



A Study of the factors influencing the decision to either outsource or retain the logistics function of a company, with specific reference to the players in the clothing and footwear industry in South Africa.

By

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**CONFIDENTIALITY CLAUSE**

31 January 2004

TO WHOM IT MAY CONCERN

RE: CONFIDENTIALITY CLAUSE

Due to the strategic importance of this research it would be appreciated if the contents remain confidential and not be circulated for a period of two years.

Sincerely

F. A. J. Brand

A handwritten signature in black ink, appearing to be 'F. A. J. Brand'.



**DECLARATION**

This research has not been previously accepted for any degree and is not being currently submitted in candidature for any degree.

Signed  .....

Date 31 JANUARY 2004 .....



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**ABSTRACT**

The world today consists of a global economy, with highly competitive markets in every country. In this arena companies are faced with continually declining profit margins, having to keep costs to a minimal, as well as continually developing Information Systems and Technology. All of these factors have a snowball effect on every other country in the world, providing challenges where there were none before.

Companies start to focus on their core competencies, striving to be a benchmark in their industries. All their energies, resources and capital need to be channeled in this direction if they are to succeed.

This then begs the question: Who will focus on these companies' non-core functions? The answer is a simpler one - a company whose core business it is to perform another company's non-core functions. One only needs to choose the third party service provider best suited to the company, and outsource your non-core functions to them. These third party service providers can easily incorporate a company's functions into their supply chains, and perform them more efficiently than the outsourcing company.

But why focus on outsourcing of the logistics function (which entails transportation, warehousing and logistical IT)? Internationally this function has been the starting point of outsourcing, and is really only in its infant stages in South Africa. The research will show that even today only some of the areas of this function are being outsourced, whilst the others are still kept in-house.

This study will show if there are underlying factors influencing the decision of companies to either outsource or retain their logistics function in-house. The perceived benefits of these two options are also discussed.

This study is a formal one. Stated hypotheses will be statistically tested using parametric as well as non-parametric measures. Primary data will be collected through a questionnaire. All relevant literature will be examined and discussed in detail to provide the necessary background.

Lastly, the results and findings of the study will be discussed, and recommendations will be made as to viable options in the outsourcing arena. These recommendations should be attempted if South Africa is to catch up with trends in the international outsourcing arena.



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## **CHAPTER ONE – Introduction**

### 1.1 Introduction

In today's ever changing fast-paced environment of global economies, companies need to concentrate on what they do best. That means focusing on their core competencies, and letting third party providers manage functions that are not core to their company or that they are not experts in.

Many companies are outsourcing their logistic function, or parts of their logistic function, being driven by a need to cut costs quickly, combined with a growing complexity in the logistics technology.

Although many enterprises are reluctant to hand over their critical logistic function to outside companies, they are discovering that third party logistics (3PL) companies are better at integrating the logistic function into their supply chain management environments and can obtain lower prices for the various logistic function.

The various logistic functions usually considered as possibilities for outsourcing includes transportation management, warehouse management and Information Technology.

The study will explore and determine the motives behind either outsourcing the logistic function (or parts thereof) or retaining it "in-house" in the clothing and footwear industry in South Africa.

In the next section the background to the dissertation is discussed.

## 1.2 Background to the Study

Partnerships, alliances and efficient consumer response are concepts that have been prominent in the marketing and logistics literature in the 1990's. One element of relationship building between vendor and purchaser is the outsourcing of activities within logistics functions and the supply chain.

Because the outsourcing of activities within the supply chain (and the concept of Supply Chain Management) has yet to fully take off in the clothing and footwear industry in South Africa, this research focuses on the outsourcing of activities within the logistic functions of the companies in this industry.

According to Fernie (1998) the literature on the nature of buyer-seller relationships has shown a distinct shift from the conventional marketing channel approach during the last decade, stressing conflict within relationships to a more planned, focused approach based on alliances and partnerships. Much of the impetus for such change has its roots in materials management, the 'back-end' of the supply chain. With the advent of lean production, Total Quality Management and Just-In-Time deliveries, organisations have been building closer working relationships with a reduced number of suppliers. At the "front-end" of the supply chain, similar trends were discernible in consumer markets. The term "associative" relationship has been introduced to replace the conventional or administrative channel terminology used in most marketing text.

The proposed research will try and show the level of significance that retailers attach to the outsourcing of the logistics function, as well as which of the logistics functions are most likely to be contracted out, and also to identify the factors that are taken into consideration by the retailers when they make a decision to outsource the total or some parts of the logistics function.



The research will also try and answer the question whether there is a tendency to retain logistics services “in-house”, and is retail management more positive about the factors for continuing to do so than for contracting out such services.

The motivation for the project is discussed in the following section. The question of ‘why focus on outsourcing of the logistics function?’ is answered.

### 1.3 Motivation for the Project

Motivation for this research lies in the fact that the idea of outsourcing within the South African retail market should be promoted. The first step of outsourcing has been taken - outsourcing of the transportation area of the logistics function, and to a smaller degree, also the warehousing and logistical IT areas of the logistics function.

Retailers have become to realise the enormous benefits found in outsourcing non-core activities, and are continually increasing their outsourcing activities. Retailers committed to outsourcing and continuous improvement in their supply chains must pave the way for others who are not as eager.

What are the reasons driving retailers in deciding to retain their logistics function in-house, and the perceived benefits they believe originate from this?

The value of the project will become clear once the reasons retailers base their outsourcing decisions on, and the perceived benefits, are understood.



## 1.4 Value of the Project

Management of a company's supply chain is becoming increasingly important in today's high-paced environment, due to the increasingly competitive market and the necessity for more efficient management. The understanding of relevant factors influencing one's decision to either outsource important activities of one's logistics function or to keep it "in-house" will make this area of management easier to execute.

Benefits of outsourcing the logistics function include the following:

- Users are able to concentrate its financial resources on core business.
- Users are gaining from economies of scale enjoyed by the provider.
- Users enjoy more efficient and cost-effective routing scheduling.
- Users have stricter inventory control.
- There are reduced emergency deliveries at premium rates.
- A simplified supply chain exists leading to increased customer confidence.
- It facilitates and encourages long term strategies to improve customer services.
- 3PL providers will be focusing on their core skills, thus keeping them and their clients at the cutting edge of logistics technology.

The value and benefits of the study has been highlighted, and now the study proceeds to the problem statement.

## 1.5 Problem Statement

In trying to understand the current situation of outsourcing activities in the clothing and footwear industry in South Africa, the following questions (which constitute the problem statement) must be investigated:



- What are the underlying factors influencing the decision to subcontract the logistics function of a company (with specific reference to the major players in the clothing and footwear industry in South Africa)?
- What parts of the logistic function are more likely to be outsourced?
- What effect does implementing the outsourcing decision have on the performance of the company?
- What does the average 3PL company need to comprise of for it to be a likely candidate in this outsourcing environment?

From the above problem statement – which factors influences the decision to outsource or retain the logistic function in-house - the objectives of the study can now be discussed.

#### 1.6 Objectives of the Study

One of the objectives of the study will be to identify the determining factors influencing Management, when deciding to either retain the logistics function “in-house” or to outsource it to 3PL companies.

Another area of focus is to determine what the effects of these decisions are on the performance of the company.

Lastly, the study will try and show which the important factors are when choosing between 3PL companies once the outsourcing decision has been made.

These objectives will all be accomplished by adhering to the research methodology which will now be discussed.



## 1.7 Research Methodology

### 1.7.1 Descriptors of Research Design

This research is a formal study, which will start with a hypotheses and research question, and will involve precise procedures and data source specifications. It also has crystallised objectives towards which will be worked.

The method of data collection is one of interrogation / communication, with the questioning of subjects and collection of their responses by impersonal means. The collected data results from a self-administered instrument sent through e-mail, in the form of a questionnaire.

No manipulation of variables (and producing effects in them) will take place in this ex post facto design, it will only be reported what has happened or is happening.

The purpose of the research is descriptive in the sense that it describes what has happened, as well as causal by trying to establish relationships between variables.

The time dimension will be cross-sectional, as the study is being carried out once and represents a snapshot at one point in time. There will be limitations to this sort of study with exogenous as well as endogenous variables playing a role, affecting the internal and external validity. It will not be possible to do a longitudinal study, as the constraint of time makes it difficult.

The topical scope is statistical, attempting to capture the population's characteristics by making inferences from a sample's characteristics. Hypotheses will be tested quantitatively and generalisations about the findings will be presented based on the representativeness of the sample, and the validity of the design.



The research environment will be one of field research. Limitations here are of confidentiality, and availability of subjects.

Subjects' perceptions in this research will be one of actual routine, as this is not a disguised study.

### 1.7.2 Sample and Sampling Technique

The sampling frame is the current population of major groups in the South African clothing and footwear Retail Industry, as well as some of the smaller private companies. It consists of Pepkor (Ackermans, Pep), Edcon (Edgars, Jet, ABC, Sales House, Cuthberts, Smileys), Mr. Price (Mr Price, The Hub), Truworths (Truworths, Daniel Hechter), Rampar and Spitz.

The units from the sampling frame (who will represent the sample) will consist of logistics managers, strategists, general managers and directors within the selected companies.

Sampling will thus be a representative sample of all the relevant managers and directors of the players in the South African clothing and footwear retail market. The size of the sample is seventeen.

With this study there are certain limitations, making the research more difficult.

### 1.8 Limitations of the project

Confidentiality of information is a limitation of this research. The information gathered by the questionnaires cannot comprise of a too specific content, as participants are reluctant in conveying confidential information, due to the competitive nature of this industry.



Another limitation is the availability of subjects and their participation, necessary for the gathering of primary data, through the use of a self administered instrument, a questionnaire.

The introductory phase of the research has now been discussed, and a short summary follows.

## 1.9 Summary

It has been indicated why this particular study is being attempted. The background has been sketched around outsourcing in the retail industry. Motivation of the project and its value has also been discussed. The problem statement has been formalised and demarcated, and the objectives and research methodology has been described. Now the study moves on to the literature review, where all relevant areas surrounding the research topic will be examined.



## **CHAPTER TWO – Literature Review**

### 2.1 Introduction

The available literature relevant to this research was studied. The most relevant concepts that will be analysed in this study are transportation, logistics, supply chain management, third and fourth party logistics providers, and outsourcing.

When trying to differentiate between logistics management and supply chain management, the literature shows different authors using these two concepts interchangeably and sometimes even as synonyms.

Seeing as these two terms are so interwoven, an effort will be made in this study to differentiate between them, as well as make a full analysis of the application of both concepts. This will be necessary because the theme of this study focuses on logistics management, the different logistics functions, and the outsourcing thereof.

Before this can be done however, it is necessary to look at the various definitions of the terms used in the study.

### 2.2 Definitions

This section will be used to define and bind together all terms and concepts relevant to the study. Each one will be discussed in more detail further on.

It's about ten years ago that the buzzword rush started. A lot of forwarding companies integrated 'logistics' into their names. After this, came the words 'integrator' and 'supply chain', and they were followed by '3PL' and '4PL'. Then came 'lead logistics service providers' and today we even have '7PL'. "Which all begs the question: what has really changed" (Dahlem 2003:12)?

Many companies have come to realise that it is more beneficial to focus on their core business and to avoid becoming entangled in other tasks, such as warehousing, processing, transport or distribution. The result of this was that many other companies who saw themselves as part of the supply chain management arena, offered outsourcing projects, including the management of clients' logistics and supply chain functions.

"Most people do not understand what is involved with logistics, while others do not even know what the term means. According to Dictionary.com, logistics is the handling of an operation that involves providing labour and materials to be supplied as needed" (Burton 2000:1). The terms logistics, as well as supply chain management, refer to the art of managing the flow of materials and products from source to end user, through all the various functions it comprises of.

The supply chain includes the total flow of materials, from the acquisition of raw materials, through manufacturing, to delivery of finished products to the ultimate users, as well as the related counter-flows of information that both control and record material movement, and even linkage with the customer service, sales, promotion, and marketing activities.

From this it can be seen that the supply chain comprises of the total system, whilst logistics only form a subset of this total system, including functions such as transportation, warehousing, related IT services, materials handling, and packaging.

Dahlem (2003) also mentions that the phrase 'extended supply chain' sometimes come up. This makes things even more complex, as the extended supply chain refers to the integrated set of activities completed by all supply chain participants, these being suppliers, manufacturers, distributors, retailers/customers, and consumers/end users. It therefore effectively includes the supply chain activities of all the players in the channel.



Now let's look at forwarders (which are the traditional names of 3PL's). If companies analyse the traditional core functions of a forwarder, which are transport, distribution and warehousing, it can be seen that these functions represent only about 10 percent of the client's total supply chain activities. This then is by no means a 'take over' of a client's supply chain, as all other functions are regarded as core functions by the client.

Forwarders therefore have to understand that they have a vital role to play within their clients' supply chains and logistics networks. This means that they should adapt to their clients' environment and suit their clients' needs.

"One of the primary difficulties in attempting to 'measure' the present and future influence of third party logistics (3PL's) involves varying definitions of the concept. Third party logistics services are multiple distribution activities provided by an external party, assuming no ownership of inventory, to accomplish related functions that are not desired to be rendered and/or managed by the purchasing organisation" (Murphy et al 1998:26).

The latest development in the 21<sup>st</sup> century is even more new names for the same thing. The question to be asked is: Why should the forwarder/3PL now become a 4PL? "Does a bakkie become a truck by loading it with 25 tons" (Dahlem 2003:12)?

