the point of manufacture as possible to reduce supply chain costs.

Exel warehouses are located in Gauteng, KwaZulu Natal, and the Western Cape. Powders, Laundry and Liquids stock-keeping units (SKUs) manufactured at the Boksburg factory are stored at warehouse adjacent to the factory and at Exel's largest state-of-the-art depot Gauteng Distribution Center (GDC). The factory warehouse only delivers bulk truckloads of products nationally while break-bulk and bulk products are delivered locally and nationally out of GDC. Personal products and Personal Wash stock keeping units (SKUs) are manufactured at the Maydon Wharf and Phoenix factories. These products are stored at the Congella depot. Congella delivers bulk nationally and break-bulk regionally. Transshipment of powders, laundry and liquids break-bulk orders for regional demand are also done at Congella.

Transshipment depots, which help with stock reduction, are located in the Free State and Port Elisabeth. Depots are also located in Cape Town and in Namibia.

The movement of product/stock between depots in line with regional demand patterns is the responsibility of Exel.

4.4.2 Distribution Channels

A large percentage of products are sold through intermediaries such as distributors, dealers, retail outlets and supermarkets. These intermediaries or channels form a vital link between UHPC and the consumer. AC Nielsen, one of the world's leading providers of marketing information and consumer insight defines channels as a group of point-of-purchases (POP's) that share similar characteristics in their attempt to supply products to shoppers (CMP 1, 2004). Characteristics, which define channels, include:

- Range of categories, products and brands;
- Physical characteristics;
- Roles of specific categories;
- Profile of shopper;
- Operational sophistication and control; and
- Organizational ownership and structure.

Nielsen channel hierarchy is illustrated in Figure 4.

Figure 4: Nielsen Channel Hierarchies

Direct Home	Majors	Non-majors	Wholesale
Internet Shopping	Hypermarkets	Branded Superettes	Wholesale DC
Tele-shopping	Supermarkets	Forecourts	Wholesale Cash & Carry
Direct mail		Urban Counter Service	Hyper Cash & Carry
Home Parties		Urban Self Service	
		Rural Counter & Self Service	
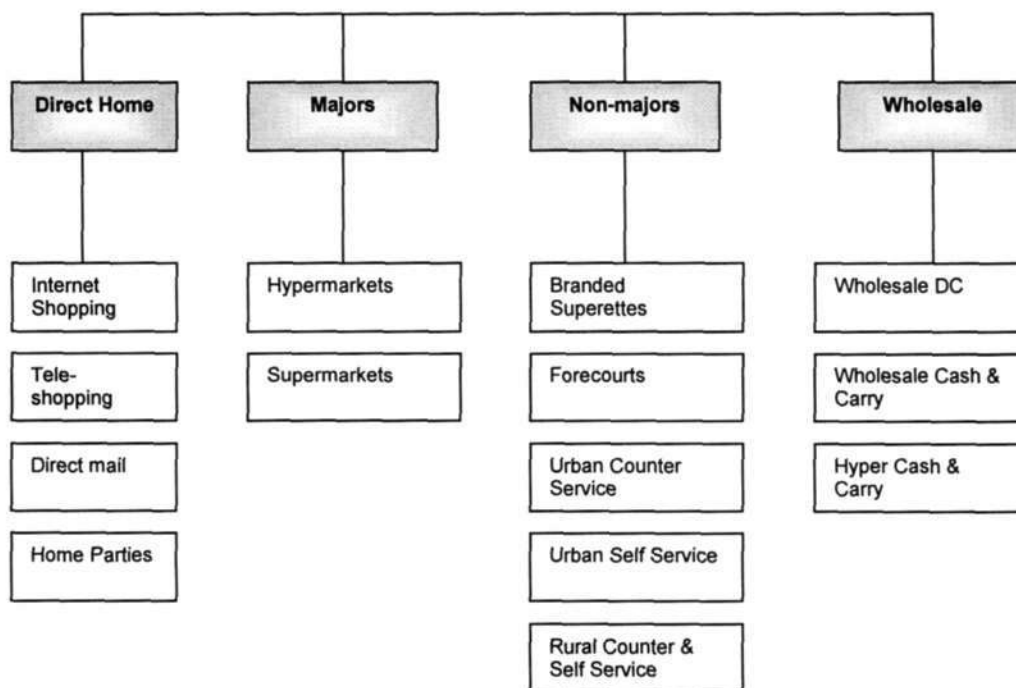
AC Nielsen Universe (CMP 1, 2004)

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The segmentation from a sales trade channel perspective is retail and wholesale. Amongst the retailers, UHPC delivers to those with centralized DCs in the major regions of SA, namely Spar, Shoprite and Clicks. These retailers are then responsible for redistributing product to their stores. In addition, UHPC delivers directly to stores for retailers without DCs (e.g. Pick n Pay and some Shoprite stores). Similarly, with the wholesale channel UHPC delivers either direct-to-store (e.g., MassMart) and direct to customer DCs (e.g., Metro).

4.4.3   Characteristics of the Important Channels

Nielsen characterizes the major retail and wholesale channels as follows (CMP 2, 2004):

Major Retail: Hypermarkets are large stand-alone buildings (8 - 20 000 square meters (m^2)) with weekly sales exceeding 2 million Rand offering a wide range of products (up to 45 000 SKUs). Supermarkets have an average turnover in excess of 8 hundred thousand Rand; are highly urbanized and generally located in shopping malls/centers. Stores range in size (1500 - 6000 m^2) and they offer one-stop shopping with approximately 25 000 SKUs.

Majors have the following characteristics:

- Pressure to reduce overheads: insufficient merchandising resource and in some cases poor level of store personnel.
- Low operating margins: build profitability brands/products and reduce day's supply, improve stock turns.
- Month-end purchase very high, resulting in out-of-stocks (OOS's): deep price cuts over month-end.
- Competitive pricing: establishment of known value item (KVI) lines and build private label range.
- Technology introduced to improve efficiency: automated store ordering and scanning, which introduced information availability.

Wholesale: Wholesale Cash & Carry's (average size of 3800 m^2) have a strong presence in rural areas with weekly sales in excess of 2 million Rand and trading 7 days a week. These include banner groups like Metro. Wholesale Hyper Specialists in contrast are more urban based with large stores (10 000 m^2) like Makro offering both traders and consumers a wide product range of over 40 000 SKUs. These stores have an average turnover in excess of 340 million Rand.

Wholesale stores have the following characteristics:

- Storeowner managed (independents): own ordering, ranging, promotions.
- Limited manufacturer contact with traders.

4.4.4 Major Customer Groups

UHPC Top 10 customers/buyers contribute more than 90 percent of its revenue. The top 10 buyers over the past 3 years are listed in Table 4, below.

Table 4: UHPC Top 10 Buyers

Ranking	2002	2003	2004
1	Shoprite Group	Shoprite Group	Shoprite group
2	MassMart	Metro Group	Pick N Pay Group
3	Metro Group	Pick N Pay Group	MassMart
4	Pick N Pay Group	MassMart	Metcash
5	Independent Buying Consortium (I.B.C.) Group	I.B.C. Group	I.B.C. Group
6	Spar Group	Spar Group	Spar Group
7	NU Clicks	NU Clicks	NU Clicks
8	Major Independents	ICC Group	ICC Group
9	Agents	Major Independents	Major Independents
10	Pharmacies/Chemists	Agents	Pharmacies/Chemists

(SAP BW: UHPC Top Buyers Reports, 2005)

South African FMCG retailers have gone through a period of significant consolidation with five major retailers, namely Shoprite/Checkers; Pick N Pay, Spar, NU Clicks and MassMart now dominating the market and accounting for more than 90 percent of UHPC sales (SAP BW, 2005). These retailers have consolidated their position both through acquisition and store expansion.

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Growth opportunities in the South African market are diminishing due to reduced opportunities for new store openings and a market that is not showing strong growth. Retailers are now looking to drive growth through expansion into African, Oceanic, and Asian markets and into channels that have not traditionally operated in. For example, Pick 'n Pay into Cash & Carry, Pharmacy and Home Shopping, Woolworth's a department store selling branded products. This blurring of retailer boundaries across trade channels that (should) have differing needs and investment requirements will challenge UHPC traditional "one-size-fits-all" approach to the market.

4.4.5 Strategic Engagement with Key Customers

In SA, there are many examples of major suppliers driving their own internal strategic agenda into customers with varying degrees of success. However, there is very little evidence of any significant partnering and joint agenda development (CMP 3, 2004). Numerous broadening commercial issues have arisen within Unilever that require active customer engagement to optimize their effectiveness (CMP 3, 2004).

Following on from Unilever's Path to Growth Strategy is 'Win with Customers' - one of the six new strategic thrusts that will make up 'Growth through Vitality', which will guide Unilever to 2010. Unilever's traditional strength is developing great brands that consumers want to buy - for decades Unilever sold to consumers, rather than the retail customer.

"When we sold through traditional channels and fragmented markets, the retailer was seen as a distributor, nothing more", says Tom van der Laan, Senior Vice President, International Customer Development (Unilever Magazine, 2004, p.31). "Now we have to be the first choice for our customers to be the first choice for our consumers."

"The best retailers retailers' have become brands in the own rights. Their customers are prepared to trust them for goods and services way beyond the traditional grocery offering" says van der Laan. UHPC is currently engaging with key customers such

as Shoprite, Pick 'n Pay and Spar in order to optimize performance and through cooperation in both replenishment and demand generating activities to get its brands to the consumers.

The Customer Logistics Department at UHPC has dedicated customer service consultants (CSCs) based at its head office who work together with major customers such as the Shoprite, Pick 'n Pay, Clicks, Spar, MassMart and Metro.

The role of the CSCs include:
- Building and strengthening relationships with key customers.
- Initiating projects in line with ECR principles with key customers and the Customer division of UHPC Ponds.
- Ensuring that supply chain initiatives with customers are properly implemented.
- Initiating and implementing projects to align service level objectives between UHPC and the customer.
- Continually monitoring and reviewing processes to enhance performance.
- Assisting in the development of customer service strategies for each key customer.
- Measuring customer service such as delivery-on-time, etc, which will be discussed in the next section.

4.4.6 Measuring Customer Service

The measuring of customer service is formalized in a Service Level Agreement (SLA) between UHPC, the customer and the third party service provider Exel. The attributes of customer service measured are as follows:
- Delivery-on-time (DOT), i.e. truck arrival at the customer within 30 minutes of its scheduled appointment time.
- Turn-around-time (TAT), i.e. the customer turning the truck around within the agreed time, from arrival at the receiving door to departure with the proof of delivery (POD).
- Credit notes - working together with the customer to minimize the number of credit notes generated to the number of invoices issued.

- Order lead times - ensuring that agreed order lead times are adhered too.
- Casefill measure - adhering to the agreed measure of the percentage delivered versus the percentage ordered.

These service levels are signed-off with key customers and monitored and reviewed during the agreed service agreement period.

The Logistics Customer Service Department was formed after an independent customer survey was conducted back in 2001. The objectives of the survey and the relevant findings will be discussed in the next section.

4.5   PAST CUSTOMER SURVEY

In 2001, the Customer Division at UHPC contracted an independent firm, Research Surveys (Pty) Ltd to conduct a research survey across a wide customer base to aid in the development of a Customer Division Strategy (Unilever Research Document, 2001). The objectives of the survey were twofold:

1. To establish service expectations and determine their level of importance amongst customers of UHPC.
2. To assess the delivery of UHPC in terms of customers' expectations in isolation and in comparison to main competitors.

The survey was conducted with three customer types, namely, Head Office Customers, Wholesale Customers, and Store Level/Retail Customers. Interviews upon appointment were conducted on a face-to-face basis at the respondent's place of work. Respondents were recruited from a list provided by the UHPC with lists having been ordered according to customer-type and geographic location. Three different questionnaires were designed for each customer type each with its own attributes of customer service based on:

- Account Management - this included suppliers understanding strategy and having the authority to make decisions.
- Category Management – this included promotions, innovations, product and other attributes.

- Efficient Consumer Response (ECR) – an initiative, that involves industries working together for total consumer satisfaction through collaboration between suppliers and customers (www. mgt.uea.ac.uk).

The sample base for Head Office level and the Wholesale Channel were small (n = 27 & n = 28 respectively). Two ratings were used to analyze data:

1. **Importance** (10 point scale) - from extremely important too not so important.

2. **Delivery** (10 point scale) - from extremely important too not so important.

A mean score was obtained for each attribute and the mean of the Delivery score was subtracted from the mean of the Importance score to determine whether UHPC was performing on that particular attribute. Any negative score would imply that UHPC was under-performing on that particular attribute, for example, Delivery (7,9) - Importance (8,1) = -0,2.

Without going into the detail on all three-customer groups, several supply chain attributes were highlighted, as of being important: namely:

- Providing quality products and packaging;
- Handling complaints and problems efficiently;
- Working together to reduce supply chain costs;
- Delivery on time;
- Stock availability;
- Communication between the customer and supplier on OOS problems;
- Delivering on promises and
- Relationship building.

These were also attributes highlighted as areas of improvement for UHPC (then known as Lever Ponds). Although these areas of improvement where highlighted for UHPC, overall the company performed substantially better than competitors as illustrated in Figure 5 overleaf.

Figure 5: Overall Satisfactions amongst Head Office Customers

Bar chart showing overall satisfaction scores:

Customer	Score
Robertsons (n=16*)	8.8
Lever Pond's (n=22*)	8.5
National Brands (n=15*)	8.5
Unifoods (n=19*)	8
Reckitt Benkiser (n=19*)	7.8
Nestle (n=15*)	7.7
South African Margarine (n=13*)	7.7
Sara Lee (n=22*)	7.5
Coca-Cola (n=12*)	7.3
Colgate n=22*)	7.3
Revlon (n=20*)	7.3
Procter & Gamble (n=21*)	6.9
L'Oreal (n=16*)	6.7

Scale: 0 (Not at all satisfied) to 10 (Very satisfied)
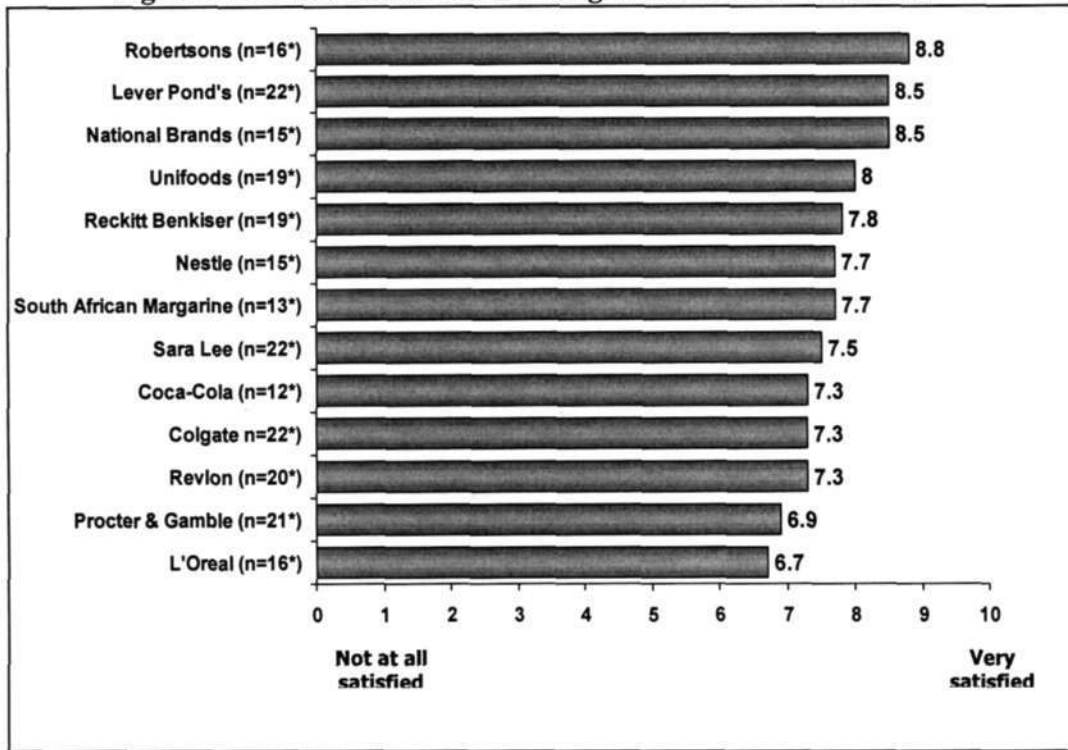
4.6 CONCLUSION

This survey was conducted to get a general understanding of customer service across the UHPC Customer Division. A direct result of the survey was the formation of the Customer Service Department to address Supply Chain issues. No further customer surveys were conducted since then. Hence the need to evaluate the attributes of customer service important to UHPC customers with particular emphasis on Logistics Customer Service.

The next chapter describes the research methodology employed by the research to evaluate the logistics customer service of UHPC against competitors in the South African FMCG industry.

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CHAPTER FIVE - Research Methodology

5.1 CHAPTER OVERVIEW

This chapter concerns itself with the development of the methodology used to answer research questions asked in Chapter 1. This chapter will briefly restate the aim of the research; outline the development of the research questionnaire, sample and data collection, data analysis and, the reliability and validity of the questionnaire.

5.2 THE RESEARCH QUESTIONS

1. What attributes of logistics customer service (LCS) do retail DC customers consider important?

2. Are there similarities in the way that various retail customers rank attributes of LCS?

3. How do these different customers perceive UHPC LCS?

4. How do these different channel customers rate UHPC LCS against competitors?

5. What can be done to improve UHPC LCS?

5.3 OBJECTIVES OF THE RESEARCH

The objectives of this research follow on from the research questions:

1. To understand what Retail customers perceive as attributes of good LCS.

2. To determine if there is any correlation between the various customer groups in ranking attributes.

3. To determine how well UHPC is meeting customer expectations.

4. To determine how UHPC LCS compares to that of other competitors.

5. To identify areas of improvement for UHPC LCS.

5.4 METHODOLOGY

A customer service evaluation of UHPC's most important distribution center (DC) customers was undertaken, namely that of Shoprite, Spar and Clicks DC's. A self-administered questionnaire (survey instrument) was either hand delivered or e-mailed to management and staff at DC's of these major customers in the following regions of SA: Cape Province, Gauteng and KwaZulu-Natal.

The respondents were given a maximum period of 4 weeks in which to return electronically completed questionnaires or faxed hardcopies. Reminders, either telephonically or via e-mail was sent out to each respondent.

The Supply Chain Director and Customer Division Director at Unilever HPC South Africa had approved of the study undertaken by the researcher.

5.5 THE QUESTIONNAIRE

The survey instrument, a self-administered questionnaire (Appendix 1) was designed by the researcher to accommodate all the research objectives and also took into account cost and time benefits. A covering letter (Appendix 1) was also attached to the each questionnaire to explain the background and purpose of the research.

The questionnaire consisted of structured questions of the following type:

- Multichotomous and dichotomous questions for rapid responses with fixed alternative questions (Churchill, 1995, p. 413);
- Close-ended questions to remove interviewer and coder bias (McDaniel *et al*, 1998, p. 273);
- Open-ended questions to enable respondents to freely express themselves (McDaniel *et al*, 1998, p. 270);
- Scaled response questions to permit a measurement of intensity of respondent answers. These included:
  - o Nominal scale implying that data would fit into one and only one category and all data would fit somewhere in the scale (McDaniel *et al*, 1998, p. 228), and,

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o Likert scale in which the respondent specified a level of agreement or disagreement with statements that expressed a favorable or unfavorable attitude toward the concept under study (McDaniel *et al*, 1998, p. 247). A seven-point scale ranging from 1 to 7 as per recommendation of research undertaken by Mentzer *et* al (1999, p.3) was used for measuring the Level of Importance of an attribute to a customer. The scale ranged from (1) "Not Important" to (7) "Very Important," with no verbal labels for scale points 2 through 6. A similar seven-point scale was used to measure the Perceived Performance of Suppliers from (1) "Poor" to (7) "Excellent," with no verbal labels for scale points 2 through 6.

The questionnaire was stated in as simple and clear a form as possible to avoid introducing respondent bias and avoidance of questions that respondents may be unwilling to answer. The questionnaire was pre-tested on a small test sample to ensure that it gave the respondents clear, understandable questions that would evoke clear understandable answers.

The questionnaire comprised of the following 3 tasks:

Task 1: Providing information about UHPC and 2 other major suppliers of similar Homecare and Personal Care products.

