

**An investigation of the product life cycle concept as
an instrument in marketing decision-making for
selected small organisations in South Africa**

by

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DEDICATED TO MY WIFE AND DAUGHTER

Marina & Miré

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ABSTRACT

An investigation of the product life cycle concept as an instrument in marketing decision-making for selected small organisations in South Africa

The product life cycle concept is currently a dominant component of marketing theory. There is however much criticism on and doubt about the applicability of the product life cycle concept as a marketing decision-making instrument. No evidence exists of the efficacy of the product life cycle concept as an instrument to develop marketing strategy.

The purpose of the study was to test the underlying theory of the product life cycle concept with the primary objective of establishing what the use and practical value of the product life cycle concept is in making marketing decisions in small manufacturing and dealer organisations.

The main focus was to test the ability of marketing decision-makers in small manufacturing and dealer organisations to associate their application and use of the product life cycle concept with Kotler's assumptions on the identified marketing characteristics, described marketing objectives and proposed marketing strategies.

A major finding was that small organisations tended to display a marketing knowledge level that was not in total unison with the existing marketing theory. Another important conclusion of the study was that the current product life cycle concept theory needs to be broadened to include strategies on the expanded marketing mix (people, processes and physical evidence).

Apart from the different use and application by marketing decision-makers in small organisations in South Africa the product life cycle concept theory has potential as a strategic tool and a high likelihood for its future use as a marketing decision-making instrument.

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CHAPTER 1

ORIENTATION

“Traditionally, it has been thought that a product life cycle is as irreversible as a biological life cycle. Now there is mounting evidence that a turnabout in management thinking is underway. The new thinking is that it is actually possible to reverse the product life cycle” (Ayres & Steger, 1980: 66).

1.1 INTRODUCTION

The marketplace is changing at a radical pace as a result of major societal forces such as technological advances, globalisation, consumerism and increased competition (Kotler, 2000: 26). Organisations are doing a great deal of soul-searching, and many highly respected organisations around the globe are changing in a number of ways by following one or a combination of the following practices – re-engineering, outsourcing, e-commerce, benchmarking, forming alliances, becoming more market-centred, becoming global and/or local and decentralising.

According to Kotler (1997: 37) today’s organisations are facing their toughest competition ever and organisations should strive to retain customers by outperforming their competitors. To outperform the competition and to cater for the above-mentioned developments, organisations may utilise a decision-making tool such as the product life cycle concept. These developments increase the necessity for organisations to develop and monitor strategies and tactics in a formalised way.

Marketers are also rethinking their philosophies and concepts (Kotler, 2000: 34) and the major current themes are – relationship marketing, customer lifetime value, customer share, target marketing, individualisation, customer databases, integrated marketing communications, channels as partners, every employee being a marketer of the organisation, and model-based decision-making.

Various decision-making models exist, many marketing instruments are available to marketing decision-makers and various concepts such as the product life cycle have been developed and are available to assist marketing decisions. Marketing decisions are often based on models such as the Boston Consulting Group Matrix and the General Electrical Strategic model. Marketers of physical products and services furthermore use the marketing mix variables for tactical decision-making. Marketers manage their offerings through the various phases of the product life cycle using inter alia, the marketing mix variables in their decision-making.

The product life cycle concept allows marketing managers to plan for forecasting and strategic planning to manage their products and/or services through the various phases of their product life cycles. The purpose of the concept is to establish in which phase of its life cycle an organisation's product is and then to select the strategy best fitting the sales, cost, profit, competitor and customer conditions in that phase. The product life cycle concept is a valuable instrument available to **mainly large organisations** the management of their product(s) after commercialisation.

This study will investigate the product life cycle concept theory and its applicability as an instrument in the marketing decision-making for small manufacturing and small service organisations in South Africa. The empirical part of this study will be executed among small manufacturing organisations and small dealer organisations in Gauteng, South Africa. The product life cycle concept's marketing characteristics, marketing objectives and marketing strategies described by Kotler (2000: 316) will be tested within this target group.

1.2 THE PROBLEM STATEMENT

The product life cycle concept has been formulated as an explicit, verifiable illustration of sales behaviour and tested against actual data in many studies. The product life cycle concept is depicting sales over time and it is a relative good predictor of sales behaviour in certain market situations but there are

however certain questions pertaining to its practical applicability. When tested in an explicit form for given categories of goods, the product life cycle concept can be a useful tool for marketing planning and sales forecasting (Polli & Cook: 1969). Various writers in the academic and in the business press have however questioned the product life cycle concept (Dhalla & Yuspeh, 1976; Thorelli & Burnett, 1981; Midgley, 1981; Sproles, 1981; Tellis & Crawford, 1981; Mercer, 1993 and Grantham, 1999). There are furthermore different arguments against the application and validity of the product life cycle concept as a marketing instrument in the current constantly changing/dynamic environment.

As indicated in the literature search in paragraph 1.6 the product life cycle still seems to be the dominant component of marketing theory. However, there are many unanswered questions and criticism about the practical application of the product life cycle as a strategic marketing and marketing decision-making instrument in the current dynamic environment. For instance (Grantham, 1997: 4 – 10):

- There is still doubt about the applicability and validity of the product life cycle concept as a marketing instrument.
- No evidence exists of the efficacy of the product life cycle as a product life cycle concept / instrument to predict marketing strategy.
- It is still difficult to determine which phase of the product life cycle a product or service is in.

The application of the product life cycle concept for marketing decision-making has been tested in **mainly large organisations** around the globe but has not yet been researched and tested in South Africa among large or small organisations. The detailed literature review in chapter three reveals that the product life cycle concept has been applied to mainly large organisations and to a variety of products, industries and situations for instance: industrial products, houseware products, high technological products, fashion products, pharmaceutical products, international trade, functional strategic alignment, financial management, benchmarking and growth purposes (Rink, 1976; Ayal,

1981; Harrel & Taylor, 1981; Qualls, Olshavsky & Michaels, 1981; Thorelli & Burnett, 1981; Tigert & Farivar, 1981; Birou, Fawcett & Magnan, 1998; Grantham, 1999; Roden & Fox, 1999; Magnan, Fawcett & Birou, 1999 and Shankar, Carpenter & Krishnamaruthi, 1999).

It is evident from the literature that the product life cycle concept has been applied to many situations ranging from the manufacturing industry to financial management. These applications together with the results and recommendations will be discussed in chapter three.

1.3 THE PURPOSE OF THE STUDY

The purpose of the study is to test the underlying theory of the product life cycle concept. The literature study will be expanded by extensive empirical research to test the applicability of the product life cycle concept as a decision-making instrument among small organisations in Gauteng, South Africa. The identification of the marketing **characteristics**, marketing **objectives** and the application of marketing **strategies** within each phase of the product life cycle by small manufacturers and small dealer organisations in Gauteng form be the **core** of the empirical research.

1.4 RESEARCH OBJECTIVES

1.4.1 Primary objective

The primary objective of this study is to establish what the use and practical value of the product life cycle concept is in marketing decision-making in small manufacturing and small dealer organisations.

1.4.2 Secondary objectives

The secondary objectives of this study are:

- (a) To **determine** whether marketing decision-makers in small organisations in South Africa can identify in what phase of the product life cycle an individual product or a product range is.

- (b) To **identify** the application of marketing decision-making variables in the various phases of the product life cycle concept by small organisations.
- (c) To **determine** whether there are differences between small manufacturing and small dealer organisations with regard to the application of marketing decision-making variables in the various phases of the product life cycle concept.
- (d) To **identify** the importance of elements of the marketing mix variables by small manufacturing and small dealer organisations in the different product life cycle phases.
- (e) To **investigate** the **ability** of small organisations to **describe** the **marketing objectives** within the various product life cycle phases as indicated in the theory.
- (f) To **establish** the **ability** of small organisations to **identify** product life cycle **characteristics** as depicted in marketing literature.
- (g) To **investigate** the **ability** of small organisations to **link marketing strategies** with phases of the product life cycle theory according to the theory classification.
- (h) To **identify** the different **marketing objectives** that small organisations formulate for their products in each phase of the product life cycle.
- (i) To **establish** whether there are differences in the application of the product life cycle theory between small manufacturing and small dealer organisations.
- (j) To **identify** the factors influencing a product through the various phases of the product life cycle among small organisations in South Africa.
- (k) To **determine** the potential of the product life cycle concept for decision-making among small manufacturing and small dealer organisations in South Africa.
- (l) To **determine** who is responsible for marketing decision-making in small manufacturing and small dealer organisations

1.4.3 Research propositions

The following propositions are formulated and will be comprehensively motivated in the research design in chapter six and addressed in the analysis in chapter seven:

- **Proposition 1:**

There is a difference in the application of the product life cycle concept theory assumptions of small organisations in South Africa compared to Kotler's theory.

- **Proposition 2:**

Marketing managers of small organisations in Gauteng, South Africa use the product life cycle concept to strategically plan and manage their products through the various phases of the product life cycle.

- **Proposition 3:**

Small manufacturing organisations in Gauteng apply and use the product life cycle concept for marketing decision-making purposes.

- **Proposition 4:**

Small dealer organisations in Gauteng apply and use the product life cycle concept for marketing decision-making purposes.

- **Proposition 5:**

There is a significant difference between small manufacturing and small dealer organisations when applying and using the PLC concept for marketing decision-making purposes.

- **Proposition 6:**

Small manufacturing organisations and small dealer organisations in Gauteng, South Africa don't have a marketing function responsible for applying the product life cycle concept when marketing strategy is developed and marketing decisions are taken.

1.5 THE DEMARCATION AND SCOPE OF THE STUDY

This is an exploratory study aimed at investigating the use and application of the product life cycle concept as an instrument in marketing decision-making among small manufacturing organisations and small dealer organisations in Gauteng, South Africa. The following aspects should be noted:

- The study covers the theory on the product life cycle concept as revealed in the literature review.
- The empirical part of this study will focus on the use and application of the product life cycle concept theory in practice.
- The investigation will focus on the product life cycle assumptions derived from the literature namely characteristics, marketing objectives and marketing strategies. These assumptions based on the literature review are:
 - (a) The described characteristics associated with each phase of the product life cycle concept theory.
 - (b) The proposed marketing objectives associated with each phase of the product life cycle concept theory.
 - (c) The suggested marketing strategies associated with each phase of the product life cycle concept theory.
- Selected small manufacturing organisations and small dealer organisations will be used to test the use and applicability of the product life cycle concept as a marketing decision-making instrument.
- There will be no investigation into and questioning of the shape of the sales curve associated with the product life cycle concept.

Small organisations will include manufacturers of physical products and dealers, including wholesalers and retailers who rely heavily on the provision of the service component of their offering. The reasons for the decision to use small organisations and to execute the empirical study in Gauteng will be discussed and defended in the research design and procedure (chapter six).

1.6 LITERATURE REVIEW

The product life cycle concept represents a core element of marketing theory and has been so for the past 40 years. According to Kotler (2000: 315), Walker, Boyd & Larréché (1999: 146) and Churchill & Peter (1998: 234) every product or service has, by definition, a life cycle and how this is managed is the key to survival in business. The product life cycle has represented a central element of marketing theory for four decades, from its development in the 1950s, and its subsequent popularisation in the 1960s. The product life cycle concept has remained a stable feature of marketing teaching, despite evidence of its limited applicability.

Mercer (1993: 269) states that the product life cycle theory has been subjected to relatively little public criticism and only 20 percent of 271 papers published on this subject between 1971 and 1991 undertook further research into this subject and challenged its basic assumptions. Grantham (1999: 4) posits that attempts to validate the life cycle concept on an empirical basis have been restricted by the lack of definition as to which life is being examined, since different authors have different understandings of the product life cycle concept.

It is therefore necessary to do an extensive literature search on the product life cycle concept in order to derive the views of the majority of researchers. These views will be debated by the researcher and will make an important contribution to the foundation of the proposed study.

1.6.1 Description of the product life cycle

Many definitions of the product life cycle concept exist in marketing theory but with one common assumption - the product life cycle concept is a time-dependent model of sales. Kotler (1997: 344) describes the product life cycle as an important concept that provides insights into a product's competitive dynamics.

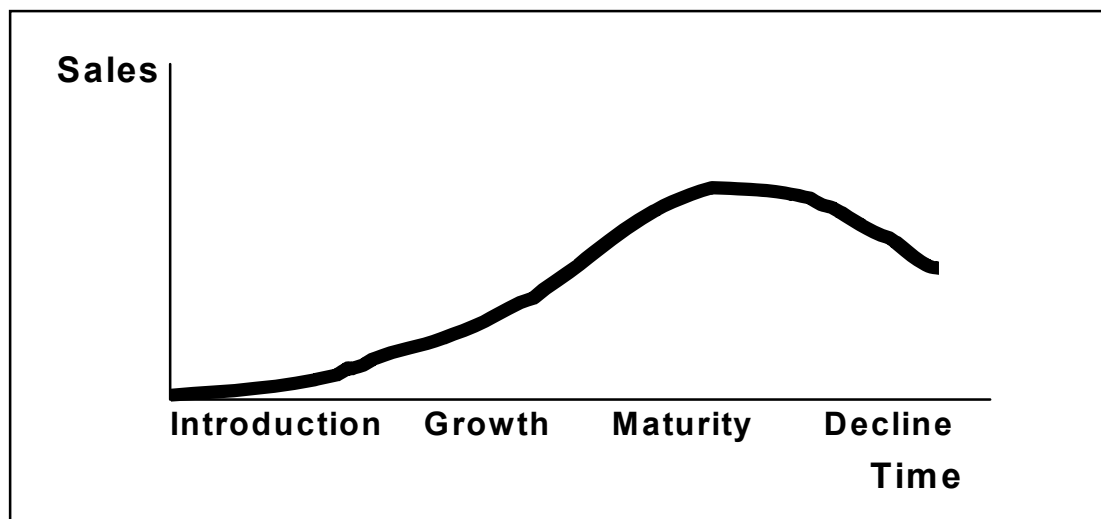
A definitional problem needs to be clarified to distinguish between *product category*, *product form* and *product brand*. Kotler (1997: 346) distinguishes

among these various concepts and reiterates that the product life cycle concept can be used to analyse a product category (e.g. liquor), a product form (e.g. white liquor) or a brand (e.g. Smirnoff Vodka).

The above-mentioned definitional problem will not be debated. These definitions will be used during the empirical part of this study where small manufacturing organisations and small dealer organisations will be asked to describe their best selling products/brands irrespective of whether they are a product category, product form and/or product brand.

According to Kotler (1997: 363) the product life cycle can be divided into four distinct phases – introduction, growth, maturity and decline phase (see Figure 1.1).

Figure 1.1: Phases in the product life cycle



Adapted from: Kotler (1997: 363)

Kotler (2000: 316) provides various characteristics, marketing objectives and strategies linked to the four phases in the product life cycle concept. These characteristics, marketing objectives and strategies are the culminated result of the work done mainly by Weber (1976: 13) and Doyle (1976: 5). A summary table will be provided in chapter three and the contents of this will be an important component of the empirical part of this proposed study.

Kotler (2000: 316) provides the following marketing characteristics, marketing objectives and marketing strategies within each of the product life cycle phases:

- **Characteristics**

The characteristics identified by Kotler (2000: 316) are classified according to sales, costs, profit, competitors and customers for each phase in the product life cycle. The characteristics can be described as follows:

- (a) **Sales characteristics** – sales are low in the introductory phase, rapidly rising in the growth phase, peaking in the maturity phase and decreasing in the decline phase.
- (b) **Cost characteristics** – high cost per customer in the introductory phase, average cost per customer in the growth phase, and low cost per customer in the maturity and decline phases.
- (c) **Profit characteristics** – profits are negative in the introductory phase, rising in the growth phase, high in the maturity phase and decreasing in the decline phase.
- (d) **Competitor characteristics** – few competitors in the introductory phase, increasing in the growth phase, stable in the maturity phase and decreasing in the decline phase.
- (e) **Customer characteristics** – innovators are testing the product in the introductory phase, early adopters trying the product in the growth phase, a middle majority testing the product in the maturity phase and the laggards trying the product in the decline phase.

- **Marketing objectives**

The marketing objectives described by Kotler (2000: 316) are linked to each of the four phases of the product life cycle. The main marketing objectives in each phase of the product life cycle can be illustrated as follows:

- (a) **Introductory phase** – to create awareness and trial by means of an intensive advertising and promotion campaign.
- (b) **Growth phase** - to maximise the market share.
- (c) **Maturity phase** - defending market share while profits can still be maximised.

- (d) **Decline phase** - marketing expenditures linked to the product will be reduced during the decline phase while the aim will be to milk the product.

- **Strategies**

The marketing strategies proposed by Kotler (2000: 316) are linked to various phases of the product life cycle. The different marketing strategies in each phase of the product life cycle are as follows:

- (a) **Product strategy** – a basic product will be offered in the introductory phase, product extensions and warranties will be offered during the growth phase, brands and individual product items will be diversified in the maturity phase and the weak models will be phased out during the decline phase.
- (b) **Price strategy** – a cost plus price will be charged during the introductory phase, prices will be set to penetrate the market during the growth phase, prices will be set to meet competitive prices during the maturity phase while prices will be cut during the decline phase.
- (c) **Distribution strategy** – distribution will be built selectively during the introductory phase, it will be intensive during the growth phase, distribution will be further developed during the maturity phase and the distribution will be more selective during the decline phase with the phasing out of unprofitable outlets.
- (d) **Advertising strategy** – building awareness of the product among early adopters and dealers in the introductory phase, building the awareness and interest in the mass market during the growth phase, stressing brand differences and benefits during the maturity phase and reducing the advertising level needed to retain hard core-loyal customers in the decline phase.
- (e) **Sales promotion strategy** – using heavy promotions to entice trial during the introductory phase, reducing the promotions to take advantage of the heavy consumer demand during the growth phase, increasing promotion to encourage brand switching in the maturity phase and reducing promotions to the minimum during the decline phase.

1.6.2 Criticism of the product life cycle concept

Some criticisms have been made against the product life cycle concept. Dhalla and Yuspeh (1976: 102) contended that the product life cycle concept is more misleading than useful. From a slightly different view there are organisations that have ignored the product life cycle concept and achieved great success through an imaginative marketing strategy. A classic example of the latter is the success achieved by DuPont's nylon during the 1940's and 1960's (Dhalla & Yuspeh, 1976: 107). This product, whose original uses were primarily military, would have gradually faded into oblivion had DuPont believed that the decline sales curve signalled death. Instead the management of DuPont boldly decided to enter the volatile textile market. Women were first induced to switch from silk to nylon stockings and the market was later expanded by converting teenagers and sub-teens to start wearing hosiery. Sales grew further when DuPont introduced tinted and patterned hosiery, thereby converting hosiery from a neutral accessory to a central element of fashion.

Other well-known brands such as Listerine Antiseptic, Marlboro and Seven-up in contrast to DuPont, stretched their brands over many decades by sound planning based on the application of the product life cycle concept (Dhalla & Yuspeh, 1976: 107 - 108).

- Listerine succeeded in retaining its lion's share of the mouthwash market despite heavy competitive pressures and the introduction of strongly supported new brands.
- Marlboro edged up to a top place in a highly segmented filter cigarette market by focusing on the same basic theme – only developing different variations of it.
- Seven-up's growth had been impeded because of its image strictly as a mixer. They had more room for expansion as a result of taking the "Uncola" position against Coke and Pepsi.

In Kotler (2000: 315) the critique is raised that the product life cycle concept lacks what living organisms have, namely, a fixed sequence of phases and a

fixed length of each phase. Marketers can therefore seldom tell in what phase of the product life cycle an individual product or a product range is.

Underlying the above-mentioned criticisms, are five basic issues that must be faced in any meaningful application of the life cycle concept (Day, 1981: 60):

- How should the product-market be defined for the purpose of life cycle analysis?
- What are the factors that determine the progress of the product through the phases of the life cycle?
- Can the present life cycle position of the product be unambiguously established?
- What is the potential for forecasting the key parameters, including the magnitudes of sales, the duration of the phases and the shape of the curve?
- What role should the product life cycle concept play in the formulation of competitive strategy?

The controversy over whether or how marketing decision-makers actually apply the product life cycle concept to their own individual decision-making needs resulted in a series of articles in the *Journal of Marketing* (1981). This series dealt with the theoretical product life cycle concept for product life cycle analysis (Thorelli & Burnett, 1981: 98–108; Midgley, 1981: 109-115, Sproles, 1981: 116-124 and Tellis & Crawford, 1981: 125–132). The above-mentioned articles together with Mercer's view (1993: 269-274) have a common theme of criticism on the value of the product life concept in practice, doubt about the validity of the product life cycle concept and the need for further investigation into the product life cycle concept in practice.

Midgely (1981: 114) identified the need for the development of a more sophisticated theory of the product life cycle in order to know more about the shape of the product life cycle and duration of each phase, the magnitude of adoption and inter-purchase time distributions.

Mercer (1993: 269) argued that the product life cycle of the brand leaders is indeed more stable, and much longer, than some previous work might have suggested.

Sproles's (1981, 116 - 124) view is that the clear value of life cycle analysis is still to be proven. Tellis and Crawford (1981: 131) identified the problem of the product life cycle concept as being that sales are modelled primarily as a function of time and are expected to produce curves that display growth, and levelling and decline.

Grantham (1997: 9) explored the arguments for and against the validity of the product life cycle concept used as a marketing instrument in this present, dynamic environment and made the following conclusions:

- There is serious doubt about the validity of the product life cycle as a marketing instrument.
- It is still difficult to determine in which phase of the cycle the product is.
- The value of the product life cycle for forecasting purposes is limited.
- There is still doubt and no evidence of the efficacy of the product life cycle as an instrument to prescribe marketing strategies.

The above-mentioned criticism and doubt about the product life cycle concept theory and its practical application is indicative that the product life cycle concept debate is still continuing (Sproles, 1981: 116–124; Tellis and Crawford, 1981: 131; Mercer, 1993: 269 and Grantham, 1997: 9). There are still questions about the effectiveness of the product life cycle concept as a marketing decision-making instrument and there is a definite need for empirical proof of the application of the product life cycle concept theory in practice.