A 4PL is a company that employs qualified supply chain engineers. The 4PL is appointed by a client company to fine-tune the multiple processes of its operations, and also to manage the interfaces and the interactions between the various links of the supply chain, as well as the interfaces to other supply chains in the extended supply chain. "A 4PL is no competition to any forwarder/3PL, like no architect competes with a construction company" (Dahlem 2003:12).

To master the art of logistics, much fine-tuning has to be done within a logistics company. Highly motivated and trained people are required, who have a flexible approach to new tasks, and who are not shy to take risks to



achieve improvements in the processes that they manage. "The aim should be to become a partner in your clients supply chain, a true 'service provider', able to learn and understand the various industries' requirements" (Dahlem 2003:12).

### 2.2.1 Logistics

Contrary to popular belief, logistics is not anything new. "The term logistics applies not only to warehousing, but also to transport companies and others who either manage or move products. Many of these companies have existed since the nineteenth century" (Burton 2000:1).

In the 1960's and 70's a term was used to integrate the transport and warehousing functions called 'physical distribution'. During this time management spent most of their efforts to outsource the transport and warehousing functions only. In the late 1970's and 80's when IT and software became an integral part of these functions, it was possible to integrate them with greater ease and more success to achieve stated goals, for example cost savings, better service delivery to customers, etc. Thus a new term was coined, which we now know as **logistics management**. (The single most important event in the rapid development of the logistics concept was the Vietnam War. In this case the Americans fought a war thousands of kilometers away, and they used logistics management and the development of the 'container' as a support activity to the War effort.)

Ackerman (2000) suggests that one of the first business logistics arrangements is described in The Bible, Genesis Chapter 41. This is an account of the seven years of plenty during which the people in the land of Egypt accumulated crops for the predicted seven years of famine. The grains and other fruits of their labours were taken to store houses for safekeeping. One could thus argue that this also may have been one of the first outsourcing arrangements of logistics, since the grain was placed in storehouses owned and operated by Joseph for later re-distribution during times of need.



Davis (1993) discusses the advantages of efficient logistics systems for retailers. The main one being that cost per unit is based on present needs, and not on future applications. "As market share grows or shrinks the retailer is only responsible for present day cost. Other advantages include: efficiency of scale; streamlined ticketing; and location near the source of goods, thus saving on transportation" (Davis 1993:24-5). According to Davis (1993) it was Electronic Data Interchange (EDI) that was the key enabling factor for successful logistics systems being implemented. Another contributor to the application of logistics management was the development of bar coding and scanning techniques.

It was suggested in several logistics articles recently that the U.S. third party logistics market is in the 'introduction-growth' stage of the product life cycle; and is an 'emerging' industry. These characterisations indicate that the U.S. third party logistics market is poised for additional growth in the near future. "Although the size of this growth is subject to debate, it seems reasonable to conclude that the adoption of third party logistics does not appear to be a passing fad in the USA" (Murphy & Poist 1998:26).

According to Lieb and Randall (1999) the market for third party logistics (3PL) services in the United States is very dynamic, and important changes are continuously occurring in both the user and provider communities. Usage of such services continues to grow in this market, as well as user expectations. As more manufacturers and retailers develop a supply chain management focus, they're increasingly turning to 3PL providers for a broader range of logistics services and also more extensive geographic coverage. "In response to market demands, many 3PL providers have expanded their logistics service menu, and broadened the areas that they serve. Service offerings are becoming increasingly international, as providers seek to support the foreign sourcing, manufacturing, and distribution requirements of their customers. This pace of change is exciting to some, threatening to others" (Lieb & Randall 1999:28).



## 2.2.2 Supply Chain

Speer (2003) found that transportation and logistics are crucial supply chain elements to a successful apparel or footwear operation. However, fierce global market competition further requires the proper management of the company's supply chain, extending to everything from raw materials management to accurate sales forecasting.

It was also found internationally that many companies focus on their core competencies, and then outsource the rest. Therefore, the ability to compete lies in the efficiency of a company's complete supply chain. "Finding success is those companies that not only optimise their own internal operations, but also streamline processes that they share with their partners, both upstream and downstream" (Speer 2003:24).

It is important to notice the importance of managing the total supply chain of a company, as this ultimately leads to success. However, the finding is that in today's current market situation, the only outsourced functions of the supply chain are only the various logistics functions. The other functions are kept in-house, either because companies feel they are core functions, or because they do not want to relinquish any control over them, or believe that no-one can manage them better than they can.

Only the future holds the answer as to when most parts of a company's supply chain can or will be outsourced with success.

From Bolstorff and Rosenbaum (2003) it is seen that if companies can define their supply chains - which isn't hard to do – they can also measure it. And once it's been measured, companies will find that the opportunities are so big that they won't need any more motivation to outsource. Therefore, it makes sense that companies want to drive continuous improvement in their supply chains.



What about software and systems? Is this not what Supply Chain Management is all about? Get the best technology in place, then sit back and watch as the company's processes run smoothly and the savings roll in. "If that's true, then why did Jeff Bezos raid Wall-Mart's bench, paying top dollar to bring best-in-class logistics expertise to Amazon? Supply chains, it seems, are also about talent, not only technology, especially as the marketplace grows ever more complex" (Beth et al. 2003:64).

It was found by Pyne (2002) that each link in the logistics chain has been transformed by the migration of imbedded intelligence into the technology tools and processes that supply chain managers routinely use today, and will most likely be used tomorrow. Some of the outcomes of this are as follows:

- Timing and Trust

Chief among the advantages are much better control over timing, and the knowledge and trust that things will happen according to plan.

- IT Enables Transparency

A company's whole chain is visible to everyone in it. Today's supply chain, in the abstract, consists entirely of three main elements: timing, trust, and transparency. A prime raw material that makes all of this work, is technology.

Pyne (2002) summarises it as follows: "Investing in Technology flows directly from this. "Size isn't a barrier to using the best technology. Outsource if you don't have it in-house. Advanced logistics facilities these days are brisling with technology. These facilities 'belong' to customers" (Pyne 2002:1).

Olsson (2003) states that in a global economy organisations need to be able to reduce costs at every opportunity, in order to deliver the lowest costs of production, and that operating competitively is not possible otherwise. Streamlining and optimising the supply chain has been a goal of organisations for years, but only the advent of Information Technology (IT) and the Internet made it a cost-effective possibility.



According to *Recognise the triggers* (2003) it can recently be seen that effective supply chain management has significantly increased productivity and reduced costs. But the fact remains that to manage complex distribution initiatives supporting supply chain management strategies continues to be a challenge. Most companies experience some aspect of this problem spiral. Triggers to this spiral include changes in business requirements, inefficient management, deficient communications within the organisation, and business growth. The determining factor is how quickly and effectively the company reacts to this, and how it pulls out of the spiral.

Olsson (2003) further goes on to say that the ultimate goal of the supply chain is to smooth the movement of goods to the customer, who pays for the product. Bringing Customer Relationship Management (CRM) systems into the supply chain are therefore a logical and necessary step to ensure that the correct information is passed down through warehouses and manufacturing partners. "Plainly put, linking CRM and supply chain management processes can improve customer service and loyalty, create cost efficiencies and reduce inventory costs through better forecasting and availability. And that is not techno-hype but down-to-earth, rands-and-cents business-speak" (Olsson 2003:9).

Olsson (2003) further state that effective supply chains can only be built on effective internal IT systems. And looking at the poor track record of CRM installations in the past, it seems that IT still has some work to do before customer data can be properly integrated into and effectively deployed throughout the supply chain.

From a study done by Copacino and Byrnes (2002) it seems that today's customers are reducing their supplier bases, and this provides opportunities for the most capable suppliers to seize large market share gains. Efficient management of the supply chain provides an effective means of achieving market share gains, customer intimacy, and a lasting advantage. Unfortunately it seems that few companies are achieving this, because most

managers are focused on the wrong goals; they are confusing operating efficiency with supply chain management.

To achieve this, a company needs to redefine its strategy in order to make supply chain capabilities the core of the business model. This requires creating a new strategy, as well as bringing the company's other core activities into alignment with this new business model. This creates a distinctive business model that shifts the main objective of operating efficiency (cost control) to proper supply chain management and revenue enhancement.

### 2.2.3 Third party Logistics (3PL)

As per Gottschalk (2003) Third party Logistics is merely an extension of trucking, warehousing and distribution. Furthermore, it is the provision of these functions under one roof, with the aim of also taking over some associated functions, for example stock keeping and documentation. It also involves the basic function, which would be the physical activity of transport, warehousing, line haul and the rental of material handling equipment. Each 3PL activity can also be seen as an independent function in its own right.

From the European research done by Datamonitor in *3PL's threaten freight forwarder business* (2003) it seems that the trend for outsourcing of logistics operations in the consumer and retail sectors in European markets show no signs of flagging. One negative issue is that a threat to the 3PL market is the possibility that the 3PL trend may be reversed by companies deciding to take their logistics function back in-house, and not outsource.

According to Colbeth (2003) with competition at an all-time high, it is now more important than ever to develop a trusting relationship with your logistics partners. "As the logistics business grows, 3PL's offer services that encompass the entire supply chain. They no longer just manage your warehouse – today they offer global solutions that include transportation, warehousing, customs, and IT services" (Colbeth 2003:1).



Furthermore, because their service offerings cover multiple areas, successfully integrating a 3PL into a company takes time and should not be entered lightly. When reviewing possible 3PL's, be sure to look for one that is dependable and can be a partner for the future, not just the forthcoming year.

Colbeth (2003) stress that relationships with 3PL's are more than mere contracts, it should be seen as a bridge between two companies that may lead to future success or failure. "The more support beams your bridge has, the stronger it will be" (Colbeth 2003:1).

The support beams according to Colbeth (2003) are the following:

- Strive for 'always'

The 3PL should always deliver results and always respond to issues in a timely fashion. They should always try to please the customer. While it's understandable that this may not always happen, your logistics partner should strive for it.

- Don't hog the credit

If the 3PL gives the company credit for ideas, collaborate and compromises on solutions, a company can tell that the 3PL is not only in it for themselves.

- Never say no

Anything can be done with the correct amount of resources and effort. Does the 3PL offer options?

- Improve, improve and improve

A good 3PL will never get complacent with its duties. Businesses and processes are always changing, therefore a 3PL should change with them.

"When applied appropriately, an outsourcing strategy can add strategic advantage to an organisation. Whether the value lies in asset efficiency, cost containment, customer service, marketing strength, or technological



advantage, many 3PL customers can show measurable improvement in one or more of these areas. Customers dissatisfied with a 3PL, on the other hand, often cite unrealised service level and technological commitments, cost reduction goals, and lack of strategic improvements, as the primary reasons for their discontent” (Baylin 2002:1).

According to Baylin (2002) the start-up phase is a strong determinant of how a 3PL relationship will evolve later on in the relationship. It is the customer’s first responsibility to commit to the relationship. A 3PL alliance is intended to last, a marriage of strengths that benefit each partner. As in any marriage, trust is a fundamental element of the relationship. “One of the most critical tasks during the start-up phase is developing performance measurements and reporting methods. In fairness to the partnership, the customer should fully consider input from the 3PL on realistic targets, penalties, and incentives. These targets and metrics should be specific and clear to both sides so there are no gray areas during performance evaluations. Both sides must allow for appropriate flow of information in order to measure performance” (Baylin 2002:1).

#### 2.2.4 Fourth Party Logistics (4PL)

“Fourth Party Logistics is the evolution or result of supply chain outsourcing. The convergence of technology and the rapid acceleration of e-capabilities have heightened the need for an over-arching integrator for supply chain-spanning activities. 4PL is a non-asset based logistics operator which has chosen to become an outsourcing specialist – assessing the entire supply chain and contracting those best able to provide required services, all in order to reduce customers’ total cost” (Gottschalk 2003:22).

Therefore 4PL operators are outsourcing specialists to whom a client’s entire logistics function is handed for optimisation. More importantly, it is not just about reducing costs of warehousing and transport, but rather about managing the logistic function, and its optimisation. It can thus be seen that a



4PL service provider must become a company's long-term partner, as they are directly involved in business processes and strategy.

The 4PL service provider manages and coordinates the relationship between all the different activities of the customer. It is therefore essential that the 4PL be a strategic thinker who is able to manage the different assets that are dedicated to a customer.

Now that the relevant areas surrounding logistics outsourcing has been properly defined, developing a strategy for outsourcing can be discussed.

### 2.3 Developing a Strategy for Outsourcing

What is outsourcing? Greaver (2003) puts it as follows: "It is the act of transferring some of a company's recurring internal activities and decision rights to outside providers, as set forth in a contract. Because the activities are recurring and a contract is used, outsourcing goes beyond the use of consultants. As a matter of practice, not only are the activities transferred, but the factors of production and decision rights often are, too" (Greaver 1999:3).

As per Barthelemy and Adsit (2003) outsourcing can also be defined as turning over all or part of an organisational activity to an outside vendor. In the services industry, outsourcing was traditionally restricted to basic support activities. It was also primarily used when restructuring firms that were in bad financial shape. "It has also become increasingly clear that outsourcing is more than a passing fad" (Barthelemy & Adsit 2003:87).

"In the rush to assess the relevance, scope, and proper timing of outsourcing, an objective methodology is paramount to successfully discovering the path that takes you where you need to go. Following a rational, defensible process is the single most important ingredient in reaching your outsourcing objectives" (Telfer 2002:1).



As per Telfer (2002), the following methodology has been used successfully in practice by buyers of outsourcing services. This methodology covers seven key areas, following strategic decisions on the scope and role of outsourcing overall supply chain operations. It includes the following:

- Base lining

One of the most important tasks in the entire outsourcing process is a detailed baseline to include financial and service quality elements. It should be carefully aligned with the company's goals and priorities.