Task 2: Evaluating attributes of logistics customer service that the customer perceives as important.

Task 3: Evaluating the current level of logistics customer service received from UHPC against the other 2 other major suppliers of similar products.

An important consideration in the external audit is determining the competitive performance ratings for major suppliers (Stock and Lambert, 2001, p. 113). Hence the decision to source feedback from respondents on the following questions which seemed relevant in this context:

Provide your Company Name, Region in which you work, your Name and your Designation

Respondents were asked to provide the name of the company they worked for, the geographic region of the country in which they were located, their name and also their designation/job title.

Please provide the names of 2 other *major* suppliers of *similar* products below:
Respondents were asked to name two other major Suppliers of similar Home and Personal Care products and to use these suppliers to answer all questions that followed.

What is the total number of Stock Keeping Units (SKU's)/lines ordered from each supplier?
This question was asked so that the researcher could gauge the complexity of inbound deliveries to the DC.

What is the frequency of deliveries received from each supplier?
This question was asked to help the researcher understand whether the supplier's SKU's/lines were fast moving items or not. The more frequent the deliveries the faster moving the product categories.

How often do these suppliers call on you for service level meetings?
As this was a customer service based survey an understanding of Supplier/Customer service levels and monitoring thereof was essential information to gather.

Do these suppliers outsource their warehousing and distribution to third party service providers?
As mentioned in Chapter 2, many FMCG companies outsource the warehousing and distribution function to third part logistics providers, which would definitely impact on the level of service delivery received.

The attributes of customer serviced used for Part's Two and Three of the questionnaire were derived from the literature review conducted in Chapter's Two, Three and Four of the dissertation. Attributes were selected based on their relevance, that is, in the context of the FMCG industry and objectives of the

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research (Sterling & Lambert, 1987, p.1). A brief explanation of each of the 32 attributes is given below.

1. **Ordering procedures** - efficiency and effectiveness of the procedures followed by the supplier in making order placement procedures to be both effective and easy to use (Mentzer *et al*, 1999, p.7).

2. **Timeliness** - stock arriving as promised, i.e. correct Delivery Day & Time (Mentzer *et al*, 1999, p.7).

3. **Order fulfillment** - this implies the customer getting what he/she wants the first time (Christopher cited in Gattorna, 1990, p.66).

4. **Order accuracy** - right items & correct number of items, which is how closely, shipments match customer orders upon arrival (Mentzer *et al*, 1999, p.7).

5. **Order quality** - how well products work including: how they conform to product specifications and customer needs; and the condition of products delivered, that is free from damage in transit (Mentzer *et al*, 1999, p.7).

6. **Order discrepancy handling** - after delivery. This refers to how well the supplier addresses orders that is inaccurate, in poor condition, or of poor quality that was delivered to the customer (Mentzer *et al*, 1999, p.7).

7. **Quality/durability of packaging** - conformation to product specifications and customer needs (Mentzer *et al*, 1999, p.7).

8. **Product availability** - having inventory to consistently meet customer material or product requirements (Bowersox & Closs, 1996, p.9).

9. **Quality of service** received from Supplier refers to the 5 dimensions of SERVQUAL defined by Parasuraman and co-workers (1988, p.23).

10. **Reputation** of Supplier refers to what customers think the supplier does in the area of customer service (Tucker cited in Emerson and Grimm, 1998, p.17).

11. **Relationship** with Supplier – investment of time and resource (Simchi-Levy, 2000, p.200).

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12. **Personnel contact** – knowledge, ability & helpfulness of supplier in solving problems related to customer orders (Mentzer *et al*, 1999, p.7).

13. **Communication** of Supplier on order/delivery status - that is, whether the load will arrive on time or whether there will be delays (Kearney, 1978, p.191).

14. **Collaboration** - sharing real time data on inventory status, pending orders, order status, turnaround times and delivery times (Simchi-Levy *et al*, 2000, p.200).

15. **Supplier innovation in improving efficiency of delivery** - this is related to the palletization and unitization of loads (Stock & Lambert, 2001, p.111).

16. **Service Level Agreement** and regular monitoring thereof (Simchi-Levy *et al*, 2000, p.43).

17. **Ability to handle defective product returns** *(Stock & Lambert, 2001, p.111)*

18. **Ability to Expedite Emergency Orders** that is, unexpected orders placed outside of the normal lead times (Bowersox & Closs, 1996, p.9, Stock & Lambert, 2001, p.111).

19. **Length of promised lead times** on orders refers to the length of promised lead time between order placement and order receipt (Mentzer *et al*, 1999, p.7).

20. **Ability to measure supplier performance** based on agreed measurable criteria (Bowersox & Closs, 1996, p.9).

21. **Availability of Inventory status** offers the customer the opportunity to view stock available for order ((Stock & Lambert, 2001, p.111).

22. **Cooperation of Supplier**

23. **Information** quality about products that customers may use, for example, product barcodes, dimensions etc (Mentzer *et al*, 1999, p.7).

24. **Handling of claims** refers to how well the supplier handles claims lodged against stock shortages and damages (Stock & Lambert, 2001, p.111).

25. **Handling of complaints** - this refers to how well the supplier deals with complaints (Stock & Lambert, 2001, p.111).

26. **High fill rate on normal re-orders** - refers to the casefill, which is the agreed measure of the percentage delivered versus percentage ordered on normal re-orders.

27. **High fill rate on emergency orders** - refers to the casefill, which is the agreed measure of the percentage delivered versus percentage ordered on emergency orders.

28. **High fill rate on promotional orders** - refers to the casefill, which is the agreed measure of the percentage delivered versus percentage ordered on promotional orders.

29. **Alerts on transportation delays** -

30. **Level of Customer Service** refers to attributes of customer service seen as important to the customer (Bowersox & Closs, 1996, p.10).

31. **Palletized and unitized loads** for handling efficiency in conformance with supplier specifications (Stock & Lambert, 2001, p.111).

32. **Working together to reduce supply chain costs** refers to collaborative work between supplier and customer to make the supply chain more efficient and cost effective (Unilever Research Document, 2001).

Respondents were requested to cross (X) the relevant answer or to apply a ranking where applicable. This helped to remove interviewer and coder bias (McDaniel *et al*, 1998, p. 174) and also simplified the coding and data-entry process.

An open-ended question was included to determine whether respondents considered any other attributes of customer service to be important.

The list of questions was put to all the customer survey respondents and statistical relationships, based on quantitative measures on these parameters, were correlated. Focal data was used to gauge customers' expectations of customer service attributes and their perceptions of what UHPC currently delivers against competitors.

5.6 SAMPLE AND DATA COLLECTION

Population:

The sample comprised of DC staff responsible for the ordering/replenishment, receiving, and the warehousing and distribution of UHPC products through Shoprite, Spar and Clicks DC's. These DC's are located in the major economic hubs in SA, namely Cape Town, Durban and Gauteng.

Sample Size:

The sample size needed to be sufficient to enable appropriate conclusions to be drawn. Although the sample size/number of respondents appeared to be low (n=24), they were representative of UHPC's DC customers.

Sampling Method:

A self-administered questionnaire (survey instrument) was either hand-delivered or e-mailed to DC Customer personnel associated with the Outbound Logistics Department of UHPC. The respondents were given a maximum period of 4 weeks in which to return electronically completed questionnaires or faxed hardcopies. Reminders, either telephonically or via e-mail was sent out to each respondent. Most respondents were very cooperative but due to the nature of their work took longer than expected in returning completed questionnaires. Eventually, 24 out of the 30 questionnaires were received. Three out of the six who failed to submit completed questionnaires refused to participate because they were moved to different DC's. The other three failed to answer by the cut-off date.

Data in the questionnaires were validated for adherence to the instructions and completeness to ensure that all questionnaires were properly completed. They were also edited to exclude mistakes and to note respondents who answered the open-ended question. The editing process also included determining if respondents failed to answer any questions or to complete anything, to ensure that skip patterns were followed and to check responses to the open-ended question (McDaniel *et al*, 1998, p.352). The data was numerically coded. Coding refers to the process of assigning numeric codes to the various responses to a particular question (Cooper *et al*, 2001, p. 423; McDaniel *et al*, 1998, p.356).

5.7 DATA ANALYSIS

Coded responses were entered into Microsoft Excel and Statistical Package for the Social Sciences (SPSS) version 11, for data analysis. A marginal report was run in SPSS to check for errors, i.e. a computer-generated table of frequencies of the responses to each question to monitor valid entry of codes and correct use of skip patterns (McDaniel *et al*, 1998, p.361).

Subsequently, a descriptive analysis was conducted. A data output was generated using SPPS (See Appendix 2). One-way frequency tables were generated in SPSS to determine the total number of responses to each question and the total number of respondents (24) was used as a base for the calculation of percentages. The responses were cross-tabulated against corresponding variables, i.e. responses to one question were examined relative to responses to one or more questions.

Standard central tendency statistics, namely Mean, Median and Mode were conducted:

Mean: the arithmetic average of all responses.

Median: the midpoint of the distribution curve.

Mode: the most frequently occurring value in a set of responses.

(Cooper *et al*, 2003, p.474)

Significance tests were also undertaken for certain cross-tabulations using non-parametric tests in SPSS owing to the non-metric (nominal and ordinal nature) of the data according to Cooper *et al* (2001, p. 495). See Appendix 3 for the data analyses.

Two hypotheses were used in classic tests of significance, namely:

- The null hypothesis (H_0) and,
- An alternative hypothesis (H_1).

According to Cooper *et al* (2003, p.523) the null hypothesis is a statement that no difference exists between a parameter and the statistics being compared to it. These two types were used to state the hypotheses for the research conducted.

Research hypotheses were developed from the main research objectives and are stated below:

a) To determine whether there are differences in which the different designations rank the attributes of logistics customer service?

H_0: There is no difference in the mean rankings between the different designations.

H_1: There is a difference in the mean rankings between the different designations.

b) To determine whether there are differences in which the different customer groups' designations rank the attributes of logistics customer service.

H_0: there are no significant differences in the average ratings of attributes across the 3 customer groups.

H_1: there are significant differences in the average ratings of attributes across the 3 customer groups.

c) To determine whether there are differences in which the different regions rank the attributes of logistics customer service?

H_0: There is no difference in the mean ratings across the 3 regions, i.e. Cape Province, Gauteng and KZN.

H_1: There is a difference in the mean ratings across the 3 regions, i.e. Cape Province, Gauteng and KZN.

d) To determine whether the different customer groups have similar perceptions of UHPC's logistics customer service.

H_0: there are no significant differences in the average ratings/scores across the 3 customer groups with respect to the different attributes of logistics customer service.

H_1: there are significant differences in the average ratings/scores across the 3 customer groups with respect to the different attributes of logistics customer service.

e) To determine how well UHPC is meeting customer expectations compared to competitors (Suppliers A).

H_0: there is no difference (favouring UHPC) in the customer service ratings between UHPC and Suppliers A.

H_1: there is a difference (favouring UHPC) in the customer service ratings between UHPC and Suppliers A.

f) To determine how well UHPC is meeting customer expectations compared to competitors (Suppliers B).

H_0: there is no difference (favouring UHPC) in the customer service ratings between UHPC and Supplier B.

H_1: there is a difference (favouring UHPC) in the customer service ratings between UHPC and Supplier B.

g) To determine if whether anything needs to be done to improve UHPC's logistics customer service.

H_0: there are discrepancies between what the retail customers perceive as good customer attributes and actual rating of UHPC customer service

H_1: there are no discrepancies between what the retail customers perceive as good customer attributes and actual rating of UHPC customer service

5.8   RELIABILITY AND VALIDITY OF THE QUESTIONNAIRE

Reliability is concerned with consistency of measure, i.e. the assessment of the degree to which measures are free from random or unstable error therefore providing consistent data at different times under different conditions (Cooper *et al*, 2001, p.215; McDaniel *et al*, 1998, p.231).

Cronbach's - Alpha was used to test the internal consistency of the measurements. This procedure calculates the mean reliability coefficient estimates for all possible ways of splitting a set item in half (McDaniel *et al*, 1998, p. 233). A lack of correlation of an item with other items in the scale indicates that the item does not belong in the scale and should be omitted.

Cronbach's Alpha was also calculated as part of the reliability test to assess how valid the results were and should produce similar generalized results if the sample size were increased.

The *Cronbach's Alpha* was calculated for the Customer Attributes, UHPC Customer Service Rating, Suppliers A Customer Service Rating, Suppliers B Customer Service Rating and an Overall Analysis involving all 4 ratings. A mean rating of 0.9749 was obtained for all 4 ratings, which is excellent. The results are summarized below.

Table 5: Cronbach's Alpha Tests

DESCRIPTION OF CRONBACHS ALPHA TEST	RELIABILITY COEFFICIENTS			
	NO. OF CASES	NO. OF ITEMS	ALPHA	COMMENT
The Attributes of Customer Service	22	32	0.8924	Good
UHPC Customer Service Rating	18	32	0.9041	Very Good
Supplier A Customer Service Rating	18	32	0.9574	Very Good
Supplier B Customer Service Rating	18	32	0.9621	Very Good
Overall analysis using all 4 ratings	18	128	0.9749	Very Good

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A value of 0.7 or higher is a very good value that will confirm the same results if the survey was conducted with a larger sample of respondents. Thus, confirming the reliability of the analysis.

Validity is the extent to which differences found within the measuring tool reflect the true differences among the respondents tested (Cooper *et al*, 2001, p. 211). The questionnaire is accepted to have internal content validity since the questions were based on the literature survey (McDaniel *et al*, p. 234).

All of the data-gathering techniques chosen to conduct this study are deemed by the researcher to be valid in terms of the authenticity and appropriateness of content. They are reliable in terms of consistency of rendering the same results when applied in identical situations on different occasions.

5.9 LIMITATIONS OF THE RESEARCH

During the analysis of the data, the following limitations became evident:

- The timing of the survey during the peak year-end fourth quarter meant delays in receiving replies and resulted in some non-responses.
- Some non-respondents were new in their roles or relatively new in the business and would not participate in the survey.
- The seven-point Likert Scale used for measuring the Level of Importance of an attribute to a customer ranging from "Not important" (1) to "Very Important" (7) with no verbal labels for scale points 2 through 6. Similarly, the seven-point scale used to measure the Perceived Performance of Suppliers from "Poor" (1) to "Excellent" (7) with no verbal labels for scale points 2 through 6.

Research findings are presented in Chapter 6.

CHAPTER SIX - RESEARCH FINDINGS

6.1 CHAPTER OVERVIEW

In this chapter, results received from the questionnaire survey are stated. Analysis includes a look at the overall profile of the sample starting with demographic details on to attributes of logistics customer service that customers perceive important. A cross tabulation of results is presented in response to questions in the Appendices. Results derived from the questionnaire are presented in the form of descriptive statistics (mean, medium and, mode), one-sample t-test, the Wilcoxon Signs Rank Test and reliability tests (Cronbach's Alpha).

6.2 RESPONSE TO QUESTIONNAIRE

6.2.1 Questionnaires Received

A total of 24 of the 30 questionnaires sent out were returned, i.e. an overall response rate of 80%. The breakdown of responses by customer group is summarized in Table 6.

Table 6: Response by Customer Group

Customer	Administered	Received	Percentage Received
Shoprite	15	15	100 %
Clicks	9	7	78 %
Spar	6	2	33 %
Total	30	24	80 %

The overall response was better than anticipated considering that all the DC's were in the middle of peak holiday period at the time the questionnaires were distributed. All 15 (100%) of the Shoprite DC questionnaires were received complete while only 7 (78%) of Clicks and 2 (33%) of Spar questionnaires were returned.

The 6 non-responses resulted because:

1. Respondents were on leave.
2. Respondents were not based long enough at the DC to participate in the survey and make a meaningful contribution; or
3. Respondents had no time to participate in the survey.

All 24 of the returned questionnaires were used in the analysis. Ambiguous or missing data from the questionnaires were however inputted as a "No response" into the SPSS data analysis package. The specific counts of the number of valid responses are given with each statement of results.

6.2.2 Sample Profile

The research findings are represented with graphs and frequency tables collectively that represent the following:

6.2.2.1 Respondents by Customer Groups

The following pie chart depicts the response by customer groups, i.e. Shoprite, Clicks and Spar.

Figure 6: Percentages of Respondents by Customer Group
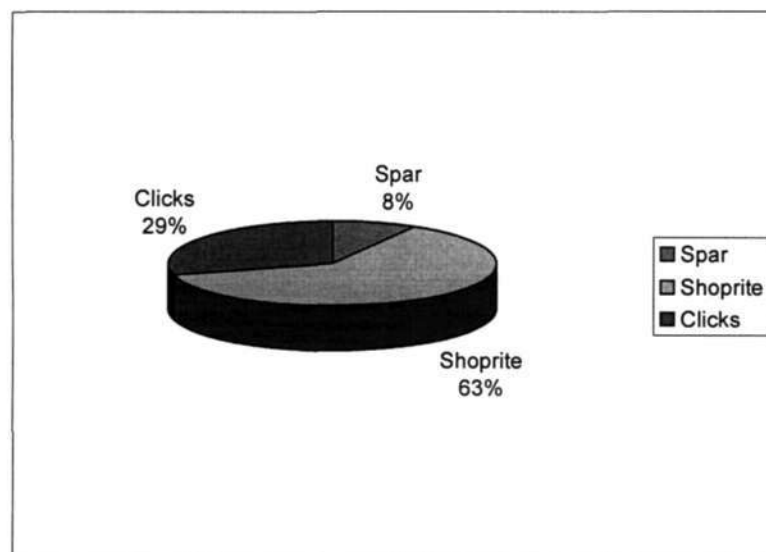
Table 7: Frequency of Respondents by Customer Groups

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Spar	2	8.3	8.3	8.3
	Shoprite	15	62.5	62.5	70.8
	Clicks	7	29.2	29.2	100.0
	Total	**24**	**100.0**	**100.0**	

The majority (62.5%) of the respondents were from the Shoprite Group followed by Clicks (29.2%) and then Spar (8.2%). The large number of participants in the Shoprite Group was attributed to the to large number of people actively participating in Shoprite DC monthly service level meetings. Service level meetings were regularly attended by anyone linked to Shoprite DC Inbound Logistics, including DC Managers, Inventory Managers, Replenishment Managers, Receiving Shift Supervisors, and their respective assistants. Similar inbound logistics structures exist in the Clicks DC's but not with the same level of participation as in Shoprite DC's.

The following is an analysis of the sample obtained from the questionnaire survey grouped by geographic region.

6.2.2.2 Respondents by Region

This illustrated the contribution of respondents by geographic region irrespective of their customer group.

Figure 7: Percentages of Respondents by Geographic Region
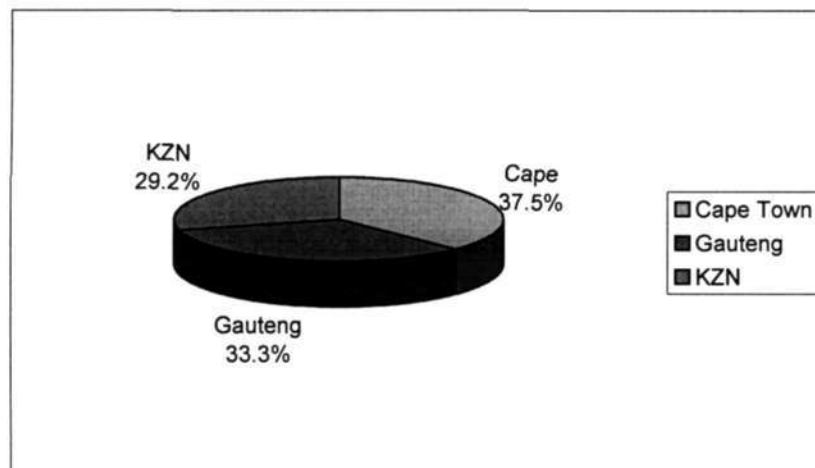
Table 8: Frequencies of Respondents by Region

		Frequency	Percent	Valid Percent	Cumulative Percent
	Cape Town	9	37.5	37.5	37.5
Valid	Gauteng	8	33.3	33.3	71.8
	KZN	7	29.2	29.2	100.0
	Total	24	100.0	100.0	

All 3 major regions were well represented in the survey with the highest representation from the Cape (38%), followed by Gauteng (33%) and then KZN (29%).

6.2.2.3 Respondents by Designation

All 24 respondents had jobs related to inbound logistics within their respective organizations. The breakdown of respondents by designation is illustrated in Figure 8.