1.6.3 Identified problems with the product life cycle concept

Many gaps have been identified in marketing literature that link very closely with the criticism raised during the previous four decades. The following **gaps** were identified and will be motivated in chapter three:

- The product life cycle theory has been exposed to comparatively little suspicion (Grantham, 1997: 4).
- On-going scepticism over the product life cycle theories (Dhalla and Yuspeh, 1976: 102 - 105). It is interesting to note that this article is one of the most quoted on this specific topic.
- There is a definite need for the development of a more sophisticated theory of the product life cycle in order to know more about the shape of the product life cycle (Midgely, 1981: 114).
- The clear value of the product life cycle analysis for entrepreneurs is still to be proven (Sproles, 1981: 123).
- The application of the product life cycle theory for strategic planning across functional areas has been overlooked (Birou, Fawcett & Magnan, 1998: 38).
- The product life cycle itself is insufficiently uniform to provide a basis for decision-making and therefore for planning (Doyle, 1976: 3).
- The product life cycle is empty of empirical generality and positively dangerous if used as a guide for action (Grantham, 1997: 9).

The marketing characteristics, marketing objectives and strategies provided by Kotler (2000: 316) are restricted to the marketing of physical products and no published evidence could be found where this has been evaluated for the marketing of services, given their intangible nature.

The research design will be discussed in the next part of this chapter.

1.7 RESEARCH DESIGN

A research design is a blueprint for conducting a research project. It details the procedure necessary for obtaining the required information, and its purpose is to design a study that will test hypotheses or propositions of interest, determine possible answers to the research questions and provide the information needed for decision-making (Malhotra, 1996: 21–22). Formulating a research design involves the following steps:

- Secondary data analysis
- Qualitative research
- Definition of the information needed
- Methods of collecting quantitative data
- Questionnaire design
- Sampling process and sample size
- Plan of data analysis

The researcher will make use of exploratory research to clarify the exact nature of the problem at hand: the applicability of the product life cycle as a marketing decision-making instrument by small organisations in Gauteng. The steps mentioned above would be briefly explained in the next section and a detailed description of each step will be done in chapter six.

1.7.1 Secondary data analysis

An extensive literature search on the product life cycle concept and its strategic application will be conducted by consulting a wide range of relevant scientific journals and research publications. The literature on strategy, product management, and the product life cycle will be discussed in chapters two to four.

1.7.2 Qualitative research

No qualitative research will be conducted, as the questionnaire will be based on the information obtained from the literature search as discussed in chapters two to four.

1.7.3 Definition of the information needed

Views on the applicability of the product life cycle concept will be derived from the extensive literature research. The literature research will include information on strategy, empirical results conducted on the PLC concept, PLC application areas, problems and criticism associated with the PLC concept.

1.7.4 Methods of collecting quantitative data

According to Dillon et al (1993: 158 - 172) versatility, quantity of data, sample control, quality of data, response rate, speed, cost and uses, influence the choice of a survey method. After considering all the advantages and disadvantages of the various methods (mail intercept, personal interview, mail, telephone and e-mail), a decision was taken to make use of personal face-to-face interviews. A comprehensive discussion on the various methods and the reason(s) for the selection of personal face-to-face interviews will be done in chapter six.

1.7.5 Questionnaire design

The questionnaire has been developed from the literature derived from chapters one to four and the principles associated with questionnaire design was applied. Before the questionnaire was finalised it was pre-tested among marketing decision-makers in the selected survey population and the industry standard for pre-testing was applied. Questionnaire design will be described in chapter six.

1.7.6 Sampling process and sample size

The purpose of sampling is to obtain a representative sample and is often referred to as being more of an art than a science. Sampling decisions are often complex and there is no single "right" way to make them. Two general sample categories are available according to Dillon et al (1993: 221-230):

- (a) *Probability samples* where each element in the sample frame has a known probability and equal chance to be selected (Dillon et al, 1993: 221).
- (b) *Non-probability samples* where the researcher is not able to determine the chance of a single element from the sample frame of being selected (Dillon et al, 1993: 229).

Probability sampling methods share two important characteristics according to Dillon et al (1993: 221):

- (a) Before the selection of the sample, it is possible to determine each potential sample of a certain size that can be chosen from the population and what the probability will be for selecting each sample.
- (b) Each sample unit has a known, non-zero chance of being selected.

A **probability sampling design** will be used in this research to draw a representative sample of small organisations from an existing database. This design guarantees that every individual in the target population has an equal chance of being selected. The sample units will be randomly selected where after, the personal face-to-face interviews will be conducted.

- **Sample size**

A representative sample obtained from a selected database of small organisations in Gauteng will be drawn and each individual organisation will be selected according to predetermined criteria. Preliminary criteria for inclusion in the sample can vary from annual turnover, number of staff, years in existence and market share to the type of business (manufacturers and dealers). The most stringent criteria will be used and the following sample size related issues will be discussed in chapter six:

- Defining the population
- Identification of the sample frame
- Selection of the sampling method
- Determination of the actual sample size

1.7.7 Plan of data analysis

The plan for data analysis will be done after the questionnaire has been developed and all the aspects associated with data analysis will be discussed in chapter six.

The following aspects will be addressed:

- **Data capturing and coding**

Coding involves the assignment of numerical values (codes) to represent a specific response to a specific question (Dillon et al, 1993:37). Data codes

will be assigned and the data will be captured on Microsoft Access to ensure that no data capturing mistakes will be made. After data capturing the data will be exported to SPSS and/or Microsoft Excel and/or Statistica Computer Software for processing purposes.

- **Cross-tabulation**

Cross-tabulation is a statistical procedure commonly used to describe the responses of two or more variables. A frequency distribution describes one variable at a time, but cross tabulation is a statistical technique that describes two or more variables simultaneously. Critical aspects in the questionnaire will be cross-tabulated with classification or demographical questions in the questionnaire.

- **Validity and reliability testing**

Reliability is a necessary but sufficient condition for validity (Dillon et al, 1993: 294). Reliability refers to the extent to which measures are reproducible (Dillon et al, 1993: 293). A reliability coefficient can be determined where the sum of item variances will be compared to the variance of the sum scale. This coefficient can vary from 0 to 1 and a value of 0.7 (70%) or less will indicate unsatisfactory internal consistency reliability (Malhotra, 1996: 305 - 306). The Cronbach's alpha score for the measurement of internal consistency in the proposed study will test the construct reliability.

Validity, according to Malhotra (1996: 306), is the extent to which differences in observed scale scores reflect true differences among objects on the characteristic being measured, rather than systematic or random errors.

A researcher can utilise various types of validity to prove whether he/she has measured the truth. Researchers can use content validity, criterion validity, and construct validity to measure the validity of research results.

According to Grimm and Yarnold (2000: 104) content validity is concerned with the degree to which an instrument assesses all relevant aspects of the conceptual or behavioural domain that the instrument is intended to measure. Criterion validity concerns how accurately an instrument predicts a well-accepted indicator of a given concept, or a criterion (Grimm & Yarnold, 2000: 106). Construct validity determines whether a given measure, or operational definition, actually assesses the underlying conceptual variable, or construct, that the measure is intended to represent (Grimm & Yarnold, 2000: 111).

The subsequent choice of a validity assessment method by the researcher will be dependent on the type of question format used in the questionnaire. This will be discussed in chapter six after the questionnaire has been compiled.

1.8 THE IMPORTANCE AND VALUE OF THE STUDY

1.8.1 Importance of this study

It is important to test the applicability of the product life cycle theory in the current dynamic environment because surveyed literature indicates that the application of the product life cycle is being questioned, based on empirical studies conducted mainly among **large** manufacturing organisations internationally. Yet, to date no empirical research has been undertaken on the applicability of the product life cycle concept and the use thereof for marketing decision-making in any South African industry.

1.8.2 Value of this study to small organisations

The literature study conducted indicates that no empirical research on the applicability of the product life cycle for decision-making has been undertaken in South Africa. It revealed that empirical research mainly concentrated on large organisations internationally. No published research could be found which specifically focused on small organisations in South Africa.

This study will make a contribution to the body of knowledge with respect to marketing theory in general and the product life cycle concept theory in particular.

The researcher intends to investigate the application of the product life cycle concept among marketing decision-makers in small manufacturing organisations and small dealer organisations to effectively use the product life cycle to manage a single product and/or a product range through the various phases of the product life cycle.

1.9 CLARIFICATION OF KEY CONCEPTS

Before the outline of the different chapters can be discussed it is necessary to clarify the following key concepts that will be used as an integral part of the literature and empirical parts of this study:

- **Organisation**

The term organisation will be used in this study as an all inclusive term for the various types of companies, businesses or enterprises ranging from manufacturing, services, business-to-business to non-profit sectors.

- **Dealer**

Dealers as intermediaries in the distribution channel, can be divided into two categories - retailers and wholesalers. These two dealer categories can be classified according to how they derive their gross sales income (Van der Walt, Strydom, Marx & Jooste, 1993: 270).

Dealers are establishments, which derive more than 50% of their gross sales income from sales to the general public for private and household consumption. Wholesalers are establishments, deriving 50% or more of their gross sales income from wholesale sales, i.e. sales to other businesses and organisations. The term *dealer* in this study will be used as an inclusive term

for *retailers* and *wholesalers* who rely extensively on customer service to develop a sustainable competitive advantage.

Dealers and manufacturers as part of the environment in which this study will be executed will be discussed and described in chapter four.

- **A product**

A product is any offering that can satisfy a need or want (Kotler, 2000: 11). According to Kotler (1997: 467) five categories of product offers can be distinguished:

- (a) A pure tangible product with no service accompanying it.
- (b) A tangible product with accompanying services where the offer consists of a tangible good accompanied by one or more services to enhance its consumer appeal.
- (c) A hybrid product where the offering consist of equal parts of services and goods.
- (d) A major service with accompanying minor products and services.
- (e) A pure service where the offering consists primarily of a service.

- **Service**

A service is any act or performance that one party can offer to another that is essentially intangible and does not result in the ownership of anything. Its production may or may not be tied to a physical product (Kotler, 1997: 467).

- **Business-to-business marketing**

The term business marketing has evolved from what historically has been known as industrial marketing. Business marketing involves the performance of those marketing activities directed toward organisational customers rather than toward consumers who buy goods and services for personal consumption (Haas, 1995: 5). What distinguishes business marketing from consumer goods marketing is the intended use of the product and the intended consumer. Sometimes the products are identical, but a

fundamentally different marketing approach is needed to reach the organisational buyer (Hutt & Speh, 1998: 5).

- **Marketing mix variables**

Marketing mix variables are strategic tools organisations use to create value for customers and achieve organisational objectives. Marketing mix variables include the marketing mix instruments (4Ps) of the traditional marketing mix: product, price, place and promotion (Churchill & Peter, 1998: 22). Marketing mix variables also include the marketing mix instruments (7Ps) of the expanded marketing mix for services: product, price, place, promotion, people, processes and physical evidence (Lovelock, 1996: 37-233).

- **Marketing decision-making variables**

The researcher views marketing decision-making variables as a much broader concept than just the marketing mix variables (Ps). Marketing decision-making variables can include variables such as segmentation, targeting and positioning that the marketer can use as a basis for decision-making.

1.10 CHAPTER OUTLINE

The current chapter described the problem statement, objectives, propositions and literature linked to the investigation of the application of the product life cycle concept for marketing decision-making purposes. The rest of this thesis will be divided into the following chapters:

Chapter 2: Theoretical foundation: Strategy and the role of marketing strategy

This chapter will provide a theoretical discussion on strategy, strategy planning and formulation on corporate, business and functional levels in large and small organisations. The role of the marketing function will be highlighted together with the marketing decision-making variables for both physical products and services.

Chapter 3: Literature survey: Product management and the product life cycle

This chapter will explain the processes of product and market development with an emphasis on the utilisation of the product life cycle concept as a management instrument to manage products through the various phases of the product life cycle. The chapter will include literature on the different application areas, criticisms, application gaps and the validity of the product life cycle concept.

Chapter 4: Small business environment in South Africa

This chapter will be devoted to the environment in which the empirical research will be conducted. It will include a universal perspective on the importance of small organisations to global economies. The chapter will include a discussion on the White Paper for the Development and Promotion of SMMEs (Small, Medium and Micro Enterprises) in South Africa. The chapter will conclude with a description of the small manufacturing organisations and dealer organisations to be used in the empirical part of this study.

Chapter 5: Problem statement and research propositions

This chapter will provide a description of the problem statement and the various research propositions linked to the primary and secondary objectives associated with this study.

Chapter 6: Research design and procedure

The research methodology will be discussed with special reference to the population, sample, measuring instrument, and qualification of the variables and the proposed statistical analysis.

Chapter 7: Results and interpretation

This chapter will present the findings from the empirical research ranging from general research findings to more specific results. The results will be reported on a question-by-question format for the total sample and will then be broken

down into results per organisational type – small manufacturing organisations and small dealer organisations.

Chapter 8: Conclusions, implications and recommendations for future research

The final chapter will present all the major findings. The chapter will be concluded by a discussion on the limitations of the study and will be enhanced by recommendations for future research.

1.11 CONCLUSION

The dynamic nature of today's marketplace places a responsibility on organisations to anticipate, to plan and to respond effectively to customer needs. Within this environment the development of a marketing strategy can be critical to the organisation's profitability and sustainable competitive advantage. This study will investigate the potential of the product life cycle concept as a marketing decision-making instrument and an instrument used in marketing decision-making.

The next chapter will be devoted to strategy, strategy development and the role of the marketing function.

CHAPTER 2

THEORETICAL FOUNDATION – STRATEGY AND THE ROLE OF MARKETING STRATEGY

“Organisations normally reformulate their marketing strategy several times during a product’s life cycle. Economic conditions change, competitors launch new assaults, and the product passes through new stages of buyer interest and requirements. Consequently, an organisation must plan strategies appropriate to each stage of the product’s life cycle” (Kotler, 1994: 344).

2.1 INTRODUCTION

Strategy can provide an organisation with a reference-point for decision-making. Different levels of strategy exist in a large organisation, namely corporate strategy, business strategy and functional strategy. According to Du Plessis, Jooste and Strydom (2001: 4) corporate level strategy crystallises into strategies at lower organisational levels.

Du Plessis et al (2001: 4) view corporate level strategy as the organisation’s sense of purpose, while business level strategy is concerned with the management of a specific division or business unit that must contribute to achieve corporate objectives. Functional level strategy refers to the contribution of marketing management to formulate and implement marketing programmes. Marketing managers can blend the marketing mix variables into a market offering and can manage the product and make marketing decisions by using the product life cycle concept.

Depending on the size and structure of the organisation, these levels of strategy can be executed on all three levels in large organisations, but in the case of smaller organisations, these levels of strategy are executed on functional level by functional managers such as the marketing manager.

This chapter will provide a theoretical discussion on strategy, strategy planning and strategy formulation on both corporate, business and functional

levels in large organisations specifically, and will also include a small organisation's perspective. The chapter will conclude with a discussion on strategy and marketing decision-making in small organisations and the role of the product life cycle concept in strategy formulation.

2.2 STRATEGY

Strategy is the fundamental pattern of present and planned objectives, resource developments and interactions of an organisation with markets, competitors and other environmental factors (Walker, Boyd and Larréché, 1999: 8). Therefore a good strategy should specify:

- **what** is to be accomplished,
- **where** – which industries or product-markets will be the focus, and
- **how** – which resources and activities will be allocated to each product-market to meet environmental opportunities and threats and to gain a sustainable competitive advantage.

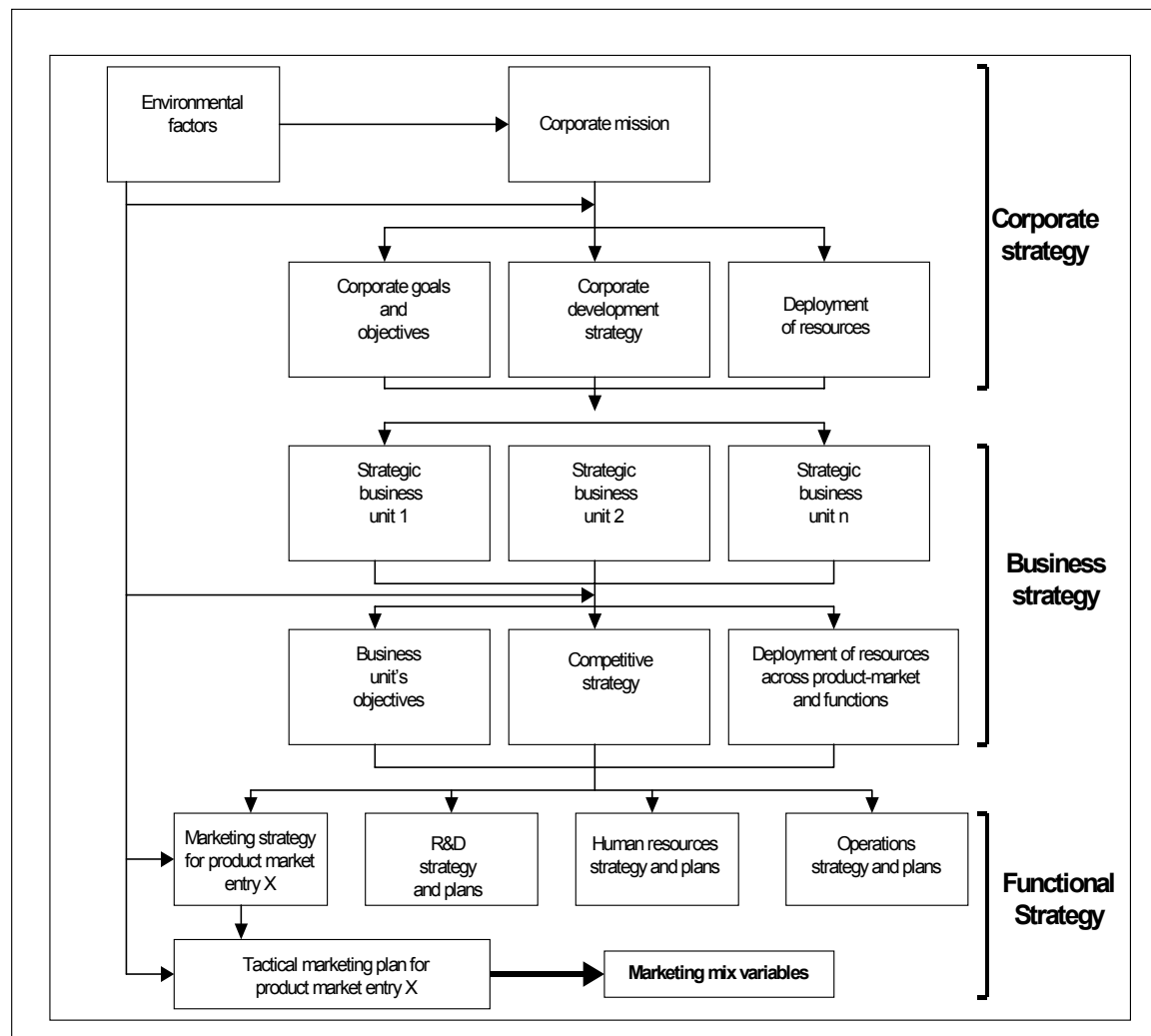
More specifically, there are **five components** or a set of issues **within a well-developed strategy** (Walker et al, 1999: 9):

- Scope.
- Goals and objectives.
- Resource deployment.
- Identification of a sustainable competitive advantage.
- Synergy.

The above-mentioned components will be included in the discussion of the various levels of strategy in the next section.

2.3 VARIOUS LEVELS OF STRATEGY

Strategy in an organisation is formulated according to a hierarchy of corporate, business and functional levels as illustrated in Figure 2.1.

Figure 2.1: Hierarchy of strategy

Adapted from: Walker, Boyd & Larréché (1999: 11)

Each of the levels in the strategy hierarchy as depicted in Figure 2.1 will now be discussed.

2.3.1 Corporate level strategy

At corporate level managers must co-ordinate the activities of multiple business units. Decisions about the organisation's scope and appropriate resource deployment across its divisions or businesses are the primary focus of corporate strategy. The scope refers to the breadth of the organisation's strategic domain – the number and types of industries, product lines and market segments it competes in or plans to enter. The decisions about an organisation's strategic scope should reflect the view of management of the organisations mission and intent.

According to Walker et al (1999: 10) the essential questions to be answered at this level are:

- What business(es) are we in?
- What business(es) should we be in?
- What portion of total resources should be devoted to each of those businesses to achieve the organisation's overall goals and objectives?

Attempts to develop and maintain distinctive competencies at the corporate level tend to focus on:

- generating superior financial, capital and human resources;
- designing effective organisation structures and processes; and
- seeking synergy among the organisation's various businesses.

According to Walker et al (1999: 10) synergy can become a major competitive advantage in organisations where related businesses reinforce one another by sharing corporate staff, research and development (R&D), financial resources, production technologies, distribution channels or marketing programmes.

Organisations define their objectives and strategies through the process of strategic planning that should be long-term focused. Strategic planning involves activities that lead to the development of a clear organisational mission, organisational objectives and the strategies that enable the organisation to achieve its objectives (Churchill & Peter, 1998: 84). Strategic planning lays the foundation for other types of planning such as tactical planning and operational planning and the culmination thereof in appropriate strategic and tactical decisions as depicted in Figure 2.1.

(a) Strategic plan

The strategic plan for an organisation contains several components: the mission, the strategic imperatives, the strategic audit, SWOT analysis, objectives and strategies. According to Kotler, Armstrong, Saunders and Wong (1996: 73) all of these feed from and feed into marketing plans.

(i) The mission

A mission states the purpose of an organisation and what it wants to accomplish in the larger environment. A mission statement should be developed formally and should address the following market-oriented questions (Kotler, 1997: 68):

- **What** is our business?
- **Who** is our customer?
- **What** is value to the customer?
- **What** will our business be?
- **What** should our business be?

These above-mentioned questions are extensions of the what?, where?, and how? questions provided by Walker et al (1999: 10). It is essential questions to be answered at a corporate level and the mission statement should not be too narrow or too broad but should be realistic, specific, and based on distinctive competencies and act as a motivation tool in the organisation.

(ii) Strategic objectives

The organisation's mission as illustrated in Figure 2.1 needs to be turned into corporate goals and objectives to guide management. Strategies should specify the desired levels of accomplishment on one or more dimensions of performance such as volume growth, profit contribution or return on investment (ROI). The dimensions of performance should be spanned over specified periods for each of the organisations businesses and product-markets and for the organisation as a whole.