- Risk assessment

This category is cross-functional in nature and should reflect the process that is used throughout company operations, not just logistics and commercial organisations.

- Benchmarking

Correctly done, this involves significant pre-work. It should be a full physical anatomy of the operations and a deep probe of its mental health as well.

- Request for Proposals

This should be in a standardised format, itemising costs that can be easily compared with the base lining data. It should also be a bold statement, which prohibits asterisks or caveats, which will equalise the competitive playing field.

- Contracting for value

It is intended to improve the financial and service quality performance, not lop off costs and risk good customer relationships. Gain-sharing and activity-based contracting are two ways that can lead to effective 3PL partnerships.

- Selection

This step assumes not only that the preceding steps have been executed well, but also that management feels good about all of the previous assessments.



- Implementation

This is a very tricky part of the process. Far too many CEO's and even logistics professionals underestimate the complexity of even niche outsourcing, let alone a total outsourcing solution.

Lynch (2000) voices the following criteria. "In spite of its impact on the logistics function and often the entire corporation, outsourcing frequently is undertaken with little regard for overall logistics strategy. It is important to remember that outsourcing itself is not the strategy. It is a vehicle for achieving the strategy, whatever it may be. Keep in mind that outsourcing may not be appropriate for every firm. Do not enter into an outsourcing arrangement simply because it is written or talked about frequently, or because other firms in your industry are doing it" (Lynch 2000:33).

Some of the major failures in outsourcing relationships occur when a firm outsources an activity its own personnel do not totally understand, and the provider promises to meet requirements that have not yet been fully defined, communicated or understood. According to Lynch (2000) it is therefore imperative that the following are in place in the company before the relationship kicks off:

- Senior Management Commitment

It is absolutely critical that the outsourcing project have the support of senior management. When part or all of the logistics function is turned over to an outside party, a number of disciplines can be impacted. You will find that some functional managers are more supportive than others, and in a few cases, they may be totally opposed to the concept.

- Project Team

It is now important to have the participation and commitment of all other departments and functions that are affected. These will of course vary from firm to firm. In addition to logistics, the departments most often impacted will

be IT, Production/Manufacturing, Quality Control, Sales/Marketing, Merchandising, Finance and Accounting, Purchasing, and Human Resources.

- Outsourcing Objectives

The project team should determine what the firm is attempting to accomplish through outsourcing. They must set objectives, and many questions must be dealt with. Once all of the questions have been answered, the objectives set, and the activities to be outsourced have been identified, it will be necessary to establish a basis for comparison.

- Assessment of Current Operations

Assessing current operations may be the most difficult part of the outsourcing process for many managers. For intelligent decision to be made about providers, costs and benefits however, it will be necessary to conduct this process. When this has been completed a set of benchmarks can be established against which to measure the various options.

- Including the Provider in the Planning Process

In the past, most outsourcing relationships have been developed by traditional methods. This was done by the interested firm who prepares a Request for Proposal (RFP) which outlines the tasks to be performed. True partnerships suggest input by all parties, with the most successful ones having been those that were established through joint analysis. While this may require qualifying logistics providers before the cost of their services is known, a more satisfactory relationship can result from bringing a potential provider into the planning process from early on.

Barthelemy and Adsit (2003) stated the following: "Empirical evidence suggests that carefully crafted outsourcing strategies increase the overall performance of the firm. Outsourcing is generally considered as a very powerful tool to cut costs and improve performance. Through outsourcing, firms can take advantage of the best outside vendors and restructure entrenched departments that are reluctant to change. Outsourcing can also



help focus on the core business. Since building core competencies and serving customer needs is critical to a firm's success, anything that detracts from this focus may be considered for outsourcing. Historically, many activities were performed internally because there were no outside suppliers. The continuing growth of supply markets has provided the opportunity to reassess which activities should remain in-house and which should be outsourced" (Barthelemy & Adsit 2003:87).

According to Copacino and Byrnes (2002), when looking at this process from the service provider's viewpoint, it is vital for a masterful supply chain strategy to link carefully targeted accounts with well-structured supply operations through a well-designed set of channels and customer operations. This is done according to Copacino and Byrnes (2002) by making sure that the following is in place:

- Account Selection

Supply chain management begins with insightful market segmentation. The essence of marketing is matching the market segments to the company's capabilities. Careful account selection is therefore a key element of supply chain success. The company has to carefully define both the target accounts, as well as accounts that do not fit with the company's supply chain strategy.

- In-Customer Operations

The ability to operate within customers' organisations is crucial for many companies. Capabilities range across a spectrum from pure IT linkages to combined inter-company IT/operations links. To have effective in-customer operations require powerful technical capabilities, crucial customer knowledge, and the ability to fit into the customer's organisation and work processes. Unique customer knowledge and customer relationships create barriers to entry that others cannot overcome easily.



- Channel Strategy

To have an effective channel strategy is a necessary element of supply chain mastery. It is vital to create a powerful new channel that reduces competitors' access to important target accounts and market segments.

- Core Operations Capabilities

Beyond achieving overall operating efficiency, each company's business model requires a powerful set of core operations capabilities. These are rooted in each company's core business processes.

- Management/Organisation Structure

Effective supply chain management requires changes that affect key aspects of a company's business model, therefore shifting the company's mission and required capabilities of functional departments (such as marketing and operations). A host of very thorny problems is raised in each area. Significant organisational resistance is almost always a part of this transition to effective supply chain management. Successful companies must restructure their organisations and behavioural drivers, such as compensation and budgets, to ensure departmental alignment and follow-through.

Copacino and Byrnes (2002:7) goes on and states that: "Supply chain managers in all too many companies are being left behind; they are stuck in the efficiency trap, focusing on cost reduction rather than revenue growth and strategic advantage. At its core, supply chain mastery requires a sea of change in supply chain goals – from internal efficiency to market share increase. In most companies this represents a fundamental shift in the locus of strategic value creation. To accomplish mastery, a top supply chain manager must take the lead in allying with key marketing, operations, finance, and strategy counterparts to define a new supply chain-based business model that will realign the organisation and drive quantum increases in market share" (Copacino & Byrnes 2002:7).



Developing a strategy for outsourcing has now been discussed in detail, but is there potential for business process outsourcing in the retail industry?

#### 2.4 Potential for Business Process Outsourcing (BPO) in the Retail Industry

“Retailing is one industry with significant potential for BPO. An efficient BPO can help the retailer not only in gaining the competitive advantage, but also to focus energies on the core businesses” (Mathur 2003:1).

Mathur (2003) states that retailing, in simple terms, enables the flow of goods and information from manufacturers to the customer. There are key processes involved in retailing, namely: Merchandise planning; Product development; Vendor management; Sourcing; Distribution/Logistics; Merchandise management and Store operations. Each of these processes has the potential of being outsourced, which can bring the necessary bottom line savings. Herewith these processes are summarised and discussed:

- Merchandise planning (deciding what products to sell)

This is a strategic decision and the retailer has to do a significant amount of work in identifying the product and product mix. In order to cut short the chain, the BPO opportunities lie in tapping the right resources. These may include industry experts, management consultants or market researchers.

- Product development (developing the products to sell)

This is an ongoing process. Take for instance fashion categories (apparel, cosmetics and footwear) or high technology categories (computer hardware), where the frequency of new product introduction plays a very important role in the future success of the retailer. Although there is potential for BPO in this process, the retailer may lose competitive organisations if it outsources. This function is seen as a too integral part of the business, and will rarely be outsourced.



- Vendor Management (identify, evaluate and develop vendors)

This is similar to merchandise planning and applies more to pure retailers (retailers without any in-house manufacturers). A significant first time effort followed by an ongoing effort is required here. Industry experts may be used for identification and neutral/unbiased evaluation of the vendors.

- Sourcing

BPO opportunities are extremely huge in sourcing. Each retailer faces a question at some time or another from startup to maturity, namely 'Shall I manufacture or shall I outsource'.

- Distribution and logistics (where to sell and how to deliver)

Some decisions like the strategic ones on the store format and distribution are entirely the retailer's. However, the logistics are outsourced to third parties as they usually have a better infrastructure and can do it in a much more cost efficient manner than the retailer.

- Merchandise management (manage merchandise in back and front room)

With this process a lot of retailing skills are required, as an understanding of consumer purchase behaviour is essential (to plan the assortment accordingly). The retailer can best handle this process.

- Store operations (last-mile delivery of the products)

The retail environment requires a lot of flexibility, with manpower resources at the slack and peak times being very different. Manpower planning and sourcing is a candidate for outsourcing. Related processes like store architecture planning, security, and Point of Sale system development are also usually outsourced.

"In a nutshell, for any process to be outsourced, the following criteria need to be kept in mind:

- How much control I need on the process?



- Will I gain or sacrifice competitive advantage?
- Will I gain more flexibility?
- Is it a win-win situation for the vendor and me?
- Will it help me cut short the learning curve” (Mathur 2003:5)?

There are numerous activities surrounding outsourcing, for example reasons to outsource and waves of outsourcing. They will now be discussed in the following section.

## 2.5 Various Outsourcing Activities and related Functions

According to Greaver (1999) there are many ‘top five reasons to outsource’ surveys floating around at any given time, with each giving somewhat different results. This is not surprising, because the populations surveyed vary, and how the reasons to outsource are ranked often depends on which chair one sits in. Critical to this is an understanding of the reasons for considering outsourcing and the benefits required.

According to Clowdis (2001), here are some reasons why you should consider outsourcing:

- Experience

Logistics managers handle thousands of loads and shipments. The greater the market presence, the better a company should be at its trade. Also, professional transportation management providers have more buying power in the marketplace.

- Expenses

Shippers today are facing a challenge to utilise state of the art tools in managing their transportation spending. New technology is useful and a great asset, but they cost money to purchase, install, and run effectively. Why not let the 3PL provider invest the time and money in technology?



- Service

The biggest hurdle most companies face is deciding whether or not a third party logistics provider can handle the customer service side better than themselves. Do they deliver the same level of specialised service that the in-house department has offered over the years? Most times the overwhelming answer is 'yes' and the resounding question is, 'why didn't we do this sooner?'

From Lynch (2000) it is seen that many of the reasons for outsourcing are unique to specific firms and industries. Looking in a broad sense, there are several identifiable advantages to subcontracting logistics services. According to Lynch (2000) they are the following:

- Return on assets

Outsourcing allows the user firm to improve its return on assets. By reducing significant investments in warehouse facilities, materials handling, order picking, and transportation equipment, returns can be enhanced significantly (the user firm does not have to make the capital outlay). This capital can rather be invested in ventures that are part of the core competencies or basic businesses of the user firm.

- Personnel Productivity

Utilisation of personnel can be more effective, as the emphasising of core business leads to the productivity of the employees being improved greatly. The level of expertise is also increased, as often there will be fewer people to train in fewer skills.

- Flexibility

Flexibility is a key outsourcing driver for almost all firms. With new markets and products developing, it is often impossible to predict future logistics needs accurately. Also, as existing markets and product characteristics change, logistics needs change as well.



- **Labour Considerations**

Labour issues can be somewhat delicate, depending on the user firm's own labour environment. These considerations should never be ignored when considering outsourcing, especially in the warehousing area. All appropriate labour agreements should be carefully evaluated by competent legal authority. Labour unions are well aware of outsourcing advantages, and in some cases, have taken measures to protect their members.

- **Cost**

Unfortunately, to many firms considering outsourcing, operating costs will always be the most important consideration. Looking at surveys conducted on the reasons for outsourcing, it is almost always found to be in the top three determinants.

- **Management and Political Considerations**

In the modern business environment, managing any function is difficult, particularly at the middle management level. There is a continuing pressure to reduce costs and improve productivity with fewer resources. People are difficult to manage and some have work ethics that often are not compatible with the organisation's goals.

- **Customer Service**

In today's environment of error-free, prompt deliveries and unique business and consumer requirements, customer service is one of the most important considerations for firms. This focus on increased customer satisfaction in both the business-to-business and business-to-consumer markets has resulted in many changes in logistics practices and service approaches. They are likely to continue and must be addressed in a timely fashion if firms expect to remain competitive in the global arena.

- **Specialised Services**

Specialised services are becoming the rule, rather than the exception. A number of firms have gradually evolved into businesses which offer



specialised services for specific industries. Examples of these are 'Just in Time', Order consolidation, Packaging, Order Fulfillment and Electronic Commerce.

- Information Technology

Firms engaged in electronic commerce (and even those who are not) have increasing demands for new information systems and resources. This can often be met more efficiently through outsourcing.

- The Logistics Service Provider

The increasing maturity of the logistics companies have led to the industry not being characterised by the smaller, unsophisticated companies any more. Today's successful integrated logistics service provider is a dynamic firm, utilising a combination of systems, facilities, transportation, and materials-handling techniques, being managed and staffed with logistics professionals.

"If a business hasn't already asked the question, 'Do we outsource?', then perhaps it's already too late to ask. Like it or not, businesses are faced with hugely increased amounts and flows of information around their logistics operations as the information economy matures. Customers also have consequent increases in choice and availability" (Saxton 2003:5).

This translates into increased customer demand, increased pressure on suppliers as product lifecycles shorten, and increased competition as markets respond to all of these changes, and attempt to innovate their way to holding onto profit margins.

As per Saxton (2003), the perceived answer to this balancing act over the past couple of years has been the outsourcing of some or all logistics planning and functions to a specialist 3PL or 4PL company, or even to a supply chain management company.