Figure 8: Frequencies of Respondents by Designation

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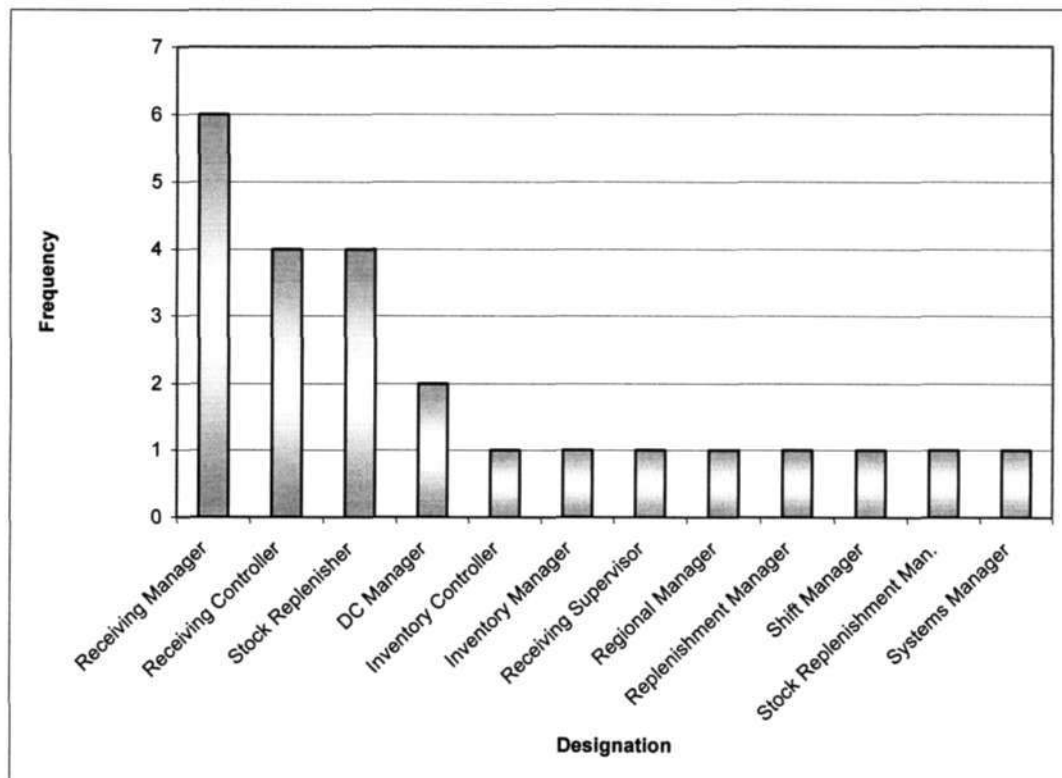
Table 9: Frequencies of Respondents by Designation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DC Manager	2	8.3	8.3	8.3
	Inventory Controller	1	4.2	4.2	12.5
	Inventory Manager	1	4.2	4.2	16.7
	Receiving Controller	4	16.7	16.7	33.3
	Receiving Manager	6	25.0	25.0	58.3
	Receiving Supervisor	1	4.2	4.2	62.5
	Regional Manager	1	4.2	4.2	66.7
	Replenishment Manager	1	4.2	4.2	70.8
	Shift Manager	1	4.2	4.2	75
	Stock Replenisher	4	16.7	16.7	91.7
	Stock Replenishment Manager	1	4.2	4.2	95.8
	Systems Manager	1	4.2	4.2	100
	Total	**24**	**100.0**	**100.0**	

From Table 9 it is evident that the 24 respondents comprised of DC staff representing 9 designations. The highest representation of designated respondents was that of Receiving Managers, 6 (25%), followed by Receiving Controllers, 4 (17%) then Stock Replenishers, 4 (17%). DC Managers represented 8% of the sample. There was also one of each of the following designations: inventory controller, inventory manager, receiving supervisor, regional manager, replenishment manager, shift manager and stock replenishment manager. Although the designations of replenishment manager and stock replenishment manager are probably one and the same for the purpose of further analysis they are deemed as different.

6.2.3 Please provide the names of 2 other *major* suppliers of similar products.

Respondents had to compare UHPC to competitors, i.e. FMCG suppliers of similar home and personal care products so that a fair comparison of logistic customer service of UHPC against competitors could be undertaken. The majority of the respondents did not mind naming competing suppliers however some suppliers were left anonymous. Results of Suppliers chosen are illustrated in Figures 9 and 10 and summarized in Table 10 overleaf.

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Figure 9: Frequencies of Suppliers A Selection
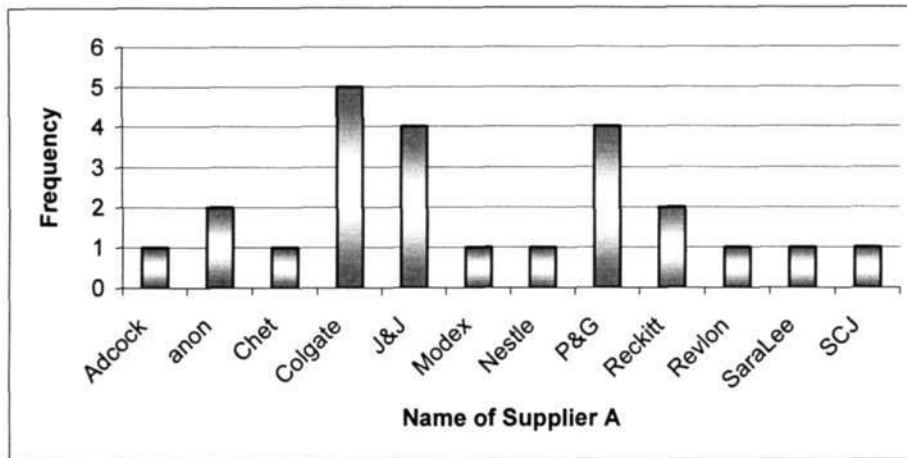
Figure 10: Frequencies of Suppliers B Selection
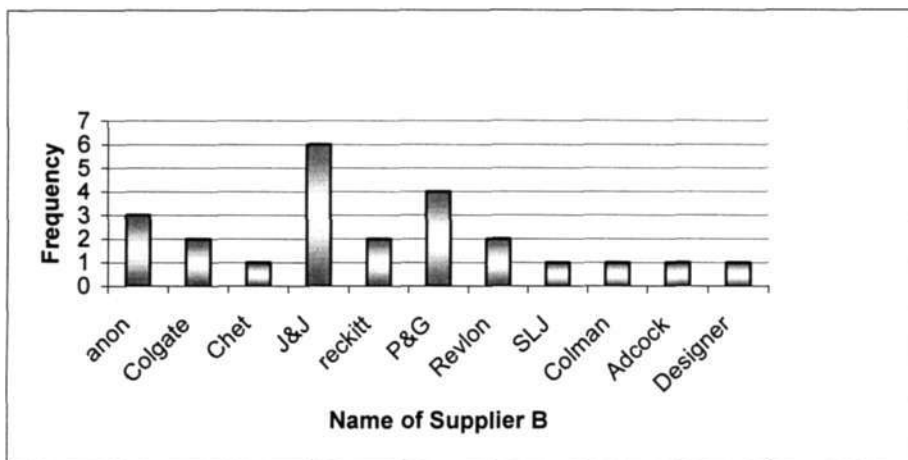
Table 10: Summary of Suppliers A & B by Name

Name of Competitor	Frequency of Selection	Percentage
Adcock	2	4
Anonymous	5	10
Chet Chemicals	2	4
Colgate Palmolive	7	15
Colman	1	2
Designer Group	1	2
Johnson & Johnson (J&J)	10	21
Modex	1	2
Nestle	1	2
Procter & Gamble (P&G)	8	17
Reckitt Benckhiser	4	8
Revlon	3	6
Sara Lee	1	2
SCJ	2	4
TOTAL	48	100

From Table 10 it is evident that UHPC's biggest home and personal care competitors, namely J&J (21%), P&G (17%) and Colgate Palmolive (15%) Reckitt Benckhiser (8%) and Revlon (6%) were well represented in the survey. 10 Percent of the suppliers were anonymous.

6.2.4 What is the total number of SKU's/lines ordered from each supplier?

This question makes reference to the different stock-keeping units (SKU's)/lines which customers order from the suppliers of choice.

Figure 11: Number of SKU's/lines Ordered from Each Supplier

	Less than 200	Between 200 and 400	Greater than 400	Total
▣ UHPC	1	19	4	24
▦ Suppliers A	8	16		24
▤ Suppliers B	10	13		23
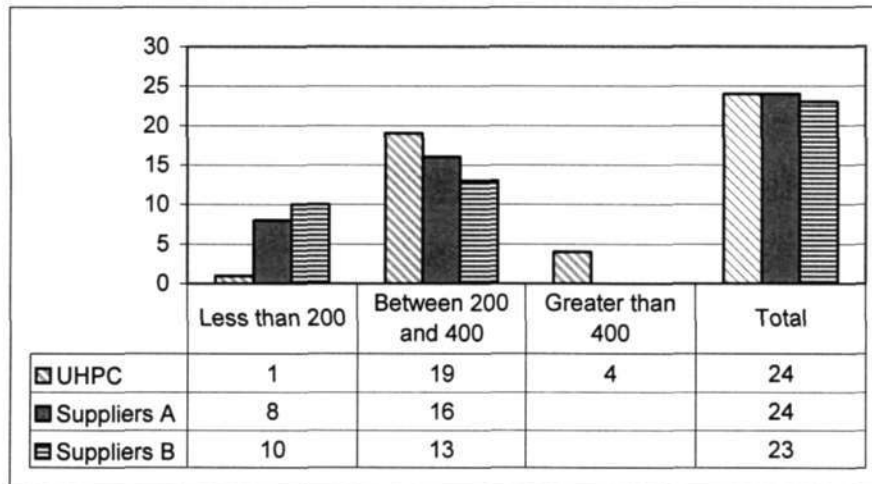
The majority of respondents had chosen suppliers that delivered between 200 and 400 different SKU's/lines to their DC's. UHPC was definitely one of the largest suppliers to all the DC's and the only supplier to deliver more than 400 SKU's/lines.

6.2.5 What is the frequency of deliveries received from each Supplier?

This relates to the number of deliveries that each supplier makes in a week to the DC.

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Figure 12: Frequency of Deliveries Received from Each Supplier

	UHPC	Suppliers A	Suppliers B
■ Daily	5	3	3
▦ More than Once a Week	19	21	20
▨ Total	24	24	23
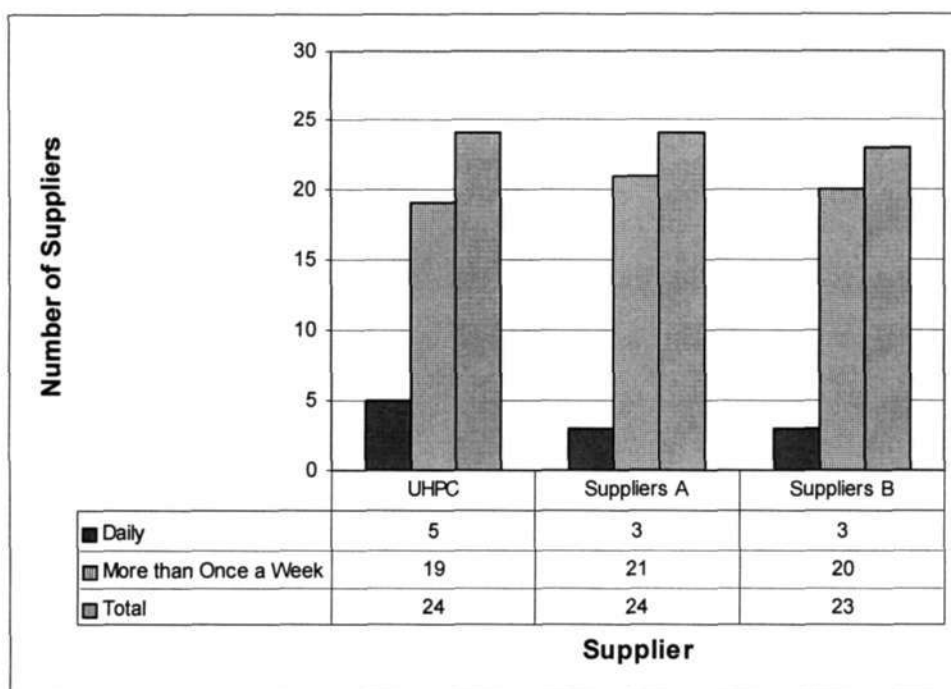
Supplier

Most suppliers delivered more that once a week to the DC's.

6.2.6 How often do these suppliers call on you for service level meetings?

This relates to the frequency of formal service level meetings held between the Supplier and DC.

Figure 13: Frequency of Service Level Meetings held by Suppliers

	UHPC	Suppliers A	Suppliers B
▥ Monthly	12	2	2
■ At least once in three months	12	11	13
☐ Never		11	8
▥ Total	24	24	23

Supplier

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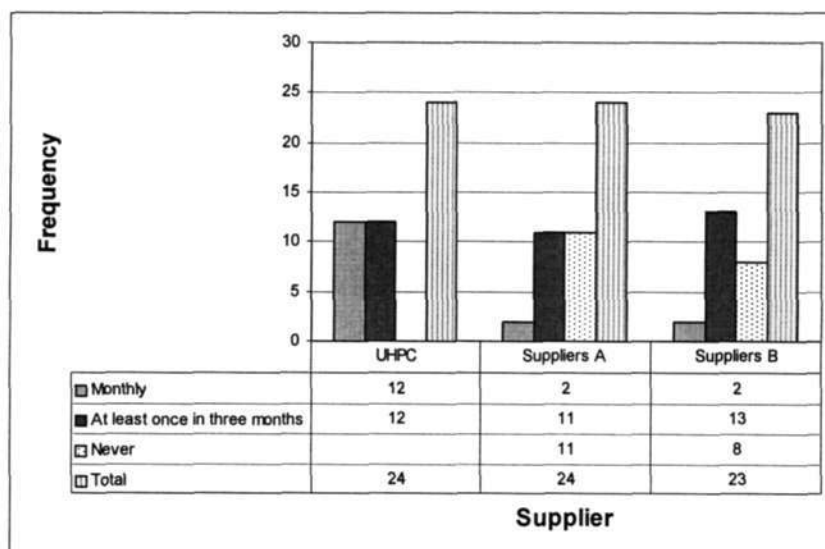
UHPC was the supplier with the highest frequency of monthly service level meetings (12). Most suppliers hold service level meetings at least once in 3 months.

6.2.7 Do these suppliers outsource there warehousing and distribution to third party service providers?

This relates to suppliers outsourcing their warehousing and distribution to third party logistics service providers.

Figure 14: Frequency of Outsourced Warehousing and Distribution Function

	UHPC	Supplier A	Supplier B
☐ Yes	24	23	20
■ No		1	3
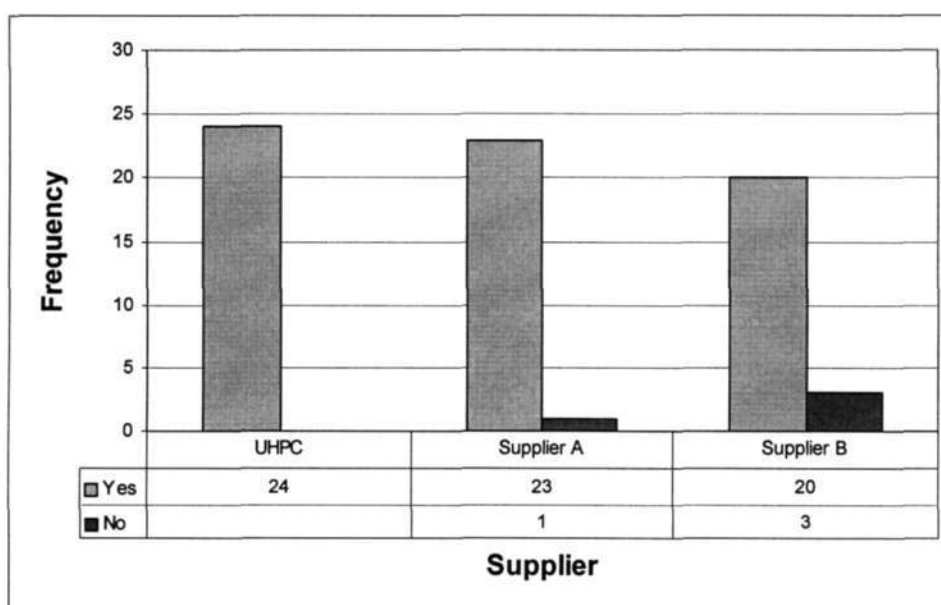
Supplier

The majority of Suppliers outsource their warehousing and distribution to third party logistics service providers.

6.2.8 What attributes of Logistics Customer Service do Retail Customers Perceive Important?

This question relates to the 32 attributes of customer service listed in the questionnaire - refer to Appendix 1b. To answer this question cross tabulations were used to ascertain the level of Importance (from 1 to 7) of attributes - refer to Appendix 1c. Ratings of **1 to 4** were considered to be *Less Important* and ratings from **5 to 7** were rated as *Important to Very Important*.

Ranking of Attributes

The objectives of this exercise was threefold:

1. To see if there were similarities in the way the 3 customer groups ranked various attributes of logistics customer service.

2. To see if there were similarities in the way the different designations ranked the various attributes of logistics customer service.

3. To see if there were similarities in which the different regions ranked the various attributes of logistics customer service.

6.2.8.1 Ranking Attributes by Customer Group

For the purpose of this exercise, mean ratings of attributes relating to Logistics Customer Service by Customer Group were used. Customer group ranked attributes in decreasing order of importance.

Table 11 ranks the attributes in decreasing order of importance to the Shoprite Group. The Top 10 attributes are shaded. Attributes with the same mean rating were ranked the equal.

Table 11: Shoprite Group Ranking of Importance of Attributes

Ranking	Attribute	Mean Rating
1	Product availability	6.80
2	Order fulfillment	6.73
2	High fill rate on promotional orders	6.73
4	Order accuracy	6.60
5	Timeliness of delivery	6.53
5	Order quality	6.53
7	Personnel contact	6.47
8	Relationship with supplier	6.40
9	Cooperation of supplier	6.33
9	Alerts on transportation delays	6.33
11	Service level agreement	6.27
11	Availability of inventory status	6.27
11	Working together to reduce supply chain costs	6.27
14	Ordering procedures	6.13
14	Quality of service	6.13
14	Communication of supplier	6.13
14	Supplier innovation	6.13
14	Ability to measure supplier performance	6.13
19	Length of promised lead times	6.07

19	High fill rate on emergency orders	6.07
21	Quality/durability of packaging	5.93
21	Level of customer service	5.93
21	Palletized and unitized loads	5.93
24	Order discrepancy handling	5.87
24	Ability to handle returns	5.87
26	Collaboration	5.73
26	Handling of complaints	5.73
26	High fill rate on normal reorders	5.73
29	Ability to expedite emergency orders	5.67
30	Information quality of products	5.53
31	Handling of claims	5.40
32	Reputation of supplier	5.21

Product availability was considered to be the most important attribute to the Shoprite respondents. The next 9 most important attributes were *order fulfillment, high fill rate on promotional orders, order accuracy, timeliness of delivery* and *order quality.* The 3 least important attributes to the Shoprite Group were *Information quality of products, Handling of claims and reputation of the supplier.*

Table 12 ranks the attributes in decreasing order of importance to the Clicks Group. The Top 10 attributes are shaded. Attributes with the same mean rating were ranked the equal.