Each strategic business unit (SBU) manager on corporate level should have objectives and be responsible for reaching these objectives within a specific time frame.

(iii) Strategic audit

The strategic audit covers the gathering of vital information. According to Kotler et al (1996: 78-79) it is the intelligence used to build the detailed

objectives and strategy of an organisation.

The strategic audit has two parts – the internal and external audit. The external audit or marketing environment audit examines the micro environment and task environment of an organisation. The internal audit examines all aspects of the value chain in the organisation including the direct flow of goods and services through the organisation –inbound logistics, operations, outbound logistics, sales and marketing and after-sales service.

In addition, it also extends to the support activities on which the primary activities depend – procurement, technology development, human resource management and the infrastructure of the organisation (Kotler et al, 1996:78).

Every organisation has limited financial and human resources. Therefore a strategy should specify how much resources are to be obtained and allocated across businesses, product-markets, functional departments or management teams and activities within each business or product-market.

As mentioned in paragraph 2.1 corporate strategy in an organisation is described as an organisation's sense of purpose. The business level strategy as depicted in Figure 2.1 is however concerned with the profitable management of the various divisions and Strategic Business Units (or specific divisions which must contribute to achieve corporate objectives) and also includes the contribution of marketing management to the formulation of the business strategy.

The business level strategy will be discussed in the next section.

2.3.2 Business level strategy

The most important part of any strategy is to specify how the organisation will compete in each business and product-market within its domain. The question on how it can position itself in order to develop and sustain differential advantage over current and potential competitors needs to be answered. To answer such a question managers must examine the market

opportunities for each business and product-market along with the organisation's core competencies or strengths relative to its competitors.

As mentioned above the question of how business units will compete within its industry is the critical focus of business-level strategy. According to Walker et al (1999: 10) the major issue to be addressed in business strategy is how to achieve and sustain a competitive advantage.

According to Walker et al (1999: 10) the essential questions to be answered at this level as illustrated in Figure 2.1 are:

- (i) What distinctive competencies can give the business unit a competitive advantage?
- (ii) Which of the competencies best match the needs and wants of customers in the business' target segment(s) e.g. strategic business unit 1.

Different customer segments may want different benefits from the same category of products and a business unit may not have the competencies needed to compete effectively in all market segments.

Business-level strategy should furthermore deal with:

- How many and which market segments to compete in; and
- The breadth and depth of product offerings and marketing programmes needed to appeal to these segments.

Finally, synergy should be sought across product-markets and across functional departments within the organisation. Synergy only exists when the organisation's businesses, product-markets, resource deployments, and competencies complement and reinforce one another. Synergy enables the total performance of the related businesses to be greater than it would otherwise be.

The collection of businesses and products in an organisation can be divided into different business or product portfolios and these portfolios will be

discussed in the next section.

(a) The business portfolio

The business portfolio as depicted in Figure 2.1 (e.g. Strategic business unit 1) is a collection of businesses and products that constitute the organisation's portfolio (Kotler et al, 1996: 83-88). The best business portfolio however is the one that fits the organisation's strengths and weaknesses to opportunities in the environment. The organisation must analyse its current business portfolio and develop growth strategies for adding new products or businesses to the portfolio.

The analysis of current business portfolios and the development of growth strategies as part of business level strategy will be discussed in the next section.

(i) Identifying the key businesses making up the organisation

Management's first step will be to identify the key businesses constituting the organisation. These key businesses are called strategic business units or SBUs as depicted in Figure 2.1. A strategic business unit is a self-standing unit in the organisation and has a separate mission. An SBU can be a company division, a product line within a division or sometimes a single product or brand.

(ii) Analysing the current business portfolio

Portfolio analysis helps managers to evaluate the relevant businesses of the organisation and to allocate strong resources into its more profitable businesses (Kotler et al, 1996: 83).

(iii) Assessment of the attractiveness of the various strategic business units

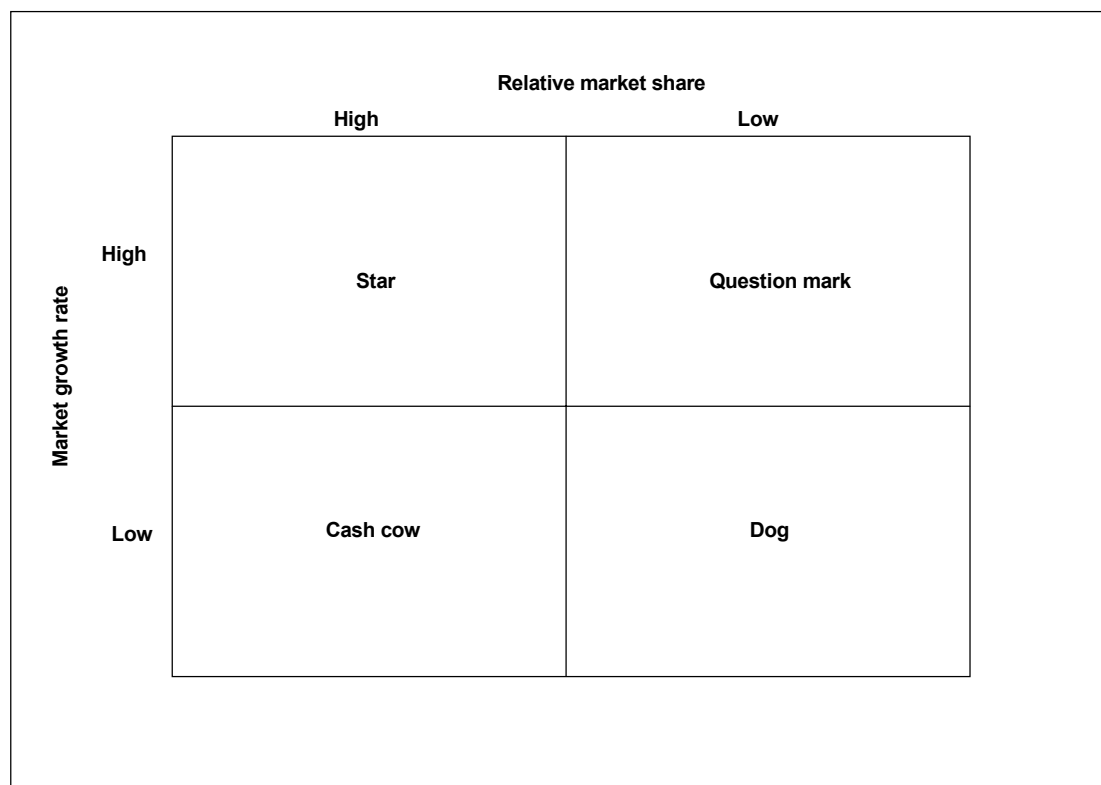
The second step in business portfolio analysis calls for management to assess the attractiveness of its various SBUs and to decide how much support each SBU warrants. According to Kotler et al (1996: 83) this occurs informally in some organisations while other organisations are using formal

portfolio-planning methods. The best-known portfolio-planning models are the Boston Consulting Group (BCG) and General Electric, which will now be discussed.

- **The Boston Consulting Group Matrix**

By using the Boston Consulting Group Matrix (BCG) an organisation classifies all its strategic business units (SBUs) according to the growth-share matrix illustrated in Figure 2.2.

Figure 2.2: The BCG growth share matrix



Adapted from: Kotler et al (1996: 84)

By dividing the growth-share matrix as depicted in Figure 2.2, four types of SBU's can be distinguished (Kotler et al, 1996: 83–84):

- **Star** – a high growth, high-share business or product. It often needs heavy investment to finance its rapid growth. Eventually the market share decreases and it will turn into a cash cow.
- **Cash cow** – a low-growth, high-share business or product. An established and successful strategic business unit needing less

investment to maintain its market share. It produces cash that the organisation can use to subsidise and to support other strategic business units in the need of investment.

- **Question mark** – a low-share business unit in a high-growth market. It requires cash to maintain its share. Managers have to carefully decide which question marks should be turned into stars and which ones should be phased out.
- **Dog** – a low-growth, low-share business or product. It may generate enough cash to maintain itself, but do not promise to be a large source of cash.

Once an organisation has classified its SBUs, it must determine what role each SBU will play in future. According to Kotler et al (1996: 84) there are four alternative strategies for each SBU:

- The organisation can **invest** more in the SBU to build its share.
- The organisation can invest just enough to **hold** the SBUs share at the current level.
- The organisation can **harvest** the SBU, milking its short-term cash flow regardless of the long-term effect.
- The organisation can **divest** the SBU by selling it or phasing it out and using the resources elsewhere.

As time passes, SBUs change their position in the growth-share matrix. According to Kotler et al (1996: 84) each business unit has a life cycle. Many SBUs start out as question marks and move into the star category if they succeed. They later become cash cows as market growth falls, then finally die off or turn into dogs towards the end of their life cycle.

The relationship between the product life cycle concept and the BCG growth share matrix as depicted in Figure 2.2 will be discussed in chapter three.

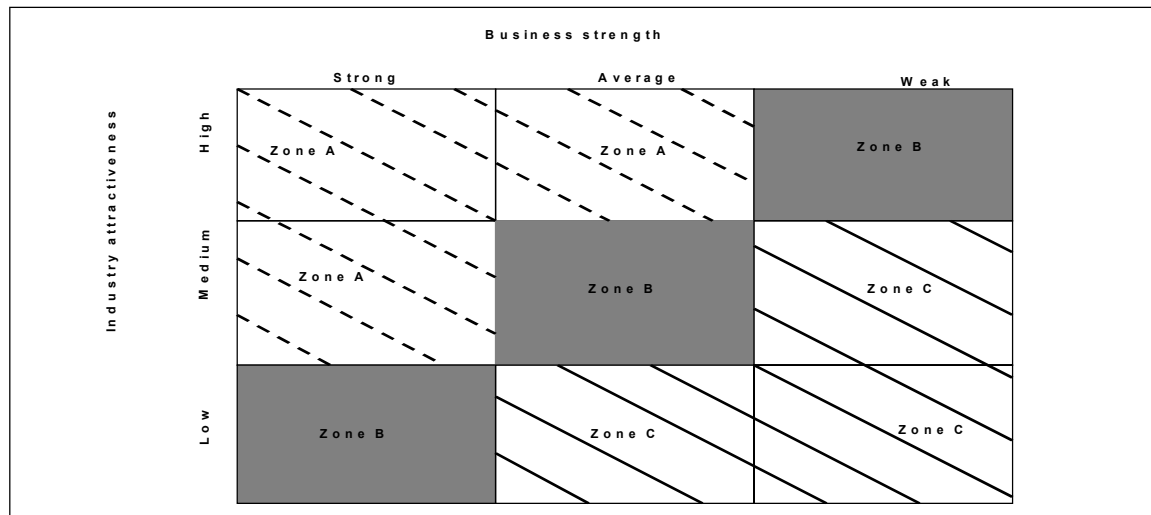
(ii) The General Electric grid

A comprehensive portfolio planning tool called the strategic business-planning

grid was introduced by General Electric and like the BCG approach, it uses a matrix with two dimensions – one representing industry attractiveness on the vertical axis and company strength in the industry on the horizontal axis.

Figure 2.3 below is an illustration of the GE's strategic business-planning grid.

Figure 2.3: GE's Strategic Business Planning Grid



Adapted from: Kotler et al (1996: 85)

According to Kotler et al (1996: 85) the GE approach considers many factors besides market growth rate as part of industry attractiveness. It uses an **industry attractiveness** index that comprises of market size, market growth rate, industry profit margin, intensity of competition, seasonality and the cycle of demand, and industry cost structure. These factors are rated and combined in an index of industry attractiveness as high, medium and low. For **business strength**, it again uses an index that includes factors such as the organisation's relative market share, price competitiveness, product quality, customer and market knowledge, sales effectiveness and geographical advantages. These factors are rated and combined in an index of business strengths described as strong, average or weak.

The GE grid has **three zones** as illustrated in Figure 2.3 and are explained below:

- **Zone A** – the upper left includes the strong SBUs in which the organisation should invest and grow.

- **Zone B** – the diagonal cells contain SBUs that are medium in its overall attractiveness and the organisation should maintain its level of investment in these SBUs.
- **Zone C** – the lower right indicates that SBUs that are low in overall attractiveness and the organisation should give serious thought to harvesting or divesting these SBU's.

(b) Problems with the matrix approaches

According to Kotler et al (1996: 88) the BCG and GE methods have revolutionised strategic planning but such approaches have limitations. Management may find it difficult to define SBUs and measure market share and growth. In addition, these approaches focus on classifying current businesses but provide little advice for future planning. Management must still rely on its judgement to set the organisational objectives for each SBU, to determine what resources to allocate to each and to determine which businesses to add.

(c) Development of growth strategies on business level

The development of a growth strategy is essential for the any organisation not to stagnate, but to grow, to develop and maintain a sustainable competitive advantage. Ansoff (1957: 114) provides the following four growth strategies as illustrated in Figure 2.4. Depending on the size and structure of an organisation the growth strategy discussion can be either on corporate level or SBU level.

Figure 2.4: Intensive growth strategies

	Present Products	New products
Present Market	① Market penetration	③ Product development
New markets	② Market development	④ Diversification

Adapted from: Ansoff: (1957: 114)

Ansoff (1957: 114) defines the growth strategies as follows:

- ① **Market penetration** – the organisation seeks increased sales for its current products in its present markets through more aggressive promotion and distribution. For example: Ceres fruit juices recently added a new blended fruit juice called “Dew of the dawn”.
- ② **Market development** – the organisation seeks increased sales by taking its current products into new markets. For example: Delta Motor Corporation marketing the Corsa in Australia.
- ③ **Product development** – the organisation seeks increased sales by developing improved products for its present markets. For example: Adidas marketing eyewear or Nike marketing watches for sportspeople.
- ④ **Diversification** – the organisation seeks to grow by serving new customers through the delivery of new products. For example: Cadac originally marketed gas bottles and gas braais, but currently also markets sleeping bag and tents.

In relation to Figure 2.4 diversification can be regarded as a **growth strategy on corporate level** based on research and development decisions, the various risks and uncertainties related to production, finance, personnel and whether to stay local and/or to go global.

(d) The role of marketing on business strategy level

All organisations need strategies to accommodate needs and changing markets. No one strategy is best for all organisations. Marketing plays an important role in strategic planning, as the strategic plan will guide the marketing function, which must be in unison with other functions in the organisation to achieve strategic objectives.

Marketing management's contribution to the formulation of business strategy, primarily entails inputs at top management level with regard to the internal and external marketing environment and joint decision-making in the area of competitive and investment decisions (Du Plessis et al, 2001: 4).

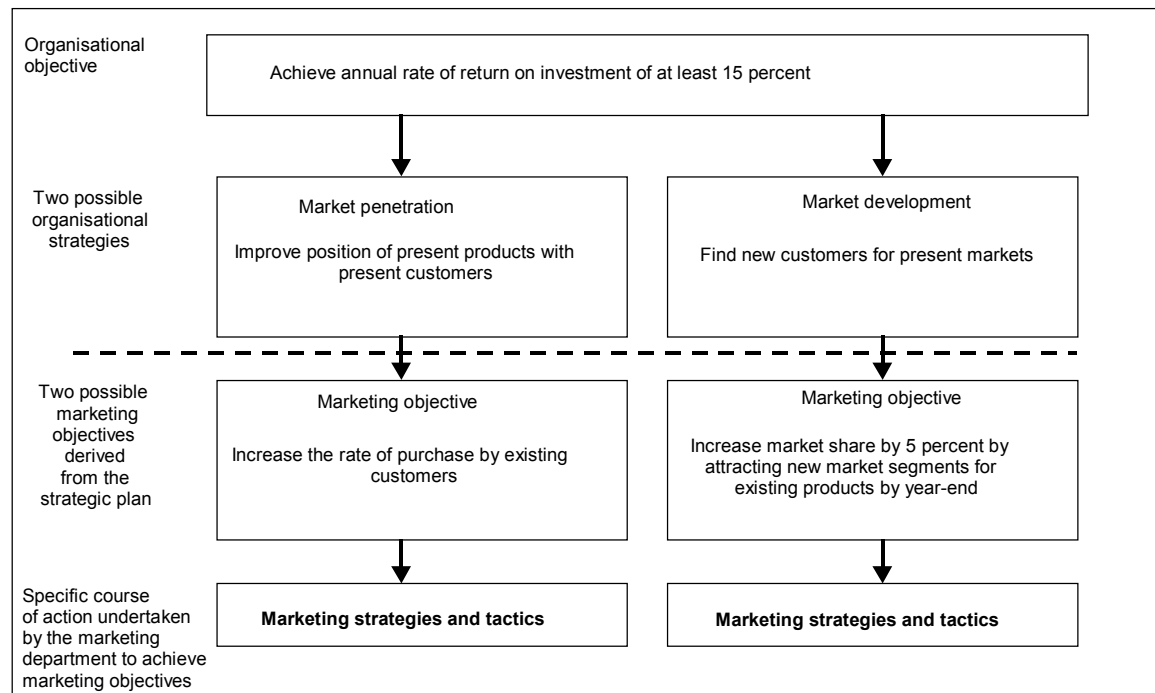
The marketing function fulfils a vital role in the successful execution of strategy in an organisation and it is therefore necessary to illustrate how the marketing plan is related to the strategic plan. This relation between the marketing plan and the strategic plan reiterates the importance of the strategic plan and the planning process within large, medium and small organisations.

Every functional manager (e.g. Marketing, Research and Development, Human Resources and Operations) in a large organisation as depicted in Figure 2.1 should partake in the formulation of strategy and planning. Strategy and planning at a functional level is a derived effort and task from the objectives set during the previous level in the hierarchy of strategy. Thus the traditional role of the marketing manager might include projecting the number of potential customers for a given product or service and advising how to promote and distribute the product or service to them. Both are concerned with issues such as market share and how best to create value for existing and potential customers (Churchill & Peter, 1998: 95).

The contribution of marketing to strategy and planning in traditional organisations depends on the style and structure of planning process it uses. Organisations can use a **top-down approach**, where senior managers set broad objectives and strategies for all the levels in the organisation. Marketing managers follow these and develop marketing goals and plans to achieve them. Organisations use the **bottom-up approach**, where managers prepare goals for their own units, then submit the goals to senior management for approval. Senior managers may approve them or request that the plans be modified to better reach organisational objectives. A **middle of the road approach** is for top management to specify the strategic guidelines, then allow lower-level management to plan strategies to achieve them.

Figure 2.5 provides examples of how objectives in the marketing plan can support the organisational strategic plan.

Figure 2.5: Relating the marketing plan to the strategic plan



Adapted from: Churchill and Peter (1998: 96)

Despite the various approaches, marketing managers support the organisational strategic plan by developing marketing plans, which includes detail about the marketing objectives, marketing mix decisions as illustrated in Figure 2.5 and the marketing decision-making variables of segmentation, targeting, positioning and budgeting.

The functional level strategy will be discussed in the next section.

2.3.3 Functional level strategy

Each functional level in an organisation as illustrated in Figure 2.1 needs to effectively allocate and co-ordinate resources and activities to accomplish organisational objectives within a specific product-market. The guidelines that the marketing function will use to develop strategy in coherence with the organisational strategy and objectives are constituted in the strengths, weaknesses, opportunities and threats according to the **SWOT analysis**.

The SWOT analysis draws the critical strengths, weaknesses, opportunities and threats from the strategic audit. Strategic audit as discussed in paragraph 2.3.1(a)(iii) contains a wealth of data of different levels of importance and reliability. The SWOT analysis distils these data to show the critical items in both the internal and external audit.

A marketing opportunity is an area of buyer need in which an organisation can perform profitably and an environmental threat is a challenge proposed by unfavourable trends or developments that will lead, in the absence of defensive marketing action, to deterioration in sales or profit (Kotler et al, 1996, 79). Opportunities and threats exist externally such as the economic and technology environment of the organisation and management has relatively little or no control over the events in the external environment. Once an organisation has performed its SWOT analysis, it can proceed to develop objectives and strategies for a specific planning period.

According to Sudharsan (1998: 1) the marketing function through marketing strategy creates pathways to a desired future. Marketing management is therefore travelling through these pathways to achieve a desirable future. The primary purpose of the marketing function through the marketing strategy is to effectively allocate and co-ordinate marketing resources and activities.

Decisions about the scope of marketing strategy involve specifying the target market segment or segments to be pursued and the breadth of the product line to be offered. The marketing function should therefore use the STP stages provided by Kotler (1997: 89) emphasising the processes of segmentation, targeting and positioning. Segmentation deals with an aggregated process that clusters people with similar needs into a market segment. Targeting deals with the process whereby a marketing mix is tailored to fit some specific target customers. Positioning deals with the way customers perceive proposed or present brands in a market.

Furthermore, the organisation seeks a competitive advantage and synergy through a well-integrated programme of marketing mix variables tailored to

the needs and wants of customers in the market segment through segmentation, targeting and positioning. The concept of the marketing mix variables for physical products was formally defined by Neil Borden (Van Waterschoot & van Bulte, 1992: 83–93) and redefined over the years and are referred to as the traditional marketing mix. This traditional marketing mix consists of the following marketing mix variables (4Ps) – **p**roduct, **p**rice, **p**lacement and **p**romotion.

The traditional marketing mix has been extended to incorporate the nature of services based on its intangibility. It is known as the expanded marketing mix or **7Ps** and consists of the following marketing mix variables – **p**roduct, **p**rice, **p**lacement, **p**romotion, **p**eople, **p**rocesses and **p**hysical evidence (Lovelock: 1996: 37–233).

On a functional level marketing is actively involved in the execution of the marketing process, marketing strategy and the development of the marketing mix variables. These aspects will be discussed in the next section.

(a) The marketing process

According to Kotler et al (1996: 927) the marketing process is the analysis of marketing opportunities, selecting target markets as part of the STP process, developing the marketing mix and managing the marketing effort. The marketing process will be planned and executed against the strategic guidelines set at a corporate level as depicted in Figure 2.1. Planning at corporate, business or functional level is an integral part of the marketing process and to fully understand the marketing process it is important to understand how the organisation defines its business.