Freeman (1998) indicates that as early as in 1997 a global supply chain survey by KPMG identified Demand Management (e.g. forecasting) and Inventory Management as the most important supply chain processes for nearly all industries (approximately 500 companies from all of the major industry sectors, spanning 25 countries in all of the principal regions of the world responded to the survey).

The survey showed that although outsourcing is a popular management issue in general, the level of outsourcing is low. Of all respondents 98% outsource a part of their logistics function, but some 80% of the logistics activity is still performed in-house.

Another important fact derived from the survey results is the realisation that low cost is only one aspect of outsourcing. Although many activities are perceived to be performed at lower cost by vendors, companies have strategic control and investment reasons for choosing not to outsource. There seems to be a strong need for perceived control by keeping these functions in-house. From this it seems that strategic reasons for outsourcing were becoming more important than lower cost.

It was also found by Wilson (2001) that although many enterprises are reluctant to hand over critical supply chain functions to outside companies, they're discovering that 3PL companies are better at integrating logistics functions into their supply chain management environments and can obtain lower transportation prices.

Wilson (2001) notes that according to a survey published in November 2001 by Accenture and Northeastern University in America, more than 70 percent of Fortune 500 companies have outsourced at least one major logistics function such as transportation management, freight payment, warehouse management, shipment tracking or other transportation-related functions.



“It seems that companies are finding that outsourcing logistics can be a source of quick savings, and they find that it is not a core competency for them” (Wilson 2001:1).

“Improving supply chain performance by outsourcing has been in vogue for decades, and several waves of outsourcing can be identified” (Janke 2003:1).

According to Janke (2003) the first wave of outsourcing focused on the exchanging of fixed assets for leaner balance sheets and variable logistics costs in the warehousing and transportation functions.

During the second wave, technology took the forefront as companies turned to outsourcing to avoid costly systems development which was needed to tie the supply chain together.

The third wave saw a proliferation of dot-coms, web exchanges, software companies, and integrators. This flooded the industry with promises of frictionless supply chains, real-time collaboration, and closed-loop planning and execution.

This last wave’s collapse illustrates the crucial role of outsourcing to the 3PL as a source of knowledge capital, physical infrastructure for execution, and an integrated technology platform.

“When companies choose to outsource a portion of their supply chains, they often struggle with the decision of how much control over their business and customer relationships they should put in the hands of an outsider. When companies choose to broadly outsource, however, they often split their projects among a variety of providers. This philosophy assumes that many players mitigate the risk of failure. If one part of the supply chain falters, the rest will hum along” (Stoffel 2003:1).

According to Stoffel (2003) this logic is faulty. He believes that the supply chain is not a linear function with independent modules of activity, but rather a

network of interwoven functions. Any company looking to optimise their supply chain performance, and guarantee reliable customer service, must synchronise these activities. As long as the tasks are spread between a variety of service providers, accountability is fragmented.

A possible answer to this problem is to let a single logistics company manage your entire supply chain from suppliers through to customers. Then there is only one responsible entity when the supply chain misbehaves.

A single-source provider will have insight into supply chain flaws such as data inaccuracy, volume fluctuations, erratic customer order patterns, vendor failures, and geographic “black-holes”. “This information is invaluable when looking to improve customer service, reduce costs, minimise capital requirements, and speed up cash-to-cash cycles” (Stoffel 2003:1).

“Outsourcing non-core competencies have now become a widely accepted practice across many industries. By now most companies understand why they should outsource, but what is less clear is what they should outsource. A good rule to follow: Consider outsourcing if you focus a lot of time, energy, and money on an activity that is not your core competency” (Bernstein 2001:1).

As per Lynch (2000), exactly what functions firms should outsource will depend on individual needs and strategies. But as industries mature and clients’ strategies and requirements change, these functions will again change.

Graham (2003) notes that in the fat and happy 1990s, American retailers, e-tailers, and wholesalers were frequently unwilling to contract the services of 3PL providers. “America’s love affair with technology was still smoldering, and a lot of companies, with plenty cash, were hot on the idea of acquiring their own material handling equipment and software. For companies just getting into the brave new world of e-commerce, outsourcing presented a scary proposition, a closed door that might open to reveal a beautiful lady ready to



answer their every request – or a hungry tiger ready to devour and destroy. But times have changed, and so has that attitude” (Graham 2003:1).

This shift in attitude has mostly been money-motivated. Corporate management is under constant pressure to feed the bottom line, a trend that has picked up speed with the decline of the U.S. economy. Merchants have recognised that 3PL providers can save an operation lots of pain and money. The state of 3PL services has dramatically improved, and because there are more providers in business today, prices have dropped sharply. “Operations large and small are outsourcing fulfillment and many other functions, because they find it cheaper and more efficient than doing it themselves” (Graham 2003:1).

Graham (2003) also notes that in the old days, if companies were soft in some area of business, they invested in the appropriate hardware and software and hired a team of experts to run their new departments. With competition increasing, business decreasing, and costs rising on all fronts, businesses are choosing to remain focused on their core competencies, rather than dabble in areas where they lack the proper infrastructure, experience, or expertise. It seems that no company wants to build and own non-core infrastructures anymore.

Once the decision to outsource and the strategy thereof have been finalised, the next step is to identify all potential providers in the marketplace.

## 2.6 Identifying Potential Providers

In practice the identification of potential providers can be a formidable, but not an impossible task. There are hundreds of firms offering a variety of services for numerous clients, and the industry is segmented in a number of different ways. Lynch (2000) stated that: “It is important to understand this segmentation, even though in some cases it is rather basic” (Lynch 2000:41).



According to Lynch (2000), generally speaking, the industry could be segmented as follows:

- Asset versus Non-Asset

All logistics service providers can be divided into these two basic classifications. As the terms implies, Asset-based providers own (or lease) trucks, warehouses, and other tangible property that they use in executing their clients' requirements. Non-Asset based providers don't own a major portion of the assets used, but contract with other firms to provide all or portions of the services needed.

- Single Sourcing

While this is not technically a classification of logistics service companies, the concept of single sourcing plays an important role in supplier selection. Some firms prefer to deal with only one lead provider who either perform or contract for all the functions being outsourced. The lead firm can be Asset or Non-Asset based.

- Geography

This is the most basic segmentation of providers - by geography. Firms can thus be local, regional, national, international, or even global.

- Basic Orientation

Logistics service providers can also be characterised by their basic orientation, reflecting either the origins of their business or the areas which they have elected to specialise in.

- Integrated Logistics Providers

Some service providers have gone beyond their basic orientation and have become as skilled in other disciplines as in their core businesses. These providers offer total supply chain or logistics solutions, utilising their own facilities and systems, or through strategic alliances with others.



- Industries Served

Some providers prefer to specialise in certain industries only, such as grocery products, pharmaceuticals, cigarettes, chemicals, computers, and electronics.

Now that the potential providers have been identified, management must proceed to select the most appropriate suited to their companies.

## 2.7 Selecting a Provider

As per Lynch (2000), once a firm has established what function(s) it wishes to outsource, has developed a strategy for doing so, and has identified potential providers, then it is time to begin the evaluation and selection process for a provider.

Whether you are going to engage in a simple transactional arrangement, work towards a partnership solution, or move directly to a 'Request for Proposal', it is important to first establish what selection criteria will be used. These should consist of those strategic, tactical, and operational requirements that are critical to the company. "While specific standards will vary with the outsourcing firm's unique needs, as well as the functions that are being outsourced, there are basic benchmarks that will be applicable to most arrangements" (Lynch 2000:57).

The Selection Criteria as per Lynch (2000) is the following:

- Financial Stability

It is of absolute importance that the selected company be financially sound. Plenty outsourcing programs are quite large with significant start-up expenses, and the provider must have the financial resources and capabilities to see the projects through to profitability. With new firms entering the industry constantly, as well as the unsatisfactory financial performance of others, it is sometimes difficult to identify providers that are financially qualified and



stable. Furthermore, many are privately held, and as such either refuse to disclose financial results or are reluctant to do so.

- **Business Experience**

Past experience in providing logistics services in general, as well as in the client industry are extremely important. The provider must be well-grounded in the services being offered (i.e. transportation, warehousing, order fulfillment, etc.) and ideally will have experience in the client's own industry.

- **Management Depth and Strength**

When outsourcing, it is important to remember that one of the products being purchased is the expertise in providing a particular service. It is essential that the logistics service provider have a strong, skilled organisation, adequate and qualified management, with sufficient human -resources and -capital.

- **Reputation with other Clients**

The provider should definitely be asked to provide a client list with contacts and telephone numbers. A sufficient number of these – at least five – must be contacted to satisfy the potential customer that the service provider has a good cross section of performance. If at all possible, the customer should choose who to contact, and should be wary of a limited number of references already pre-determined by the provider.

- **Strategic Direction**

Exactly as the outsourcer should have a strategy, so should the service provider. Many do not, and others seem to have a very short planning horizon. Granted, the logistics strategy of the client and provider should eventually be one and the same, but the better managed service providers are the ones that will have some sense of its own goals and objectives.

- **Physical Facilities and Equipment**

The physical facilities of the service provider must be adequate to support the outsourced activity. Warehouses, loading and unloading facilities, and other

unique operating characteristics should conform to industry standards, and be provided for.

- Operations

An evaluation of the provider's current operations will be required. Some but not all of the necessary information will come out of discussions with other clients, but there is no substitute for an in-depth operations and productivity assessment by a qualified individual or team.

- Information Technology

In any logistics operation state-of-the-art systems and IT are critical; especially in such specialised areas as cross docking, order fulfillment, and freight bill payment. Involvement with any electronic commerce will require systems much more sophisticated than those usually available from normal logistics service providers. The evaluation of these information technology assets will require knowledgeable experts in that field, and should include areas such as hardware, software, operating systems, bar coding, imaging, handheld devices, sensor-bases systems, satellite and other tracking systems, as well as Internet access.

- Quality Initiatives

The progressive logistics service provider will usually have a formal quality or continuous improvement program. Some of the providers may be ISO certified, with others having lesser, but meaningful programs in place. The provider selected must be the one who is committed to ongoing performance enhancement, and which has an identified procedure for accomplishing this.

- Growth Potential

A lot of firms project future growth through volume increases, new products, or new markets. It is important for the logistics service provider to be in such a position as to support that growth. While there probably will not be an excess capacity immediately available, the selected provider should definitely be in a



position to provide that capacity or new services over a short or long term, should the client require it.

- Cost

While cost should not necessarily rank last in importance, neither should it be the first and foremost consideration. While it must be considered in the selection process, it should only be a factor in deciding among firms that meet all the other criteria. The manager who selects a provider solely on the basis of cost has committed to an outsourcing strategy with little foresight, having little chance of success.

McLoughlin (2002) feels with logistics service providers claiming they can cure everything but world hunger, it is important to remember these 10 fundamental rules when you are on the buying side of the table:

- 'On-site' management is the key to success

The outsourcing program's success depends on the local project manager's skill and dedication. Make sure that the project manager fits with your organisation.

- Institute rigorously honest analysis

A good quality service provider will know the real costs and liabilities associated with a project, making rational decisions. For example, worker's compensation is not a negligible cost, nor do you have the same risk exposure for different skilled people.

- Who do you trust?

Outsourcing is an important, yet risky decision that directly impacts on customers. Choose the service provider that works hardest to understand the operations of the company as well as the reasons the company opted for outsourcing.



- Safety and turnover count

Evaluate the service provider's safety record at its other operations. Also, determine its workforce turnover statistics and make sure to assess all recent management changes.

- Get the CEO's home phone number

If a senior level executive is not made available who will be the patron saint, then choose another service provider. If the service provider's senior management is not calling on the company before the deal is closed, then the contract may be just another one in the hopper for them.

- References, references, references

Talk to as many of the service provider's customers, past and present, as possible. Did the provider deliver on its promises and honour the pricing in its contract? Character and professionalism is very important in this game.

- Greater fool pricing theory

When a service provider will do the work for significantly less than others, chances are the company will get what it paid for. The price range should generally be within three to five percent. Also, don't be afraid to pay a premium for a provider that will do a better job than the others.

- The immutable theory of startup time allowed

Ask the provider to start in a week and the result will be bad. Give a provider sufficient time for startup (depending on the outsourced function), and a smooth, efficient transition should take place.

- The advantage of a clean slate

The transition stage should be used to make both internal and external changes. This will give the organisation more, not less, control over the operation.



- Do you have internal commitment?

A company needs support of the outsourcing decision up and down the internal hierarchy. Are senior executives on board - whether or not they understand logistics? It is imperative that they support the decision.

It is important to examine outsourcing experiences in overseas retailing operations to get a global context. Such experiences in Britain, Taiwan and China are discussed in the following section.

## 2.8 Outsourcing experiences in Overseas Retailing Operations

From Williams (2000) it can be seen that the growing complexity of distributive networks in Britain has made the role of the third party warehouse operator increasingly important. Such services hold the key to increased profits and operating efficiencies mainly by avoiding capital expenditure on new warehousing facilities and eliminating ongoing costs; accommodating seasonal inventories at a low cost; and improving national or international distribution by having stock continually available to meet Just-In-Time (JIT) requirements. Another reason for the current popularity of contracting these services out is the degree of specialisation offered by various operators.

“The flexibility offered by third party providers also helps to explain the current buoyancy of this sector in Britain. A degree of flexibility in user companies’ operations has become increasingly attractive – and even vital – in recent years. Because of changes in market conditions, a company may be forced to modify its warehousing and distribution arrangements at fairly short notice, alter its service levels and change its vehicle delivery patterns. All of this can be achieved more conveniently through a third party specialist than if a company has to make decisions about its own warehouse/transport staff and storage/distribution facilities” (Williams 2000:33).