Table 12: Clicks Group Ranking of Importance of Attributes

Ranking	Attribute	Mean rating
1	Timeliness of delivery	7.00
1	Order accuracy	7.00
1	Order quality	7.00
1	Order discrepancy handling	7.00
1	Personnel contact	7.00
1	Cooperation of supplier	7.00
1	Handling of claims	7.00
1	Level of customer service	7.00
9	Palletized and unitized loads	6.86
10	Quality of service	6.71
10	Service level agreement	6.71
10	Alerts on transportation delays	6.71
13	Reputation of supplier	6.57
13	Ability to handle returns	6.57
15	Order fulfillment	6.43
15	Product availability	6.43

15	Relationship with supplier	6.43
15	Collaboration	6.43
15	Supplier innovation	6.43
15	Handling of complaints	6.43
15	Working together to reduce supply chain costs	6.43
22	Quality/durability of packaging	6.29
22	Communication of supplier	6.29
22	Ability to measure supplier performance	6.29
25	Availability of inventory status	5.86
25	High fill rate on normal reorders	5.86
27	Ability to expedite emergency orders	5.71
27	Information quality of products	5.71
27	High fill rate on promotional orders	5.71
30	High fill rate on emergency orders	5.57
31	Length of promised lead times	5.43
32	Ordering procedures	4.57

The most important attributes ranked number 1 for the Clicks Group were: *Timeliness of delivery, order accuracy, order quality, order discrepancy-handling, personnel contact, cooperation of supplier, handling of claims* and the *level of customer service*. The 3 least important attributes to the Clicks Group were *high fill rate on emergency orders, length of promised lead times* and *ordering procedures*.

Table 13 ranks the attributes in decreasing order of importance to the Spar Group. Attributes with the same mean rating were ranked the equal.

Table 13: Spar Group Ranking of Importance of Attributes

Ranking	Attribute	Mean rating
1	Ordering procedures	7.00
1	Timeliness of delivery	7.00
1	Order fulfilment	7.00
1	Order accuracy	7.00
1	Order quality	7.00
1	Order discrepancy handling	7.00
1	Quality/durability of packaging	7.00
1	Product availability	7.00
1	Quality of service	7.00
1	Relationship with supplier	7.00
1	Personnel contact	7.00
1	Communication of supplier	7.00
1	Service level agreement	7.00

1	Ability to handle returns	7.00
1	Ability to expedite emergency orders	7.00
1	Length of promised lead times	7.00
1	Ability to measure supplier performance	7.00
1	Cooperation of supplier	7.00
1	Handling of claims	7.00
1	Handling of complaints	7.00
1	High fill rate on normal reorders	7.00
1	High fill rate on emergency orders	7.00
1	High fill rate on promotional orders	7.00
1	Alerts on transportation delays	7.00
1	Level of customer service	7.00
1	Palletized and unitized loads	7.00
1	Working together to reduce supply chain costs	7.00
28	Supplier innovation	6.50
28	Availability of inventory status	6.50
30	Collaboration	6.00
31	Reputation of supplier	5.00
31	Information quality of products	5.00

The Spar Group by contrast to the Shoprite and Clicks Groups ranked most attributes of logistics customer service as being very important, with mean scores of 7. *Reputation of supplier* and *information quality of products* ranked as least important to this group of respondents.

6.2.8.2 Combined Ranking of Attributes across the 3 Customer Groups using Descriptive Statistics

Using the mean, median and the mode of UHPC logistics customer service, the ranking of attributes with decreasing order of importance cross all 3-customer groups is summarized in Table 14 on the next page.

Table 14: Descriptive Statistics - Mean, Median and Mode Customer Service Rankings of the Importance of Attributes

Ranking	Attribute	N		Mean	Median	Mode
		Valid	Missing			
1	Order accuracy	24	0	6.75	7.00	7.00
2	Timeliness of delivery	24	0	6.71	7.00	7.00
2	Order quality	24	0	6.71	7.00	7.00
2	Product availability	24	0	6.71	7.00	7.00
5	Order fulfillment	24	0	6.67	7.00	7.00
5	Personnel contact	24	0	6.67	7.00	7.00
7	Cooperation of supplier	24	0	6.58	7.00	7.00
8	Alerts on transportation delays	24	0	6.50	7.00	7.00
9	Relationship with supplier	24	0	6.46	7.00	7.00
9	Service level agreement	24	0	6.46	7.00	7.00
11	High fill rate on promotional orders	24	0	6.46	7.00	7.00
12	Quality of service	24	0	6.38	6.50	7.00
12	Working together to reduce supply chain costs	24	0	6.38	7.00	7.00
14	Level of customer service	24	0	6.33	7.00	7.00
15	Order discrepancy handling	24	0	6.29	7.00	7.00
15	Palletized and unitized loads	24	0	6.29	7.00	7.00
17	Communication of supplier	24	0	6.25	6.00	7.00
17	Supplier innovation	24	0	6.25	6.00	6.00
17	Ability to measure supplier performance	24	0	6.25	7.00	7.00
20	Ability to handle returns	24	0	6.17	6.00	7.00
20	Availability of inventory status	24	0	6.17	7.00	7.00
22	Quality/durability of packaging	24	0	6.13	6.00	7.00
23	Handling of complaints	24	0	6.04	6.00	7.00
24	Handling of claims	24	0	6.00	7.00	7.00
24	High fill rate on emergency orders	24	0	6.00	7.00	7.00
26	Collaboration	24	0	5.96	6.00	7.00
26	Length of promised lead times	24	0	5.96	6.00	7.00
28	High fill rate on normal reorders	24	0	5.88	7.00	7.00
29	Ability to expedite emergency orders	24	0	5.79	6.00	7.00
30	Ordering procedures	23	1	5.70	6.00	6.00
31	Reputation of supplier	23	1	5.61	6.00	7.00
32	Information quality of products	24	0	5.54	6.00	7.00

From Table 14 it is evident that the top 10 attributes of logistics customer service based on mean ratings were in decreasing order of importance: (1) order accuracy, (2) timeliness of delivery, (2) order quality, (2) product availability, (5) order fulfillment, (5) personnel contact, (7) cooperation of supplier, (8) alerts on transportation delays, (9) relationship with supplier and (9) service level agreements.

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The 5 least important attributes of logistics customer service identified were: (28) high fill rate on normal reorders, (29) ability to expedite emergency orders, (30) ordering procedures, (31) reputation of supplier and lastly, (32) information quality on products.

6.2.8.3 Are there differences in which the different designation rank the attributes of logistics customer service?

This question was answered by using paired sample t-tests to test for significant differences in the average ratings/scores across of the different designations. This was possible because the average ratings/scores became parametric i.e. they follow a probability distribution (in this case the normal distribution) as per the Central Limit Theorem (Sheridan & Coakes, 2003).

Hypothesis 1:

H_0: There is no difference in the mean rankings between DC manager and the other eleven designations.

H_1: There is a difference in the mean rankings between DC manger and the other eleven designations.

Table 15: Paired Samples Test for Hypothesis 1

Decision At 5% level			t	Df	p-value
Reject H_0	Pair 1	DC Manager - Inventory Controller	-8.425	31	.000
Reject H_0	Pair 2	DC Manager - Inventory Manager	2.559	31	.016
Accept H_0	Pair 3	DC Manager - Receiving Controller	1.791	31	.083
Accept H_0	Pair 4	DC Manager - Receiving Manager	1.476	31	.150
Reject H_0	Pair 5	DC Manager - Receiving Supervisor	3.420	30	.002
Accept H_0	Pair 6	DC Manager - Regional Manager	.587	31	.561
Reject H_0	Pair 7	DC Manager - Replenishment Manager	3.702	31	.001
Accept H_0	Pair 8	DC Manager - Shift Manager	-.727	31	.473
Reject H_0	Pair 9	DC Manager - Stock Replenisher	2.288	31	.029
Reject H_0	Pair 10	DC Manager - Stock Replenishment Manager	4.273	31	.000
Accept H_0	Pair 11	DC Manager - Systems Manager	.796	31	.432

H_0 was accepted for the similarities in rankings between the DC Manager and the following designations: receiving controller, receiving manager, regional manager, shift manager and the systems manager.

H_0 was rejected for rankings between the DC Manager and the following designations: inventory controller, inventory manager, receiving supervisor, replenishment manager, stock replenisher and the stock replenishment manager.

Hypothesis 2:

H_0: There is no difference in the mean rankings between Inventory Controller and the other ten designations.

H_1: There is a difference in the mean rankings between Inventory Controller and the other ten designations.

Table 16: Paired Samples Test for Hypothesis 2

Decision At 5% level			T	df	p-value
Reject H_0	Pair 1	Inventory Controller - Inventory Manager	7.501	31	.000
Reject H_0	Pair 2	Inventory Controller - Receiving Controller	6.833	31	.000
Reject H_0	Pair 3	Inventory Controller - Receiving Manager	6.652	31	.000
Reject H_0	Pair 4	Inventory Controller - Receiving Supervisor	5.791	30	.000
Reject H_0	Pair 5	Inventory Controller - Regional Manager	5.358	31	.000
Reject H_0	Pair 6	Inventory Controller - Replenishment Manager	7.506	31	.000
Reject H_0	Pair 7	Inventory Controller - Shift Manager	2.347	31	.025
Reject H_0	Pair 8	Inventory Controller - Stock Replenisher	6.261	31	.000
Reject H_0	Pair 9	Inventory Controller - Stock Replenishment Manager	6.159	31	.000
Reject H_0	Pair 10	Inventory Controller - Systems Manager	7.188	31	.000

H_0 was rejected in all instances implying that there was in fact a difference in the rankings of the inventory controller and all other designations.

Hypothesis 3:

H_0: There is no difference in the mean rankings between Inventory Manager and the other nine designations.

H_1: There is a difference in the mean rankings between Inventory Manager and the other nine designations.

Table 17: Paired Samples Test for Hypothesis 3

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Decision At 5% level			T	df	p-value
Accept H_0	Pair 1	Inventory Manager - Receiving Controller	-.600	31	.553
Accept H_0	Pair 2	Inventory Manager - Receiving Manager	-1.323	31	.196
Accept H_0	Pair 3	Inventory Manager - Receiving Supervisor	1.912	30	.065
Accept H_0	Pair 4	Inventory Manager - Regional Manager	-1.679	31	.103
Accept H_0	Pair 5	Inventory Manager - Replenishment Manager	.924	31	.363
Reject H_0	Pair 6	Inventory Manager - Shift Manager	-2.335	31	.026
Accept H_0	Pair 7	Inventory Manager - Stock Replenisher	-.323	31	.749
Reject H_0	Pair 8	Inventory Manager - Stock Replenishment Manager	2.126	31	.042
Accept H_0	Pair 9	Inventory Manager - Systems Manager	-1.856	31	.073

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H_0 was accepted for the similarities in rankings between the inventory manager and the following designations: receiving controller, receiving manager, receiving supervisor, regional manager, replenishment manager, stock replenisher and the systems manager.

H_0 was rejected, implying that there were differences in ranking between the inventory manager and the following designations: replenishment manager and the stock replenishment manager.

Hypothesis 4:

H_0: There is no difference in the mean rankings between the Receiving Controller and the other eight designations.

H_1: There is a difference in the mean ratings between Receiving Controller and the other eight designations.

Table 18: Paired Samples Test for Hypothesis 4

Decision At 5% level			T	df	p-value
Accept H_0	Pair 1	Receiving Controller - Receiving Manager	-.854	31	.399
Reject H_0	Pair 2	Receiving Controller - Receiving Supervisor	2.187	30	.037
Accept H_0	Pair 3	Receiving Controller - Regional Manager	-1.068	31	.294
Accept H_0	Pair 4	Receiving Controller - Replenishment Manager	1.632	31	.113
Accept H_0	Pair 5	Receiving Controller - Shift Manager	-1.856	31	.073
Accept H_0	Pair 6	Receiving Controller - Stock Replenisher	.198	31	.844
Reject H_0	Pair 7	Receiving Controller - Stock Replenishment Manager	2.432	31	.021
Accept H_0	Pair 8	Receiving Controller - Systems Manager	-1.123	31	.270

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H_0 was accepted for the similarities in rankings between the receiving controller and the following designations: receiving manager, regional manager, replenishment manager, shift manager, stock replenisher and the systems manager.

H_0 was rejected implying that there were differences in ranking between the receiving controller and the following designations: receiving supervisor and replenishment manager.

Hypothesis 5:

H_0: There is no difference in the mean rankings between Receiving Manager and the other seven designations.

H_1: There is a difference in the mean rankings between Receiving Manager and the other seven designations.

Table 19: Paired Samples Test for Hypothesis 5

Decision At 5% level			T	df	p-value
Reject H_0	Pair 1	Receiving Manager - Receiving Supervisor	2.895	30	.007
Accept H_0	Pair 2	Receiving Manager - Regional Manager	-.570	31	.573
Reject H_0	Pair 3	Receiving Manager - Replenishment Manager	2.718	31	.011
Accept H_0	Pair 4	Receiving Manager - Shift Manager	-1.479	31	.149
Accept H_0	Pair 5	Receiving Manager - Stock Replenisher	.834	31	.410
Reject H_0	Pair 6	Regional Manager - Stock Replenishment Manager	3.365	31	.002
Accept H_0	Pair 7	Receiving Manager - Systems Manager	-.562	31	.578

H_0 was accepted for the similarity in rankings between the receiving manager and the following designations: regional manager, shift manager, stock replenisher and the systems manager.

H_0 was rejected implying that there were differences in ranking between the receiving manager and the following designations: receiving supervisor, replenishment manager and stock replenishment manager.

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Hypothesis 6:

H_0: There is no difference in the mean rankings between Receiving Supervisor and the other six designations.

H_1: There is a difference in the mean rankings between Receiving Supervisor and the other six designations.

Table 20: Paired Samples Test for Hypothesis 6

Decision At 5% level			t	df	p-value
Reject H_0	Pair 1	Receiving Supervisor - Regional Manager	-2.922	30	.007
Accept H_0	Pair 2	Receiving Supervisor - Replenishment Manager	-1.217	30	.233
Reject H_0	Pair 3	Receiving Supervisor - Shift Manager	-3.545	30	.001
Reject H_0	Pair 4	Receiving Supervisor - Stock Replenisher	-2.339	30	.026
Accept H_0	Pair 5	Receiving Supervisor - Stock Replenishment Manager	-.169	30	.867
Reject H_0	Pair 6	Receiving Supervisor - Systems Manager	-3.025	30	.005

H_0 was accepted for the similarities in rankings between the receiving supervisor and the following designations: replenishment manager and the stock replenishment manager.

H_0 was rejected, implying that there were differences in ranking the receiving supervisor and the following designations: regional manager, shift manager, stock replenisher and the systems manager.

Hypothesis 7:

H_0: There is no difference in the mean rankings between Regional Manager and the other five designations.

H_1: There is a difference in the mean rankings between Regional Manager and the other five designations.

Table 21: Paired Samples Test for Hypothesis 7

Decision At 5% level			T	df	p-value
Reject H_0	Pair 1	Regional Manager - Replenishment Manager	2.709	31	.011
Accept H_0	Pair 2	Regional Manager - Shift Manager	-1.097	31	.281
Accept H_0	Pair 3	Regional Manager - Stock Replenisher	1.166	31	.253
Reject H_0	Pair 4	Regional Manager - Stock Replenishment Manager	3.365	31	.002
Accept H_0	Pair 5	Regional Manager - Systems Manager	.000	31	1.000

H_0 was accepted for the similarities in rankings between the regional manager and the following designations: shift manager, stock replenisher and the systems manager.

H_0 was rejected, implying that there were differences in ranking between the regional manager and the following designations: replenishment manager and stock replenishment manager.

Hypothesis 8:

H_0: There is no difference in the mean rankings between Replenishment Manager and the other four designations.

H_1: There is a difference in the mean rankings between Replenishment Manager and the other four designations.

Table 22: Paired Samples Test for Hypothesis 8

Decision At 5% level			T	df	p-value
Reject H_0	Pair 1	Replenishment Manager - Shift Manager	-2.833	31	.008
Accept H_0	Pair 2	Replenishment Manager - Stock Replenisher	-1.584	31	.123
Accept H_0	Pair 3	Replenishment Manager - Stock Replenishment Manager	1.457	31	.155
Reject H_0	Pair 4	Replenishment Manager - Systems Manager	-2.946	31	.006

H_0 was accepted for the similarities in rankings between the replenishment manager and the following designations: stock replenisher and the stock replenishment manager.

H_0 was rejected, implying that there were differences in ranking between the replenishment manager and the following designations: shift manager and the systems manager.

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Hypothesis 9:

H_0: There is no difference in the mean rankings between Shift Manager and the other three designations.

H_1: There is a difference in the mean rankings between Shift Manager and the other three designations.

Table 23: Paired Samples Test for Hypothesis 9

Decision At 5% level			t	df	p-value
Accept H_0	Pair 1	Shift Manager - Stock Replenisher	1.825	31	.078
Reject H_0	Pair 2	Shift Manager - Stock Replenishment Manager	3.613	31	.001
Accept H_0	Pair 3	Shift Manager - Systems Manager	1.126	31	.269

H_0 was accepted for the similarities in rankings between the shift manager and the following designations: replenishment manager, and the systems manager.

H_0 was rejected, implying that there was a difference in ranking between the shift manager and the replenishment manager.

Hypothesis 10:

H_0: There is no difference in the mean rankings between Stock Replenisher and the other two designations.

H_1: There is a difference in the mean rankings between Stock Replenisher and the other two designations.

Table 24: Paired Samples Test for Hypothesis 10

Decision At 5% level			t	df	p-value
Reject H_0	Pair 1	Stock Replenisher - Stock Replenishment Manager	2.897	31	.007
Accept H_0	Pair 2	Stock Replenisher - Systems Manager	-1.287	31	.208

H_0 was accepted for the similarity in ranking between the stock replenisher and the systems manager.

H_0 was rejected, implying that there was a difference in ranking between the stock replenisher and the replenishment manager.

Hypothesis 11:

H_0: There is no difference in the mean rankings between Stock Replenishment Manager and the Systems Manager.

H_1: There is a difference in the mean rankings between Stock Replenishment Manager and the Systems Manager.

Table 25: Paired Samples Test for Hypothesis 11

Decision At 5% level			t	df	p-value
Reject H_0	Pair 1	Stock Replenishment Manager - Systems Manager	-3.649	31	.001

H_0 was rejected, implying that there was a difference in ranking between the stock replenishment manager and the systems manager.

6.2.8.3 Ranking Attributes by Customer Group

The paired sample t-tests were used to test for significant differences in the average ratings/scores of LCS across the three customer groups. This was possible because the average ratings/scores became parametric i.e. they follow a probability distribution (in this case the normal distribution) as per the Central Limit Theorem (Sheridan & Coakes, 2003).

Hypothesis:

H_0: there are no significant differences in the average ratings of attributes across the 3 customer groups.

H_1: there are significant differences in the average ratings of attributes across the 3 customer groups.

The paired sample t-test was carried out in SPSS and the results are as follows:

Table 26: Paired Samples Test for Ranking Attributes by Customer Group

		T	Df	p-value
Pair 1	CLICKS – SHOPRITE	2.354	31	.025
Pair 2	CLICKS – SPAR	-3.293	31	.002
Pair 3	SHOPRITE - SPAR	-8.581	31	.000

At the 5% level of significance (α=0.05), H_0 is rejected in all three cases/pairs because the p-values in each case are all less than the level of significance. One

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can conclude that there are significant differences in the average ratings across the 3 customer groups with respect to the different attributes logistics customer service.

6.2.8.4 Ranking Attributes by Region

The paired sample t-tests were used to test for significant differences in the mean ranking of LCS attributes across the three major regions. This was possible because the average ratings/scores became parametric i.e. they follow a probability distribution (in this case the normal distribution) as per the Central Limit Theorem (Sheridan & Coakes, 2003).

Hypothesis:

H_0: There is no difference in the mean ratings across the 3 regions, i.e. Cape Province, Gauteng and KZN.

H_1: There is a difference in the mean ratings across the 3 regions, i.e. Cape Province, Gauteng and KZN.

The following results were obtained using SPSS

Table 27: Paired Samples Test for Ranking Attributes by Region

		T	Df	Sig. (2-tailed)
Pair 1	CAPE - KZN	-5.880	31	.000
Pair 2	CAPE - GAUTENG	1.044	31	.305
Pair 3	KZN - GAUTENG	5.320	31	.000

Reject Hypotheses for Pairs 1 and 3 at the 5% significance level because the p-values are less than 0.05 and conclude that there is a difference between the mean ratings between Cape Town and KZN and Gauteng and KZN. Accept the hypothesis for Pair 2 that there is no difference in the mean ratings between Cape Town and Gauteng.

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6.2.9 How do these retail customers perceive UHPC's logistics customer service?

This question refers to how each of the 3 customer groups perceived UHPC's level of logistics customer service based on the 32 attributes ranked in 6.2.8. A mean rating of perceived performance was used for each attribute. Table 28 below summarizes the 3 customer perceptions of the UHPC's logistics customer service.