The organisation can apply a traditional physical process or it can create value through its delivery process. In order to create value, the marketing department needs to analyse markets, customers and competitors in the micro and macro environments before any product even exists. The marketing staff must segment the market, select the appropriate target market and develop the offer's value positioning. After the STP stages in paragraph 2.3.3

have been completed and once the organisation has chosen its overall competitive marketing strategy, it is ready to plan and develop the details of the marketing mix – whether a physical product or a service, the marketing mix would consist of 4Ps or 7Ps respectively.

(b) Marketing strategies for competitive advantage

Competitive advantage is an organisation's ability to perform in one or more ways that competitors will not or cannot match (Kotler, 2000: 56) and is realised by the organisation's marketing strategy, the implementation of this strategy and the context in which competition unfolds. The development and the sustainability of a competitive advantage is an important objective on corporate (paragraph 2.3.1), business (paragraph 2.3.2), and functional levels (paragraph 2.3.3), in an organisation.

The target consumers will be the core and centre of the organisation's marketing strategy. The organisation should identify the total market and divide it into smaller segments and it should select the segment(s) and focus on serving it/them. The organisation then engages in marketing analysis, planning, implementation and control to find the best marketing mix and take action.

Competitive advantage can be achieved in many ways through core competencies, resources, strengths as identified by the SWOT analysis, positioning and differentiation based on the marketing mix variables. Marketing strategy deals with *relationships* with the major publics, *offerings* with the type of product or service sold, *timing* when the product or service is sold and *resources* with resource allocation and management.

(c) Development of the marketing mix variables

The marketing mix concept is regarded as a set of controllable variables at the disposal of marketing management that can be used to influence customers (Rafiq & Ahmed, 1995: 4).

The marketing mix variables for physical products and services will be discussed in the next section.

(i) Marketing mix variables for physical products

The variables of the marketing mix used for the marketing of physical products include the following:

- A **product** is something offered by marketers to customers for exchange (Churchill & Peter, 1998: 612). Product as a marketing mix variable consists of the following variables - physical variety, quality, design, features, brand name, packaging, sizes, services warranties and returns (Kotler, 1997: 92).
- A **price** is the amount of money, goods or services that must be sacrificed to acquire ownership or use of a product (Churchill & Peter, 1998: 612). Price as a marketing mix variable consists of the following variables – list price, discounts, allowances and payment period and credit terms (Kotler, 1997: 92).
- **Placement** is the channel of distribution used to get products and services to the market (Churchill & Peter, 1998: 610). Place as a marketing mix variable consists of the following variables – channels, coverage, assortment and locations, inventory and transport (Kotler, 1997: 92).
- **Promotion** is the personal and impersonal means used to inform, persuade, and remind customers about products and services (Churchill and Peter, 1998: 612). Promotion as a marketing mix variable consists of the following variables – sales promotion, advertising, sales force, public relations and direct marketing (Kotler, 1997: 92).

The four Ps represent the **seller's view** of the marketing mix variables available to influence buyers. From a **buyer's perspective**, each marketing tool is designed to deliver customer benefits. Lautenborn (1990: 26) suggested that the seller's 4Ps correspond to the customers 4Cs - **product**

correspond with **customer needs and wants**, **price** responds with **cost** to the customer, **place** responds with **convenience** and **promotion** corresponds with **communication**.

(ii) **Marketing mix variables for services**

Not only manufacturing organisations, but also dealers will be included in the sample to be drawn among small organisations in the Gauteng Province of South Africa. Dealers do not only sell products but in many instances the products they sell are linked to a service or it can be a pure service with no tangible characteristics.

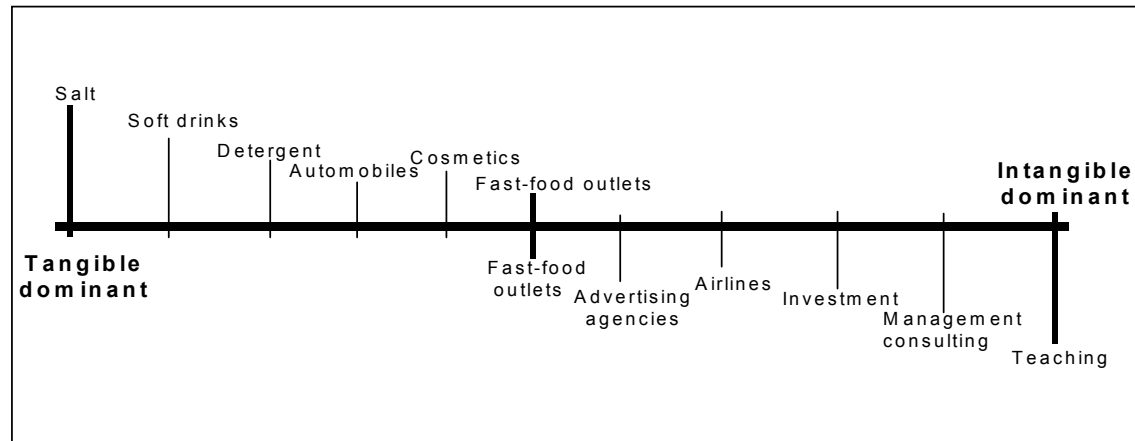
Products and services are different in many ways. Unlike products/manufactured goods, services are intangible and cannot be stored, transported or resold. In goods manufacturing, on the other hand, repeatability and systematically controlled production are the key variables of success.

The services marketing function in an organisation is much broader than the activities and outputs of the traditional marketing department, requiring close co-operation between marketers and those managers responsible for operations and human resources (Lovelock, 1996: 3). Therefore the traditional marketing mix has been expanded by the addition of three new marketing mix variables – people, processes and physical evidence. This expanded marketing mix consists of the following instruments - **product, price, place, promotion, people, processes** and **physical evidence**.

The various variables of the marketing mix used for the marketing of products are provided in the next section. The discussion on the seven Ps will be based on the work of Booms and Bitner (1981: 47–51) as they were the first to publish an article on the broadening of the traditional marketing mix to make provision for the intangible nature of services marketing. The theories by Booms and Bitner (1981: 47–51) will be supported by the views of other authors of general marketing literature – Lovelock (1996), Kurtz (1998), Palmer (1998), Churchill and Peter (1998) and Brassington & Pettitt (2000).

Before the marketing mix variables for services are discussed it is important to illustrate the goods-service continuum in Figure 2.6 to clarify the difference between goods and services.

Figure 2.6: The goods-service continuum



Adapted from: Du Plessis & Rousseau (1999: 138)

It is evident from the continuum depicted in Figure 2.6 that an offering can vary from a tangible dominant (pure physical product) to intangible dominant (pure service).

The marketing mix variables for services will be discussed in the next section.

- **Product** as a marketing mix variable for services consists of the following variables – quality, brand name, service line, warranty, capabilities, facilitating goods, tangible clues and the process of service delivery. The service product (Lovelock, 1996: 312) can be viewed as the technical outcome of a service and comprises the “what” of a service (Kurtz & Clow, 1998: 22). Since services differ in the degree of tangibility and are highly influenced by the process and people involved when delivering the service, it is difficult to standardise services (Churchill & Peter, 1998: 295).
- Service **pricing** (Lovelock, 1996: 361–375) – price is one of the inputs used to form an expectation of a service before a customer makes a purchase decision. Price serves as a tangible cue that indicates what can be expected from a service provider. When determining a price, the service organisation should also view it from the viewpoint of the buyer.

Pricing decisions made without concern for the customer will usually result in a decline of customer satisfaction, sales and profits. Pricing as a marketing mix variable for services consists of the following elements – price level, discounts, allowances, payment terms, customer's perceived value, quality/price interaction and differentiation.

- **Place** (Lovelock, 1996: 311) – the distribution strategy for services needs to be efficient. Depending on the nature of the service and what the customers value, several distribution channels can be employed. The nature of the distribution channel employed depends on the type of service organisation. Place as a marketing mix variable for services consists of the following variables – location, accessibility, distribution channels and distribution coverage. For example: ATMs, regional offices, branches and call centres.
- **Promotion** (Lovelock, 1996: 168-169) – the service organisation communicates with its target groups with the aim to influence knowledge, attitude, and/or behaviour. Thus the face-to-face interaction of especially front-line staff with customers play a very important role in promoting the service. Marketers should actively support and enhance a good service by communicating the benefits of that service to its target audience with the help of various types of communication channels and media. Promotion as a marketing mix variable for services consists of the following variables – advertising, publicity, sales promotion, personal selling and direct marketing.
- **People** (Lovelock, 1996: 312) – the organisation's contact personnel form an integral part of the process of service delivery. In the services industry all the staff act as marketers of the organisation's offering because their actions have a direct effect on the output received by customers (Palmer, 1998: 9). If the customer feels comfortable with the particular service provider, and has trust and rapport with the service provider, it is a relationship that a competitor would find hard to break into. This makes

the entire task of people planning extremely important in a service organisation. People add value and a dimension to the marketing package way beyond the basic product offering.

People as a marketing mix variable for services consists of an internal and external component. The internal people component includes various staff aspects such as training, discretion, commitment, incentives, appearance, interpersonal behaviour and attitudes. The external component includes customers who may be asked to participate/interact actively in the process of service creation, delivery and consumption.

- The service **process** (Lovelock, 1996: 311) – the heart of the service is the experience by the customer of organisational policies, systems and procedures, which takes place in real time. The marketer, therefore, has to plan the process of service deliver carefully, and plan what quality controls can be built in to ensure that customers are confident that about to expect each time they use the service product. This applies, for example, to banks, wholesalers, retailers and other dealers in financial services, fast food outlets; hairdressers and other service providers and even to professional services such as attorneys and management consultants. Processes can also involve queuing mechanisms, preventing customers from getting so impatient while waiting that they leave without buying; processing consumer detail and payment as well as ensuring high professional quality of whatever service they are buying (Brassington & Pettitt, 2000: 27).
- **Physical evidence** (Lovelock, 1996: 98-99) – this marketing mix instrument is of particular relevance to dealers (of any particular product), or those who maintain premises from which a service is sold or delivered. Physical evidence for dealers includes some of the place-related elements already mentioned in the discussion of the traditional marketing approach, such as exterior elements (e.g. parking and signage) and interior elements (e.g. design, layout, equipment and décor. In other service situations these elements will be different. For example: the physical evidence

would relate to the aircraft in which you fly, the hotel in which you stay, the stadium in which you watch a sport event or the lecture room in which you obtain a learning experience. Physical evidence is furthermore linked to the reputation of an organisation, the physical state and appearance of office buildings, uniforms of personnel, furniture used in the offices, the organisation's letter heads and modern technology.

In addition to the changes in the marketing mix variables the services marketing concept includes the recognition of a new role for marketing in service organisations as a result of the simultaneous production/consumption process and the resulting overlap in functional responsibility between operations, marketing and personnel. The services marketer must not only manage the exchange process and the variables of the marketing mix but must also be concerned with managing the total buyer/seller interaction process which encompasses other functional areas in the organisation.

The marketing mix variables for physical products and its applications will be tested during the empirical part of this study in the chapter six.

The ability of the marketing decision-makers in small manufacturing organisations and small dealer organisations to link these marketing mix variables to each phase of the product life cycle concept will be tested in the empirical part of this study.

2.4 USING THE 7Ps AS A GENERIC MARKETING MIX

Booms and Bitner (1981: 47–51) in their original article clearly indicated that the extended marketing mix as discussed in paragraph 2.3.3(c)(ii) is not to be limited to services marketing. Rafiq and Ahmed (1995: 4) however posit a need for a generic marketing mix that cut across the boundaries of goods, services and business-to-business marketing.

Rafiq and Ahmed (1995: 8) suggested that the Booms and Bitner's framework as discussed in paragraph 2.3.3(c)(ii) should be extended to goods, services

and industrial marketing. According to Rafiq and Ahmed (1995: 9) there has been no empirical research available to test the satisfaction of use by marketing academics with either the 4Ps or 7Ps framework. In 1992 a survey was conducted to establish which of these frameworks marketing academics were using and how and why they were using them.

Rafiq and Ahmed (1995: 9) targeted delegates of the UK's Marketing Education Group (MEG) Conference held in Salford in 1992 and the European Marketing Academy (EMAC) Conference held in Aarhus, Denmark in May 1992. A large majority of respondents (78% of EMAC and 84% of MEG delegates) felt that the 4Ps concept was deficient. While there was a great deal of dissatisfaction with the 4Ps framework it was more difficult to assess how well Booms and Bitner's framework was accepted as a general framework for services marketing as no empirical research on this issue has been conducted in the past. A very important empirical result on the 7Ps framework showed that it has at least some relevance for all types of marketing.

Rafiq and Ahmed (1995: 13) made the following conclusions:

- The results suggested that there is a high degree of dissatisfaction with the 4Ps framework among European academics. It is suggested that the 7Ps framework has already achieved a high degree of acceptance as a generic marketing mix among the respondents in the sample.
- Although there is general support for the 7Ps mix, there is not uniform support for the three new variables of people, process and physical evidence as discussed in paragraph 2.3.3(c)(ii). People/participants were most widely accepted as an element of the new variables and the process variable also received reasonable support. The physical evidence variable is the least supported of the new variables and it is probably because physical evidence is not as well conceptualised as people and process.

Rafiq and Ahmed (1995: 13) compiled the following Table 2.1 as a result of their empirical study to illustrate the differences between the 4Ps and 7Ps mixes.

Table 2.1: Strengths and weaknesses of the 4Ps and 7Ps mixes

	7Ps	4Ps
Strengths	<ul style="list-style-type: none"> • More comprehensive, more detailed and more refined • Broader perspective • Includes people, process and physical evidence • Signals marketing theory 	<ul style="list-style-type: none"> • Simplicity and ease of understanding • Good pedagogic tool, especially for introductory marketing • Useful conceptual framework • Ability to adapt to various problems
Weaknesses	<ul style="list-style-type: none"> • More complicated • Extra variables can be incorporated in 4Ps • Controllability of the three new variables 	<ul style="list-style-type: none"> • Too simple, not broad enough • Lacking people, process and physical evidence • Lack of connection between variables • Static nature of the 4Ps

Adapted from: Rafiq and Ahmed (1995: 13)

Rafiq and Ahmed (1995: 13) argued that while these results are based on a relatively small number of respondents, they believe that it is representative of the views of marketing academics. The above-mentioned results provide empirical support for the theoretical reasons advanced for the extension of the 7Ps mix into a generic marketing mix. The literature review however provided no further evidence, critique or any substantiation on a generic marketing mix as proposed by Rafiq and Ahmed (1995: 4–15).

The researcher envisages testing the importance of generic marketing mix variables among small manufacturing organisations and small dealer organisations in the empirical part of this study.

2.5 STRATEGY IN SMALL ORGANISATIONS

It is important to note that small organisations will be discussed in detail as part of the small business environment in South Africa in chapter four.

Small organisations do not normally have the organisational architecture that is found in large organisations as illustrated in Figure 2.1. Although small organisations have features common with larger organisations, they also have unique characteristics and attributes that are reflected in the manner in which they are organised and managed. Their small-scale operations often indicate a lack of management depth. While small organisations usually employ staff to perform multiple tasks, large organisations tend to use people who specialise in functional activities.

Carson (1993: 89–205) is of the opinion that many of small organisation's characteristics stem from their relative size and the influence of the entrepreneur/owner-manager. The most common characteristics of small organisations include:

- Resource constraints, especially time and finance.
- A personalised approach to management.
- A survival mentality.
- A lack of strategic planning.

While size may create many problems for strategy and strategy formulation in small organisations it also creates many advantages (Gilmore, Carson, O'Donnell & Cummins, 1999: 29). These advantages are:

- Smaller organisations are better at serving specialist markets.
- Entrepreneurial spirit, flexibility, innovativeness and responsiveness.
- Fast and flexible.

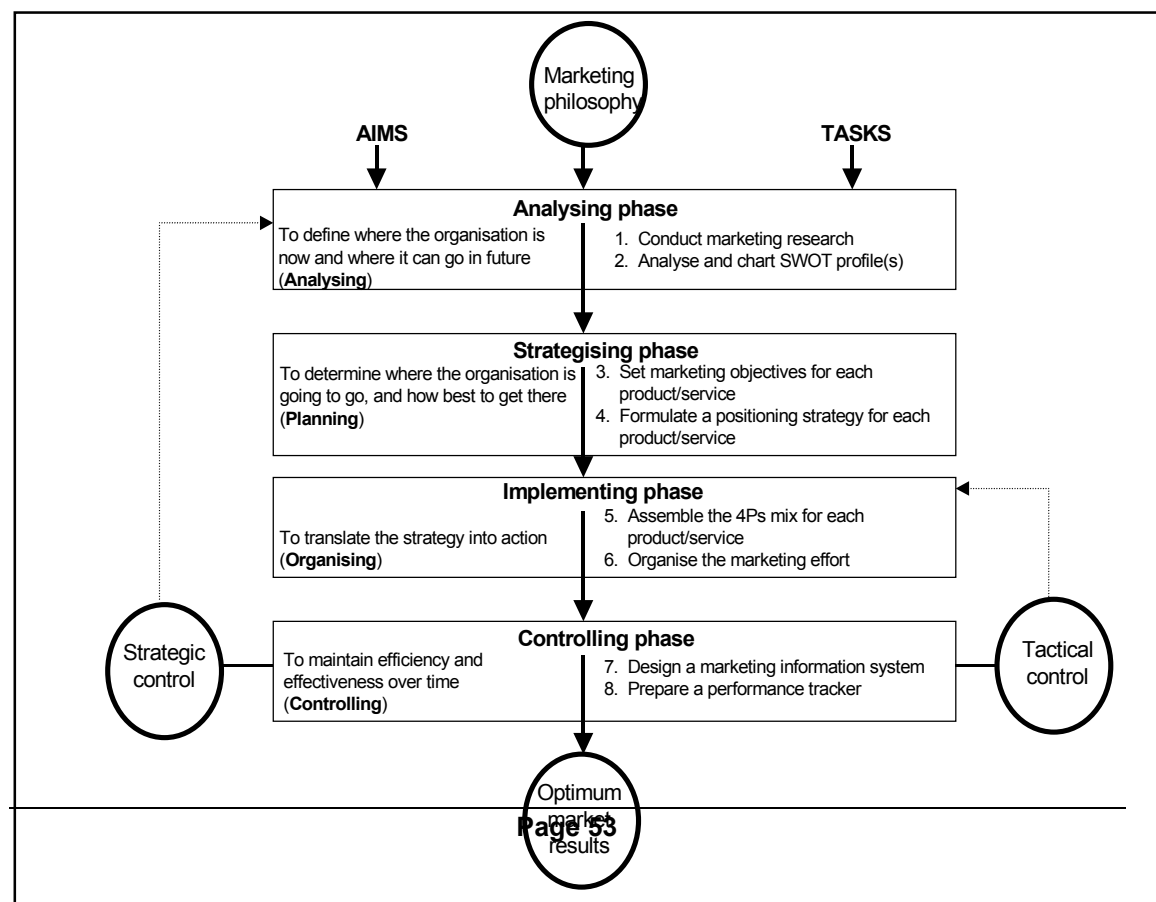
According to Blanchard (1994: 12–13) small entrepreneurial organisations with effective management can pose tough competition for any large organisation.

It was stated in paragraph 2.1 that strategy in large organisations are formulated on three different levels but it is surmised that no clear divide can be made between these three levels when strategies are formulated, implemented and monitored in small organisations. The entrepreneur/owner and/or owner/manager of a small organisation is therefore responsible for the formulation, implementation and monitoring of strategies on all three levels as depicted in Figure 2.1.

According to Brooksbank (1999: 78) the vast majority of books and articles deal with the subject of marketing planning as it relates to large organisations, citing big organisational cases and examples. Brooksbank (1999: 78 – 90) investigated key concepts and marketing tools such as the product life cycle in marketing textbooks with the aim of simplifying marketing plan development in smaller organisations.

Brooksbank's (1999: 79) effort resulted in the development of the following four-phase marketing planning model for small organisations as illustrated in Figure 2.7.

Figure 2.7: The marketing planning process



Adapted from: Brooksbank (1999: 79)

The four phases in the marketing planning process proposed by Brooksbank (1999: 79) are:

- The first phase is to do research and to analyse the organisation's competitive situation.
- The second phase is to define a set of marketing objectives, both on the demand and supply side, together with a positioning strategy for the achievement of the sustainable competitive advantage.
- The third phase involves the planning of the appropriate marketing mix variables.
- The fourth phase is concerned with the development of a marketing information system and the design of some form of performance tracker for comparing events as they unfold against the plan.

As depicted in Figure 2.7 owners and decision-makers in small organisations perform tasks on all three levels – corporate, business and functional as depicted in Figure 2.1. In relation to Figure 2.1 the aims and tasks depicted in Figure 2.7 can be related as follows:

- The *analysing phase* in Figure 2.7 can be related to both the corporate and functional levels in Figure 2.1.
- The *strategising phase* in Figure 2.7 can be related to both the business and functional levels in Figure 2.1.
- The *implementing* and *controlling phases* in Figure 2.7 can be related to the functional level in Figure 2.1.

Brooksbank (1991: 91) recommend that small organisations can use this model as the basis upon which to dismantle and improve their existing marketing planning system, to restructure it and to inject fresh ideas into their organisations.

It is important to reiterate that the empirical part of this study will focus on the use and application of the product life cycle from a small organisation's perspective. The structure of small organisations, their advantages and

disadvantages along with the national strategy for the development and promotion of small organisations in South Africa will be discussed in chapter four.

2.6 CONCLUSION

The strategic planning process in an organisation (mainly large) consists of chronological steps and interrelated activities. This chapter defined strategy and discussed the various levels of strategy for large organisations as depicted in Figure 2.1. The strategic plan was highlighted and a discussion was provided on the role of marketing in the strategy and planning process.

The chapter concluded with the marketing planning process from a small organisation's perspective, as the empirical part of this study will be executed among small manufacturing organisations and small dealer organisations in Gauteng, South Africa.

The next chapter will be devoted to a discussion on the product life cycle concept as part of product management.

CHAPTER 3
LITERATURE SURVEY:
PRODUCT MANAGEMENT AND THE PRODUCT LIFE CYCLE
CONCEPT

“While many products do not follow this prescribed route because of failure, the product life cycle concept is extremely valuable in helping management to look into the future and better anticipate what changes to make to their strategic marketing programs” (Walker, Boyd and Larréché, 1999: 146).