“The retail community is caught on the horns of a dilemma. It faces the financial challenge of shrinking cost margins at a time when consumers have



grown more demanding. Today retailers have to deliver better service just to retain their current customers” (Gray 2002:1).

It seems that companies need the ability to grow quickly without absorbing the high costs normally associated with building out these operations. They do not want to concentrate their efforts on logistics and business processes that are not core to its business, even though they are vital for the companies to grow. Gray (2002) believes that small and medium-sized businesses need to recognise the benefits of business process outsourcing. This has the benefits of keeping costs down and supports unexpected quick growth. Normally these businesses’ concern is about losing control and touch with their customers, but the key is to make sure the company manages the outsourcer relationship very closely.

“One of Taiwan’s biggest full-service regional distributors, World Peace Group (WPG), is seeking to cut costs by spinning off its Singapore warehousing operations and outsourcing its logistics. According to their Vice President of Business Development, it makes a great deal of sense to divest the warehousing operations so WPG can concentrate on their core value-added design, engineering support, demand creation, and supply chain management for their broad customer base” (Hung & Robertson 2001:10).

“Bring up the subject of third party logistics in Asia and, likely as not, the first word you’ll hear is ‘China’. Offshore manufacturers flocking to the People’s Republic of China, where managing distribution remains a challenge, have spurred the recent development of contract logistics services there” (Knee 2003:2).

According to Knee (2003), although China receives the most attention these days, logistics outsourcing also continues to expand in more economically developed countries like Japan, Singapore, South Korea, and Taiwan. Elsewhere in Asia, outsourcing is likely to take off when information infrastructure improves and national governments start liberalising their policies towards domestic and foreign business.



Retailers must be careful whilst outsourcing certain activities as there are many things to be careful of. They are discussed next.

## 2.9 What not to do when Outsourcing

“While outsourcing is a powerful tool to cut costs, improve performance, and refocus on the core business, outsourcing initiatives often fall short of management’s expectations. Through a survey of nearly a hundred outsourcing efforts in Europe and the United States, it was found that one or more of seven ‘deadly sins’ underlie most failed outsourcing efforts. Outsourcing failures are rarely reported because firms are reluctant to publicise them. However, contrasting them with more successful outsourcing efforts can yield useful ‘best practices’” (Barthelemy & Adsit 2003:87).

The following mistakes have been termed the seven deadly sins of outsourcing by Barthelemy and Adsit (2003):

- Outsourcing activities that should not be outsourced

The company must make sure that the activities being outsourced cannot be performed better or cheaper by in-house departments. Core business activities should also not be considered for outsourcing, as well as activities that you need to have total control over. Determining the activities that can be best performed by outside vendors requires a good understanding of where the firm’s competitive advantage comes from. Having resources and capabilities that are valuable, rare, difficult to imitate, and difficult to substitute, leads to superior performance. The activities based on such resources and capabilities (i.e., core activities) should not be outsourced, because firms risk losing competitive advantage in the market place.

- Selecting the wrong vendor

Selecting a good vendor is crucial for successful outsourcing. A distinction can easily be made between hard and soft qualifications of providers (hard



qualifications are tangible and easily verifiable by due diligence, whereas soft qualifications are attitudinal, may be non-verifiable and may change depending on circumstances). The surest way to spot best providers – on both hard and soft criteria – is through first-hand information. Unfortunately first-hand experience is both a time consuming and costly way to discover whether or not a vendor is proficient and trustworthy. An alternative and less costly way is to use second hand experience.

- Writing a poor contract

A well written contract is essential to outsourcing success because the contract helps establish a balance of power between the client and the vendor. Spending too little time negotiating the contract and pretending that the partnership relationship with the vendor will automatically take care of everything is a huge mistake. A good contract is always important because it allows partners to set expectations and to commit themselves to short-term goals. Furthermore, it provides a safety net in case of the relationship failing.

- Overlooking Personnel Issues

During outsourcing, the efficient management of personnel issues is crucial, because employees generally view this process as an underestimation of their skills. As soon as employees know that outsourcing is under consideration, counterproductive anxiety arises and employees may even begin handing in their notice in anticipation of outsourcing. Firms contemplating outsourcing must face two interrelated personnel issues. Firstly, retain and motivate all key employees. Secondly, secure the commitment of employees transferred to the vendor.

- Losing control over the outsourced activity

For the outsourcing client, it is very important to avoid losing control over an outsourced activity. Such a loss of control originates in two distinct ways. Firstly, the client may not have the necessary capabilities to manage the vendor and secondly, the client may not actively manage the vendor at all. It is crucial to retain a small group of managers to handle the vendor. These

managers must develop the strategy of the outsourced activity and keep it aligned with the overall corporate strategy.

- Overlooking the hidden costs of outsourcing

Outsourcing clients are usually quite confident that they can assess whether or not outsourcing results in cost savings. What often happens is that they overlook costs that can seriously threaten the viability of outsourcing efforts. Two main types of hidden outsourcing costs are 'vendor search costs' and 'contracting costs'. Search costs are the costs of gathering information to identify and assess all suitable vendors. Contracting costs are the costs of negotiating and writing the outsourcing contract. Both of these costs are incurred even before the outsourcing operation actually takes place.

- Failing to plan an exit strategy

As can be understood, many managers are reluctant to anticipate the end of an outsourcing contract. Therefore, they often fail to plan an exit strategy (i.e., vendor switch or reintegration of an outsourced activity). They also have a tendency not to include material reversibility clauses (i.e., option to buy back premises and equipment from the vendor) and human reversibility clauses (i.e., option to hire back employees from the vendor) in the contract. Failure to do this has serious implications.

Many risks in logistics outsourcing have also been identified in the literature, and it is worthwhile looking at these in more detail.

## 2.10 Risks in logistics outsourcing

In the past, many firms have turned to logistics outsourcing as a method to restructure their distribution networks and to gain competitive advantages.

"Logistics outsourcing in which a 3PL provider is contracted for all or part of an organisation's logistics operations has seen consistently increasing use.

Although there are clearly pros and cons of using logistics outsourcing, the full

extent of both of these has not been adequately examined” (Wang & Regan 2002:1).

According to Wang and Regan (2002), here are some of these risks involved when participating in Logistics Outsourcing:

- The possibility of Inefficient Management

Management has to know how to manage contracts and relationships with the third party logistics provider. If the logistics activity has been badly managed in the first place, it may not be possible for the logistics manager of the firm to be any better at managing an external provider. Once logistics outsourcing has been initiated, managing logistics operations is still a very difficult task.

- Latent Information Asymmetry

Often there exists an information asymmetry in logistics outsourcing. This happens because the third party logistics provider rarely has complete information about the user, similarly the user may have incomplete information about the third party logistics provider.

- Loss of Logistics Innovative Capacity

When a firm has outsourced its logistics services, its logistics innovative ability may be impaired. Over the long term, if a firm wants to maintain its comprehensive competitive competences, it will have to find new ways of providing logistics services for the business. External sourcing does not always guarantee innovation.

- Hidden Costs

Many firms underestimate the costs associated with selecting a third party logistics provider, and negotiating and drafting a contract. Plenty additional time and expense early on helps avoid problems later, such as having to renegotiate the contract or constantly monitor the logistics provider. Estimating transition costs may also prove to be very difficult. Switching in-house logistics activities to a third party logistics provider presents probably

the most elusive hidden cost. Most firms do not realise how much they have spent until the transition is complete.

- Dependence on the Third party Logistics Provider

A firm that outsources its logistics activities to a third party logistics provider always runs the risk of becoming dependent on that provider. By contracting out logistics activities to the same third party logistics provider over a long period of time, the firm may find itself in an increasingly vulnerable position and may even lose control of part of its logistics activities.

- Loss of control over the Third party Logistics Provider

Almost all collaborative projects result in some loss of control. In outsourcing arrangements, partial control of a project inevitably passes from the customer to the vendor. The extent to which the firm may effectively control an outsourced logistics business will greatly be determined by the information received and the early detection of problems. Since the information available to the logistics manager would be less comprehensive than it would be if the logistics business was conducted in-house, a lack of effective communication could ensue as a result. This could lead to serious problems of quality and delays, as well as to misunderstanding and even mistrust.

- Problems of Evaluating and Monitoring Third party Logistics Provider Performance

In order to properly evaluate the functions of a third party logistics provider, firms should have clear guidelines in place for appraising third party logistics provider outcomes. Monitoring logistics outsourcing is usually a difficult and complex task. In order to ensure that the business carried out by the third party logistics provider meets the required standards, it is important that resources such as money, time and expertise are needed to establish an effective monitoring system.

- Conflicts of Culture

Usually with logistics outsourcing arrangements the goals of the parties are different; as the factors that determine the commercial merit of the partnership are being considered from different perspectives. Management styles and degrees of bureaucracy within the two firms may also be different. Careful consideration of these factors is essential to ensure the viability of the collaborative venture and the future success of the partnership.

To promote the service effectiveness for firms and operations efficiency for third party logistics service providers, and to minimise the uncertainties associated with logistics outsourcing, the following risks prevention measures should be implemented as per Wang and Regan (2002):

- Performance Indices for logistics outsourcing

The performance assessment indices in logistics outsourcing relationships should include both cost and service measures. These indices should systematically evaluate the performance of integrated 3PL operations, reflect accurately the relationship between 3PL providers and firms, and realise effectively the integration of third party logistics providers and users.

- Information Sharing Encouragement Mechanisms

The most common risks in logistics outsourcing are probably decision-making risk under incomplete information, and moral risks resulting from asymmetric information. In order to avoid these potential problems, information sharing encouragement mechanisms must be developed.

- Suitable Performance Tactic

It is important for a 3PL to design a suitable third party logistics-performing tactic. Designing a suitable performance tactic, which is another valid measure to prevent performance risks, enables the 3PL to improve customer service levels and ensure that successful logistics partnership are developed.



- Customer Relationship Management.

Successful logistics outsourcing arrangements include a strong emphasis on customer relationship management. Customer relationship management is an active task, not only solving problems, but also maintaining close contacts. Customer relationship management seeks to develop strong and lasting ties to customers by anticipating their needs rather than simply reacting to their dissatisfaction.

Cost has such a strong influence on the decision to outsource or retain certain functions in-house, that it is discussed separately in the next section.

## 2.11 The role of the cost-factor in outsourcing

Lynch (2000) states the role of the cost factor in outsourcing as follows:

“While it has been suggested that cost should not be the primary consideration in selecting a logistics service provider, no one will argue that it is not an important factor in most decisions” (Lynch 2000:85).

Therefore, cost will play an important role in the decision making process, but must always be analysed objectively with all of the other factors to make a well considered decision about whether to outsource or not to outsource.

Lynch (2000) also states that after the outsourcing firm has developed its own costs, it then must compare these with the projections of the providers submitting proposals, or at least with those in which it has some interest. It is therefore important to understand the various methods used by service providers of costing and pricing, and how this will impact on the contracting decision.

All the terms, ideas and concepts that were discussed in Chapter Two are the most important ones relative to this area of research, and they are summarised in the following section.



## 2.12 Summary

The available literature relevant to logistics outsourcing was studied, and concepts of transportation, logistics, supply chain management, third and fourth party logistics providers and outsourcing were discussed in detail.

It was shown that logistics management and supply chain management are sometimes used interchangeably in the available literature.

How to develop a strategy for outsourcing, potential for business process outsourcing as well as activities surround outsourcing were discussed. The identifications and selection of service providers were also mentioned.

Outsourcing activities in overseas countries were examined to contrast it with activities in South Africa, and lastly, certain pitfalls and risks in logistics outsourcing were touched on.

The research paper now moves on to Chapter Three, in which the research methodology is discussed in detail.

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## **CHAPTER THREE – Research Methodology**

### 3.1 Introduction

The research undertaken is a formal study, which includes hypotheses and a research question. It also involves precise procedures and data source specifications, with clear objectives existing toward which will be worked.

Variables will not be manipulated, and no effects in them will be produced in this ex post facto design, as it will only be reported on what has happened or is happening.

The purpose of the research is descriptive in nature, with a cross-sectional time dimension.

The hypotheses forming the basis of this research are discussed in the following section.

### 3.2 Hypotheses

The following form the underlying hypotheses of the research, and will be tested in chapter four of this dissertation:

- There are underlying factors influencing the decision to subcontract the logistics function of a company.
- There are underlying factors influencing the decision to retain the logistics function “in-house”.
- Certain parts of the logistics function are more likely to be outsourced than others.
- The 3PL service provider needs to conform to certain criteria before being a possible candidate for a contract.



Now that the hypotheses have been stipulated, it is necessary to give the theoretical foundation of sampling.

### 3.3 Theoretical foundation of sampling

As per Cooper and Schindler (2001) the basic idea of sampling is that by selecting only some of the elements in a population, one may draw conclusions about the entire population.

Sampling is done because of many reasons. According to Cooper and Schindler (2001) some of these are lower costs, greater accuracy of results, greater speed of data collection, and the availability of population elements.

Furthermore, the ultimate test of a sample design is how well it represents the characteristics of the population it represents. For a sample to be valid, it must be accurate as well as precise.

Sampling is then divided into probability and non-probability sampling, the latter being the case for this dissertation. In probability sampling, a random selection of elements is used to reduce or eliminate sampling bias. With a subjective approach like non-probability sampling, the probability of selecting population elements is unknown.

Non-probability sampling procedures are used in this dissertation because it satisfactorily meets the sampling objectives. Cost and time also influenced the decision, but in the end, this type of sampling was the only feasible alternative.

As this non-probability sample conforms to certain criteria, it is called purposive sampling, and not convenience sampling. Furthermore, it was a judgement sample, as sample members were selected to conform to some criteria.