Table 28: Mean Customers Rating of Perceived Performance of UHPC on the Various Attributes of Logistics Customer Service

	Clicks	Shoprite	Spar
Ordering procedures	6.33	6.40	6.00
Timeliness of delivery	5.43	5.67	5.50
Order fulfillment	5.43	5.40	6.00
Order accuracy	5.86	6.20	6.00
Order quality	5.57	6.33	6.50
Order discrepancy handling	6.57	5.93	7.00
Quality/durability of packaging	6.00	5.87	7.00
Product availability	6.00	5.27	6.00
Quality of service	6.57	6.53	4.00
Reputation of supplier	6.83	6.64	7.00
Relationship with supplier	6.57	6.67	4.00
Personnel contact	6.71	6.33	4.00
Communication of supplier	6.43	6.43	6.50
Collaboration	6.17	5.80	7.00
Supplier innovation	6.29	6.27	4.50
Service level agreement	6.71	6.40	5.00
Ability to handle returns	6.29	5.87	7.00
Ability to expedite emergency orders	6.33	5.67	6.00
Length of promised lead times	6.00	6.13	6.50
Ability to measure supplier performance	6.14	6.33	7.00
Availability of inventory status	6.33	5.79	6.50
Cooperation of supplier	6.43	6.53	4.00
Information quality of products	6.50	6.00	5.00
Handling of claims	6.71	6.00	6.00
Handling of complaints	6.14	6.07	5.00
High fill rate on normal reorders	5.50	5.27	6.00
High fill rate on emergency orders	5.50	5.53	7.00
High fill rate on promotional orders	6.17	5.67	6.50
Alerts on transportation delays	5.86	6.20	6.00
Level of customer service	6.00	6.20	4.50
Palletized and unitized loads	6.00	6.07	3.00
Working together to reduce supply chain costs	5.43	6.40	3.50

From Table 28 it is evident that Shoprite, Clicks and Spar have different perceptions of UHPC's logistics customer service. Both Shoprite and Clicks had mean attribute ratings for all 32 attributes above a score of 5 implying that the level of logistics customer service received from UHPC on the Likert Scale is

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good to excellent on all 32 attributes. However, Spar scored UHPC poorly that is below a score of 4 on the following 8 attributes:

- Quality of service
- Relationship with supplier
- Personnel contact
- Supplier innovation
- Cooperation of supplier
- Level of customer service
- Palletized and unitized loads
- Working together to reduce supply chain costs

Table 29 shows the different mean ratings rated from highest to lowest across each customer group.

Table 29: Mean Customer Rating of UHPC on Logistics Customer Service Attributes

	Clicks		Shoprite		Spar
Reputation of supplier	6.83	Relationship with supplier	6.67	High fill rate on emergency orders	7.00
Personal contact	6.71	Reputation of supplier	6.64	Collaboration	7.00
Service level agreement	6.71	Cooperation of supplier	6.53	Quality/durability of packaging	7.00
Handling of claims	6.71	Quality of service	6.53	Ability to handle returns	7.00
Order discrepancy handling	6.57	Communication of supplier	6.43	Order discrepancy handling	7.00
Quality of service	6.57	Working together to reduce supply chain costs	6.40	Ability to measure supplier performance	7.00
Relationship with supplier	6.57	Ordering procedures	6.40	Reputation of supplier	7.00
Information quality of products	6.50	Service level agreement	6.40	High fill rate on promotional orders	6.50
Communication of supplier	6.43	Order quality	6.33	Availability of inventory status	6.50
Cooperation of supplier	6.43	Ability to measure supplier performance	6.33	Length of promised lead times	6.50
Ordering procedures	6.33	Personal contact	6.33	Order quality	6.50
Ability to expedite emergency orders	6.33	Supplier innovation	6.27	Communication of supplier	6.50
Availability of inventory status	6.33	Order accuracy	6.20	High fill rate on normal reorders	6.00
Supplier innovation	6.29	Alerts on transportation delays	6.20	Product availability	6.00
Ability to handle returns	6.29	Level of customer service	6.20	Order fulfillment	6.00
Collaboration	6.17	Length of promised lead times	6.13	Ability to expedite emergency orders	6.00
High fill rate on promotional orders	6.17	Palletized and unitized loads	6.07	Handling of claims	6.00
Ability to measure supplier performance	6.14	Handling of complaints	6.07	Order accuracy	6.00
Handling of complaints	6.14	Information quality of products	6.00	Alerts on transportation delays	6.00
Quality/durability of packaging	6.00	Handling of claims	6.00	Ordering procedures	6.00

Product availability	6.00	Order discrepancy handling	5.93	Timeliness of delivery	5.50
Length of promised lead times	6.00	Quality/durability of packaging	5.87	Information quality of products	5.00
Level of customer service	6.00	Ability to handle returns	5.87	Handling of complaints	5.00
Palletized and unitized loads	6.00	Collaboration	5.80	Service level agreement	5.00
Order accuracy	5.86	Availability of inventory status	5.79	Level of customer service	4.50
Alerts on transportation delays	5.86	Timeliness of delivery	5.67	Supplier Innovation	4.50
Order quality	5.57	High fill rate on promotional orders	5.67	Personal contact	4.00
High fill rate on normal reorders	5.50	Ability to expedite emergency orders	5.67	Cooperation of supplier	4.00
High fill rate on emergency orders	5.50	High fill rate on emergency orders	5.53	Quality of service	4.00
Timeliness of delivery	5.43	Order fulfillment	5.40	Relationship with supplier	4.00
Order fulfillment	5.43	High fill rate on normal reorders	5.27	Working together to reduce supply chain costs	3.50
Working together to reduce supply chain costs	5.43	Product availability	5.27	Palletized and unitized loads	3.00

From Table 29 it is evident that all 3-customer groups highly rate the UHPC logistics customer service of UHPC with the exception of the Spar Group.

Using Descriptive Statistics

Descriptive statistics will be used for the customer service evaluation of UHPC - considering the mean, the mode and the median. More focus will be on the mode due to the non-parametric nature of the data and possibly the mean.

Using the mean, median and the mode of UHPC customer service for across all 3-customer groups is summed up in Table 30 below.

Table 30: Descriptive Statistics - Mean, Median and Mode for Logistics Customer Service Ratings

	N		Mean	Median	Mode
	Valid	Missing			
Reputation of supplier	22	23	6.73	7	7
Communication of supplier	23	1	6.43	7	7
Relationship with supplier	24	0	6.42	7	7
Service level agreement	24	0	6.38	7	7
Ordering procedures	22	2	6.36	7	7
Quality of service	24	0	6.33	7	7
Ability to measure supplier performance	24	0	6.33	7	7
Cooperation of supplier	24	0	6.29	7	7
Personnel contact	24	0	6.25	7	7
Handling of claims	22	2	6.23	6	7
Order discrepancy handling	24	0	6.21	6	6
Length of promised lead times	22	2	6.14	6	7
Order quality	24	0	6.13	6	7

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Supplier innovation	24	0	6.13	6	6
Order accuracy	24	0	6.08	6	6
Ability to handle returns	24	0	6.08	6	7
Alerts on transportation delays	24	0	6.08	6	7
Information quality of products	23	1	6.04	6	7
Quality/durability of packaging	24	0	6	6	7
Collaboration	23	1	6	6	7
Availability of inventory status	22	2	6	6	7
Handling of complaints	24	0	6	6	6.00(a)
Level of customer service	24	0	6	6.5	7
Working together to reduce supply chain costs	24	0	5.88	6	6.00(a)
Ability to expedite emergency orders	23	1	5.87	6	6
High fill rate on promotional orders	23	1	5.87	6	6
Palletized and unitized loads	23	1	5.78	6	6
High fill rate on emergency orders	23	1	5.65	6	6
Timeliness of delivery	24	0	5.58	6	6
Product availability	24	0	5.54	5.5	5
Order fulfillment	24	0	5.47	5	5
High fill rate on normal reorders	23	1	5.39	5	5.00(a)

(a) Multiple modes exist. The smallest value is shown

The mean customer ratings range from 5.39 to 6.4. The mode ranges from 5 to 7. Both these statistics confirm the fact that the customer service evaluation ranges from good to excellent.

Paired Sample t-tests were carried out in SPSS to determine if there wee significant differences in the way the 3 customer groups rated UHPC's perceived performance on the 32 attributes of logistics customer service. A result showing a low significance value (<0.05) implies that there is a significant difference between two variables (SPSS *Results Coach*). The results are as follows:

Hypothesis:

H_0: there are no significant differences in the average ratings/scores across the 3 customer groups with respect to the different attributes of logistics customer service.

H_1: there are significant differences in the average ratings/scores across the 3 customer groups with respect to the different attributes of logistics customer service.

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Table 31: Paired Samples Test for Rating Customer Perceptions of UHPC Customer Service

		T	Df	Sig. (2-tailed)
Pair 1	CLICKS – SHOPRITE	1.292	31	.206
Pair 2	CLICKS - SPAR	2.093	31	.045
Pair 3	SHOPRITE - SPAR	1.576	31	.125

At the 5% level of significance ($\alpha = 0.05$), H_0 is rejected. In the second case where Clicks and Spar are compared in terms of their average customer service ratings one can conclude that they are different in the way they have rated attributes. H_0 is accepted when comparing Clicks versus Shoprite and Shoprite versus Spar concluding that there are no significant differences in the average ratings/scores across these customer groups with respect to different customer service ranking

6.2.10 How well UHPC is meeting logistics customer service expectations?

To answer this question the differences in mean scores was determined by subtracting the mean rating of importance for each attribute from the respective mean perceived performance. A negative result implies that UHPC is under performing on that attribute of logistics customer service.

Table 32: Shoprite Group - Difference in Mean Ratings of Attribute Importance and Perceived Performance of UHPC.

Attribute - Shoprite	Mean Rating of Importance	Mean Perceived performance	Difference
Ability to expedite emergency orders	5.67	5.67	0.00
Ability to handle returns	5.87	5.87	0.00
Ability to measure supplier performance	6.13	6.33	0.20
Alerts on transportation delays	6.33	6.20	-0.13
Availability of inventory status	6.27	5.79	-0.48
Collaboration	5.73	5.80	0.07
Communication of supplier	6.13	6.43	0.30
Cooperation of supplier	6.33	6.53	0.20
Handling of claims	5.40	6.00	0.60
Handling of complaints	5.73	6.07	0.34
High fill rate on promotional orders	6.73	5.67	-1.06
High fill rate on emergency orders	6.07	5.53	-0.54
High fill rate on normal reorders	5.73	5.27	-0.46
Information quality of products	5.53	6.00	0.47
Length of promised lead times	6.07	6.13	0.06

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Level of customer service	5.93	6.20	0.27
Order accuracy	6.60	6.20	-0.40
Order discrepancy handling	5.87	5.93	0.06
Order fulfillment	6.73	5.40	-1.33
Order quality	6.53	6.33	-0.20
Ordering procedures	6.13	6.40	0.27
Palletized and unitized loads	5.93	6.07	0.14
Personnel contact	6.47	6.33	-0.14
Product availability	6.80	5.27	-1.53
Quality of service	6.13	6.53	0.40
Quality/durability of packaging	5.93	5.87	-0.06
Relationship with supplier	6.40	6.67	0.27
Reputation of supplier	5.21	6.64	1.43
Service level agreement	6.27	6.40	0.13
Supplier innovation	6.13	6.27	0.14
Timeliness of delivery	6.53	5.67	-0.86
Working together to reduce supply chain costs	6.27	6.40	0.13

UHPC scored poorly with Shoprite DC's on the following twelve attributes of logistics customer service, i.e. mean rating of perceived performance on attributes scored lower than the mean rating of attribute's importance:

- Alerts on transportation delays
- Availability of inventory status
- High fill rate on promotional orders
- High fill rate on emergency orders
- High fill rate on normal reorders
- Order accuracy
- Order fulfillment
- Order quality
- Personnel contact
- Product availability
- Quality/durability of packaging
- Timeliness of delivery

Table 33: Clicks Group - Difference in Mean Ratings of Attribute Importance and Perceived Performance of UHPC.

Attribute – Clicks	Mean Rating of Importance	Mean Perceived performance	Difference
Ability to expedite emergency orders	5.71	6.33	0.62
Ability to handle returns	6.57	6.29	-0.28
Ability to measure supplier performance	6.29	6.14	-0.15
Alerts on transportation delays	6.71	5.86	-0.85
Availability of inventory status	5.86	6.33	0.47
Collaboration	6.43	6.17	-0.26
Communication of supplier	6.29	6.43	0.14
Cooperation of supplier	7.00	6.43	-0.57
Handling of claims	7.00	6.71	-0.29
Handling of complaints	6.43	6.14	-0.29
High fill rate on promotional orders	5.71	6.17	0.46
High fill rate on emergency orders	5.57	5.50	-0.07
High fill rate on normal reorders	5.86	5.50	-0.36
Information quality of products	5.71	6.50	0.79
Length of promised lead times	5.43	6.00	0.57
Level of customer service	7.00	6.00	-1.00
Order accuracy	7.00	5.86	-1.14
Order discrepancy handling	7.00	6.57	-0.43
Order fulfillment	6.43	5.43	-1.00
Order quality	7.00	5.57	-1.43
Ordering procedures	4.57	6.33	1.76
Palletized and unitized loads	6.86	6.00	-0.86
Personnel contact	7.00	6.71	-0.29
Product availability	6.43	6.00	-0.43
Quality of service	6.71	6.57	-0.14
Quality/durability of packaging	6.29	6.00	-0.29
Relationship with supplier	6.43	6.57	0.14
Reputation of supplier	6.57	6.83	0.26
Service level agreement	6.71	6.71	0.00
Supplier innovation	6.43	6.29	-0.14
Timeliness of delivery	7.00	5.43	-1.57
Working together to reduce supply chain costs	6.43	5.43	-1.00

UHPC scored poorly with Clicks DC's on the following twenty-two attributes of logistics customer service, i.e. mean rating of perceived performance on attributes scored lower than the mean rating of attribute's importance:

- Ability to handle returns
- Ability to measure supplier performance
- Alerts on transportation delays
- Collaboration
- Cooperation of supplier

- Handling of claims
- Handling of complaints
- High fill rate on emergency orders
- High fill rate on normal reorders
- Level of customer service
- Order accuracy
- Order discrepancy handling
- Order fulfillment
- Order quality
- Palletized and unitized loads
- Personnel contact
- Product availability
- Quality of service
- Quality/durability of packaging
- Supplier innovation
- Timeliness of delivery
- Working together to reduce supply chain costs

Table 34: Spar Group - Difference in Mean Ratings of Attribute Importance and Perceived Performance of UHPC.

Attribute – Spar	Mean Rating of Importance	Mean Perceived performance	Difference
	7.00	6.00	-1.00
Ability to handle returns	7.00	7.00	0.00
Ability to measure supplier performance	7.00	7.00	0.00
Alerts on transportation delays	7.00	6.00	-1.00
Availability of inventory status	6.50	6.50	0.00
Collaboration	6.00	7.00	1.00
Communication of supplier	7.00	6.50	-0.50
Cooperation of supplier	7.00	4.00	-3.00
Handling of claims	7.00	6.00	-1.00
Handling of complaints	7.00	5.00	-2.00
High fill rate on promotional orders	7.00	6.50	-0.50
High fill rate on emergency orders	7.00	7.00	0.00
High fill rate on normal reorders	7.00	6.00	-1.00
Information quality of products	5.00	5.00	0.00
Length of promised lead times	7.00	6.50	-0.50
Level of customer service	7.00	4.50	-2.50
Order accuracy	7.00	6.00	-1.00

Order discrepancy handling	7.00	7.00	0.00
Order fulfillment	7.00	6.00	-1.00
Order quality	7.00	6.50	-0.50
Ordering procedures	7.00	6.00	-1.00
Palletized and unitized loads	7.00	3.00	-4.00
Personnel contact	7.00	4.00	-3.00
Product availability	7.00	6.00	-1.00
Quality of service	7.00	4.00	-3.00
Quality/durability of packaging	7.00	7.00	0.00
Relationship with supplier	7.00	4.00	-3.00
Reputation of supplier	5.00	7.00	2.00
Service level agreement	7.00	5.00	-2.00
Supplier innovation	6.50	4.50	-2.00
Timeliness of delivery	7.00	5.50	-1.50
Working together to reduce supply chain costs	7.00	3.50	-3.50

UHPC scored poorly with Spar DC's on the following twenty-three attributes of logistics customer service, i.e. mean rating of perceived performance on attributes scored lower than the mean rating of attribute's importance:

- Ability to expedite emergency orders
- Alerts on transportation delays
- Communication of supplier
- Cooperation of supplier
- Handling of claims
- Handling of complaints
- High fill rate on promotional orders
- High fill rate on normal reorders
- Length of promised lead times
- Level of customer service
- Order accuracy
- Order fulfillment
- Order quality
- Ordering procedures
- Palletized and unitized loads
- Personnel contact
- Product availability
- Quality of service
- Relationship with supplier
- Service level agreement
- Supplier innovation

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- Timeliness of delivery
- Working together to reduce supply chain costs

6.2.11 How do these different retail customers' rate UHPC customer service against competitors?

Once again cross tabulations and descriptive statistics i.e. the mode was used to answer this question. The *Wilcoxon Signs Rank* test was also used.

Table 35: Descriptive Statistics on UHPC versus Competitor Ratings

ATTRIBUTES	UHPC		Supplier A		Supplier B	
	Median	Mode	Median	Mode	Median	Mode
Ordering procedures	6.00	7.00(a)	6.00	7.00(a)	6.00	7.00
Timeliness of delivery	7.00	7.00	5.00	5.00(a)	5.00	5.00
Order fulfillment	7.00	7.00	6.00	6.00	5.00	6.00
Order accuracy	7.00	7.00	6.00	6.00	6.00	6.00
Order quality	7.00	7.00	6.00	6.00	6.00	6.00
Order discrepancy handling	7.00	7.00	5.00	4.00(a)	6.00	5.00(a)
Quality/durability of packaging	6.00	7.00	6.00	6.00	5.00	5.00(a)
Product availability	7.00	7.00	6.00	6.00	6.00	6.00
Quality of service	6.50	7.00	5.00	5.00(a)	5.00	5.00
Reputation of supplier	6.00	7.00	6.00	5.00(a)	6.00	6.00(a)
Relationship with supplier	7.00	7.00	5.50	7.00	6.00	7.00
Personnel contact	7.00	7.00	5.00	7.00	6.00	6.00
Communication of supplier	6.00	7.00	5.00	5.00	5.00	6.00
Collaboration	6.00	7.00	4.00	5.00	4.50	5.00
Supplier innovation	6.00	6.00(a)	5.00	5.00	5.00	5.00(a)
Service level agreement	7.00	7.00	3.50	1.00	5.00	6.00
Ability to handle returns	6.00	7.00	5.50	6.00	5.00	6.00
Ability to expedite emergency orders	6.00	7.00	5.00	6.00	5.00	6.00
Length of promised lead times	6.00	7.00	5.50	5.00	5.50	6.00
Ability to measure supplier performance	7.00	7.00	5.00	6.00	5.00	5.00
Availability of inventory status	7.00	7.00	5.00	5.00	5.00	5.00
Cooperation of supplier	7.00	7.00	6.00	7.00	5.50	5.00
Information quality of products	6.00	7.00	5.00	5.00	5.00	5.00
Handling of claims	7.00	7.00	5.50	5.00(a)	5.00	7.00
Handling of complaints	6.00	7.00	5.00	5.00	5.00	5.00
High fill rate on normal reorders	7.00	7.00	5.00	6.00	5.00	5.00
High fill rate on emergency orders	7.0000	7.00	5.00	6.00	5.00	6.00
High fill rate on promotional orders	7.00	7.00	5.00	6.00	5.50	6.00
Alerts on transportation delays	7.00	7.00	4.00	4.00	4.00	4.00(a)
Level of customer service	7.00	7.00	6.00	6.00	6.00	6.00

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Palletized and unitized loads	7.00	**7.00**	6.00	**6.00**	5.00	**6.00**
Working together to reduce supply chain costs	7.00	**7.00**	5.00	**6.00**	5.00	**5.00**

From Table 36, one can observe differences with respect to the modes per attribute between UHPC, Suppliers A and Suppliers B. The modes for UHPC are higher than those of Suppliers A and B for all attributes except the following where UHPC faired equally to Suppliers A or B:

- Ordering procedures
- Relationship with supplier
- Personnel contact
- Cooperation of supplier

Thus UHPC is rated higher on attributes of logistics customer service than suppliers A and B.