3.1 INTRODUCTION

This chapter will describe product development and the product life cycle concept as a marketing instrument to be used by marketing decision-makers and marketing strategists as discussed in chapter two. Ansoff's growth strategies will be employed to describe the different growth strategies to be used by a marketing manager, after commercialisation, for market development purposes by means of the product life cycle phases.

Special emphasis will be given to the characteristics, marketing objectives and various strategies to be employed during the different product life cycle phases that will be used in the empirical part of this study.

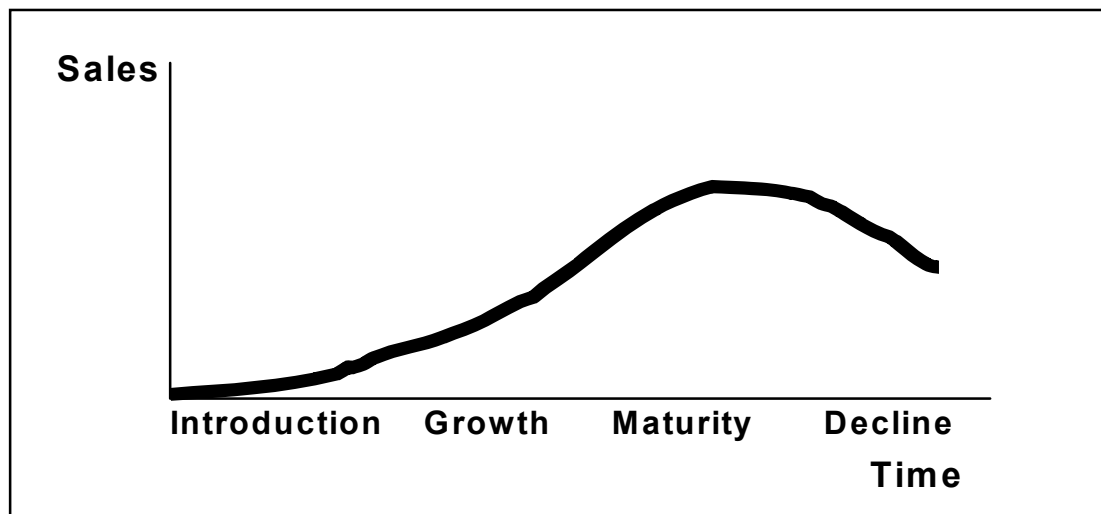
3.2 THE FUNDAMENTALS OF THE PRODUCT LIFE CYCLE CONCEPT

The product life cycle concept has represented a central element of marketing theory since its development in the 1950s. Following its development and its subsequent popularisation in the 1960s, it has remained a stable feature of marketing teaching. The product life cycle concept is one of the most quoted and most frequently taught elements of marketing theory. According to Mercer (1993: 269) the influence of the product life cycle can be seen in other theories, from new product development to portfolio analysis.

Since its adoption by marketing, the product life cycle (PLC) has achieved universal acceptance because of its appeal and wide application. The PLC concept was extensively tested in the fast-moving consumer goods sector, as a predictive tool to anticipate marketing requirements (Grantham, 1997: 4). The product life cycle represents a core element of marketing theory and according to marketing literature, every product or service has, by definition, a life cycle and how this is managed is the key to survival in business.

According to Weber (1976:12) the product life cycle concept provides an intuitively appealing and readily understandable framework of analysis for considering future growth opportunities and pitfalls. As time passes sales increase slowly at first (introduction phase), then more quickly (growth phase), then once again more slowly (maturity and saturation phases), and finally decrease (decline phase). See the different phases of the traditional product life cycle in Figure 3.1.

Figure 3.1: Traditional product life cycle concept



Adapted from: Weber (1976: 120)

The product life cycle concept theory has been subjected to relatively little public criticism, with only 20% of 271 papers published on the subject between 1971 and 1991 undertaking further research into the subject and only a handful challenging its basic assumptions (Mercer, 1993: 269). The researcher will provide a summary table (paragraph 3.10) later on in this

chapter to show product life cycle concept research studies conducted after 1991.

Despite the praise for the product life cycle concept very few publications contested the assumptions it makes (Grantham: 1997: 4). The substantiation of the concept has seemed surprisingly difficult to uncover. Despite all the criticism mentioned in the introductory chapter, the product life cycle concept has become accepted and valued as an element of basic marketing theory and has become a building block for management theory.

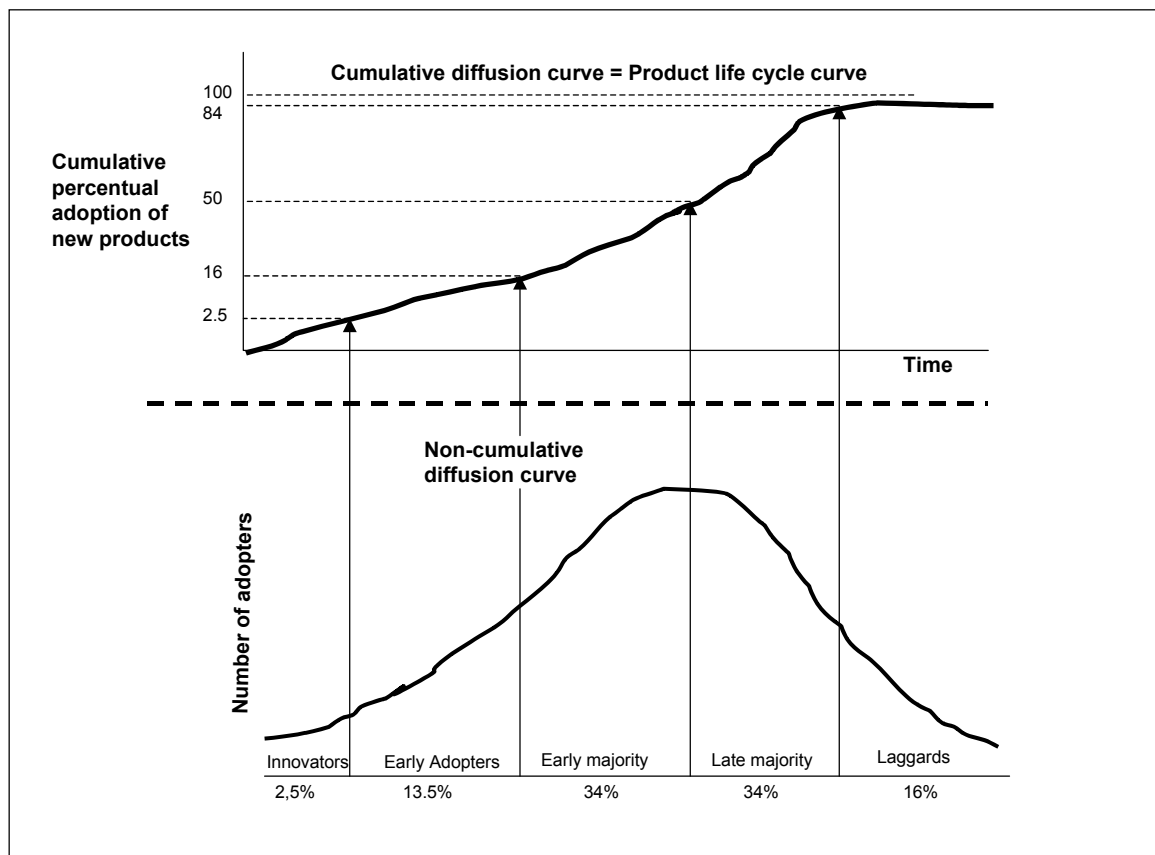
The product life cycle concept has mainly been applied to **large** corporations, businesses and organisations in empirical studies as derived from the literature study. This phenomenon therefore provides a gap and the definite need to test the applicability of the product life cycle concept in small organisations which will be the cornerstone of the empirical research and will be discussed in chapter 6.

3.2.1 Diffusion of innovation and the product life cycle concept

The shape of the traditional product life cycle curve as depicted in Figure 3.1 is the direct result of the diffusion of innovation process.

Diffusion of innovation as depicted in Figure 3.2 starts where the organisation's innovation process ends. The diffusion of innovation deals with the following closely related aspects – the diffusion process, the acceptance process, the profile of innovators and the relationship between the diffusion and acceptance process and the product life cycles. The cumulative diffusion curve as depicted in Figure 3.2 is the result of all the individual sales of a product over time, while the non-cumulative diffusion curve illustrates the adoption rate by consumers over the life cycle of a product (Van der Walt et al, 1996: 213).

Figure 3.2: The relationship between the cumulative and non – cumulative diffusion of innovation and the product life cycle curve



Adapted from: Howard (1997: 198)

As illustrated in Figure 3.2 the product life cycle curve is directly derived from the non-cumulative diffusion curve and it represents the adoption of the product over time by the various adopter categories. The non-cumulative curve can thus be regarded as the product life cycle curve as it indicates the amount of sales over time along with the decline.

As indicated in general marketing literature, no author labels the vertical axis of the traditional product life cycle curve depicted in Figure 3.1 as cumulative or non-cumulative (Kotler & Armstrong, 1989; Van der Walt et al, 1996; Kotler, et al, 1996; Kotler, 1997; Churchill & Peter, 1998; Walker et al, 1999; Perreault & McCarthy, 1999; Lamb et al, 2000 and Kotler, 2000). For the purposes of this study the researcher will label the vertical axis as non-

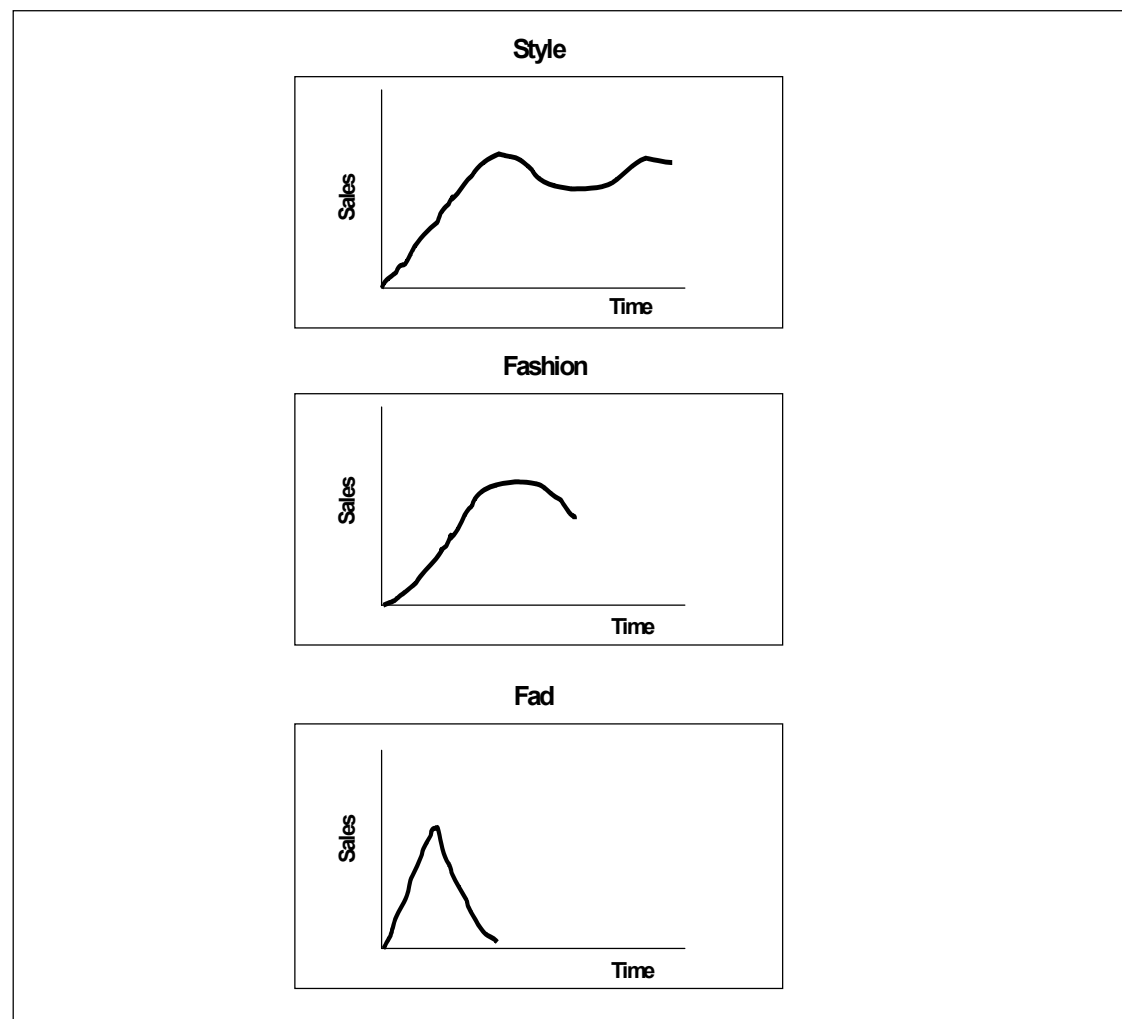
cumulative sales based on the declining nature of the product life cycle curve in the decline phase.

3.2.2 Different product life cycle patterns

The aim of the empirical part of this study is not to test or question the product life cycle curve, but it is necessary to provide a short discussion on the various product life cycle patterns to illustrate the differentiation from the traditional curve illustrated in Figure 3.1.

Product life cycles differ widely with regard to the period as well as the course of the curve. Kotler (1997: 347) distinguishes among three special categories of product life cycle shapes as depicted in Figure 3.3.

Figure 3.3: Style, fashion and fad life cycles



Adapted from: Kotler (1997: 349)

- **A style life cycle**

A style is a basic and distinctive mode of expression appearing in a field of human endeavour. For example, styles appear in homes, clothing and art. Once a style is invented, it can last for generations, going in and out of vogue.

- **A life cycle for fashions**

A fashion is a currently accepted or popular style in a given field. For example, jeans is a fashion in today's clothing, and rap is a fashion in today's popular music.

The fashion life cycle has some important managerial applications. According to Sproles (1981: 122) the fashion life cycle concept is widely applied by manufacturers and dealers but often at an intuitive rather than scientific level. For instance, in any new fashion season, a producer may propose hundreds of designs ranging from classics to established fashions (basic merchandise) to very innovative designs and a few exotic items. Similarly, dealers develop assortment policies stating a certain percentage of merchandise in each fashion classification. For manufacturers and dealers who are involved in such assortment decisions, a systematic knowledge of the correct life cycle position of each style is crucial.

- **A fad life cycle**

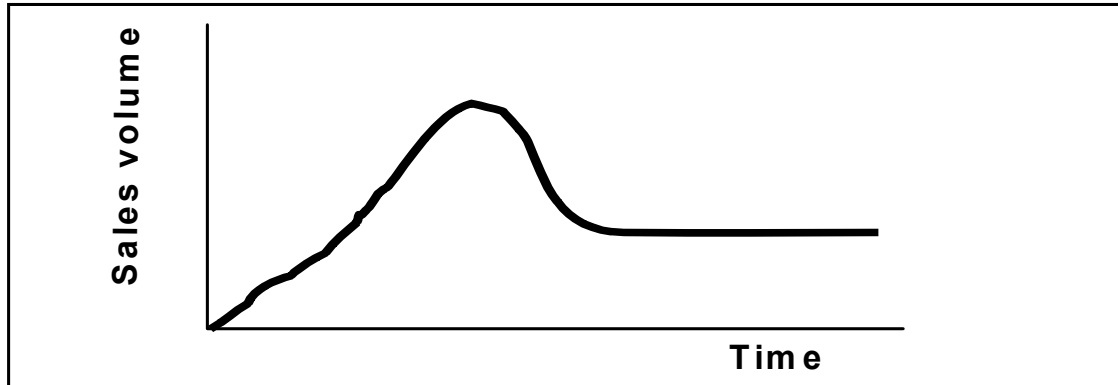
Fads are fashions that attract public attention and awareness, are adopted with great speed, peak early and decline very fast. Their acceptance cycle is short, and they tend to attract only a limited following. They often have a novel or capricious aspect, such as body piercing and body tattooing.

Not all products show the S-shape as illustrated in Figure 3.1 and bell-shape as illustrated in Figure 3.2. Researchers have identified a number of alternate patterns – the growth-slumped maturity pattern, the cycle-recycle pattern and the scalloped pattern are discussed and illustrated in Figure 3.4, Figure 3.5 and Figure 3.6 below.

- **Growth-slumped maturity pattern**

The growth-slumped maturity pattern is illustrated in Figure 3.4 below.

Figure 3.4: Growth – slumped maturity pattern



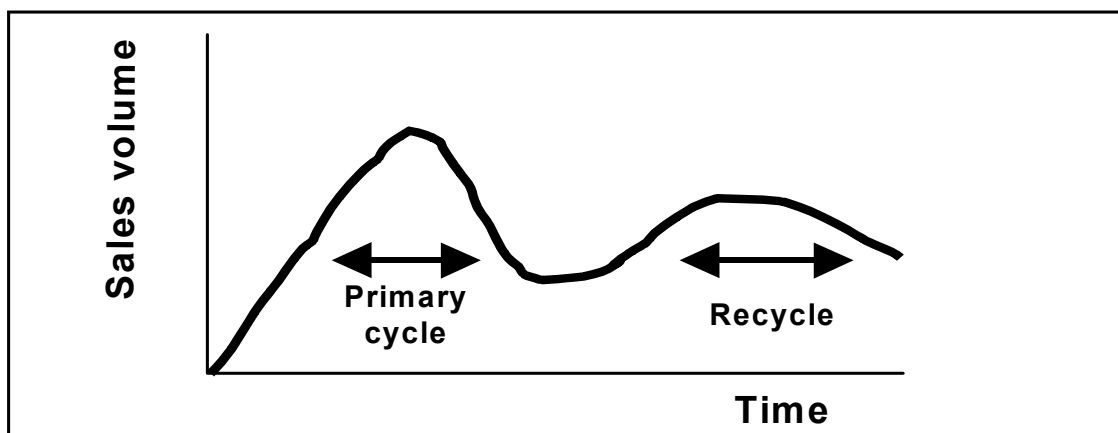
Adapted from: Kotler (1997: 347)

The shape of the product life cycle curve illustrated in Figure 3.4 above is often a characteristic of small kitchen appliances. As depicted in Figure 3.4 late adopters buy the product for the first time and early adopters replacing the product to sustain the petrified level.

- **Cycle-recycle pattern**

The shape of the product life cycle curve illustrated in Figure 3.5 is often related to the sales of pharmaceutical products.

Figure 3.5: Cycle – recycle pattern



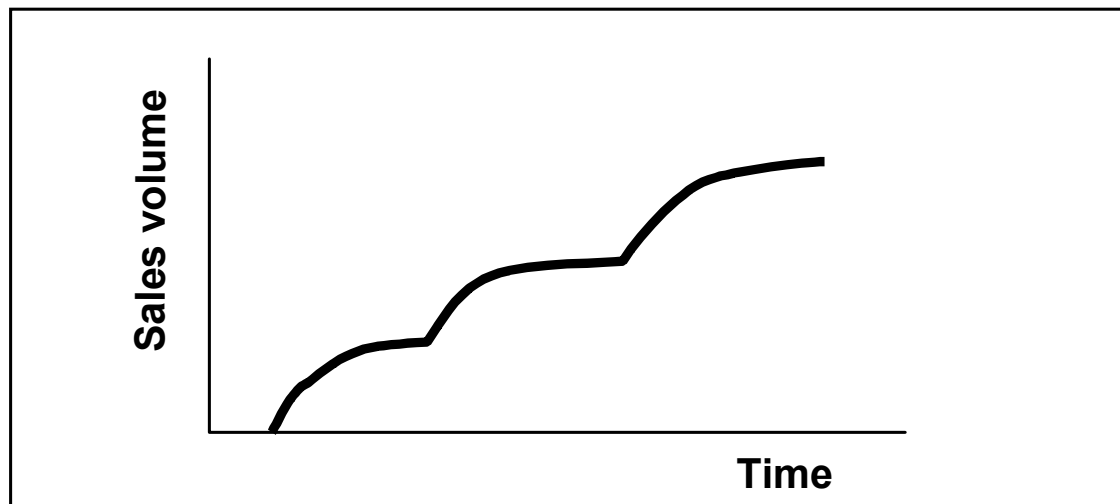
Adapted from: Kotler (1997: 347)

An example of this pattern in Figure 3.5 can be when pharmaceutical companies aggressively promote a new drug and this results in the first cycle (primary cycle). Later, sales start declining and the company gives the drug another promotion push, which produces a second cycle (recycle) that is usually of smaller magnitude and shorter duration.

- **Scalloped pattern**

The scalloped pattern is illustrated in Figure 3.6.

Figure 3.6: Scalloped pattern



Adapted from: Kotler: (1997: 347)

As illustrated in Figure 3.6 sales pass through a succession of life cycles based on the discovery of new-product characteristics, uses or users. Nylon's sales, for example, showed a scalloped pattern because of the many uses discovered over time.

3.2.3 Levels of aggregation for the product life cycle

An important issue that the marketer should consider is to clearly delineate the level of aggregation that is applicable to the life cycle. The level of aggregation is critical for the understanding of the strategic needs of the organisation. To analyse for instance a product category (liquor), a product form (white liquor), a product (vodka) or a brand (Smirnoff), marketers mainly use the product life cycle concept.

Many levels of aggregation exist and it can be similar or different from the traditional curve as depicted in Figure 3.1 and the bell shaped curve as illustrated in Figure 3.2.

The levels of aggregation are ranging from the international level to the brand level:

- **International product life cycle** – this has been used to describe international trade patterns and to explain international trade fluctuations.
- **Corporate life cycle** – this applies to the life cycle of the total organisation (the level of aggregation is the whole organisation).
- **Brand product life cycle** – this will be the sales history of the brand. The brand is unique, for example Castle.
- **Brand form or type life cycle** – the brands that satisfy a definite set of needs and are made up by the joint sales histories of all the brands that constitute the product form. For example, all the filter cigarette brands.
- **Product class life cycle** – this contains all the different forms that a class can have and would represent the combined sales of all the different product forms constituting the product class. For example, a filter cigarette is a product form, while all types of cigarettes would reflect the product class.

According to Du Plessis, Jooste and Strydom (2001: 221) the brand life cycle, the product form life cycle and the product class life cycle are the three life cycles most prominent to marketers.