The next section gives the exact detail of the sample chosen for the study.

### 3.4 Sample of the study

The sample of this study consists of the most prominent players in the retail industry (clothing and footwear) in South Africa, as well as some of the smaller, privately-owned companies.

These chosen companies include Pepkor (Ackermans, Pep), Edcon (Edgars, Jet, ABC, Sales House, Cuthberts, Smileys), Mr. Price (Mr Price, The Hub), Truworths (Truworths, Daniel Hechter), Rampar and Spitz.

The chosen sample is further broken down to be representative of the relevant managers and directors from each of the retail companies chosen in the South African clothing and footwear industry.

It is also necessary to give an indication of the profile of the study, which is described in the next section.

### 3.5 Profile of the study

Supply chain management, and its surrounding relevant concepts, was the original starting point of this study. The industry chosen to apply this concept to was that of retail, and more specifically, clothing and footwear. This was done because in South Africa especially, this arena is still in its infant and development stages, with lots of room for improvement.

Within this chosen industry, the most developed concept currently is outsourcing of the logistics function, with other areas or functions set to follow. This will ensure that the concept of supply chain management can fully take off in the South African clothing and footwear retail industry.



Providers of such related services in the South African retail market (outsourcing service providers) are ready to embrace logistics outsourcing, and even the bigger concept of supply chain management, as well as outsourcing of its various parts, but the buyers of such services are not yet fully convinced of the real benefits to be absorbed.

The most prominent players in this industry were identified and targeted, for this research paper.

The next section covers the measuring instrument used for the collection of information from the chosen sample.

### 3.6 Measuring Instrument

The instrument developed for the collection of information for this study was a structured questionnaire, as this is the chosen survey method. It is one of interrogation / communication with the subjects being questioned and their responses collected by impersonal means. The data collected results from the self-administered questionnaire sent via e-mail.

Types of data collected are nominal, interval and ratio data. The data was coded and extracted from the instrument, then appropriate descriptive measures and tests were used to analyse the results.

Classification and target questions are used to group respondents and investigate specific areas of interest. The content of the questions were examined, ensuring that they were relevant.

Refer to appendix I for the full questionnaire. It consists of ten questions. Question one will establish a broad view on outsourcing possibilities in the company as a whole, taking all the functions of a company into consideration. Question two determines which level of management is responsible for making outsourcing decisions in companies. Question three focuses on

degrees of outsourcing of the different areas of the logistics function of a company. Question four, five and six determines the nature of the contracted operation, as well as the length of contract periods. The first parts of question seven and eight asks respondents to rank in importance on a 4-point scale, the factors which were responsible for either outsourcing or maintaining an “in-house” operation. The second parts of question seven and eight asks respondents to indicate on a 5-point scale the importance of benefits in outsourced or “in-house” operations. Question nine focuses on the reasons for choosing the third party contractor, the degree of satisfaction with the services provided and the likelihood of change in the relationship. Question ten examines the degree of satisfaction in outsourcing relationships, the likelihood of change in them, as well as the reason for change.

The validity of this instrument is sound in content, criterion and construct. Reliability exists in the sense that the instrument will be designed to supply consistent results.

The survey was conducted by e-mailing the questionnaire to the relevant respondents. A follow-up telephone interview took place for all non-respondents.

The statistical procedures utilised in the study is discussed in the next section.

### 3.7 Statistical Procedures

The topical scope of the research is statistical, attempting to capture the population’s characteristics by making inferences from the sample’s characteristics.

Statistical procedures will be followed for the manipulation of data acquired from the survey instrument. The data will be analysed with parametric, as well as non-parametric statistics.



Available options for this are descriptive and inferential statistics. These options will be described in the following two sections.

### 3.7.1 Descriptive Statistics

The characteristics of location, spread, and shape are helpful initial tools for cleaning up the data collected. Problems can be discovered, and their distributions summarised.

Measures of location consists of the mean (average response), median (middle value when the distribution is sorted from lowest to highest), or the mode (the most frequently occurring value).

Measures of spread, alternatively referred to as variability, are the variance, standard deviation, range, interquartile range, and quartile deviation. These describe how scores cluster or scatter in a distribution.

Measures of shape include skewness and kurtosis, which describe departures from the symmetry of a distribution and its relative flatness.

### 3.7.2 Inferential Statistics

Data testing which will be performed by using inferential statistics includes hypotheses testing - the t-test with a confidence level of 95%.

The hypotheses will thus be tested quantitatively and generalisations about the findings will be presented based on the representativeness of the sample and the validity of the design.

This chapter on research methodology is concluded with a summary of the most relevant issues.



### 3.8 Summary

The research methodology for this study has been discussed in detail. The hypotheses were stated, and the sampling technique identified.

The measuring instrument's various parts were described in detail. All statistical procedures to be attempted in Chapter Four (to analyse the data collected) were identified. The study now proceeds to the discussion of the research results.



## **CHAPTER FOUR – Discussion of Research Results**

### 4.1 Introduction

In this section various statistical measures are used to make inferences from the sample's characteristics. Parametric as well as non-parametric measures will be utilised.

### 4.2 Descriptive Statistics

The largest opportunities for outsourcing the main functions of companies seems to exist in Information Technology and Logistics, with these functions having the highest mean scores of 3.000 and 2.5882 respectively, as seen in table 5. Human Resources scored third highest (2.000), followed by Sales and Marketing (1.6471) and Finance (1.1176) providing the smallest opportunity for outsourcing of the main functions of a company.

The standard deviation for the variable Finance is only 0.3321 as shown in table 7. Most respondents indicating that this main function is too core to any company in South Africa to ever be outsourced. The standard deviations of the variables Logistics (1.4168) and IT (1.5411) are the highest of the main functions, indicating that not all respondents share the same view on the possible outsourcing possibilities that exist for these functions.

Referring to table 8, it can be seen that decision making on outsourcing activities mainly resides within the board of directors of companies, as indicated by 76.5% of the respondents. The other 23.5% of companies has executive management making these types of decisions.

The various parts of the Logistics function are not prone to the same amount of outsourcing. With a mean value of 5.5882 (table 5), Transportation is more



likely to be outsourced than Warehousing or IT, which have mean values of 2.7059 and 2.6471 respectively.

The amount of outsourcing relationships companies are involved in (per each of the different logistic functions) also vary, as seen in table 10. When looking at the Warehousing function, one sees that 52.9% of the respondents are involved in no relationships, and 47.1% are involved in only one relationship. Within the Logistical IT function, 41.2% of the companies are involved in no relationships, 29.4% are involved in one relationship, and 29.4% are involved in more than one relationship. Lastly, within the Transportation function, 58.8% of the companies are involved in one relationship and 41.2% are involved in more than one.

In the case where companies outsource two or more of the functions in the logistical process, 41.2% outsource to more than one service provider (table 12), whilst 58.8% outsource those different functions to only one service provider.

The average contract period for the different functions of the logistical process vary significantly, as noted in table 14. Where the Warehousing function is being outsourced, the contract period is only for one year in 87.5% of the companies surveyed. For the Logistical IT function this period is for one year in 80% of the companies. This percentage only decreased when looking at the Transportation function, where the contract period is for one year in 58.8% of the companies, for two years in 11.8% of the companies and for three years in 17.6% of the companies.

It was found that there are underlying factors influencing the decision to outsource the Logistic function of a company. Of the factors tested, achieving lower costs, as well as focusing on core competencies, indicated a strong to very strong influence on the outsourcing decision, less capital expenditure indicated a strong influence, and in-house logistical expertise indicated a less than strong influence.



Companies believe the top three benefits when outsourcing to be: being more cost effective; achieving higher service levels; being able to accommodate seasonal peaks more effectively. All of the benefits are shown in figure 1, with their respective totals.

Underlying factors influencing the decision to retain the logistics function of a company in-house were also found to exist. Providing a better service yourself and achieving lower costs are the two strongest influences on this decision, with the logistical function being a too integral part of the sales function, loss of control, and use of in-house expertise range from strong to weak, in that order.

The benefits of keeping the logistics function in-house according to the companies surveyed are shown in figure 2. The following are the three biggest benefits: it allows greater control over the whole operation; it yields high levels of customer service; and it is more cost effective.

It can also be seen that 3PL service providers need to conform to certain criteria before they will become likely candidates in the outsourcing process of firms looking for 3PL providers. The most important criteria is history or track record, with size of operations following close behind, and name or brand being the least important criteria.

According to table 16, companies who have only one service provider, have a mean value of 3.800, indicating a medium to good degree of satisfaction with their service provider. Companies who have more than one service provider have a mean score of 4, indicating that their degree of satisfaction is good.

Likelihood of change in relationships with third party service providers seems to be the same in companies who are involved in one or more than one outsourcing relationships. Both scenarios have calculated mean scores of 1.7, which indicates an impartial view (table 16).



The two most important reasons for change in outsourcing relationships according to the survey are that the service providers provide an unreliable service, and deterioration in mutual trust (table 5).

#### 4.3 Inferential Statistics

4.3.1 Hypotheses One: There are underlying factors influencing the decision to subcontract the logistics function of a company.

##### a) Achieving Lower Costs

H<sub>0</sub>: Achieving lower costs does not influence the decision to outsource the logistics function of a company.

H<sub>A</sub>: Achieving lower costs do influence the decision to outsource the logistics function of a company.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size (n) = 17

Calculated difference value (t) = 16.706 with df = 16 (Table 1)

Critical test value = 2.120

t > critical test value => Reject H<sub>0</sub>

##### b) Less Capital Expenditure

H<sub>0</sub>: Less capital expenditure does not influence the decision to outsource the logistics function of a company.

H<sub>A</sub>: Less capital expenditure do influence the decision to outsource the logistics function of a company.



T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size ( $n$ ) = 17

Calculated difference value ( $t$ ) = 12.152 with  $df = 16$  (Table 1)

Critical test value = 2.120

$t >$  critical test value  $\Rightarrow$  Reject  $H_0$

#### c) Focus on Core Competencies

$H_0$ : To focus on core competencies does not influence the decision to outsource the logistics function of a company.

$H_A$ : To focus on core competencies does influence the decision to outsource the logistics function of a company.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size ( $n$ ) = 17

Calculated difference value ( $t$ ) = 19.799 with  $df = 16$  (Table 1)

Critical test value = 2.120

$t >$  critical test value  $\Rightarrow$  Reject  $H_0$

#### d) In-house Logistical expertise

$H_0$ : Not having logistical expertise in-house does not influence the decision to outsource the logistics function of a company.

$H_A$ : Not having logistical expertise in-house does influence the decision to outsource the logistics function of a company.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size ( $n$ ) = 17

Calculated difference value ( $t$ ) = 6.685 with  $df = 16$  (Table 1)



Critical test value = 2.120

$t > \text{critical test value} \Rightarrow \text{Reject } H_0$

4.3.2 Hypotheses Two: There are underlying factors influencing the decision to retain the logistics function “in-house”.

a) Logistical Function being a too integral part of Sales Function

$H_0$ : The logistical function being a too integral part of the sales function does not influence the decision to retain the logistics function of a company in-house.

$H_A$ : The logistical function being a too integral part of the sales function does influence the decision to retain the logistics function of a company in-house.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size ( $n$ ) = 17

Calculated difference value ( $t$ ) = 8.899 with  $df = 16$  (Table 2)

Critical test value = 2.120

$t > \text{critical test value} \Rightarrow \text{Reject } H_0$

b) Loss of Control

$H_0$ : Loss of control does not influence the decision to retain the logistics function of a company in-house.

$H_A$ : Loss of control does influence the decision to retain the logistics function of a company in-house.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size ( $n$ ) = 17

Calculated difference value ( $t$ ) = 12.930 with  $df = 16$  (Table 2)



Critical test value = 2.120

$t > \text{critical test value} \Rightarrow \text{Reject } H_0$

c) Use of In-house Expertise

$H_0$ : Use of in-house expertise does not influence the decision to retain the logistics function of a company in-house.

$H_A$ : Use of in-house expertise does influence the decision to retain the logistics function of a company in-house.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size ( $n$ ) = 17

Calculated difference value ( $t$ ) = 7.649 with  $df = 16$  (Table 2)

Critical test value = 2.120

$t > \text{critical test value} \Rightarrow \text{Reject } H_0$

d) Achieving Lower Costs

$H_0$ : Achieving lower costs does not influence the decision to retain the logistics function of a company in-house.

$H_A$ : Achieving lower costs does influence the decision to retain the logistics function of a company in-house.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size ( $n$ ) = 17

Calculated difference value ( $t$ ) = 12.333 with  $df = 16$  (Table 2)

Critical test value = 2.120

$t > \text{critical test value} \Rightarrow \text{Reject } H_0$

#### e) Providing Better Service Yourself

H<sub>0</sub>: Providing better service yourself does not influence the decision to retain the logistics function of a company in-house.

H<sub>A</sub>: Providing better service does influence the decision to retain the logistics function of a company in-house.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size (n) = 17

Calculated difference value (t) = 16.000 with df = 16 (Table 2)

Critical test value = 2.120

t > critical test value => Reject H<sub>0</sub>

4.3.3 Hypotheses Three: Certain parts of the logistics function are more likely to be outsourced than others.

H<sub>0</sub>: The Transportation function of logistics is not more likely to be outsourced than the Warehousing and Logistical IT functions of logistics.