6.2.12 How well UHPC is meeting customer expectations compared to competitors?

To answer this question, the mean customer ratings of UHPC against Suppliers A and B were compared using the *Wilcoxon Signs Rank Test*. The *Wilcoxon Sign Ranks Test* detects differences in the distribution of two related variables (SPSS *Results Coach*). Small significance (<0.05) indicates that the two variables differ in distribution. A difference in the ratings will confirm that UHPC is meeting its customer expectations compared to its competitors. This objective was determined by testing the following hypotheses:

H_0: there is no difference (favouring UHPC) in the customer service ratings between UHPC and Suppliers A

H_1: there is a difference (favouring UHPC) in the customer service ratings between UHPC and Suppliers A

The following results were processed:

Table 36: Test Statistics

UHPC RATING VS SUPPLIERS A	Z	p-value
Ordering procedures - Ordering procedures	-.966(a)	.334
Timeliness of delivery - Timeliness of delivery	-3.983(a)	.000
Order fulfillment - Order fulfillment	-3.973(a)	.000
Order accuracy - Order accuracy	-3.198(a)	.001

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Order quality - Order quality	-3.022(a)	.003
Order discrepancy handling - Order discrepancy handling	-2.968(a)	.003
Quality/durability of packaging - Quality/durability of packaging	-2.359(a)	.018
Product availability - Product availability	-4.239(a)	.000
Quality of service - Quality of service	-2.931(a)	.003
Reputation of supplier - Reputation of supplier	-.029(b)	.007
Relationship with supplier - Relationship with supplier	-2.838(a)	.005
Personnel contact - Personnel contact	-3.538(a)	.000
Communication of supplier - Communication of supplier	-3.787(a)	.000
Collaboration – Collaboration	-3.319(a)	.001
Supplier innovation - Supplier innovation	-3.682(a)	.000
Service level agreement - Service level agreement	-4.092(a)	.000
Ability to handle returns - Ability to handle returns	-2.825(a)	.005
Ability to expedite emergency orders - Ability to expedite emergency orders	-2.191(a)	.028
Length of promised lead times - Length of promised lead times	-2.236(a)	.025
Ability to measure supplier performance - Ability to measure supplier performance	-2.974(a)	.003
Availability of inventory status - Availability of inventory status	-2.415(a)	.016
Cooperation of supplier - Cooperation of supplier	-2.679(a)	.007
Information quality of products - Information quality of products	-1.991(a)	.047
Handling of claims - Handling of claims	-1.854(a)	.044
Handling of complaints - Handling of complaints	-2.639(a)	.008
High fill rate on normal reorders - High fill rate on normal reorders	-2.861(a)	.004
High fill rate on emergency orders - High fill rate on emergency orders	-2.675(a)	.007
High fill rate on promotional orders - High fill rate on promotional orders	-2.942(a)	.003
Alerts on transportation delays - Alerts on transportation delays	-3.910(a)	.000
Level of customer service - Level of customer service	-3.330(a)	.001
Palletized and unitized loads - Palletized and unitized loads	-2.819(a)	.005
Working together to reduce supply chain costs - Working together to reduce supply chain costs	-3.588(a)	.000

Reject H_0 at the 5% significance level for all of the attributes relating to customer service, except for attribute 1, *ordering procedures* because the p-values are all less than 0.05. One can conclude that for the other 31 attributes there are differences (favouring UHPC) in the customer service ratings between UHPC and Suppliers A.

Similarly for Suppliers B,

H_0: there is no difference (favouring UHPC) in the customer service ratings between UHPC and Suppliers B

H_1: there is a difference (favouring UHPC) in the customer service ratings between UHPC and Suppliers B

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The results are as follows:

Table 37: Test Statistics for UHPC versus Suppliers B

UHPC VS SUPPLIERS B	Z	p-value
Ordering procedures - Ordering procedures	-.486(a)	.627
Timeliness of delivery - Timeliness of delivery	-3.776(a)	.000
Order fulfillment - Order fulfillment	-3.917(a)	.000
Order accuracy - Order accuracy	-2.808(a)	.005
Order quality - Order quality	-3.370(a)	.001
Order discrepancy handling - Order discrepancy handling	-2.753(a)	.006
Quality/durability of packaging - Quality/durability of packaging	-2.623(a)	.009
Product availability - Product availability	-3.328(a)	.001
Quality of service - Quality of service	-3.043(a)	.002
Reputation of supplier - Reputation of supplier	-.385(b)	.000
Relationship with supplier - Relationship with supplier	-2.538(a)	.011
Personnel contact - Personnel contact	-3.454(a)	.001
Communication of supplier - Communication of supplier	-3.100(a)	.002
Collaboration - Collaboration	-3.206(a)	.001
Supplier innovation - Supplier innovation	-3.459(a)	.001
Service level agreement - Service level agreement	-3.679(a)	.000
Ability to handle returns - Ability to handle returns	-3.082(a)	.002
Ability to expedite emergency orders - Ability to expedite emergency orders	-2.171(a)	.030
Length of promised lead times - Length of promised lead times	-2.809(a)	.005
Ability to measure supplier performance - Ability to measure supplier performance	-2.810(a)	.005
Availability of inventory status - Availability of inventory status	-2.575(a)	.010
Cooperation of supplier - Cooperation of supplier	-2.764(a)	.006
Information quality of products - Information quality of products	-1.720(a)	.005
Handling of claims - Handling of claims	-1.612(a)	.107
Handling of complaints - Handling of complaints	-2.434(a)	.015
High fill rate on normal reorders - High fill rate on normal reorders	-2.359(a)	.018
High fill rate on emergency orders - High fill rate on emergency orders	-2.723(a)	.006
High fill rate on promotional orders - High fill rate on promotional orders	-3.277(a)	.001
Alerts on transportation delays - Alerts on transportation delays	-3.947(a)	.000
Level of customer service - Level of customer service	-3.328(a)	.001
Palletized and unitized loads - Palletized and unitized loads	-3.375(a)	.001
Working together to reduce supply chain costs - Working together to reduce supply chain costs	-3.564(a)	.000

Reject H_0 at the 5% significance level for all of the questions relating to customer service except for *Ordering procedures* and *Handling of claims*. The rest of the attributes all have p-values that are all less than 0.05 and conclude that for these other 30 attributes there is a difference (favouring UHPC) in the customer service ratings between UHPC and Supplier A.

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6.2.13 What can be done to improve UHPC customer service?

In order to understand where UHPC can improve, there should be no discrepancy between what the retail customers perceive as attributed of good customer service and the actual rating of UHPC customer service (Lambert and Burduroglu, 2000, p.1). *The Wilcoxon Signs Rank Test* is used due to the non-parametric nature of the data.

Hypothesis will be tested on the 32 customer attributes and the UHPC customer rating:

Hypothesis:

H_0: there are discrepancies between what the retail customers perceive as good customer attributes and actual rating of UHPC customer service

H_1: there are no discrepancies between what the retail customers perceive as good customer attributes and actual rating of UHPC customer service

The following results were processed:

Table 38: Test Statistics for Perception Ratings versus Actual Ratings

PERCEPTION RATING VS ACTUAL RATINGS	Z	P-value
Ordering procedures - Ordering procedures	-1.724(a)	.035
Timeliness of delivery - Timeliness of delivery	-3.339(b)	.001
Order fulfillment - Order fulfillment	-3.817(b)	.000
Order accuracy - Order accuracy	-2.560(b)	.010
Order quality - Order quality	-2.228(b)	.026
Order discrepancy handling - Order discrepancy handling	-.462(b)	.644
Quality/durability of packaging - Quality/durability of packaging	-.577(b)	.564
Product availability - Product availability	-3.289(b)	.001
Quality of service - Quality of service	-.575(a)	.005
Reputation of supplier - Reputation of supplier	-2.555(a)	.011
Relationship with supplier - Relationship with supplier	-.832(a)	.005
Personnel contact - Personnel contact	-1.378(b)	.168
Communication of supplier - Communication of supplier	-1.027(a)	.005
Collaboration – Collaboration	-.367(a)	.004
Supplier innovation - Supplier innovation	-.312(b)	.755
Service level agreement - Service level agreement	-.256(b)	.008
Ability to handle returns - Ability to handle returns	-.359(b)	.009
Ability to expedite emergency orders - Ability to expedite emergency orders	-.612(b)	.040
Length of promised lead times - Length of	-.189(b)	.000

promised lead times		
Ability to measure supplier performance - Ability to measure supplier performance	-.351(a)	.006
Availability of inventory status - Availability of inventory status	-.183(b)	.005
Cooperation of supplier - Cooperation of supplier	-.666(b)	.006
Information quality of products - Information quality of products	-2.111(a)	.035
Handling of claims - Handling of claims	-1.081(a)	.008
Handling of complaints - Handling of complaints	-.187(a)	.002
High fill rate on normal reorders - High fill rate on normal reorders	-2.363(b)	.018
High fill rate on emergency orders - High fill rate on emergency orders	-1.675(b)	.024
High fill rate on promotional orders - High fill rate on promotional orders	-2.529(b)	.011
Alerts on transportation delays - Alerts on transportation delays	-1.198(b)	.001
Level of customer service - Level of customer service	-.849(b)	.006
Palletized and unitized loads - Palletized and unitized loads	-1.340(b)	.000
Working together to reduce supply chain costs - Working together to reduce supply chain costs	-1.409(b)	.009

Reject H_0 at the 5% significance level if the p-value were less than 0.05 therefore reject H_0 for all the attributes except:

- Order discrepancy handing-after delivery
- Quality/durability of packaging
- Personal contact-knowledge and ability and helpfulness in problem solving
- Supplier innovation in improving efficiency of delivery

These attributes are those where there are discrepancies between what the retail customers perceive as good customer attributes and actual rating of UHPC customer service and would be interpreted as attributes that can be improved. The remaining questions confirm that H_0 be rejected and H_1 accepted. Thus concluding for the 28 other questions that there are no discrepancies between what the retail customers perceive as good customer attributes and actual rating of UHPC customer service. One cannot however rule out that UHPC could have scored high on an attribute perceived to be unimportant.

6.3 RELIABILITY ANALYSIS

Cronbach's Alpha was also calculated as part of the reliability test to assess how valid the results were and should produce similar generalized results if the sample size were increased.

The Cronbach's alpha was calculated for the Customer Attributes, UHPC Customer Service Rating, Suppliers A Customer Service Rating, Suppliers B Customer Service Rating and an Overall Analysis involving all 4 ratings. The results are summarized in Table 40 below.

Table 39: Cronbach's Alpha Tests

DESCRIPTION OF CRONBACHS ALPHA TEST	RELIABILITY COEFFICIENTS			
	NO. OF CASES	NO. OF ITEMS	ALPHA	COMMENT
The Attributes of Customer Service	22	32	0.8924	Good
UHPC Customer Service Rating	18	32	0.9041	Very Good
Supplier A Customer Service Rating	18	32	0.9574	Very Good
Supplier B Customer Service Rating	18	32	0.9621	Very Good
Overall analysis using all 4 ratings	**18**	**128**	**0.9749**	**Very Good**

A value of 0.7 or higher is a very good value that will confirm the same results if the survey was conducted with a larger sample of respondents. Thus, confirming the reliability of the analysis.

6.4 CONCLUSION

Respondents to the questionnaire were predominantly from the Shoprite Group. Most respondents selected suppliers that delivered between 200 and 400 lines/SKU's, similar to UHPC, which meant that each supplier would share very similar complexities in delivering to customers. UHPC was compared to major competitors such as P&G, Colgate Palmolive and Revlon. UHPC makes the highest number of daily deliveries in comparison to all the other suppliers and UHPC conducts the most monthly service level meetings whilst most other suppliers conduct similar meetings once a quarter. The majority of suppliers, including UHPC outsource their warehousing and distribution to third party logistics service providers.

In answering the 5 research questions posed in Chapter Five:

1. **What attributes of logistics customer service (LCS) do retail DC customers consider important?**

   The top 10 attributes of LCS considered most important to retail customers are:

   - Order accuracy
   - Timeliness of delivery
   - Order quality
   - Product availability
   - Order fulfillment
   - Personnel contact
   - Cooperation of supplier
   - Alerts on transportation delays
   - Relationship with supplier
   - Service level agreements.

2. **Are there similarities in the way that various retail customers rank attributes of LCS?**

   From paired samples tests, at the 5% level of significance ($\alpha=0.05$), H_0 is rejected in all three cases/pairs hence the conclusion that there are significant differences in the average ratings across the 3 customer groups with respect to ranking attributes LCS.

3. **How do these different customers perceive UHPC LCS?**

   From descriptive statistics, Shoprite and Clicks perceive UHPC to perform from good to excellent on all 32 attributes of LCS. Spar respondents however felt that UHPC perform poorly on the following 8 attributes:

   - Quality of service
   - Relationship with supplier
   - Personnel contact
   - Supplier innovation
   - Cooperation of supplier
   - Level of customer service

- Palletized and unitized loads
- Working together to reduce supply chain costs

From paired sample tests, at the 5% level of significance ($\alpha=0.05$), H_0 is rejected where Clicks and Spar are compared in terms of their mean customer service ratings of the various attributes of LCS.

4. How do these different channel customers rate UHPC LCS against competitors?

With respect to the modes per attribute between UHPC, Suppliers A and Suppliers B, the modes for UHPC are higher than those of Suppliers A and B for all attributes except the following where UHPC faired equally to other Suppliers:

- Ordering procedures
- Relationship with supplier
- Personnel contact
- Cooperation of supplier

Thus UHPC is rated higher than suppliers A and B on most attributes of LCS.

5. What can be done to improve UHPC LCS?

In order to understand where UHPC can improve, there should be no discrepancy between what the retail customers perceive as attributes of good customer service and the actual rating of UHPC customer service. From the *Wilcoxon Signs Rank Test* accept H_0 at the 5% on the following 4 attributes of logistics customer service that UHPC can improve on:

- Order discrepancy handing-after delivery
- Quality/durability of packaging
- Personal contact-knowledge and ability and helpfulness in problem solving
- Supplier innovation in improving efficiency of delivery

All results stated will be discussed in detail in Chapter Seven.

CHAPTER 7 - Conclusion

7.1 CHAPTER OVERVIEW

This Chapter discusses key findings of the research work undertaken based on the following research objectives:

1. To understand what Retail customers perceive as attributes of good LCS.
2. To determine if there is any correlation between the various customer groups in ranking attributes.
3. To determine how well UHPC is meeting customer expectations.
4. To determine how UHPC LCS compares to that of other competitors.
5. To identify areas of improvement for UHPC LCS.

7.2 DISCUSSION OF KEY FINDINGS

The key objectives of conducting an external customer service audit are twofold:

(1) To identify the elements of customer service that customers believe to be important when making the decision to buy and,

(2) To determine how customers perceive the service being offered by each of the major vendors in the market (Stock & Lambert, 2001, p.110).

It was emphasized by Lambert & Harrington (1989, p.1) that the elements/variables used in the external customer service audit must be specifically tailored to the industry under study. Using elements/variables from past research instruments, especially those designed for different industries with different supply chain structures would lead to misinterpretation and non-response.

As a result, attributes of customer service selected for this research was carefully selected from the literature as outlined in the research methodology.

This research had a very good response rate of 80% however the opinions of the non-respondents are still unquantifiable. The results of the research satisfied all stated objectives, as well as offered insight into additional issues.

1. **To understand what Retail customers perceive as attributes of good LCS.**
This research study has attempted to determine what attributes of logistics customer service Retail DC customers perceive as important and to rank the

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attributes in order of importance. The Top 10 attributes of LCS were sorted by mean importance rating (to the customer) and summarized in Table 40.

Table 40: Top 10 Most Important Attributes of LCS

Ranking	Attribute	Mean
1	Order accuracy	6.75
2	Timeliness of delivery	6.71
2	Order quality	6.71
2	Product availability	6.71
5	Order fulfillment	6.67
5	Personnel contact	6.67
7	Cooperation of supplier	6.58
8	Alerts on transportation delays	6.50
9	Relationship with supplier	6.46
9	Service level agreement	6.46

The Top 10 attributes identified in Table 40 relate to the 3 constructs of pre-transaction (Product Availability), order service and order quality (Order Accuracy, Order Fulfillment, Alerts on Transportation Delays) and relationship service and quality (Relationship with Suppliers, Personnel Contact, Cooperation of Supplier) as proposed by Grant (2003, p.1).

The most important attribute of LCS ranked by the respondents was Order Accuracy i.e. how closely shipments match customer orders on arrival. A similar result was obtained from a customer service survey conducted in the chemical industry with Order Accuracy ranked first out of 10 customer service attributes (Lambert & Sharma, 19909, p.18). Research conducted by Lambert & Burduroglu (2000, p.1) on a major manufacturer of consumer durable goods also highlighted order accuracy as an important attribute of LCS with an overall ranking of number three. By contrast, research undertaken by Grant (2003, p.1) on customer service, satisfaction and service quality in the UK food processing industry ranked Order Quality only seventh most important - Products Arriving Undamaged and Supplier Trust ranked most important.

The research work undertaken by Mentzer *et al* (1999, p.7) on DLA also revealed Order Accuracy, Personnel Contact, Order Quality and Timeliness of Delivery as important attributes of logistics service quality.

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Relationships and experience help to lock customers in to a particular provider since a relationship requires an investment of time and money (Simchi-Levi *et al*, 2000, p.200). This attribute, i.e. Relationship with Supplier was ranked ninth for this survey.

An important outcome from ranking attributes of LCS perceived important by the different customer groups is that it allows the service provider to focus on attributes to be promoted and those less important attributes that can be eliminated. Although customers may rate attributes of LCS as being important, there may be a few or no suppliers providing satisfactory levels of service for that attribute (Sterling & Lambert, 2001, p.116). Hence LCS rankings of importance must not be looked at in isolation but rather together with supplier performance on those LCS attributes. This will be revisited in the discussion of UHPC's performance against other suppliers.

As outlined by Anderson & Narus earlier in Chapter 3, "One size does not fit all, " implying that not all customers require the same level of service or consider the same attributes of LCS to be important. As a result of this, attributes of LCS important to each customer group was ranked in order of mean importance to determine if there is any correlation between the various customer groups in ranking attributes.

2. **To determine if there is any correlation between the various customer groups in ranking attributes.**

Mean scores of Attributes Importance were ranked for Shoprite, Clicks and Spar in Tables 11 (p.101), 12 (p102) & 13 (p.103). From the respective Tables it was evident that each customer group ranked attributes of LCS very differently. For example, while the Shoprite Group ranked Product Availability first, the Clicks Group ranked this attribute fifteenth. The Spar Group rankings are questionable as 27 out of the 32 attributes were equally ranked first. This either means that the Spar Group seriously considers all 27 attributes as very important or that the respondents understanding of the attributes may not have been well understood.

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Paired sample t-tests were used to test for significant differences in the average ratings/scores of LCS across the three customer groups to test for significant differences in the average rating of LCS attributes across the three customer groups. At the 5% level of significance ($\alpha=0.05$), H_0 is rejected in all three cases/pairs because the p-values in each case are all less than the level of significance. One can conclude that there are significant differences in the average ratings across the 3 customer groups with respect to the different attributes logistics customer service. What this could mean for UHPC, is that not all attributes of LCS in this survey may be necessary for certain customers and that a better understanding of their needs is necessary so that a "Flexible Service Model" can be adopted (Anderson & Narus, 1995, p.7).

3.   To determine how well UHPC is meeting customer expectations.

According to Stock & Lambert (1992, p.73) knowing both customer expectations and understanding of the firm's performance relative to that of competitors on LCS attributes are vital to achieving service excellence.

Before looking at UHPC's performance relative to competitors, it is important to understand how well UHPC is rated on attributes of LCS important to customers. From Table 28 (p115) it is evident that Shoprite, Clicks and Spar have different perceptions of UHPC's LCS. From mean score ratings, with ratings from 5 to 7 being good to excellent, both Shoprite and Clicks scored UHPC well on all 32 attributes. However Spar scored UHPC poorly on:

- Quality of service
- Relationship with supplier
- Personnel contact
- Supplier innovation
- Cooperation of supplier
- Level of customer service
- Palletized and unitized loads
- Working together to reduce supply chain costs

These are obviously areas of improvement for UHPC requiring immediate attention.

Although a performance test on each attribute was obtained from a mean score result by subtracting the mean rating of importance from the perceived performance on each attribute, this was not a true reflection of UHPC's performance or lack thereof. A more appropriate test would be to compare UHPC's performance against competitors on the 32 attribute of LCS.