Academics agree that there is no comparable and satisfactory empirical validation of the “classic” product life cycle concept. According to Wood (1990: 148) the product form bears the closest approximation to the PLC. A too high aggregation (product class) often results in a stable mature phase of the product life cycle, while a too low aggregation (product brand) often indicates the history of the specific brand and not the product form.

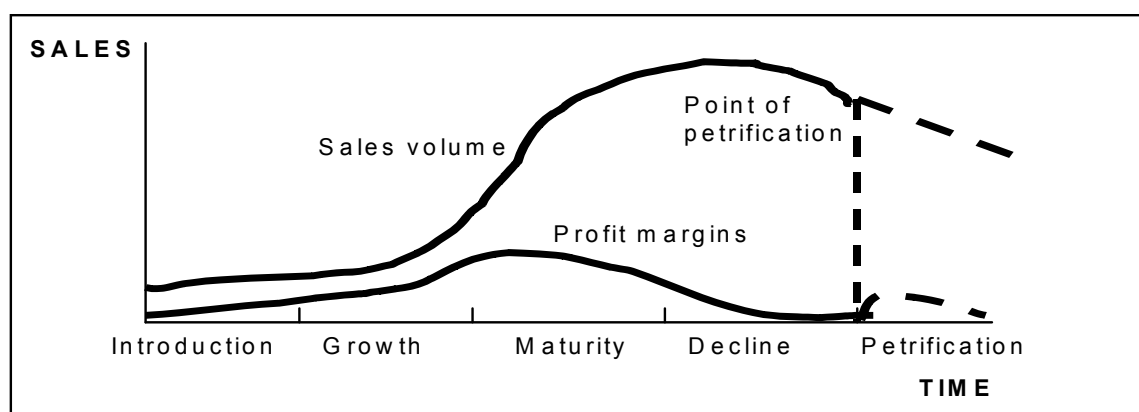
3.2.4 Product life cycle extensions

The exact phases of the product life cycle are not easily demarcated as different products may behave and respond differently. Some products skip certain phases while others linger in one phase but move rapidly through another. It is therefore essential to provide evidence from theory in order to present arguments describing phases beyond the traditional four phases of the product life cycle concept as described by Kotler (1997: 363) and illustrated in the introductory chapter.

- **Product petrification**

According to Michael (1971: 88) the lack of preciseness of the decline phase in the traditional viewpoint of the life cycle theory, as witnessed by sales and profit curves stopping curiously in mid-air as illustrated in Figure 3.7, is partly due to the fact that new products receive more attention than older products. Developing, launching and managing a new product or product line can be very exciting. It is surmised that the attention span decreases especially when products are becoming weaker. Most products with declining sales are usually in the final phase of their life cycle. According to Michael (1971: 88 - 91) there is considerable evidence available that the decline may consist of two different phases. The already recognised phase of declining sales is labelled by Michael (1971: 89) as that of product petrification and is illustrated in Figure 3.7 below.

Figure 3.7: Product petrification: A new phase in product life cycle theory



Adapted from: Michael (1971: 89)

Figure 3.7 indicates that sales are declining rapidly and the corresponding profit margins are close to zero. By adding the product petrification phase the sales and profit curves do not stop abruptly, it hardens and prolongs the decline phase.

Product petrification is related to individual products and product lines. Often products or product lines are discontinued before the opportunity for petrification is recognised. Petrification is an extension of the decline phase of the product life cycle and it offers profitable opportunities. Products that can be lead profitably through a petrification phase can be found in many product lines such as stainless steel and chromium razor blades (Michael, 1971: 88). Products displaying a decrease in sales exhibit different characteristics, some of which hint at petrification potential.

Such products almost always become less available at the consumer level, either because dealers refuse to carry slow movers or else the producer finds it more profitable to concentrate distribution on newer products. In both instances, the limited availability (or partial withdrawing) of a declining product with product petrification potential exhibits the following characteristics:

- Consumers continue to seek the product through the regular channel.
- Letters to the producer regarding the product's lack of availability increase.
- Competing or substitute items in the product line enjoy unexplained sales boosts.

Two USA companies manufacturing and marketing steel razor blades and toothpaste have produced improvements in the profitability of declining products by taking advantage of the product petrification phase of the life cycle. Instead of withdrawing the steel razor blade because it is a declining sales product, the industry raised prices 15 to 20 percent while cutting promotion to zero (Michael, 1971: 90).

The successful implementation of product petrification requires a marketing strategy uncommon to those generally recommended for the traditional

phases of a product's life cycle. The elimination of marketing promotion is possible because the rate of decline of sales is not escalating. The inelastic price relationship with volume associated with a considerable number of products with petrification potential allows profit margins to inflate.

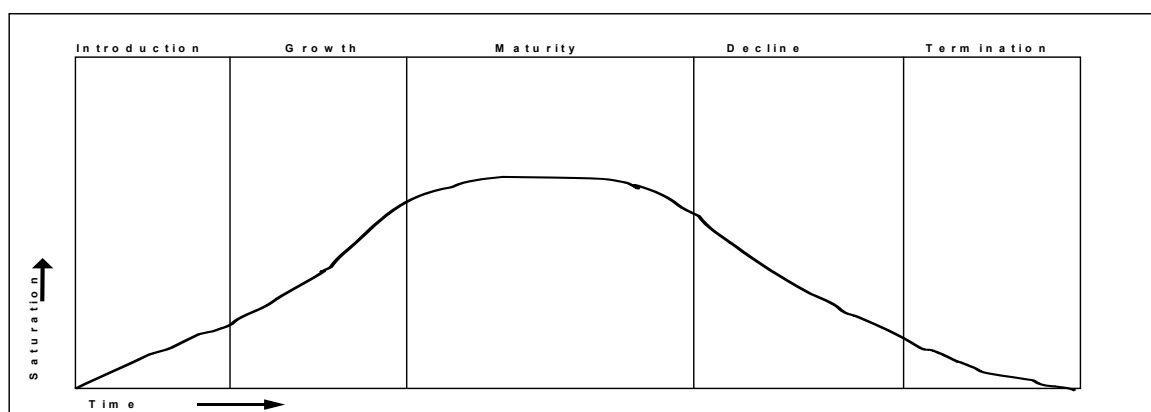
The researcher is of the view that the petrification phase as described by Michael (1971: 88–90) should be part of the strategy employed during the decline phase with the objective of avoiding the quick withdrawal of products from the market. It can not be a separate phase and the traditional four phases of the product life cycle concept as described by Kotler (1997: 363) and illustrated in the introductory chapter is still valid.

- **The PLC and saturation**

The traditional product life cycle is the result of sales accumulated over a certain time period as illustrated in Figure 3.2.

Figure 3.8 is the result of an empirical study undertaken by Smallwood (1973: 29-35) on US household appliances such as dishwashers, colour televisions, freezers, refrigerators and ovens. Smallwood (1973: 29-35) identified the product life cycle as seen in Figure 3.8 as a valuable tool for management in forecasting, pricing, advertising and distribution. According to Smallwood (1973: 29) the vertical scale is measured in saturation of the product, while the horizontal scale is calibrated to represent the passage of time.

Figure 3.8: Life cycle phases of various products



Adapted from: Smallwood (1973: 29)

The vertical axis represents the percentage of customers using the product, while the horizontal axis is calibrated to represent the passage of time. Smallwood (1973: 30) provides labels for the vertical axis as saturation in contradiction with the traditional product life cycle concept that labels the vertical axis as sales. This labelling of the vertical axis by Smallwood (1973:30) is similar to the labelling of the number of adopters using a product over time in the non-cumulative diffusion curve as depicted in Figure 3.2.

There is no relation between the termination phase depicted in Figure 3.8 and the petrification phase depicted in Figure 3.7. The termination phase prescribed by Smallwood (1973: 29) posits the termination of the product from the market at a fast rate while the petrification phase prescribed by Michael (1971: 89) posits a slower decline in sales prolonging the life of the product on the market.

Apart from the petrification and saturation phases described above Walker et al (1999: 147) posit a shakeout or competitive turbulence phase after growth and just before the maturity phase. This phase is characterised by a decreasing growth rate that results in strong price competition, forcing many organisations to leave the industry or to sell out.

3.2.5 Application areas of the product life cycle concept

In order for the product life cycle concept to have any practical use, the marketing manager needs to know the answers to the following three questions (Wood, 1990: 150):

- Given a proposed new product or service, how and to what extent can the shape and duration of each phase be predicted?
- Given an existing product, how can one determine in what phase it is?
- Given all this knowledge, how can the product life cycle concept be used effectively?

The product life cycle concept can be applied to many marketing sub disciplines, ranging from product development, growth management and

strategy. Table 3.1 provides a summary of the different application areas of the product life cycle concept as derived from various publications since 1981.

Table 3.1: Application areas of the product life cycle concept

Author(s)	Application area	Large / small organisations
Harrel and Taylor (1981: 68 - 75)	Electrical houseware products	Large
Qualls, Ohlhavsky and Michaels (1981: 76 - 80)	Household appliances	Large
Tigert and Farivar(1981: 81 - 90)	High technology products	Large
Ayal (1981: 91 – 96)	International trade	Large
Thorelli & Burnett (1981: 97 – 108)	Industrial products	Large
Sproles (1981: 116 - 124)	Fashion products	Large
Payburn and Curley (1984: 305 - 311)	Information technology	Large
De Bresson and Lampel (1985: 170 - 189)	Technological design	Large
Cravens (1986: 76-80)	Tyre industry	Large
Lambkin and Day (1989: 4 – 21)	Industrial products	Large
Brown (1992: 41 – 52)	Industrial products	Large
Paley (1994: 51 – 52)	Computer software	Small
Ryan and Riggs (1996: 33 – 41)	Industrial products	Large
Grantham (1998: 8)	Technological products	Small
Agarwal (1997: 571 – 585)	Manufactured products	Large
Shankar, Carpenter & Krishnamaruthi (1999: 269 - 277)	Pharmaceutical products	Large
Magnan, Fawcett and Birou (1999: 239 – 253)	Manufactured products	Large

It is clear from Table 3.1 that the various attempts at applying the product life cycle concept in practice is mainly restricted to fashion retailing, fast moving consumer goods, technological products, manufactured goods and industrial products.

The following conclusions were made from the studies depicted in Table 3.1:

- The product life cycle is a valid tool for predicting the sales volume of a product class (Harrel & Taylor, 1981: 75).
- Managers must begin to pay more attention to the timing of their entry into the market (Qualls et al, 1981: 80).
- The product life cycle concept forces a disciplined approach to estimating market potential (Tigert & Farivar, 1981: 90).

-
- A systematic knowledge of the correct life cycle position is crucial in order to make the correct decision for the future (Sproles, 1981: 122).
 - By making sense of the information the various product life cycle concepts can make managers more liable to consider certain options or to dismiss others (De Bresson & Lampel, 1985: 189).
 - A need was identified for modelling the dynamics of competitive behaviour in evolving market structures as organisations do have the choice to act early or to wait and spread their resources to lower their risk (Lambkin & Day 1989: 8-9).
 - To be more innovative and to manage the crucial strategic importance of innovation managers need to (Brown, 1992: 50–51):
 - (a) Lower the expectations of large sales of innovative new products since such products are likely to appeal initially to only a small number of innovative customers.
 - (b) Target innovative products at the segment that needs it the most, and the innovators and early adopters within the segment, rather than the mass market.
 - (c) Build positive attitudes to change underpinning the flexibility to manage discontinuities, which is essential to effective innovations.
 - (d) Provide rewards to product line managers to encourage them and to reduce career implications and failure.
 - By increasing skill, marketing and sales managers will begin to execute product life cycle strategies to achieve the following objectives (Paley, 1994: 51):
 - (a) Extend the sales life of their products.
 - (b) Find a viable market position to avoid head-on confrontations with strong competitors.
 - (c) Deploy their sales forces for greater productivity.
 - The product life cycle is a tool that can be deployed to accelerate effective decision-making in markets demanding ever-increasing levels of speed and agility (Ryan & Riggs, 1996: 39).
 - The probability of survival in the marketplace differs across the product life cycle phases. A consistent decline in survival rates is seen when the
-

intensity of competition increases. Early entrants enjoy a higher probability of survival across all product life cycle phases than later entrants (Agarwal, 1997: 580).

- After accounting for entering a market, the stage of the product life cycle in which a product enters has a significant effect on growth, market response and sales (Shankar et al, 1999: 269-277).

Table 3.1 further indicates that the majority of the product life cycle studies were conducted in large organisations in the USA and UK. Grantham (1998: 8) provides the only proof from literature on the successful application of the product life cycle concept within a small organisation named Quarterdeck Office Systems. The reason for this success story will be discussed in paragraph 3.16.

Two valuable contributions not depicted in Table 3.1 because they are not related to marketing directly, were made by Birou, Fawcett and Magnan (1998: 37-48) and Rink, Roden & Fox (1999: 65). They empirically tested the product life cycle concept for functional strategic alignment and financial planning purposes respectively.

- Birou et al (1998: 37-48) concluded that by exploring the potential of the product life cycle to act as a strategic planning framework it is clear that there is no quick and tested formula for the application on the product life cycle in practice.
- The product life cycle – financial model developed by Rink et al (1999: 65) provides guidelines for financial decisions to be taken during the different products' sales cycle. The model furthermore clarifies finance's relationship with the other functions in the organisation in the decision-making process. This is an indication that the product life cycle concept can be applied to assist and help integrating thinking by all functions during the product life cycle phases.

Despite the various efforts highlighted in Table 3.1 there are many criticisms, unsolved problems and difficulties in the practical application of the product life cycle concept as a marketing decision-making tool.

3.2.6 Criticism, gaps and the validity of the product life cycle concept

(a) Criticism of the product life cycle concept

Some serious criticisms as discussed in the introductory chapter, have been made about/against the product life cycle concept. Table 3.2 provides a summary of the major criticisms and problems linked to the PLC concept.

Table 3.2: Major criticisms of and problems with the PLC concept

Major criticisms and problems	Author(s)
The PLC concept has no practical use	Levitt (1963: 93)
It is still difficult to determine at which phase of the PLC a product or service is	Levitt (1963: 93) Dhalla and Yuspeh (1976: 102 - 110) Grantham (1997: 9)
The PLC concept has not yet been tested systematically	Polli and Cook (1969: 385 - 400)
The PLC led many companies to make costly mistakes and to neglect opportunities. It is often difficult to accurately determine in which phase of the PLC a product actually is. Shortcomings on the practical application of the PLC concept	Dhalla and Yuspeh (1976: 102 - 110)
There is still no evidence of the efficacy of the PLC as a tool to predict marketing strategy.	Dhalla and Yuspeh (1976: 102 - 110) Grantham (1997: 9)
Most empirical studies testing the product life cycle concept have found that it lacks validity or usefulness for explaining sales growth	Weber (1976: 19 - 290)
The problem with the PLC concept is that sales are modelled primarily as a function of time and are expected to produce curves that display growth, levelling and decline	Tellis and Crawford (1981: 125 - 132)
In many markets the product or brand life cycle is longer than the actual planning life cycle of organisations	Mercer (1993: 269 - 274)
There is still serious doubt about the application of the product life cycle as a marketing tool	Grantham (1997: 4)

It is clear from the information provided in Table 3.2 that there are some overlapping criticisms:

- Levitt (1963: 93), Dhalla and Yuspeh (1976: 105) and Grantham (1997: 4) are sharing the view that it is often difficult to determine in which phase of the product life cycle a product or service is. It is clear that one of the earliest and most concerning aspects of the application of the product life cycle concept is still eminent today.
- Weber (1976: 12) and Grantham (1997: 4) are questioning the product life cycle concept's lack of validity in terms of the ability to identify in which phase the product is.

The transition from one phase to another is therefore not clear and the transition from birth to growth, maturity and death is far from inevitable. By implanting an expectation of decline in the minds of marketing managers, the product life cycle concept itself may become a self-fulfilling prophecy with intrinsically valuable brand equity prematurely axed from portfolios (Wood, 1990: 151).

In addition to Table 3.2, Day (1981: 65) strengthens the existing but common theme of criticism, doubt and the need for further investigation into the PLC concept on strategic and functional levels. He points out that the identification of the boundaries between phases will be effected by the variety of product life cycle patterns. The more variations of the PLC identified, the more difficult the positioning process becomes.

(b) Gaps in the product life cycle concept

The gaps in the product life cycle concept are derived from the various criticisms and problems associated with its practical application. Many gaps have been identified that link very closely with the criticism raised during the previous four decades and depicted in Table 3.2. of which the major ones are:

- On-going scepticism over the product life cycle theory's applicability (Dhalla and Yuspeh, 1976: 105).

- A lack of validity or usefulness of the product life cycle for explaining sales growth (Weber, 1976: 12).
- There is a definite need for the development of a more sophisticated theory of the PLC in order to know more about the shape of the PLC curve (Midgely, 1981: 114).
- The clear value of life cycle analysis is still to be proven (Sproles, 1981: 123).
- The application of the product life cycle theory for strategic planning across functional areas has been overlooked (Birou, Fawcett and Magnan, 1998, 38).
- The product life cycle itself is insufficiently uniform to provide a basis for decision-making and therefore for planning Doyle (1976: 3).
- The product life cycle is empty of empirical generality and positively dangerous if used as a guide for action (Grantham, 1997: 7).

The gap identified by Grantham (1997: 7) will be tested among marketing decision-makers in small organisations in Gauteng, South-Africa who are applying the product life cycle concept in strategy and marketing strategy formulation. It is clear from the literature study that:

- No empirical research on the applicability of the product life cycle for decision-making in small organisations has been undertaken to date.
- The study on the applicability of the product life cycle concept concentrated mainly on large organisations as indicated in Table 3.1.
- The studies done to date on the applicability of the product life cycle concept was executed abroad – not in South Africa.

These gaps provide substance for the decision of the researcher to conduct empirical research on the applicability of the product life cycle concept among small organisations in South Africa.

(c) The validity of the product life cycle concept

The development of accurate life cycles cannot be accomplished overnight, but on the other hand accurate life cycle patterns can be generated within a

single operation period. Weber (1976: 22) concluded in his study that despite the general acceptance of the product life cycle concept among academics and practitioners, most studies testing the product life cycle concept have found that it lacks validity as to indicating which “life” is investigated and as to the complications of the empirical research.

Despite the demonstrable lack of general applicability for the product life cycle theory as a whole, the major lesson of the PLC – that change is to be ignored at the marketing manager’s peril – still holds true (Mercer: 1993: 274). More recently Grantham (1997:9) made the following conclusions sharing this feeling and concluded that:

- there is serious doubt about the validity of the product life cycle as a marketing tool;
- the value of the product life cycle for forecasting purposes is limited; and
- there is still doubt and no evidence of the efficacy of the product life cycle as a tool to predict marketing strategies.

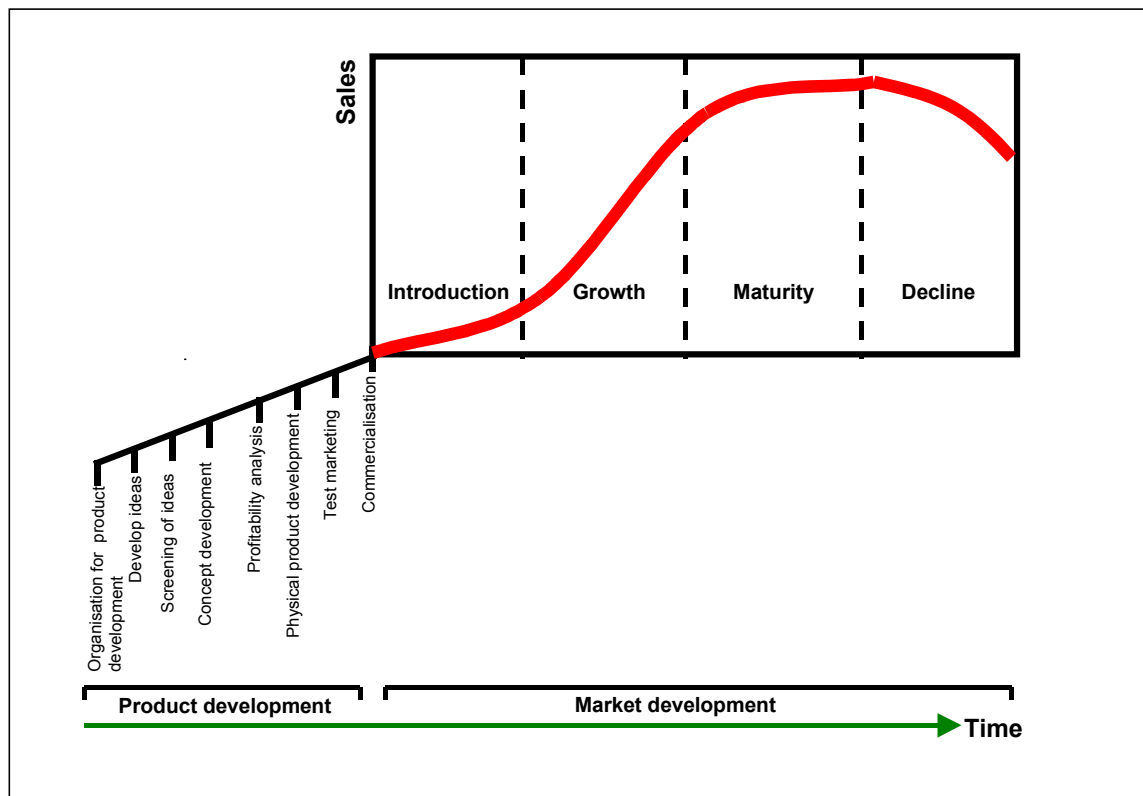
This thesis will however, through the various research propositions as discussed in chapter six, endeavour to test the applicability of the product life cycle concept among small organisations in Gauteng, RSA.

3.3 PRODUCT MANAGEMENT

The marketing mix variables discussed in chapter two is a valuable tool available to the marketer of a physical product in order to manage the product through the various phases of the product life cycle. Marketing related decisions could be made by applying different strategies such as branding, product line extensions, product modifications, positioning and growth strategies. The growth of existing products can be achieved through market penetration and market development as discussed in chapter two.

The management process of a product or service (offering) starts with the new product development and continues along the different product life cycle phases as part of market development as depicted in Figure 3.9.