H<sub>A</sub>: The Transportation function of logistics is more likely to be outsourced than the Warehousing and Logistical IT functions of logistics.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size (n) = 17

Calculated difference value (t) = 14.982 with df = 16 (Table 3)

Critical test value = 2.120

t > critical test value => Reject H<sub>0</sub>

4.3.4 Hypotheses Four: The 3PL service provider needs to conform to certain criteria before being a possible candidate for a contract.

a) Name / Brand

H<sub>0</sub>: The 3PL service provider does not need to conform to the criteria of Name or Brand to be considered a likely candidate in the outsourcing process.

H<sub>A</sub>: The 3PL service provider needs to conform to the criteria of Name or Brand to be considered a likely candidate in the outsourcing process.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size (n) = 17

Calculated difference value (t) = 2.426 with df = 16 (Table 4)

Critical test value = 2.120

t > critical test value => Reject H<sub>0</sub>

b) Size of Operations

H<sub>0</sub>: The 3PL service provider does not need to conform to the criteria of Size to be considered a likely candidate in the outsourcing process.

H<sub>A</sub>: The 3PL service provider needs to conform to the criteria of Size to be considered a likely candidate in the outsourcing process.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size (n) = 17

Calculated difference value (t) = 6.061 with df = 16 (Table 4)

Critical test value = 2.120

t > critical test value => Reject H<sub>0</sub>



### c) History and Track Record

H<sub>0</sub>: The 3PL service provider does not need to conform to the criteria of History and Track Record to be considered a likely candidate in the outsourcing process.

H<sub>A</sub>: The 3PL service provider needs to conform to the criteria of History and Track Record to be considered a likely candidate in the outsourcing process.

T-test (One sample, interval measurements, normal underlying population)

Level of Significance ( $\alpha$ ) = 0.05

Sample size (n) = 17

Calculated difference value (t) = 11.200 with df = 16 (Table 4)

Critical test value = 2.120

t > critical test value => Reject H<sub>0</sub>

## 4.4 Summary

Retailing companies in South Africa do not see the functions of Sales and Marketing, Human Resources and Finance as potential areas for outsourcing. They are mainly focused on the functions of IT and Logistics for outsourcing possibilities, although even for these two functions there are divided opinions.

Decision making on outsourcing lies mainly with the boards of directors of the surveyed companies, very few has executive management making these types of decisions.

Transportation is the most outsourced activity of the Logistics function by far, outscoring outsourcing of the Logistical IT function, even though IT is one of the main functions of a company scored highly on outsourcing possibilities.

Respondents listed 'lower costs' as one of the underlying factors for deciding to outsource the Logistics functions, as well as for keeping the Logistics



function in-house. This indicates a possible misunderstanding of the real benefits of outsourcing. To further illustrate this point, the respondents also listed 'more cost effective' as one of the benefits for outsourcing, as well as for retaining the logistics function in-house.

A higher level of customer service was listed as another benefit to retain the Logistics function in-house, in conjunction with better control. In any outsourcing relationship, systems should be put in place as to ensure that the needed amount of control is still located with the outsourcing company. If this is done correctly, the required levels of customer service should follow automatically, as the outsourcing company does not relinquish control over any aspects of the supply chain.

The respondents also indicated that when selecting third party service providers, they are interested in the history and track record of that provider, only then in size (Name or Brand having the least influence over decision making).

Unreliable service delivered by third party service providers is one of the biggest problems companies who outsource have to deal with. This, together with deterioration in mutual trust, has only one possible outcome - the termination of the outsourcing agreement.

In Chapter Five the conclusions drawn from the descriptive and inferential statistics are used to make certain recommendations for the future of the outsourcing market in the South African retail industry.



## **CHAPTER FIVE – Recommendations and Conclusion**

### 5.1 Introduction

In this chapter the findings will be indicated, and also how they can be utilised in the South African retail market.

Certain recommendations will be made, and a conclusion will be drawn from all the data analysed in the research.

### 5.2 Recommendations

For the South African Retail market to mirror trends in outsourcing activities world wide, a shift will have to take place in the overall supply chain management of these companies.

Focusing on core competencies is a necessity for this process to work. Retailers must assess what it is that they do best (what their core competencies are), and apply all resources, energies and capital to these functions. Do they want to spend their time and effort on areas such as Transportation, Warehousing, and Logistical IT?

The result of this is that they have to outsource all non-core functions to the best suited service providers, as discussed in the literature review. Retailers should base the choice on the provider's business experience and reputation (as also seen in the survey instrument). Furthermore, they should assess the service provider's physical facilities and equipment, operations, IT, financial stability, management depth and strength, and ensure that their strategic direction coincides with the retailer's direction.

Retailers must ensure that they put measures and reporting systems in place from the start of the outsourcing relationships. This will ensure that the



required control is still located with the retailer, to make timely decisions when necessary, and not when it is too late.

It is imperative to make executive management and department heads part of the process of evaluating which areas and functions are possibilities for outsourcing. This has benefits which should not be ignored (i.e. a flatter hierarchy), therefore having those who perform the work provide much needed input, ensuring commitment when implementation has to commence.

### 5.3 Conclusion

The concepts of 'Logistics' and 'Supply Chain Management' is continuously developing in our current World Economy. Within this science of logistics and supply chain management, outsourcing is the latest trend. The problem at this stage is that these concepts and their meanings are being used loosely. Different terminology is being used to describe different aspects surrounding this field - many overlapping, and they are also being wrongly applied in practice.

Clearly there exists a need to define all these concepts more correctly in the future, in order to minimise misunderstandings and misapplications. One thing is certain - a long and difficult development process will have to take place before this new science of 'Logistics' and 'Supply Chain Management' is clearly defined.

This is all very important, because opportunities are created for companies simultaneously with the development in this field. A lot of these opportunities arise from the information systems that develop around logistics, supply chain management, and outsourcing. It creates opportunities to save costs, focus on core competencies, and become more competitive in the global economy. It is also important to make sure that each time these terms and concepts are used, all areas involved be clearly defined. When speaking of logistics, define which areas of logistics, the same apply when talking about the supply chain.



This will be necessary when comparisons are made; for example, when tenders are evaluated.

The successful management of a company's supply chain and logistics function will lead to large gains in market share. It is important though that supply chain managers do not get stuck on focusing inwardly on operational cost control. They are rather to focus on creating integrated supply chain and customer service strategies that will drive additional revenues.

An efficient supply chain involves major changes in both the company's strategy and the overall business model. But because many supply chain managers are inexperienced in these areas, they fall back on the familiar pursuit of cost reductions. Senior executives for their part need to systematically think through how to re-invent the business models of companies to position supply chain management as the core engine of differentiated market positioning and sales growth.

What better way to re-invent the company's business model than to outsource non-core functions to correct service providers, reaping the benefits, and seeing the improvements in affected areas?



## **CHAPTER SIX - Bibliography**

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## **CHAPTER SEVEN - Appendices**

### I. Questionnaire

#### **Outsourcing of the logistical function in South Africa** *(Focus on Retailers in Clothing and Footwear Industry)*

##### Question 1:

Please indicate the possible outsourcing opportunities relating to the following main functions or departments of your company, by giving each one a rating using the scale provided:

SMALLEST	1	2	3	4	5	LARGEST
OPPORTUNITY						OPPORTUNITY

- Finance 1
- Human Resources 1
- Sales and Marketing 1
- Logistical 1
- Information Technology 1

##### Question 2:

Which level of management is responsible for making decisions regarding outsourcing in your company? Please tick the applicable box:

- Board of Directors
- Executive Management
- Department Heads



## Question 3:

Please indicate your company's degree of outsourcing of the following functions in the logistical process by using a value between "1" and "6" as indicated by the percentages below:

## DEGREE OF OUTSOURCING

0%	= 1
1-25%	= 2
26-50%	= 3
51-75%	= 4
76-99%	= 5
100%	= 6

- Warehousing Function            1
- Transportation Function        1
- Logistical IT Function          1

## Question 4:

Referring to Question 3, please indicate the number of outsourcing relationships that you are involved in, in the following functions of the logistical process:

	No Relationship	One Relationship	More than One Relationship
• Warehousing Function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Transportation Function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Logistical IT Function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## Question 5:

In the case where you outsource two or more of the functions in the logistical process (Warehousing, Transport, Logistical IT), do you outsource to more than one service provider?

Yes

No

## Question 6:

Where outsourcing contracts exist, please indicate the contract period for each of the different functions of the logistical process:

- Warehousing function            years  
  years  
  years
  
- Transportation function        years  
  years  
  years
  
- Logistical IT function         years  
  years  
  years

## Question 7(a):

In the case of outsourcing or potential outsourcing of the logistical function, please indicate how strong the influence of the following factors are, or will be, on this decision:



	Very Weak	Weak	Strong	Very Strong
• Achieving lower costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Less capital expenditure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Focus on core competencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Do not have the logistical expertise in-house	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Question 7(b):

In the case of outsourcing or potential outsourcing of the logistical function, please indicate how important or unimportant each of the following benefits are, or will be, to your company:

UNIMPORTANT    1    2    3    4    5    IMPORTANT

- Exploit greater management expertise of third party service providers    1
- Allows Financial resources to be focused on core business    1
- Permits tighter budgeting planning    1
- Less Industrial Relations Problems    1
- More Cost effective    1
- More flexible to make strategic management decisions    1
- Higher Service Levels    1
- More "Specialist" services    1
- Accommodates seasonal peaks more effectively    1
- Easier to enter new markets    1
- Management can focus on doing what they do best - core business    1



## Question 8(a):

In the case where you keep the logistical function in-house, please indicate how strong the influence of the following factors are, or will be, on this decision:

	Very Weak	Weak	Strong	Very Strong
• Logistical function is a too integral part of Sales function to outsource	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Loss of control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use of In-house expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Achieving lower costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Provide better service yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Question 8(b):

In the case where you keep the logistical function in-house, please indicate how important or unimportant each of the following benefits are, or will be, to your company:

UNIMPORTANT	1	2	3	4	5	IMPORTANT
• Allows greater control over whole operation						1
• Yields high levels of customer service						1
• More cost effective						1
• Utilise in-house expertise						1
• Fosters loyalty and identity within the company and with customers						1
• Greater flexibility						1
• Utilise existing assets more effective						1
• Certain product categories require specialist handling						1
• Benefit from economies of scale						1



## Question 9:

When choosing a third party service provider, the following factors relating to that provider have, or could come into play. Please rank them from "1" to "3" by using the scale below:

LEAST	1	2	3	MOST
IMPORTANT				IMPORTANT

- Name or Brand 1
- Size of operations 1
- History and Track record 1

## Question (10a):

If you outsource your logistical function, please indicate your degree of satisfaction with the third party service provider(s) by ticking the applicable option:

IF YOU HAVE ONE  
PROVIDER

IF YOU HAVE MORE THAN  
ONE PROVIDER

- Very Poor
- Poor
- Medium
- Good
- Very Good

- Very Poor
- Poor
- Medium
- Good
- Very Good

## Question 10(b):

If you outsource your logistical function, what is the likelihood of change in your relationship with the third party service provider(s)? Please tick applicable option:





## **LIST OF TABLES**

### (1) Question 3 t-test

#### **One-Sample Test**

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q3TF	14.982	16	.000	2.5882	2.2220	2.9545

### (2) Question 7(a) t-test

#### **One-Sample Test**

	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q7A1	16.706	16	.000	2.5294	2.2084	2.8504
Q7A2	12.152	16	.000	1.9412	1.6025	2.2798
Q7A3	19.799	16	.000	2.4706	2.2061	2.7351
Q7A4	6.685	16	.000	1.5294	1.0444	2.0144

### (3) Question 8(a) t-test

#### **One-Sample Test**

	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q8A1	8.899	16	.000	1.9412	1.4788	2.4036
Q8A2	12.930	16	.000	1.8824	1.5737	2.1910
Q8A3	7.649	16	.000	1.7059	1.2331	2.1787
Q8A4	12.333	16	.000	2.1765	1.8024	2.5506
Q8A5	16.000	16	.000	2.3529	2.0412	2.6647



## (4) Question 9 t-test

**One-Sample Test**

	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q91	2.426	16	.027	.4706	5.936E-02	.8818
Q92	6.061	16	.000	.8824	.5737	1.1910
Q93	11.200	16	.000	1.6471	1.3353	1.9588