4. **To determine how UHPC LCS compares to that of other competitors.**

The objective of this exercise was to identify strengths and weaknesses in UHPC's Logistics Customer Service Department by comparing UHPC's performance against competitor companies. On attributes of LCS where UHPC outperforms competitors the organization should leverage this to strengthen performance and gain competitive advantage in the market (Anderson & Narus, 1998, p.53).

The mean customer ratings of UHPC against Suppliers A and B were compared using the *Wilcoxon Signs Rank Test*. The *Wilcoxon Sign Ranks Test* detects differences in the distribution of two related variables (SPSS *Results Coach*).

Reject H_0 at the 5% significance level for all of the attributes relating to customer service, except for attribute 1, *ordering procedures* because the p-values are all less than 0.05. One can conclude that for the other 31 attributes there are differences (favouring UHPC) in the customer service ratings between UHPC and Suppliers A.

Similarly for Suppliers B, reject H_0 at the 5% significance level for all of the questions relating to customer service except for *Ordering procedures* and *Handling of claims*. The rest of the attributes all have p-values that are all less than 0.05 and conclude that for these other 30 attributes there is a difference (favouring UHPC) in the customer service ratings between UHPC and Supplier A.

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UHPC is offering a good to excellent service to its customers and are evidently ahead of their competitors in most attributes of customer service. There are however several weaknesses/areas of improvement in customer service that were identified.

5. **To identify areas of improvement for UHPC LCS.**

In order to understand where UHPC can improve, there should be no discrepancy between what the retail customers perceive as attributed of good customer service and the actual rating of UHPC customer service (Lambert and Burduroglu, 2000, p.1). *The Wilcoxon Signs Rank Test* is used due to the non-parametric nature of the data.

From Table 38 (p.128), Reject H_0 at the 5% significance level if the p-value were less than 0.05 therefore reject H_0 for all the attributes except:

- Order discrepancy handing-after delivery
- Quality/durability of packaging
- Personal contact-knowledge and ability and helpfulness in problem solving
- Supplier innovation in improving efficiency of delivery

These attributes are those where there are discrepancies between what the retail customers perceive as good customer attributes and actual rating of UHPC customer service and would be interpreted as attributes that can be improved. The remaining questions confirm that H_0 be rejected and H_1 accepted. Thus concluding for the 28 other questions that there are no discrepancies between what the retail customers perceive as good customer attributes and actual rating of UHPC customer service. One cannot however rule out that UHPC could have scored high on an attribute perceived to be unimportant.

- Order discrepancy handing-after delivery
- Quality/durability of packaging

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- Personal contact-knowledge and ability and helpfulness in problem solving
- Supplier innovation in improving efficiency of delivery

Other than these areas of customer service that require more focus UHPC compares favourably over other competitors/suppliers to major retail customers in the FMCG industry.

The level of service of customer logistics attributes compared favourably to competitors but what about customer's needs? Does UHPC really offer what the customer's need? In other words, what about desired service? The desired or expected service is what the customer has in mind, what really satisfies his needs. The desired service is influenced by external information, which customers get from the market, developing a benchmarking activity. The nature of the questionnaire, which compared UHPC logistics customer service to other competitors, addresses this.

The next chapter briefly discusses the limitations of the research work undertaken.

CHAPTER EIGHT - Limitations of the Study

Although all UHPC DC customers were included in this study, a limitation of the study was the sample size of 24, which is small. Although it is representative of the DC customers, statistical procedures such as factor analysis could not be performed (Coakes and Steed, 2003). This can be seen as a limitation of the study.

Attributes of customer service used in the questionnaire were selected based on logistics literature and UHPC service level criteria. There may however be other attributes of logistics customer inadvertently omitted.

The next section provides recommendations that UHPC should consider to improve its logistics customer service.

CHAPTER NINE - Recommendations

The following recommendations are made based on the results of both the research and literature survey.

Logistics Customer Service departments might want to consider the following issues/actions:

1. Understand the customer service attributes that the customer views as important and focus on improving service levels on these attributes. At the same time, work to maintain acceptable service levels on less important attributes while reducing the cost of providing these services.

2. Recognize and emphasize the importance of logistics to the overall goals of the organization: retention of current customers, the recruitment of new customers, and the building of market share.

3. Use the results of this research to support the elevation of logistics in the company either during a strategic planning process or operationally and tactically.

4. Encourage inter-functional coordination to allow marketing and logistics to work together during planning and implementation in an effort to provide the optimal combination of customer service and marketing service to the customer.

5. Use customer service as an element of strategy to help the company to gain a differential advantage in the marketplace.

The results of the research indicated that UHPC should:

- Get commitment from the "Top" as the customer service audit should not be seen as a logistical study but rather a corporate study. If Top Management is not committed to make the company customer-focused, then it may not be possible to implement programs based on findings in the survey.

- Repeat the survey periodically as customer service strategies must change as customer's expectation increase.

- Repeat the survey at least quarterly to evaluate the organization's performance on attributes that needed improvement for a particular customer/group of customers. This way the organization will be able to determine whether the strategy is working without having to wait for 3 to 4 years for another major benchmarking study.

- Repeat the external customer service audit using an independent consulting firm or vendor to prevent biased responses.

- In addition, a study of this nature should be conducted over a longer period of time so that all-important stakeholders can be interviewed to avoid any misinterpretation of questions.

In establishing a customer-focused culture within UHPC, it is important for every employee to conscientiously assess and to understand how his or her knowledge, behaviour and activities fulfill the customer's needs in the market. In addition, it is for employees to work cooperatively in partnership with third party service providers such as Exel to create customer value and satisfaction.

Going forward, UHPC would have to engage with individual customers on elements of logistics service, which require improvement, and the company will have to benchmark against competitors best in class on particular attributes. Should UHPC be best in class then it would have to benchmark itself against international best in class suppliers to be a global contender.

CHAPTER TEN - Areas of Further Research

In conclusion, is a list of further research that UHPC could do to help further understand and improve its level of logistics customer service:

1. This research should encourage UHPC to replicate the survey undertaken at least once a year and to include additional attributes that customers might consider important.

2. Further research should consider the both the perspectives of UHPC the service provider and, Customers the service receivers on the various attributes of logistics customer service.

3. Further to Point 2 above, the survey should be extended to other channel customers, including wholesale customers and direct-store delivery customers. UHPC could identify attributes of logistics customer service important to each customer-type through customer service audits allowing the Outbound Logistics Department to tailor-make customer service offerings.

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Appendix 1a:

Dear Respondent

I am an MBA student at the University of KwaZulu Natal, and currently employed as a Customer Service Consultant at Unilever Home and Personal Care Division. The following questionnaire forms part of the research I am conducting evaluating logistics customer service within the South African FMCG industry.

The questionnaire would take no more than 15 minutes to complete. Your input would be gratefully appreciated. All responses will be completely anonymous and confidential.

Yours Sincerely

Darryl Kader
MBA Student
University of KwaZulu Natal

I confirm that Darryl Kader is a bona fide MBA student at the University of KwaZulu Natal and is conducting this research under my supervision.

Yours Sincerely

Professor Debbie Vigar-Ellis
MBA Director - Pietermaritzburg Campus
School of Business
University of KwaZulu Natal, Pmb

Appendix 1b:

LOGISTICS CUSTOMER SERVICE EVALUATION - (UHPC)

Company Name: _____   Region:_____

Name of Person:_____ Designation: _____

Kindly take a few minutes to complete the evaluation of logistics customer service received from UHPC by answering the following questions and the supplier performance evaluation.

Please provide the names of 2 other *major* suppliers of *similar* products below:

Supplier A _____

Supplier B _____

Please mark the appropriate space with an X.

What is the total number of SKU's/lines ordered from each supplier?

	Less than 200	Between 200 and 400	Greater than 400
UHPC			
Supplier A			
Supplier B			

What is the frequency of deliveries received from?

UHPC:	Daily ☐	More than once a week ☐
Supplier A:	Daily ☐	More than once a week ☐
Supplier B:	Daily ☐	More than once a week ☐

How often do these suppliers call on you for service level meetings?

UHPC:	Monthly ☐	At least once in three months ☐	Never ☐
Supplier A:	Monthly ☐	At least once in three months ☐	Never ☐
Supplier B:	Monthly ☐	At least once in three months ☐	Never ☐

Do these suppliers outsource their warehousing and distribution to third party service providers?

Supplier A: (1) Yes   (2) No

Supplier B: (1) Yes   (2) No

Instructions:

Listed on the following pages are various attributes of customer service which suppliers provide to their customers. There are 2 tasks.

Task 1:

This task involves your evaluation of the various attributes that you consider important when you evaluate the performance of a supplier. Using the scale **Importance**, please mark an X on a scale of 1 to 7, the number which best expresses the importance of each attribute. If an attribute is not considered important or possesses little weight in your evaluation, choose 1. If the attribute is considered very important, choose 7.

Task 2:

Evaluate the current performance of UHPC against 2 other major suppliers of homecare and/or personal care products. Using the scale **Perceived Performance of Suppliers**, please insert the number 1 to 7, which best expresses, your perception of the supplier's *current* performance under the appropriate supplier heading. If you perceive a supplier's performance to be poor, insert a 1. Reserve a rating of 7 for excellent performance. If a service is not available from a supplier, write NA (not applicable), in the appropriate space.

For example:

Attribute	Importance							Perceived Performance of Suppliers		
	Not Important						Very Important	Scale of 1 to 7 (Poor to Excellent)		
	1	2	3	4	5	6	7	UHPC	Supplier A	Supplier B
1. **Order fulfillment** - getting what you want the first time.			X					6	4	7
2. **Timeliness** - stock arriving as promised, i.e. correct Delivery Day & Time.							X	7	5	6

LOGISTICS CUSTOMER SERVICE EVALUATION - (UHPC)

	Attribute	Importance								Perceived Performance of Suppliers		
		Not Important						*Very Important*		*Poor(1)* Scale of 1 to 7		*Excellent(7)*
		1	2	3	4	5	6	7		UHPC	Supplier A	Supplier B
1	**Ordering procedures -** efficiency and effectiveness	1	2	3	4	5	6	7				
2	**Timeliness -** stock arriving as promised, i.e. correct Delivery Day & Time	1	2	3	4	5	6	7				
3	**Order fulfillment -** getting what you want the first time	1	2	3	4	5	6	7				
4	**Order accuracy -** right items & correct number of items	1	2	3	4	5	6	7				
5	**Order quality -** items free from damage in transit	1	2	3	4	5	6	7				
6	**Order discrepancy handling** - after delivery X oder comp teness	1	2	3	4	5	6	7				
7	**Quality/durability of packaging**	1	2	3	4	5	6	7				
8	**Product availability**	1	2	3	4	5	6	7				
9	**Quality of service** received from Supplier	1	2	3	4	5	6	7				
10	**Reputation** of Supplier	1	2	3	4	5	6	7				
11	**Relationship** with Supplier	1	2	3	4	5	6	7				
12	**Personnel contact –** knowledge, ability & helpfulness in solving problems	1	2	3	4	5	6	7				
13	**Communication** of Supplier on delivery status	1	2	3	4	5	6	7				
14	**Collaboration** - sharing real time data	1	2	3	4	5	6	7				
15	Supplier **innovation** in improving efficiency of delivery.	1	2	3	4	5	6	7				
16	**Service Level Agreement** and regular monitoring thereof.	1	2	3	4	5	6	7				

	Attribute	Importance								Perceived Performance of Suppliers		
		Not Important					Very Important			Poor (1)	Excellent (7) Scale of 1 to 7	
		1	2	3	4	5	6	7		UHPC	Supplier A	Supplier B
17	Ability to handle defective product **returns**	1	2	3	4	5	6	7				
18	Ability to Expedite **Emergency Orders**	1	2	3	4	5	6	7				
19	Length of promised **lead times** on orders.	1	2	3	4	5	6	7				
20	Ability to measure **supplier performance**	1	2	3	4	5	6	7				
21	Availability of inventory **status**	1	2	3	4	5	6	7				
22	**Cooperation** of Supplier	1	2	3	4	5	6	7				
23	**Information** quality about products	1	2	3	4	5	6	7				
24	Handling of **claims**	1	2	3	4	5	6	7				
25	Handling of **complaints**	1	2	3	4	5	6	7				
26	High **fill rate on normal re-orders**	1	2	3	4	5	6	7				
27	High **fill rate on emergency orders**	1	2	3	4	5	6	7				
28	High **fill rate on promotional orders**	1	2	3	4	5	6	7				
29	**Alerts** on transportation delays	1	2	3	4	5	6	7				
30	**Level of Customer Service**	1	2	3	4	5	6	7				
31	**Palletized and unitized loads** for handling efficiency	1	2	3	4	5	6	7				
32	Working together to **reduce supply chain costs**	1	2	3	4	5	6	7				

Are there any other attributes of customer service, which you consider important?

Your time spent in completing this evaluation is gratefully appreciated - Thank you.

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Appendix 2A:

Attribute 1: Ordering procedures – efficiency and effectiveness.

		Ordering procedures	
		1.00	4.00	5.00	6.00	7.00	Total
Customer	Spar	0	0	0	0	1	1
	Shoprite	0	1	2	6	6	15
	Clicks	1	3	0	2	1	7
\multicolumn{2}{c}{Total}	1	4	2	8	8	23

18 Out of 23 respondents (72%) consider ordering procedures to be important to very important.

Attribute 2: Timeliness of delivery – stock arriving as promised, i.e. correct delivery day and time.

		Timeliness of delivery	
		5.00	6.00	7.00	Total
Customer	Spar	0	0	2	2
	Shoprite	2	3	10	15
	Clicks	0	0	7	7
\multicolumn{2}{c}{Total}	2	3	19	24

22 Out of 24 respondents (92%) consider timeliness of delivery be important to very important.

Attribute 3: Order fulfillment – getting what you want the first time

		Order fulfillment	
		5.00	6.00	7.00	Total
Customer	Spar	0	0	2	2
	Shoprite	1	2	12	15
	Clicks	2	0	5	7
\multicolumn{2}{c}{Total}	3	2	19	24

All 24 respondents (100%) consider order fulfillment to be important to very important.

Attribute 4: Order accuracy – right items and correct number of items

		Order accuracy			
		4.00	6.00	7.00	Total
Customer	Spar	0	0	2	2
	Shoprite	1	3	11	15
	Clicks	0	0	7	7
Total		1	3	20	24

23 Out of 24 respondents (96%) consider order accuracy to be important to very important.

Attribute 5: Order quality – items free from damage in transit

		Order quality				
		4.00	5.00	6.00	7.00	Total
Customer	Spar	0	0	0	2	2
	Shoprite	1	1	2	11	15
	Clicks	0	0	0	7	7
Total		1	1	2	20	24

23 Out of 23 (100%) respondents consider order quality to be important to very important.

Attribute 6: Order discrepancy handling - after delivery

		Order discrepancy handling				
		4.00	5.00	6.00	7.00	Total
Customer	Spar	0	0	0	2	2
	Shoprite	1	4	6	4	15
	Clicks	0	0	0	7	7
Total		1	4	6	13	24

23 Out of 24 (96%) respondents consider order discrepancy handling to be important to very important.

Attribute 7: Quality/durability of packaging

		Quality/durability of packaging			
		5.00	6.00	7.00	Total
Customer	Spar	0	0	2	2
	Shoprite	5	6	4	15
	Clicks	2	1	4	7
Total		7	7	10	24

All 24 (100%) respondents consider quality/durability of packaging to be important to very important.

Attribute 8: Product availability

		Product availability			Total
		5.00	6.00	7.00	
Customer	Spar	0	0	2	2
	Shoprite	1	1	13	15
	Clicks	2	0	5	7
Total		3	1	20	24

All 24 respondents (100%) consider product availability to be important to very important.

Attribute 9: Quality of service received from supplier

		Quality of service				Total
		4.00	5.00	6.00	7.00	
Customer	Spar	0	0	0	2	2
	Shoprite	1	1	8	5	15
	Clicks	0	0	2	5	7
Total		1	1	10	12	24

23 Out of 24 (96%) respondents consider quality of service to be important to very important.

Attribute 10: Reputation of supplier

		Reputation of supplier					Total
		3.00	4.00	5.00	6.00	7.00	
Customer	Spar	1	0	0	0	1	2
	Shoprite	3	1	4	2	4	14
	Clicks	0	1	0	0	6	7
Total		4	2	4	2	11	23

17 Out of 23 (74%) respondents consider reputation of supplier to be important to very important.

Attribute 11: Relationship with supplier

		Relationship with supplier			Total
		5.00	6.00	7.00	
Customer	Spar	0	0	2	2
	Shoprite	2	5	8	15
	Clicks	2	0	5	7
Total		4	5	15	24

All 24 respondents (100%) consider relationship with supplier to be important to very important.

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Attribute 12: Personnel contact – knowledge, ability & helpfulness in solving problems

		Personal contact			
		5.00	6.00	7.00	Total
Customer	Spar	0	0	2	2
	Shoprite	2	4	9	15
	Clicks	0	0	7	7
Total		2	4	18	24

All 24 respondents (100%) consider personal contact to be important to very important to very important.

Attribute 13: Communication of supplier on delivery status

		Communication of supplier			
		5.00	6.00	7.00	Total
Customer	Spar	0	0	2	2
	Shoprite	3	7	5	15
	Clicks	2	1	4	7
Total		5	8	11	24

All 24 respondents (100%) consider communication of supplier to be important to very important.

Attribute 14: Collaboration - sharing real time data

		Collaboration				
		3.00	5.00	6.00	7.00	Total
Customer	Spar	0	1	0	1	2
	Shoprite	1	6	3	5	15
	Clicks	0	2	0	5	7
Total		1	9	3	11	24

23 Out of 24 (96%) respondents consider collaboration to be important to very important.

Attribute 15: Supplier innovation in improving efficiency of delivery.

		Supplier innovation			
		5.00	6.00	7.00	Total
Customer	Spar	0	1	1	2
	Shoprite	3	7	5	15
	Clicks	1	2	4	7
Total		4	10	10	24

All 24 respondents (100%) consider supplier innovation to be important to very important.

Attribute 16: Service Level Agreement and regular monitoring thereof.

		Service level agreement				
		4.00	5.00	6.00	7.00	Total
	Spar	0	0	0	2	2
Customer	Shoprite	1	1	6	7	15
	Clicks	0	0	2	5	7
Total		1	1	8	14	24

23 Out of 24 (96%) respondents consider service level agreements to be important to very important.

Attribute 17: Ability to handle defective product returns

		Ability to handle returns				
		4.00	5.00	6.00	7.00	Total
	Spar	0	0	0	2	2
Customer	Shoprite	1	4	6	4	15
	Clicks	0	1	1	5	7
Total		1	5	7	11	24

23 Out of 24 (96%) respondents consider ability to handle returns to be important to very important.

Attribute 18: Ability to Expedite Emergency Orders

		Ability to expedite emergency orders					
		2.00	3.00	5.00	6.00	7.00	Total
	Spar	0	0	0	0	2	2
Customer	Shoprite	1	1	3	5	5	15
	Clicks	0	1	2	1	3	7
Total		1	2	5	6	10	24

21 Out of 24 (88%) respondents consider ability to expedite emergency orders to be important to very important.

Attribute 19: Length of promised lead times on orders.

		Length of promised lead times					
		3.00	4.00	5.00	6.00	7.00	Total
	Spar	0	0	0	0	2	2
Customer	Shoprite	0	1	2	7	5	15
	Clicks	1	0	3	1	2	7
Total		1	1	5	8	9	24

22 Out of 24 respondents (92%) consider length of promised lead times to be important to very important.

Attribute 20: Ability to measure supplier performance

		Ability to measure supplier performance				Total
		4.00	5.00	6.00	7.00	
Customer	Spar	0	0	0	2	2
	Shoprite	1	2	6	6	15
	Clicks	1	1	0	5	7
Total		2	3	6	13	24

22 Out of 24 (92%) respondents consider ability to measure supplier performance to be important to very important.

Attribute 21: Availability of inventory status

		Availability of inventory status					Total
		3.00	4.00	5.00	6.00	7.00	
Customer	Spar	0	0	0	1	1	2
	Shoprite	1	0	2	3	9	15
	Clicks	0	2	1	0	4	7
Total		1	2	3	4	14	24

21 Out of 24 (88%) respondents consider availability of inventory status to be important to very important.

Attribute 22: Cooperation of supplier

		Cooperation of supplier			Total
		5.00	6.00	7.00	
Customer	Spar	0	0	2	2
	Shoprite	3	4	8	15
	Clicks	0	0	7	7
Total		3	4	17	24

All 24 respondents (100%) consider cooperation of supplier ability to be important to very important.