Figure 3.9: Sequence and steps associated with the development process of a product



Adapted from: Lamb, Hair, McDaniel, Boshoff and Terblanché (2000: 340) and Kotler (1997: 363)

Figure 3.9 will be referred to in the discussions of paragraph 3.3.1 and paragraph 3.3.2.

3.3.1 New product development

New products or services can be defined as those products or product attributes which are new to the organisation and which the target market regards as being significantly different from existing competitive products or services (Van der Walt et al, 1996: 196). New product development is a systematic process that has to be followed in order to create new products or services with the lowest possible sacrifices and risks and with the highest

possible benefits to the organisation. This process should further create the highest possible need satisfaction for the target market (Van der Walt et al, 1996: 199).

New product development is the main theme in the product development process, but new product development can also be related to each phase of the product life cycle as illustrated in Figure 3.9. Different product strategies can be employed in the different product life cycle phases based on the product sales and market conditions, such as changing consumer preferences, technological advances and changing economical conditions.

(a) Steps in product development

The nature of the decision-making process in product development is depicted in Figure 3.9. At each step in the product development process the developer has to decide which ideas to discard and which ideas to retain for the next step. According to Van der Walt et al (1996: 196) the developer is continuously confronted with a go/no or go/don't know decision-making situation. If the decision is go, the idea advances through to the next step; if the decision is no go, the idea is not pursued.

The product development process as depicted in Figure 3.1 is divided into the following eight chronological steps (Lamb et al, 2000: 240-246):

- **Step 1: Organisation for product development**

According to Lamb et al (2000: 245) several types of groups or structures within an organisation can facilitate the development of new products. These groups or structures include new-product committees and departments, venture teams and intrapreneurs.

The establishment of an effective organisation in which product development can be stimulated, planned, co-ordinated and controlled is one of the most important prerequisites for successful product development. New product development should be a combined effort by the different departments or functions in the organisation and this combined effort will be discussed in

paragraph 3.2.1(b). Most leaders of new product teams are aware of the complexity of the problem they are confronted with and the changes that must occur before cross-functional teamwork can accelerate the new product development process (Jassawalla and Sashittal, 2000: 34).

Organisations handle the organisational aspects of new product development in the following ways (Kotler, 2000: 333):

- (i) *Product managers* – many organisations assign the responsibility for new product development ideas to product managers.
- (ii) *New product managers* - many organisations assign the responsibility for new product development to new product managers. Johnson & Johnson have new product managers who report to category managers. Product managers similar to new product managers tend to think in terms of modifications and line extensions limited to their product market (Kotler, 2000: 333).
- (iii) *New product committees* – many organisations have a high-level management committee responsible for reviewing and approving proposals.
- (iv) *New product departments* – large organisations often establish a department headed by a manager who has substantial authority and access to top management. The new product department's major responsibilities include generating and screening of new ideas, working with the R&D department, and conducting test marketing and commercialisation as depicted in Figure 3.1.
- (v) *New product venture teams* – a venture team is a group brought together from various operating departments and charged with developing a specific product, service or business.

- Step 2: Development of ideas

New product ideas can come from a variety of sources, such as customers, employees, distributors, competitors, research and development, and consultants.

- Step 3: Screening of ideas

The screening of product ideas includes a process of eliminating ideas that are inconsistent with the organisation's new-product strategy or are obviously inappropriate for some other reasons. The new-product committee, the new-product department, or some other formally appointed group can perform the screening process. Screening questions such as competitive advantage, resources, legal implications and profitability can be addressed early in the product development process.

- Step 4: Concept development

The viable product ideas from step 3 can be transformed into a product concept and be subjected to a more thorough evaluation. Evaluation questions can include answers to questions on who will use the product? what is the primary benefit of the product? and when will the product be used? According to Lamb et al (2000: 241) the product concept flows from combining unique product attributes to certain customer needs and actions.

- Step 5: Profitability analysis / Business analysis

During this step preliminary but detailed figures for demand, cost, sales and the calculation of profitability are calculated. Answers to questions such as demand, impact on profit, market share and return on investment, customer benefits, competitive response and the impact on organisational resources will provide management with a clear understanding of the product's market potential.

- Step 6: Physical product development

During this step prototypes are developed and the organisation starts compiling a preliminary marketing strategy. The physical development process is optimallised best when all functional areas such as R&D, engineering, production, marketing and even suppliers work together rather than sequentially.

- Step 7: Test marketing

After products and marketing strategies have been developed, they are usually tested in the “real world” – the marketplace. Test marketing is the limited introduction of a product and a marketing strategy to determine the reactions of potential customers in a market situation (Lamb et al, 2000: 243). With the selection of a test market many criteria need to be considered such as marketing variables (product, price, place, promotion, segmentation and positioning), demographics (income, age, gender, purchasing habits), psychographics and possible geographical areas where the product will be marketed.

- Step 8: Commercialisation

As illustrated in Figure 3.9 commercialisation is the last step in product development and the first step in market development, but product development as a strategy can also occur during the market development stage. For instance, product modifications can be used as a new product development strategy in the mature phase and the steps in product development can be used in this process.

(b) Product development and interrelationship with other functions in an organisation

The development and marketing of a product have an affect on the organisation in general and each functional area in particular.

Jassawalla and Sashittal (2000: 46) provide the following description on how product decisions can influence the other functions in an organisation:

- The development and manufacturing of new products present technical challenges for production/operations management.
- Product decisions have a substantial influence on the financial management of an organisation.
- Product decisions directly affect the human resources of an organisation.
- Product decisions influence information management in the organisation.

- The purchasing department in an organisation is affected in a special way by product development and other product decisions.
- The marketing department in the organisation can effectively use information on the product mix that the organisation manufactures and markets.

Interaction, information sharing and cross-fertilisation of ideas among people from R&D, production, marketing and other groups is essential when product development is handled by a multi-functional team. According to Jassawalla and Sashittal (2000: 46) problems arise when people with dissimilar orientations, experiences and interests are called upon to interact, make decisions and participate in a co-creative endeavour such as new product development. A closer examination of the human interaction process that characterises new product development shows that effective leadership as well as followership, equitable distribution of power and a concern for building collaboration among participants can make the human interaction more productive and facilitate the progress of ideas across organisations.

(c) Important issues to ensure the success of the new product development process

Timing, globalisation, participation of management and customer interaction are some of the most important issues related to the process of new product development. There is no empirical proof of a time frame linked to the product development process. The time frame linked to the product development process and business life cycles are measured in months and executives must therefore plan their new product replacements almost at the same time that they launch them (Anonymous, 1997: 42-46). Chrysochoidis and Wong (2000: 268) are of the opinion that international product managers must assign greater priority to assessing the relative advantages of customising new product technology and not to consider the timing implications for both the new product development effort and subsequent rollout.

As global competitive pressure increases and product life cycles are compressed, organisations are trying to shorten the product development cycles (Griffin, 1997: 1-24). This view is shared by Lee, Lee and Sonder (2000: 497) who stated that to ensure success in the current age of globalisation, it is imperative for organisations to understand the management practices of competitors both within and outside national boundaries.

Apart from understanding competition Gruner and Homburg (2000: 1) are of the opinion that more attention should be given to customer interaction in the new product development process as a means to increase new product success.

Top management support is crucial to new product development success and Swink (2000: 208) indicates that top management support is positively associated with better time-based performance, quality design and financial performance as a whole. Gil and de la Fe (1999: 391–404) posit that risk and costs associated with new product development can be shared among the partners and more effective use can be made of manufacturing facilities and production capabilities. This strategy was successfully employed by two international joint ventures – Rover with Honda and Seat with Volkswagen.

3.3.2 Market development

Market development is a collective for managing products during the four phase of the product life cycle and must not be confused with Ansoff's growth strategy of market development.

Various growth strategies based on cross classifying product and product-market extension possibilities have been discussed in chapter two. Ansoff (1957: 113 - 124) described the following growth opportunities to be used for market development purposes after a product have been commercialised:

- (i) Product development.
- (ii) Market development.
- (iii) Market penetration.
- (iv) Diversification.

(a) Product development

New product development was discussed in paragraph 3.3.1(a) and illustrated in Figure 3.9 but a variety of decisions have to be taken continuously during the market development phase on the existing product/service mix and product/service ranges. Through product development organisations can grow by developing new product-line extensions or by means of new product offerings.

New products can also be called innovations. An innovation or innovative product is a product perceived as new by a potential consumer (Lamb et al, 2000: 254). Existing products can be changed by means of product modification or current packaging may be changed. Potential consumers will regard such product as new and different from the existing product.

(b) Market penetration

In relation to Ansoff's growth strategies as depicted in Figure 2.4 a marketer can use market penetration to develop the market with current products. Market penetration in existing markets aims at encouraging current customers to use more of the current product, to use it more often, or to use it in new ways. Market penetration can be employed through mass market penetration or niche penetration.

Mass market penetration and niche penetration will be discussed in the next section.

(i) Mass-market penetration

The ultimate objective of mass-market penetration is to capture and maintain a commanding share of the total market of existing products. Marketing programme components for a mass-market penetration are increasing customers' awareness and willingness to buy, increasing customers' ability to buy and considerations for pioneering global markets – exporting, franchising, contract manufacturing, joint ventures and sole ownership.

The short-term objective of mass-market penetration is to maximise explorers and adopters in the total market and to invest heavily to build future volume and market share. The medium-term objectives are to maintain the pre-emption of competition and to maintain a leading share position even if some sacrifice of margins is necessary in the short term as new competitors enter the market. The long-term objective is to maximise the return on investment (ROI).

According to Walker et al (1999: 232) mass penetration can be achieved through the following two possible strategic objectives:

- To **increase the customers' awareness** by means of heavy advertising, extensive sales force efforts, extensive introductory sales promotions, quick expanding of offerings and free trial offers.
- To **increase the customers' ability to buy** by means of penetration pricing, extended credit terms, heavy use of trade promotions and the offering of engineering, installation and training services.

(ii) Niche penetration

Niche penetration calls for the same advertising, sales promotion, personal selling and trade promotion activities as mass market penetration (Walker et al, 1999: 236). By employing niche penetration organisations should use more selective media and channel design to precisely direct those activities toward the selected market segment (niche).

Because the objectives of a niche penetration strategy are similar to, but more narrowly focused than a mass market strategy, the marketing elements are also likely to be similar in the two strategies. The short-term objective of niche penetration is to maximise explorers and adopters in target segments and build future volume and market share in the chosen niche. The medium-term objective is to maintain the leading share position in the target segment even if some sacrifice of short-term margins is necessary. The long-term objective is to maximise the return on investment (ROI).

(c) Market development

Market development is a growth strategy where a new market is entered by an existing product dealing with the ways in which consumers become aware of, test and eventually accept or reject a new product item. The primary objective of market development is to secure future volume and profit growth (Walker et al, 1999: 220). This objective has become even more important in recent years due to the rapid advancement in technology and more intense competition globally. A steady flow of new products and services and the development of markets, including those in foreign countries, are essential for the continued growth of most organisations.

The marketing function plays a pivotal role in the development of the market by means of speeding up innovations, and by utilising marketing strategies during the different product life cycle phases.

Chances for new market entry success by using current products are dependent upon the management of the new product development process (Jenkins, Forbes, Duranni and Banerjee, 1997: 359-378). Different types of market entries are appropriate for achieving the different strategic objectives and the following strategic scenarios as described by (Walker et al, 1999: 220-221) are possible:

- **Scenario 1:** - If the objective is to improve cash flow by adding another cash generator or cash cow as described by the Boston Consulting Group Matrix and depicted in Figure 2.3, simple line extensions or product modifications – particularly those that reduce unit costs – may be followed.
- **Scenario 2:** - If the objective is to establish a foothold in or pre-empt a new market segment, the organisation must introduce a product that is new to that market, although it may not be entirely new to the organisation.
- **Scenario 3:** - If an organisation is pursuing a prospector strategy and its objectives are to maintain a position as a product innovator and to

establish footholds in a variety of new product-markets, it should attempt to be the pioneer in as many of those markets as possible. The successful implementation of such a diversification strategy requires the organisation to be competent in and devote substantial resources to R&D, product engineering, marketing and marketing research.

- **Scenario 4:** - If the organisation is concerned primarily with defending an already strong market share position in its industry, it may prefer to be the follower. This strategy usually requires fewer investments in R&D and product development, but marketing and sales are critical in implementing it effectively.

(d) Diversification

Organisations can develop markets and seek growth by diversifying their operations. Diversification is typically more risky or it involves learning new operations and dealing with unfamiliar customer groups.

According to Walker et al (1999: 46-47) diversification can happen through:

- Vertical integration

Vertical integration can be employed by means of forward or backward integration.

Forward integration – an organisation moves downstream in terms of the product flow, as when a manufacturer integrates by acquiring a wholesaler or a retailer.

Backwards integration – occurs when an organisation moves upstream by acquiring a supplier.

- Related diversification

Related diversification occurs when an organisation internally develops or acquires another business that does not have products or customers in common with its current business but it might contribute to internal synergy sharing product facilities, R&D know-how, or marketing and distribution skills.

- Unrelated diversification

In contradiction to related diversification the motivation for unrelated diversification is primarily financial rather than operational. Unrelated diversification tends to be risky in terms of financial outcome.

- Diversification through organisational relationships or networks

Organisations attempt to gain some of the benefits of market expansion or diversification while simultaneously focusing more internally on a few core competencies. The aim is to form relationships or organisational networks with other organisations instead of acquiring ownership..

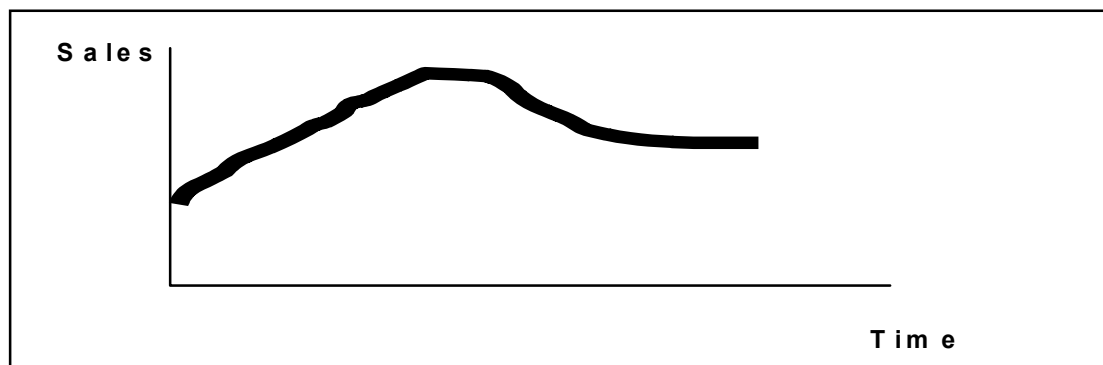
3.4 THE PRODUCT LIFE CYCLE AND GROWTH STRATEGIES

The various growth strategies as developed by Ansoff (1957: 114) have been discussed in chapter two and in paragraph 3.3. A significant contribution by linking the product life cycle to growth strategy has been made by Bass (1969: 215-227).

Bass developed a growth model for the timing of initial purchasing of new products and tested this model empirically against data for eleven consumer durables.

The growth model postulated is best reflected by growth patterns similar to the pattern shown in Figure 3.10 below.

Figure 3.10: Growth of a new product



Adapted from: Bass (1996: 216)

This model yields relatively good predictions of sales peaks and the timing of the peak when applied to historical data. The growth model shown in Figure 3.10 is best reflected by growth patterns similar to the shape of the product life cycle curve: sales will reach a peak and then level off to a magnitude lower than the peak. Bass (1969: 215) is of the opinion that long-range forecasting of new product sales is a guessing game and he therefore provided a framework for a rationale for long-range forecasting.

The growth model is based upon the assumption that the probability of purchase at any time is related linearly to the number of previous buyers. Additional information should be incorporated into the model or versions of the model, if and when available for analysis internally of the organisation. Key data include price trends, sales force expenditure, advertising expenditure and the cost data from the appropriate learning curves. Good industrial intelligence including the feedback from the sales force and primary market research must supplement any growth model. The economic environment is also critical, particularly interest rates and corporate profitability which might also impact the timing of adoption.

There is a behavioural rationale in the assumption of the Bass model that implies exponential growth of initial purchases to peak and then exponential decay. Behaviourally, the assumptions are similar in certain respects to the theoretical concepts emerging in the literature on new product adoption and diffusion as depicted in Figure 3.2. From a planning viewpoint the central interest in long-term forecasting lies in the prediction of timing and the magnitude of the sales peak. The model definitely contributed to an understanding of the process of new product adoption and may be useful for long-range forecasting.

Tigert and Farivar (1981: 81-90) tested the Bass model for growth by means of a sensitivity analysis for a high technology product with the main aim to develop a forecasting equation to aid in production scheduling and market development.

The contributions by Bass (1969: 215-227) and Tigert and Farivar (1981: 81 - 90) can be related to the discussion in paragraph 3.2.1(b) that provided valuable insight into the application possibilities of the product life cycle concept for growth and forecasting purposes.

According to Bass (1969: 226) there is a behaviour rational that the probability of purchases at any time is related linearly to the number of previous buyers. Tigert and Farivar (1981: 90) by testing the Bass model posit that the Bass model forces a disciplined approach to estimating market potential but they concluded that no forecasting model should be a substitute for other elements of the strategic planning process.

The application of the product life cycle concept for forecasting purposes will be tested empirically among small manufacturing organisations and small dealer organisations in Gauteng.

3.5 THE PRODUCT LIFE CYCLE CONCEPT AND STRATEGIC PLANNING

The product life cycle concept is an integral part of product management as discussed in paragraph 3.3 and the application of this concept for strategic planning and marketing decision-making will be tested during the empirical part of this study. To date Hofer (1975: 784-810) developed the most extensive theoretical profile of the product life cycle as it affects corporate strategy. Two of Hofer's propositions are particularly valuable, namely:

- (i) The most fundamental variable in determining an appropriate marketing strategy is the phase of the product life cycle (Hofer, 1975: 789).
- (ii) Major changes in business strategy are usually required during three phases of the product life cycle: introduction, maturity and decline (Hofer, 1975: 799).

To date authors have found no comprehensive empirical validation of the propositions by Hofer (1975: 784 – 810) or of the strategy performance

implications of the product life cycle. A study conducted by Anderson and Zeithaml (1984: 1) empirically examined differences in strategic variables between phases of the product life cycle, as well as differences among the determinants of high performance across phases of the product life cycle.

Anderson and Zeithaml (1984: 23) contented that growth businesses should consider the implications of their objectives and strategies for later phases of the product life cycle. Growth phase decisions concerning short-term profitability and market share may have a critical impact on the success of the organisation as the market matures. Also, those businesses should track the evolutionary development of the market, constantly evaluate their position and implement strategies in line with the changing conditions.

Wind (1981) in Anderson and Zeithaml (1984: 7) suggested that the life cycle concept could be used in two ways:

- (i) to assume that all products follow the life cycle and to develop strategies to sustain sales and profits rather than allowing decline, or
- (ii) incorporate information on the product position in the life cycle with other information such as market share and profitability.

The study conducted by Anderson and Zeithaml (1984: 22) provides a better understanding of the evolution of business strategy and the trade-offs that may be confronted. The starting point should be the comparison of organisational goals with the short term and long-term profit opportunities of the organisation and the various strategic business units. Findings of Anderson and Zeithaml (1984: 23-24) question the idea that a single set of strategies is preferable at any phase of the product life cycle, particularly in the growth phase.

Anderson and Zeithaml (1984: 7) derived the following major trends from a sample consisting of 1 234 small to large industrial manufacturing organisations:

- (i) Marketing strategies in the **introductory phase** emphasise a buyer focus, building on advertising and increasing purchase frequency.

-
- (ii) In the **growth phase** there is a movement toward strategic segmentation and building efficiencies in production and marketing.
 - (iii) High performance strategies for the **maturity phase** are more complex than for the previous two phases. Basically, they centre on improving efficiency in process, reducing overall cost in marketing and distribution.
 - (iv) Relatively little work has been done regarding strategies leading to high performance in the **decline phase**. Strategy depends on industry traits, on whether some segments will have enduring demand, on whether barriers impede exit of organisations and on the nature of competition.

In spite of the limited attention in the empirical research relating marketing strategy to performance within phases of the product life cycle, a number of studies have conceptually related these variables directly and indirectly. Studies that investigated strategy and performance and that have product life cycle implications are summarised in Table 3.4.

The trends cited by Anderson and Zeithaml (1984: 7) are very important but in the context of this research it will however not be included in the empirical part of this study. The researcher will use the product life cycle assumptions provided by Kotler as discussed in paragraph 1.6.1 in the introductory chapter. Kotler's (2000: 316) assumptions are – identified characteristics, described marketing objectives and propose marketing strategies during each product life cycle phase. Kotler used the publications of Weber (1976: 12-29) and Doyle (1976: 1-6) to generate his product life cycle assumptions for each phase in the product life cycle:

- Weber (1976: 12-29) conducted empirical research directed at the industry life cycle rather than the product line life cycle by using two different products – computers and razor blades.

According to Weber (1976: 13) each phase has its own marketing implications as shown in Table 3.3.

Table 3.3: Marketing implications of each phase of the product life cycle

Effects and responses	Phases of the PLC			
	Introduction	Growth	Maturity	Decline
Competition	None of importance	Some emulators	Many rivals competing for a small piece of the pie	Few number with a rapid shakeout of weak members
Overall strategy	Market establishment; persuade early adopters to try the product	Market penetration; persuade mass market to prefer the brand	Defence of brand position; check the inroads of competitions	Preparations for removal; milk the brand dry of all possible benefits
Profits	Negligible because of high production and marketing cost	Reach peak levels as a result of high prices and growing demand	Increasing competition cuts into profit margins and ultimately into total profits	Declining volume pushes costs up to levels that eliminates profits entirely
Retail prices	High, to recover some of the excessive cost of launching	High, to take advantage of heavy consumer demand	What the traffic will bear; need to avoid price wars	Low enough to permit quick liquidation of inventory
Distribution	Selective, as distribution is slowly built up	Intensive; employ small trade discounts since dealers are eager to store	Intensive; heavy trade allowances to retain shelf space	Selective; unprofitable outlets slowly phased out
Advertising strategy	Aim at the needs of early adopters	Make the mass market aware of brand benefits	Use advertising as a vehicle for differentiation among otherwise similar brands	Emphasise low price to reduce stock
Advertising emphasis	High, to generate awareness and interest among early adopters and persuade dealers to stock the brand	Moderate, to let sales rise on the sheer momentum of word-of-mouth recommendations	Moderate, since most buyers are aware of brand characteristics	Minimum expenditures required to phase out the product
Consumer sales and promotional expenditure	Heavy, to entice target groups with samples, coupons and other inducements to try the brand	Moderate, to create brand preference (advertising is better suited for this job)	Heavy, to encourage brand switching, hoping to convert some buyers into loyal users	Minimal, to let the brand coast by itself

Adapted from: Weber (1976: 13)

Table 3.3 provides a description of the various marketing implications based on the various effects and responses on the market mix variables along with characteristics on competition and profit across all four phases of the product life cycle.