## (5) Question 1 to 10 Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1FIN	17	1.00	2.00	1.1176	.3321
Q1HR	17	1.00	4.00	2.0000	.9354
Q1SM	17	1.00	3.00	1.6471	.8618
Q1LOG	17	1.00	5.00	2.5882	1.4168
Q1IT	17	1.00	5.00	3.0000	1.5411
Q2	17	1.00	2.00	1.2353	.4372
Q3WF	17	1.00	6.00	2.7059	2.2013
Q3TF	17	4.00	6.00	5.5882	.7123
Q3ITF	17	1.00	6.00	2.6471	1.9666
Q4WF	17	1.00	2.00	1.4706	.5145
Q4TF	17	2.00	3.00	2.4118	.5073
Q4ITF	17	1.00	3.00	1.8824	.8575
Q5	17	.00	1.00	.4118	.5073
Q6WF	17	.00	3.00	.5882	.7952
Q6TF	17	1.00	6.00	2.0000	1.5411
Q6ITF	17	.00	3.00	.7647	.8314
Q7A1	17	2.00	4.00	3.5294	.6243
Q7A2	17	2.00	4.00	2.9412	.6587
Q7A3	17	3.00	4.00	3.4706	.5145
Q7A4	17	1.00	4.00	2.5294	.9432
Q7B1	17	1.00	5.00	3.7647	1.2515
Q7B2	17	1.00	5.00	3.2941	1.2632
Q7B3	17	1.00	5.00	3.7647	1.2005
Q7B4	17	1.00	5.00	3.8235	1.3339
Q7B5	17	3.00	5.00	4.2353	.8314
Q7B6	17	3.00	5.00	3.9412	.7475
Q7B7	17	1.00	5.00	4.2353	1.0914
A7B8	17	2.00	5.00	4.0000	1.1180
Q7B9	17	2.00	5.00	4.2353	.8314
Q7B10	17	1.00	5.00	3.2353	1.2515
Q7B11	17	1.00	5.00	3.9412	1.1440
Q8A1	17	1.00	4.00	2.9412	.8993
Q8A2	17	2.00	4.00	2.8824	.6002
Q8A3	17	1.00	4.00	2.7059	.9196
Q8A4	17	2.00	4.00	3.1765	.7276
Q8A5	17	2.00	4.00	3.3529	.6063
Q8B1	17	2.00	5.00	4.0588	.8993
Q8B2	17	1.00	5.00	3.8235	1.2367
Q8B3	17	2.00	5.00	3.5882	1.1757
Q8B4	17	1.00	5.00	3.3529	1.2217
Q8B5	17	1.00	5.00	2.7647	1.2515
Q8B6	17	1.00	5.00	3.2941	1.2632
Q8B7	17	1.00	5.00	3.3529	1.3666
Q8B8	17	1.00	5.00	3.0000	1.4142
Q8B9	17	1.00	5.00	3.4706	1.4194
Q91	17	1.00	3.00	1.6471	.7859
Q92	17	1.00	3.00	2.2353	.7524
Q93	17	3.00	3.00	3.0000	.0000
Q10A1	10	3.00	4.00	3.8000	.4216
Q10A2	7	3.00	5.00	4.0000	.5774
Q10B1	10	1.00	3.00	1.7000	.6749
Q10B2	7	1.00	3.00	1.7143	.7559
Q10C1	17	1.00	4.00	3.3529	.8618
Q10C2	17	3.00	4.00	3.6471	.4926
Q10C3	17	2.00	4.00	3.4118	.6183
Q10C4	17	1.00	4.00	3.5294	.7998
Valid N (listwise)	0				



## (6) Question 1 Frequencies

**Q1FIN**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	15	88.2	88.2	88.2
	2.00	2	11.8	11.8	100.0
	Total	17	100.0	100.0	

**Q1HR**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	6	35.3	35.3	35.3
	2.00	6	35.3	35.3	70.6
	3.00	4	23.5	23.5	94.1
	4.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

**Q1SM**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	58.8	58.8	58.8
	2.00	3	17.6	17.6	76.5
	3.00	4	23.5	23.5	100.0
	Total	17	100.0	100.0	

**Q1LOG**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	29.4	29.4	29.4
	2.00	4	23.5	23.5	52.9
	3.00	3	17.6	17.6	70.6
	4.00	3	17.6	17.6	88.2
	5.00	2	11.8	11.8	100.0
	Total	17	100.0	100.0	

**Q1IT**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	29.4	29.4	29.4
	2.00	1	5.9	5.9	35.3
	3.00	3	17.6	17.6	52.9
	4.00	5	29.4	29.4	82.4
	5.00	3	17.6	17.6	100.0
	Total	17	100.0	100.0	



## (7) Question 1 Explore

Descriptives

			Statistic	Std. Error	
Q1FIN	Mean		1.1176	8.055E-02	
	95% Confidence Interval for Mean	Lower Bound	.9469		
		Upper Bound	1.2884		
	5% Trimmed Mean		1.0752		
	Median		1.0000		
	Variance		.110		
	Std. Deviation		.3321		
	Minimum		1.00		
	Maximum		2.00		
	Range		1.00		
	Interquartile Range		.0000		
	Skewness		2.610		.550
	Kurtosis		5.440		1.063
	Q1HR	Mean			2.0000
95% Confidence Interval for Mean		Lower Bound	1.5191		
		Upper Bound	2.4809		
5% Trimmed Mean			1.9444		
Median			2.0000		
Variance			.875		
Std. Deviation			.9354		
Minimum			1.00		
Maximum			4.00		
Range			3.00		
Interquartile Range			2.0000		
Skewness			.519	.550	
Kurtosis			-.564	1.063	
Q1SM		Mean		1.6471	.2090
	95% Confidence Interval for Mean	Lower Bound	1.2040		
		Upper Bound	2.0901		
	5% Trimmed Mean		1.6078		
	Median		1.0000		
	Variance		.743		
	Std. Deviation		.8618		
	Minimum		1.00		
	Maximum		3.00		
	Range		2.00		
	Interquartile Range		1.5000		
	Skewness		.811	.550	
	Kurtosis		-1.147	1.063	
	Q1LOG	Mean		2.5882	
95% Confidence Interval for Mean		Lower Bound	1.8598		
		Upper Bound	3.3167		
5% Trimmed Mean			2.5425		
Median			2.0000		
Variance			2.007		
Std. Deviation			1.4168		
Minimum			1.00		
Maximum			5.00		
Range			4.00		
Interquartile Range			3.0000		
Skewness			.395	.550	
Kurtosis			-1.127	1.063	
Q1IT		Mean		3.0000	.3738
	95% Confidence Interval for Mean	Lower Bound	2.2076		
		Upper Bound	3.7924		
	5% Trimmed Mean		3.0000		
	Median		3.0000		
	Variance		2.375		
	Std. Deviation		1.5411		
	Minimum		1.00		
	Maximum		5.00		
	Range		4.00		
	Interquartile Range		3.0000		
	Skewness		-.232	.550	
	Kurtosis		-1.494	1.063	



## (8) Question 2 Frequencies

Q2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	13	76.5	76.5	76.5
	2.00	4	23.5	23.5	100.0
Total		17	100.0	100.0	

## (9) Question 2 Explore

Descriptives

		Statistic	Std. Error
Q2	Mean	1.2353	.1060
	95% Confidence Interval for Mean	Lower Bound Upper Bound	
		1.0105 1.4601	
	5% Trimmed Mean	1.2059	
	Median	1.0000	
	Variance	.191	
	Std. Deviation	.4372	
	Minimum	1.00	
	Maximum	2.00	
	Range	1.00	
	Interquartile Range	.5000	
	Skewness	1.372	.550
	Kurtosis	-.149	1.063



## (10) Question 4 Frequencies

**Q4WF**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	9	52.9	52.9	52.9
	2.00	8	47.1	47.1	100.0
	Total	17	100.0	100.0	

**Q4TF**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	10	58.8	58.8	58.8
	3.00	7	41.2	41.2	100.0
	Total	17	100.0	100.0	

**Q4ITF**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	7	41.2	41.2	41.2
	2.00	5	29.4	29.4	70.6
	3.00	5	29.4	29.4	100.0
	Total	17	100.0	100.0	



## (11) Question 4 Explore

## Descriptives

			Statistic	Std. Error
Q4WF	Mean		1.4706	.1248
	95% Confidence Interval for Mean	Lower Bound	1.2061	
		Upper Bound	1.7351	
	5% Trimmed Mean		1.4673	
	Median		1.0000	
	Variance		.265	
	Std. Deviation		.5145	
	Minimum		1.00	
	Maximum		2.00	
	Range		1.00	
	Interquartile Range		1.0000	
	Skewness		.130	.550
	Kurtosis		-2.267	1.063
	Q4TF	Mean		2.4118
95% Confidence Interval for Mean		Lower Bound	2.1509	
		Upper Bound	2.6726	
5% Trimmed Mean			2.4020	
Median			2.0000	
Variance			.257	
Std. Deviation			.5073	
Minimum			2.00	
Maximum			3.00	
Range			1.00	
Interquartile Range			1.0000	
Skewness			.394	.550
Kurtosis			-2.109	1.063
Q4ITF		Mean		1.8824
	95% Confidence Interval for Mean	Lower Bound	1.4415	
		Upper Bound	2.3232	
	5% Trimmed Mean		1.8693	
	Median		2.0000	
	Variance		.735	
	Std. Deviation		.8575	
	Minimum		1.00	
	Maximum		3.00	
	Range		2.00	
	Interquartile Range		2.0000	
	Skewness		.245	.550
	Kurtosis		-1.628	1.063



## (12) Question 5 Frequencies

**Q5**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .00	10	58.8	58.8	58.8
1.00	7	41.2	41.2	100.0
Total	17	100.0	100.0	

## (13) Question 5 Explore

**Descriptives**

		Statistic	Std. Error
Q5	Mean	.4118	.1230
	95% Confidence Interval for Mean	Lower Bound Upper Bound	
		.1509 .6726	
	5% Trimmed Mean	.4020	
	Median	.0000	
	Variance	.257	
	Std. Deviation	.5073	
	Minimum	.00	
	Maximum	1.00	
	Range	1.00	
	Interquartile Range	1.0000	
	Skewness	.394	.550
	Kurtosis	-2.109	1.063



## (14) Question 6 Frequencies

**Q6WF**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	9	52.9	52.9	52.9
	1.00	7	41.2	41.2	94.1
	3.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

**Q6TF**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	58.8	58.8	58.8
	2.00	2	11.8	11.8	70.6
	3.00	3	17.6	17.6	88.2
	5.00	1	5.9	5.9	94.1
	6.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

**Q6ITF**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	7	41.2	41.2	41.2
	1.00	8	47.1	47.1	88.2
	2.00	1	5.9	5.9	94.1
	3.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	



## (15) Question 6 Explore

## Descriptives

			Statistic	Std. Error
Q6WF	Mean		.5882	.1929
	95% Confidence Interval for Mean	Lower Bound	.1794	
		Upper Bound	.9971	
	5% Trimmed Mean		.4869	
	Median		.0000	
	Variance		.632	
	Std. Deviation		.7952	
	Minimum		.00	
	Maximum		3.00	
	Range		3.00	
	Interquartile Range		1.0000	
	Skewness		1.787	.550
	Kurtosis		4.340	1.063
	Q6TF	Mean		2.0000
95% Confidence Interval for Mean		Lower Bound	1.2076	
		Upper Bound	2.7924	
5% Trimmed Mean			1.8333	
Median			1.0000	
Variance			2.375	
Std. Deviation			1.5411	
Minimum			1.00	
Maximum			6.00	
Range			5.00	
Interquartile Range			2.0000	
Skewness			1.626	.550
Kurtosis			1.994	1.063
Q6ITF		Mean		.7647
	95% Confidence Interval for Mean	Lower Bound	.3373	
		Upper Bound	1.1922	
	5% Trimmed Mean		.6830	
	Median		1.0000	
	Variance		.691	
	Std. Deviation		.8314	
	Minimum		.00	
	Maximum		3.00	
	Range		3.00	
	Interquartile Range		1.0000	
	Skewness		1.236	.550
	Kurtosis		2.007	1.063



## (16) Question 10 Frequencies

**Q10A1**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	2	11.8	20.0	20.0
	4.00	8	47.1	80.0	100.0
	Total	10	58.8	100.0	
Missing	System	7	41.2		
Total		17	100.0		

**Q10A2**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	1	5.9	14.3	14.3
	4.00	5	29.4	71.4	85.7
	5.00	1	5.9	14.3	100.0
	Total	7	41.2	100.0	
Missing	System	10	58.8		
Total		17	100.0		

**Q10B1**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	4	23.5	40.0	40.0
	2.00	5	29.4	50.0	90.0
	3.00	1	5.9	10.0	100.0
	Total	10	58.8	100.0	
Missing	System	7	41.2		
Total		17	100.0		

**Q10B2**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	3	17.6	42.9	42.9
	2.00	3	17.6	42.9	85.7
	3.00	1	5.9	14.3	100.0
	Total	7	41.2	100.0	
Missing	System	10	58.8		
Total		17	100.0		

**Q10C1**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	5.9	5.9
	2.00	1	5.9	5.9	11.8
	3.00	6	35.3	35.3	47.1
	4.00	9	52.9	52.9	100.0
	Total	17	100.0	100.0	

**Q10C2**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	6	35.3	35.3	35.3
	4.00	11	64.7	64.7	100.0
	Total	17	100.0	100.0	

**Q10C3**

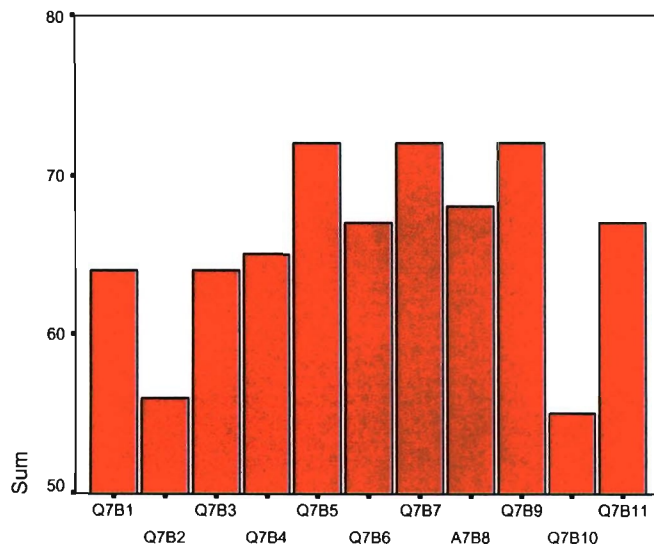
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	1	5.9	5.9	5.9
	3.00	8	47.1	47.1	52.9
	4.00	8	47.1	47.1	100.0
	Total	17	100.0	100.0	

**Q10C4**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	5.9	5.9
	3.00	5	29.4	29.4	35.3
	4.00	11	64.7	64.7	100.0
	Total	17	100.0	100.0	

## LIST OF FIGURES

(1) Question 7(b) Bar Graph



(2) Question 8(b) Bar Graph