Attribute 23: Information quality about products

		Information quality of products					Total
		3.00	4.00	5.00	6.00	7.00	
Customer	Spar	1	0	0	0	1	2
	Shoprite	1	3	2	5	4	15
	Clicks	0	1	3	0	3	7
Total		2	4	5	5	8	24

18 Out of 24 (78%) respondents consider information quality of products to be important to very important.

Attribute 24: Handling of claims

		Handling of claims					Total
		1.00	4.00	5.00	6.00	7.00	
Customer	Spar	0	0	0	0	2	2
	Shoprite	1	4	1	4	5	15
	Clicks	0	0	0	0	7	7
Total		1	4	1	4	14	24

19 Out of 24 (79%) respondents consider handling of claims to be important to very important.

Attribute 25: Handling of complaints

		Handling of complaints				Total
		4.00	5.00	6.00	7.00	
Customer	Spar	0	0	0	2	2
	Shoprite	2	4	5	4	15
	Clicks	0	2	0	5	7
Total		2	6	5	11	24

22 Out of 24 (92%) respondents consider handling of complaints to be important to very important.

Attribute 26: High fill rate on normal reorders

		High fill rate on normal reorders						Total
		1.00	2.00	4.00	5.00	6.00	7.00	
Customer	Spar	0	0	0	0	0	2	2
	Shoprite	1	1	0	2	4	7	15
	Clicks	0	0	2	1	0	4	7
Total		1	1	2	3	4	13	24

20 Out of 24 (83%) respondents consider high fill rate on normal reorders to be important to very important.

Attribute 27: High fill rate on emergency orders

		High fill rate on emergency orders					Total
		1.00	4.00	5.00	6.00	7.00	
Customer	Spar	0	0	0	0	2	2
	Shoprite	1	0	3	2	9	15
	Clicks	0	2	1	2	2	7
Total		1	2	4	4	13	24

21 Out of 24 (88%) respondents consider high fill rate on emergency reorders to be important to very important.

Attribute 28: High fill rate on promotional orders

		High fill rate on promotional orders				Total
		4.00	5.00	6.00	7.00	
Customer	Spar	0	0	0	2	2
	Shoprite	0	1	2	12	15
	Clicks	2	1	1	3	7
Total		2	2	3	17	24

22 Out of 24 (92%) respondents consider high fill rate on promotional orders to be important to very important.

Attribute 29: Alerts on transportation delays

		Alerts on transportation delays			Total
		5.00	6.00	7.00	
Customer	Spar	0	0	2	2
	Shoprite	3	4	8	15
	Clicks	0	2	5	7
Total		3	6	15	24

All 24 respondents (100%) consider alerts on transportation delays to be important to very important.

Attribute 30: Level of customer service

		Level of customer service				Total
		3.00	5.00	6.00	7.00	
Customer	Spar	0	0	0	2	2
	Shoprite	1	4	4	6	15
	Clicks	0	0	0	7	7
Total		1	4	4	15	24

23 Out of 24 (96%) respondents consider level of customer service to be important to very important.

Attribute 31: Palletised and unitised loads for handling

		Palletized and unitized loads					
		2.00	3.00	5.00	6.00	7.00	Total
Customer	Spar	0	0	0	0	2	2
	Shoprite	1	1	1	5	7	15
	Clicks	0	0	0	1	6	7
Total		1	1	1	6	15	24

22 Out of 24 respondents (92%) consider palletized and unitized loads to be important to very important.

Attribute 32: Working together to reduce supply chain

		Working together to reduce supply chain costs			
		5.00	6.00	7.00	Total
Customer	Spar	0	0	2	2
	Shoprite	4	3	8	15
	Clicks	2	0	5	7
Total		6	3	15	24

All 24 respondents (100%) consider working together to reduce supply chain costs to be important to very important.

Appendix 2B:

Summary of Mean Customer Ratings of Attributes considered Important across the 3 customer groups

	Clicks	Shoprite	Spar
Ordering procedures	4.57	6.13	7.00
Timeliness of delivery	7.00	6.53	7.00
Order fulfillment	6.43	6.73	7.00
Order accuracy	7.00	6.60	7.00
Order quality	7.00	6.53	7.00
Order discrepancy handling	7.00	5.87	7.00
Quality/durability of packaging	6.29	5.93	7.00
Product availability	6.43	6.80	7.00
Quality of service	6.71	6.13	7.00
Reputation of supplier	6.57	5.21	5.00
Relationship with supplier	6.43	6.40	7.00
Personnel contact	7.00	6.47	7.00
Communication of supplier	6.29	6.13	7.00
Collaboration	6.43	5.73	6.00
Supplier innovation	6.43	6.13	6.50
Service level agreement	6.71	6.27	7.00
Ability to handle returns	6.57	5.87	7.00
Ability to expedite emergency orders	5.71	5.67	7.00
Length of promised lead times	5.43	6.07	7.00
Ability to measure supplier performance	6.29	6.13	7.00
Availability of inventory status	5.86	6.27	6.50
Cooperation of supplier	7.00	6.33	7.00
Information quality of products	5.71	5.53	5.00
Handling of claims	7.00	5.40	7.00
Handling of complaints	6.43	5.73	7.00
High fill rate on normal reorders	5.86	5.73	7.00
High fill rate on emergency orders	5.57	6.07	7.00
High fill rate on promotional orders	5.71	6.73	7.00
Alerts on transportation delays	6.71	6.33	7.00
Level of customer service	7.00	5.93	7.00
Palletized and unitized loads	6.86	5.93	7.00
Working together to reduce supply chain costs	6.43	6.27	7.00

Appendix 2C:

Designations: **Case Summaries**

	DC		IC	IM	RC				RM						RS	RM	RM1	SM	STKR				STKRM	SYSM
No. of participants	1	2	1	1	1	2	3	4	1	2	3	4	5	6	1	1	1	1	1	2	3	4	1	1
Ordering procedures	5	6	7	6	7	4	6	4	.	7	7	6	4	1	7	6	5	7	6	7	7	6	4	6
Timeliness of delivery	6	7	7	6	7	7	7	7	7	6	7	7	7	7	5	7	7	5	7	7	7	7	7	7
Order fulfilment	7	7	7	5	7	5	7	5	7	7	7	7	7	7	7	6	7	7	6	7	7	7	7	7
Order accuracy	6	7	7	6	7	7	7	7	7	7	7	7	7	7	6	7	7	7	4	7	7	7	7	7
Order quality	6	7	7	7	7	7	7	7	7	7	7	7	7	7	4	7	7	7	5	7	7	7	6	7
Order discrepancy handling	6	7	7	6	7	7	7	7	7	5	7	5	7	7	7	7	6	6	7	4	6	5	5	6
Quality/durability of packaging	5	7	7	7	7	5	6	5	7	5	7	6	7	7	5	6	6	6	5	7	6	6	5	7
Product availability	7	7	7	7	7	5	7	5	7	7	7	5	7	7	7	6	7	7	7	7	7	7	7	7
Quality of service	6	7	7	6	7	6	7	6	7	7	7	4	7	7	6	6	6	6	6	7	7	5	6	7
Reputation of supplier	5	7	7	6	7	7	7	7	3	7	7	5	7	4	.	5	5	6	3	4	7	3	3	7
Relationship with supplier	6	7	7	7	7	5	7	5	7	7	7	6	7	7	7	7	5	7	6	7	6	5	6	7
Personnel contact	6	7	7	7	7	7	7	7	7	7	7	5	7	7	7	6	5	7	7	7	7	7	6	6
Communication of supplier	6	7	7	6	7	5	7	5	7	7	7	6	6	7	7	6	5	6	5	7	7	6	5	6
Collaboration	5	7	7	5	7	5	7	5	5	7	7	5	7	7	3	7	7	6	5	5	6	5	7	6
Supplier innovation	6	7	7	5	7	6	7	6	6	7	7	5	5	7	6	6	6	7	6	7	7	6	5	6
Service level agreement	6	7	7	6	7	6	7	6	7	7	7	4	7	7	6	7	6	7	6	5	7	6	7	7
Ability to handle returns	6	7	7	6	7	5	7	6	7	7	7	4	7	7	5	6	6	7	5	7	6	5	5	6
Ability to expedite emergency orders	6	7	7	5	7	6	3	5	7	2	7	5	7	5	3	5	6	7	7	7	6	6	7	6
Length of promised lead times	6	7	7	6	7	5	3	5	7	4	7	6	6	5	6	7	5	7	5	7	6	6	6	7
Ability to measure supplier performance	6	7	7	6	7	5	7	4	7	6	7	5	7	7	6	7	7	7	5	7	7	6	4	6
Availability of inventory status	5	7	7	6	7	4	7	4	6	7	7	5	5	7	7	7	7	7	7	7	7	6	3	6
Cooperation of supplier	6	7	7	5	7	7	7	7	7	7	7	5	7	7	7	6	7	7	6	7	7	7	5	6
Information quality of products	4	7	7	6	7	5	7	5	3	7	7	3	4	5	6	6	5	7	5	7	6	4	4	6
Handling of claims	6	7	7	6	7	7	7	7	7	7	7	4	7	7	7	6	5	7	4	1	7	4	4	6
Handling of complaints	6	7	7	6	7	5	7	5	7	7	7	4	7	7	6	6	5	7	5	5	7	5	4	6
High fill rate on normal reorders	7	7	7	6	7	4	7	4	7	1	7	7	7	5	5	6	6	2	7	7	7	7	5	6
High fill rate on emergency orders	7	7	7	7	7	4	6	4	7	1	7	5	6	5	5	5	6	7	7	7	7	7	7	6
High fill rate on promotional orders	7	7	7	6	7	4	7	4	7	7	7	7	6	5	5	7	6	7	7	7	7	7	7	7
Alerts on transportation delays	6	7	7	7	7	7	6	7	7	7	7	7	6	7	5	7	6	7	5	7	7	5	6	6
Level of customer service	6	7	7	7	7	7	7	7	7	7	7	5	7	7	3	7	6	7	5	6	7	5	5	6
Palletised and unitised loads	6	7	7	6	7	7	6	7	7	2	7	6	7	7	3	7	5	7	7	7	6	7	7	6
Working together	6	7	7	7	7	5	7	5	7	7	7	5	7	7	5	7	5	7	7	5	6	7	7	6

DC-DC Manager   IC-Inventory Controller   IM-Inventory Manager   RC-Receiving Controller
RM-Receiving Manager   RS-Receiving Supervisor   RM-Regional Manager   RM1-Replenishment Manager
SM-Shift Manager   STKR-Stock Replenisher   STKRM-Stock Replenisher Manager
SYSM- Systems Manager

Appendix 2D:

Cross-tabulations of how customers perceive UHPC customer service

UHPC CUSTOMER SERVICE		CUSTOMER		
		SPAR	SHOPRITE	CLICKS
Ordering procedures	4.00		1	1
	6.00	1	6	1
	7.00		8	4
Timeliness of delivery	3.00			1
	4.00	1	1	1
	5.00		4	1
	6.00		9	2
	7.00	1	1	2
Order fulfillment	3.00		1	
	4.00			1
	5.00	1	9	2
	6.00		2	4
	7.00	1	3	
Order accuracy	4.00		1	1
	5.00			2
	6.00	2	9	1
	7.00		5	3
Order quality	3.00			1
	4.00		1	
	5.00		1	2
	6.00	1	5	2
	7.00	1	8	2
Order discrepancy handling	5.00		4	
	6.00		8	3
	7.00	2	3	4
Quality/durability of packaging	4.00		1	
	5.00		4	3
	6.00		6	1
	7.00	2	4	3
Product availability	3.00		2	
	4.00		1	
	5.00	1	7	1
	6.00		1	5
	7.00	1	4	1
Quality Of service	1.00	1		
	6.00		7	3
	7.00	1	8	4
Reputation of supplier	6.00		5	1
	7.00	2	9	5
Relationship with supplier	1.00	1		
	5.00			1
	6.00		5	1
	7.00	1	10	5
Personnel contact	1.00	1		
	4.00		1	
	5.00			1
	6.00		7	
	7.00	1	7	6
Communication of supplier	5.00		1	2
	6.00	1	6	
	7.00	1	7	5
Collaboration	3.00		1	
	4.00		1	
	5.00		2	2
	6.00		7	1
	7.00	2	4	3
Supplier innovation	2.00	1		
	4.00		1	
	6.00		8	5
	7.00	1	6	2
Service level agreement	3.00	1		
	5.00		1	
	6.00		7	2
	7.00	1	7	5
Ability to handle returns	4.00		1	
	5.00		4	2
	6.00		6	1
	7.00	2	4	4

		Col 1	Col 2	Col 3
Ability to expedite emergency orders	3.00		1	
	4.00		1	
	5.00	1	4	
	6.00		5	4
	7.00	1	4	2
Length of promised lead times	4.00		1	
	5.00		3	2
	6.00	1	4	1
	7.00	1	7	2
Ability to measure supplier performance	5.00		2	3
	6.00		6	
	7.00	2	7	4
Availability of inventory status	4.00		1	1
	5.00		5	
	6.00	1	4	1
	7.00	1	4	4
Cooperation of supplier	1.00	1		
	5.00			1
	6.00		7	2
	7.00	1	8	4
Information quality of products	3.00	1		
	5.00		4	1
	6.00		7	1
	7.00	1	4	4
Handling of claims	4.00		1	
	5.00	1	2	
	6.00		6	2
	7.00	1	4	5
Handling of complaints	3.00	1		
	4.00			1
	5.00		3	1
	6.00		8	1
	7.00	1	4	4
High fill rate on normal reorders	3.00		1	
	4.00		2	2
	5.00	1	6	
	6.00		4	3
	7.00	1	2	1
High fill rate on emergency orders	3.00		1	
	4.00		2	1
	5.00		4	1
	6.00		4	4
	7.00	2	4	
High fill rate on promotional orders	3.00		1	
	4.00			1
	5.00		4	
	6.00	1	8	2
	7.00	1	2	3
Alerts on transportation delays	2.00			1
	4.00		1	
	5.00	1	2	
	6.00		5	3
	7.00	1	7	3
Level of customer service	2.00	1		
	3.00		1	1
	5.00		1	1
	6.00		6	1
	7.00	1	7	4
Palletized and unitized loads	1.00	1		
	3.00		1	
	4.00			1
	5.00	1	1	1
	6.00		7	2
	7.00		5	3
Working together to reduce supply chain costs	1.00	1		
	3.00			1
	5.00		1	3
	6.00	1	7	1
	7.00		7	2

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Appendix 2E:

Cross-tabulations of UHPC perceived performance against Supplier's A & B

ATTRIBUTES		UHPC	Supplier A	Supplier B
Ordering procedures	2.00		1	1
	4.00	2	3	2
	5.00		6	6
	6.00	8	6	5
	7.00	12	6	7
Timeliness of delivery	2.00		2	1
	3.00	1	2	
	4.00	3	2	4
	5.00	5	8	9
	6.00	11	8	7
	7.00	4	2	2
Order fulfillment	2.00		1	1
	3.00	1	2	1
	4.00	1	4	5
	5.00	12	2	5
	6.00	6	13	8
	7.00	4	2	3
Order accuracy	2.00			1
	3.00		1	2
	4.00	2	2	3
	5.00	2	6	2
	6.00	12	9	8
	7.00	8	6	7
Order quality	2.00		1	
	3.00	1	1	3
	4.00	1	3	3
	5.00	3	3	2
	6.00	8	10	10
	7.00	11	6	5
Order discrepancy handling	3.00			2
	4.00		7	2
	5.00	4	7	7
	6.00	11	4	7
	7.00	9	6	5
Quality/durability of packaging	3.00		1	1
	4.00	1	1	4
	5.00	7	9	7
	6.00	7	10	7
	7.00	9	3	4
Product availability	2.00		1	2
	3.00	2	2	
	4.00	1	2	3
	5.00	9	3	4
	6.00	6	14	9
	7.00	6	2	5
Quality of service	1.00	1		
	2.00		1	
	3.00		3	
	4.00		3	3
	5.00		6	9
	6.00	10	5	7
	7.00	13	6	4
Reputation of supplier	2.00			1
	3.00		1	1
	4.00		2	2
	5.00		7	1
	6.00	6	5	8
	7.00	16	7	8
Relationship with supplier	1.00	1	1	1
	2.00		1	1
	3.00		3	
	4.00		1	2
	5.00	1	6	7
	6.00	6	4	4
	7.00	16	8	8

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Personnel contact	1.00	1	1	1
	3.00		4	1
	4.00	1	5	4
	5.00	1	3	4
	6.00	7	4	7
	7.00	14	7	6
Communication of supplier	1.00		2	3
	2.00		1	1
	3.00		2	
	4.00		4	2
	5.00	3	7	6
	6.00	7	3	8
	7.00	13	4	2
Collaboration	1.00		3	2
	2.00		2	1
	3.00	1	3	2
	4.00	1	5	6
	5.00	4	6	8
	6.00	8	1	1
	7.00	9	3	2
Supplier innovation	1.00		2	1
	2.00	1	3	1
	3.00		1	
	4.00	1	3	4
	5.00		8	8
	6.00	13	4	8
	7.00	9	3	1
Service level agreement	1.00		7	4
	2.00		1	1
	3.00	1	4	2
	4.00		1	3
	5.00	1	6	4
	6.00	9	4	7
	7.00	13	1	2
Ability to handle returns	1.00		1	
	2.00		1	1
	3.00		2	1
	4.00	1	2	4
	5.00	6	6	6
	6.00	7	7	7
	7.00	10	5	4
Ability to expedite emergency orders	3.00	1	2	3
	4.00	1	4	3
	5.00	5	6	6
	6.00	9	8	8
	7.00	7	3	3
Length of promised lead times	3.00		1	3
	4.00	1	3	4
	5.00	5	7	4
	6.00	6	6	6
	7.00	10	5	5
Ability to measure supplier performance	1.00		3	3
	2.00		2	1
	4.00		3	1
	5.00	5	4	8
	6.00	6	9	7
	7.00	13	2	2
Availability of inventory status	1.00		2	1
	3.00		1	3
	4.00	2	5	4
	5.00	5	6	5
	6.00	6	4	4
	7.00	9	3	3
Cooperation of supplier	1.00	1	1	
	2.00		1	1
	3.00		1	1
	4.00		2	1
	5.00	1	3	8
	6.00	9	7	4
	7.00	13	8	7

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Information quality of products	2.00		1	
	3.00	1	3	4
	4.00		4	1
	5.00	5	8	11
	6.00	8	4	4
	7.00	9	3	2
Handling of claims	2.00		1	1
	3.00		2	1
	4.00	1	1	3
	5.00	3	7	6
	6.00	8	4	1
	7.00	10	7	9
Handling of complaints	2.00		1	
	3.00	1	1	1
	4.00	1	1	5
	5.00	4	10	8
	6.00	9	8	4
	7.00	9	3	5
High fill rate on normal reorders	1.00		2	1
	2.00		1	
	3.00	1	1	3
	4.00	4	6	3
	5.00	7	4	7
	6.00	7	7	6
	7.00	4	2	2
High fill rate on emergency orders	1.00		1	
	2.00		1	1
	3.00	1	2	4
	4.00	3	4	4
	5.00	5	5	4
	6.00	8	7	6
	7.00	6	3	3
High fill rate on promotional orders	1.00		1	
	3.00	1	2	2
	4.00	1	5	4
	5.00	4	4	5
	6.00	11	7	8
	7.00	6	4	3
Alerts on transportation delays	1.00			1
	2.00	1	3	3
	3.00			2
	4.00	1	9	6
	5.00	3	7	6
	6.00	8	2	3
	7.00	11	2	2
Level of customer service	2.00	1	1	2
	3.00	2	2	1
	4.00		5	4
	5.00	2	3	3
	6.00	7	8	10
	7.00	12	4	3
Palletized and unitized loads	1.00	1	2	1
	2.00		1	1
	3.00	1	2	3
	4.00	1	2	5
	5.00	3	3	5
	6.00	9	9	6
	7.00	8	3	1
Working together to reduce supply chain costs	1.00	1	2	2
	2.00		2	1
	3.00	1	3	2
	4.00		2	4
	5.00	4	6	7
	6.00	9	7	5
	7.00	9	2	2