- According to Doyle (1976: 5) each phase has its own marketing implications in the form of responses on the strategic focus, marketing expenditure, marketing emphasis, distribution, price and products responses shown in Table 3.4.

Table 3.4: Implications of the product life cycle

Responses	Phases in the product life cycle			
	Introduction	Growth	Maturity	Decline
Strategic focus	Expand the market	Market penetration	Defend market share	Productivity
Marketing expenditure	High	High (declining %)	Falling	Low
Marketing emphasis	Product awareness	Brand preference	Brand loyalty	Selective
Distribution	Patchy	Intensive	Intensive	Selective
Price	High	Lower	Lowest	Rising
Product	Basic	Improved	Differentiated	Rationalised

Adapted from: Doyle (1976: 5)

Table 3.4 provides a description of the various marketing implications based on the various responses on the market mix variables along with the strategic focus, marketing emphasis and marketing expenditure across all four phases of the product life cycle.

There are differences between the work published by Weber (1976: 13) as depicted in Table 3.3 and the work published by Doyle (1976: 5). The differences are:

- (i) Weber provides effects and responses while Doyle only provides responses.
- (ii) Doyle provides strategic focus and marketing expenditure responses and Weber not.
- (iii) Both authors provide marketing variable responses. labelled the promotional variable as marketing emphasis responses.
- (iv) Weber provides profit effects and responses compared to Doyle who provides marketing expenditure responses.

It is the view of the researcher, based on the above-mentioned discussion of differences, that the marketing implications (effects and responses) provided by Weber is more comprehensive than those provided by Doyle.

Based mainly on the work published by Weber (1976: 13) and Doyle (1976: 5), Kotler (2000: 316) provides a description of marketing characteristics, proposed marketing objectives and suggested strategies depicted in Table 3.5 and published in Kotler's general marketing text books since the 1980s.

The proposed marketing objectives and suggested marketing strategies are the direct result of the various effects and responses provided as marketing implications by Weber (1976: 13) and Doyle (1976: 5). Kotler's described characteristics in Table 3.5 are broader and more detailed than the effects and responses provided by Weber (1976: 13) and Doyle (1976: 5).

Table 3.5: Characteristics, marketing objectives and strategies in the various phases of the product life cycle

	Phase 1	Phase 2	Phase 3	Phase 4
Sales characteristics	Low Sales	Rapidly growing sales	Peak sales	Declining sales
Cost characteristics	High cost per customer	Average cost per customer	Low cost per customer	Low cost per customer
Profit characteristics	Negative profits	Increasing profits	High profit	Declining profits
Competitor characteristic	Few competitors	Growing number of competitors	Stable number of competitors	Declining number of competitors
Customer characteristics	Innovative customers	Early adopters	Middle majority	Laggards
Marketing objective	Create product awareness and trial	Maximise market share	Maximise profit while defending current market share	Reduce expenditure and milk the brand
Product strategy	Offer a basic product	Offer product extensions, service and warranties	Diversify	Phase out the weak performers
Price strategy	Charge cost plus	Price to penetrate the market	Price to match or beat competitors	Cut price
Distribution strategy	Build selective distribution	Build intensive distribution	Build more intensive distribution	Selective to phase out the unprofitable outlets
Advertising strategy	Build product awareness	Build awareness and interest in the market	Highlight brand differences and benefits	Reduce the level to retain loyal customers
Sales Promotion strategy	Use heavy sales promotion to entice trial	Reduce to take advantage of heavy consumer demand	Increase to encourage brand switching	Reduce to a minimal level

Adapted from: Kotler (2000: 316)

As discussed in paragraph 3.2.6(a) it is still difficult for marketing decision-makers to determine at which phase of the product life cycle a product or

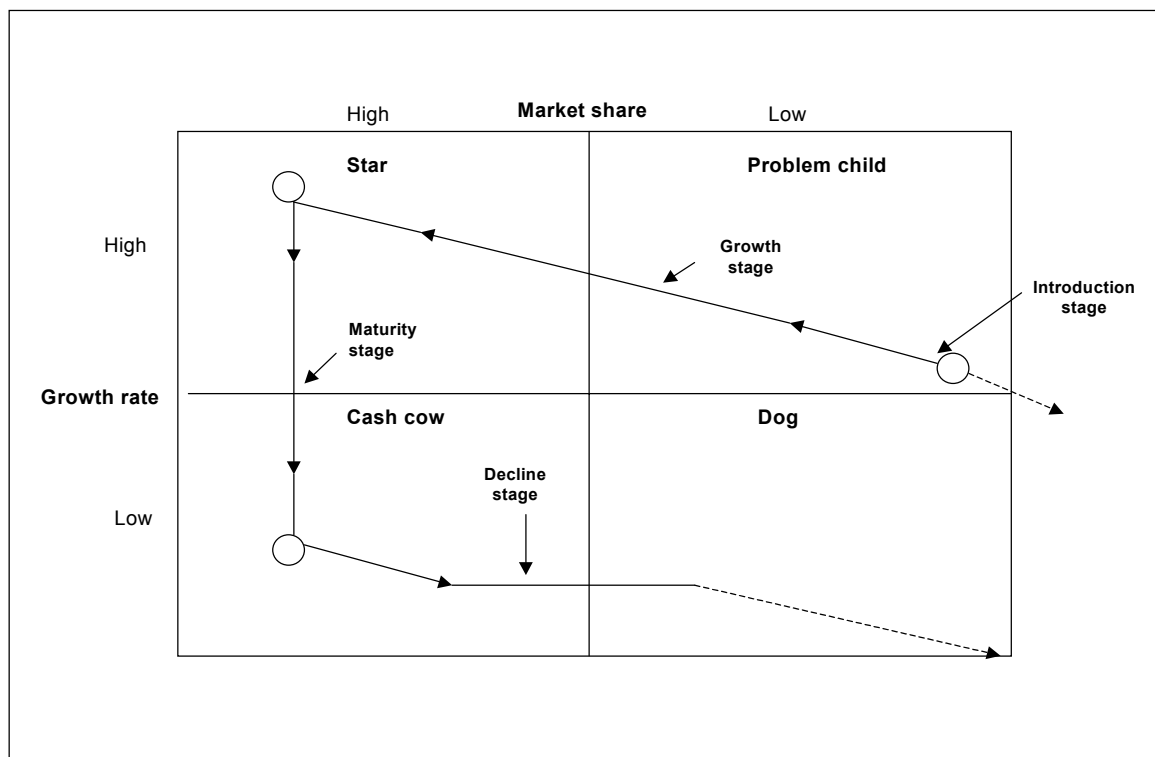
service is. Thus the described marketing characteristics, proposed marketing objectives and suggested marketing strategies to be associated with each phase of the product life cycle as depicted in Table 3.5 is still more a theory with serious doubt about it's application than a marketing decision-making tool in practice.

Table 3.5 depicted the product life cycle assumptions to be empirically tested during the empirical part of this study.

3.6 THE PRODUCT LIFE CYCLE AND PRODUCT PORTFOLIO

When the product life cycle is compared to the product portfolio concept developed by the Boston Consulting Group as discussed in paragraph 2.3.2 (a)(iii), the marketing manager can take strategic decisions with greater certainty. Figure 3.11 illustrates the relationship between the product life cycle concept and product portfolio.

Figure 3.11: Relationship between product life cycle and product portfolio



Adapted from: Van der Walt et al (1996: 521)

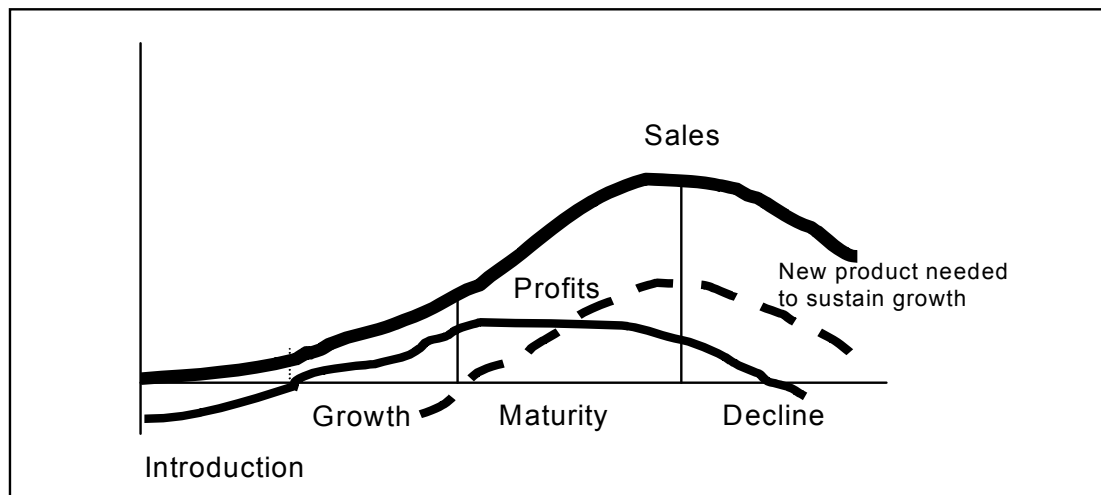
As seen in Figure 3.11 the introductory phase begins in the problem child's quadrant, the growth phase at the end of this quadrant, extending into the star area. The maturity phase begins in the cash cow quadrant and the decline phase is positioned between the cash cow quadrant and the dog quadrant.

As SBUs migrate from one quadrant to another as illustrated in Figure 3.9 there could be vital strategic implications for the organisation. These strategic implications can be related to the alternative strategies discussed in paragraph 2.3.1(c)(i) and 2.3.1(c)(ii) whereby decisions need to be taken on whether to invest, to hold, to harvest or to divest the particular SBU.

In relation to Figure 2.1 this migration will have implications on corporate strategy level. Corporate goals and objectives could need adaptation, strategies might need to be reformulated and redeployment of organisational resources would be imperative. This will subsequently have strategic implications down to the functional level in the organisation as the tactical decisions based on the marketing mix variables would be strongly influenced by the strategies formulated at a higher level of the hierarchy as depicted in Figure 2.1.

3.7 MARKETING IMPLICATIONS IN EACH PHASE OF THE PRODUCT LIFE CYCLE

Doyle (1976: 1) provides an illustration in Figure 3.12 of the various phases of the product life cycle with the underlying relationship between sales, profit and the need for new product development.

Figure 3.12: Phases in the product life cycle

Adapted from: Doyle (1976: 1)

The four different phases are characterised by the following:

- **Introduction**

- Sales of new products usually rise slowly at first
- Profits are negative
- The introductory phase might last from a few months to a year for consumer goods and generally longer for industrial products.

- **Growth**

- If the product is successful, growth usually accelerates at some point, often surprising the innovator.
- The acceleration results from:
 - (i) a larger pool of imitators
 - (ii) the broadening of the market by market segmentation
 - (iii) product improvements
 - (iv) increase in the number of distributors
- Profit margins peak during this phase as the experience curve effects lower unit costs faster than price declines.

- **Maturity**

- This phase begins after sales cease to rise exponentially

- No new distribution channels to fill
- Usually the longest phase in the life cycle
- The period over which sales are generated depends upon the ability of the organisation to stretch the cycle by means of market segmentation and new uses for the product.
- Profits decline.

● **Decline**

- Most products and brands enter a period of declining sales caused by:
 - (i) technical advances that lead to product substitution
 - (ii) fashion and taste change
 - (iii) cost factors
- Profit margins are eroded

Doyle (1976: 2) strongly indicated that if the product life cycle is to be of value for decision making, researchers must prove that the cycle is sufficiently regular to establish the following three events:

- (i) The current position of the product in the cycle.
- (ii) When turning points will occur.
- (iii) At what sales level(s) these will occur.

Variable (i) will be included in the measurement instruments of the proposed research in order to determine whether small organisations use this variable in marketing decision-making.

Doyle (1976: 3) reached the following main conclusions:

- (i) Sales of most, though not all, products broadly follow the product life cycle pattern.
- (ii) The characteristics of competition and unit profit tend to follow that postulated above, e.g. profits peak during the rapid growth phase and

problems of competition and excess capacity become more acute as the cycle advances.

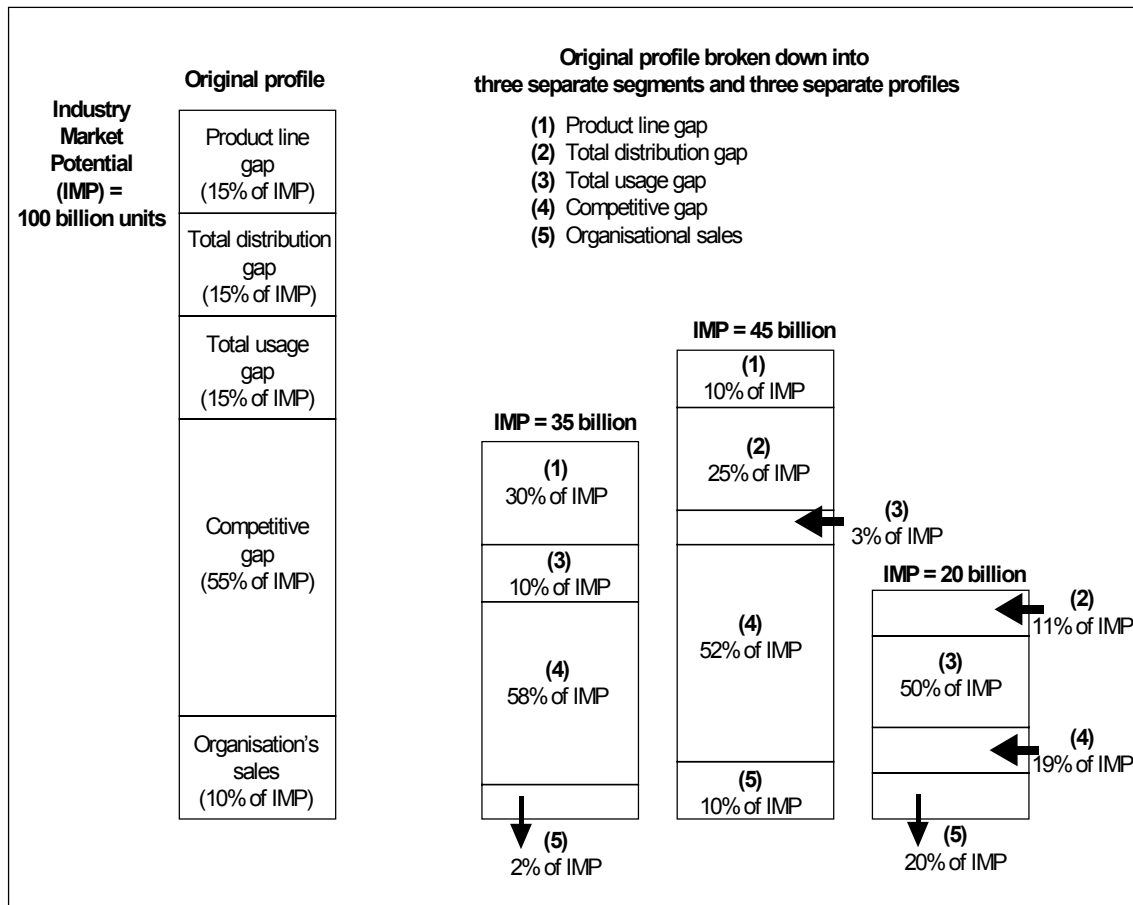
- (iii) The average length of the product life cycle tends to shorten as a result of economic, technological and social change. Products generate profit for shorter periods.
- (iv) There is no regularity across products in the length of the phases in the product life cycle.
- (v) Often the product life cycle can be temporarily bent by heavy promotional expenditures in the decline phase.

As a result, Weber (1976: 12-29) provided a new framework and new perspectives for viewing and considering all possible growth opportunities according to Ansoff's intensive growth strategies illustrated in Figure 2.6.

The framework is called the inverted product life cycle and it provides a configuration to fit competitive information available internally and externally of the organisation whereby future growth opportunities can be identified.

According to Weber (1976: 12) the inverted product life cycle process will help organisations to estimate the sales likely to result from taking advantage of available growth opportunities. The inverted product life cycle uses the traditional product life cycle concept to expand it into an analytical yet intuitive and useful tool for planning future growth as depicted in Figure 3.13.

Figure 3.13: The inverted product life cycle



Adapted from: Weber (1976: 22)

The life cycle used in the inverted process as illustrated in Figure 3.13 is the industry life cycle rather than the product life cycle where the industry market potential serves as the starting point. The inverted product life cycle framework of Weber (1976: 17-21) can be used to:

- Assist growth-planning decisions.
- Develop quantifiable growth objectives for different product lines.
- Evaluate alternative growth opportunities.
- Assist product line managers.
- Assist top management.
- Build and use inverted product life cycles for competitors.
- Assess international markets.
- Act as a new point of reference for separating market segments.

The development of accurate life cycles cannot be accomplished overnight but can be generated within a single period. Accuracy and utilisation of possible future growth possibilities will improve each subsequent year as planning personnel become more familiar with this kind of analysis as a better data base for the organisation's own life cycle is accumulated.

3.8 THE PLC CONCEPT CONTRIBUTING TO MARKETING STRATEGY AND DECISION-MAKING IN SMALL ORGANISATIONS

The literature thus far clearly indicates that the product life cycle concept was empirically tested mainly in **large organisations** as depicted in Table 3.1 and that only these organisations can reap the fruits of the correct application in marketing decision-making.

The only proof of the successful application of the product life cycle concept derived from literature is the success story of Quarterdeck Office System. Quarterdeck Office System is a **small computer software organisation** in Santa Monica, California, USA. They profess the validity of the product life cycle, the use of which they claim, saved them from bankruptcy. Quarterdeck would have been ruined were it not for management's knowledge and use of the product life cycle concept (Grantham: 1997: 8).

The company exists through serving the niche created by Microsoft. They identified the various life cycle phases of their products and continually assessed strategies that Microsoft was following. They concluded that their products worked more efficiently with older computers and for a large segment of users, who struggled to learn new programmes, as they were not willing to upgrade to the new hardware. On the other hand, Microsoft's Windows worked better with newer computer models and with software requiring more memory. On this basis, and considering the fact that Microsoft was aiming their product at the introduction and growth phases, Quarterdeck positioned its own products at the mature and declining phases of the life cycle.

3.9 THE PRODUCT LIFE CYCLE CONCEPT AND DEALERS

Dealers, similar the products they distribute, pass through an identifiable cycle and this cycle can be partitioned into four distinct phases – innovation, accelerated development, maturity and decline (Lusch, Dunne and Gebhardt, 1993: 116). These phases are similar to the phases in the product life cycle concept as illustrated in Figure 3.9.

Dealers can apply the same growth strategies as manufactures, (discussed in chapter two) as they can grow through market penetration, market development and product improvement. As derived from the discussion on product development and market development at the beginning of this chapter, manufacturers have full control over their marketing mix instruments while their products move through the various phases of their product life cycles. In many instances the degree of control by the retailer/dealer over the marketing mix instruments varies based on how prescriptive the manufacturers of a products will be on price, advertising, promotion and merchandising.

3.10 THE PRODUCT LIFE CYCLE AND SMALL ORGANISATIONS

It is eminent from the discussion in this chapter that the product life cycle concept theory and its application, as derived from literature, focused mainly on large organisations in the USA and UK. Very little evidence of empirical research conducted on the application of the product life cycle concept among small organisations was found. As indicated in the introductory chapter the primary objective of this research is to establish what the use and practical value of the product life cycle is in marketing decision-making among small manufacturing and small retail organisations. The researcher will therefore test the applicability of the traditional marketing mix instruments among manufacturers and dealers with the aim of expanding the marketing strategies to be applied to the marketing of services along the different product life cycle phases.

3.11 CONCLUSION

This chapter dealt with a literature search on product management, strategies to achieve growth along with the product life cycle concept and all its various facets. It is clear that most of the articles stem from the period 1950 to 1993, with little empirical research after 1993. This however provides the researcher with the opportunity to re-open the PLC concept debate and test the PLC concept among small organisations in the Republic of South Africa. The major theoretical aspects discussed in this chapter will be the basis for the research propositions that will be discussed in chapter five and it will have an impact on the measurement designing process that will be comprehensively explained in chapter six.

CHAPTER 4

SMALL BUSINESS ENVIRONMENT IN SOUTH AFRICA

“The small business sector can play a major role in creating jobs and wealth in any economy. Consequently, the sector has recently drawn much attention from policymakers in both developed and developing countries”

(Ntsika, 1999: 16).

4.1 INTRODUCTION

Small organisations are vitally important to economies and they are not necessarily mini-versions of large organisations. They do have features common with other organisations but they also have unique characteristics and attributes that are reflected in the manner in which they are organised and managed. The small scale of their operations and subsequent lack of management depth could imply that small organisations do not apply the product life cycle concept for management, strategy and marketing purposes.

It is evident from the literature survey conducted on the product life cycle concept in the previous chapter that very little research has been done on the application of this concept in small organisations. The literature survey revealed that this concept is applied mainly by large organisations and its application was empirically tested among the large organisations internationally. Yet, its application by small organisations has not been sufficiently tested empirically among small organisations globally, and specifically not in the South African context. Small business in South Africa is incorporated in the collective category of small, micro and medium enterprises (SMMEs).

This chapter will be discussing the importance of small organisations to economies globally and will then emphasise the structure of small organisations in South Africa. The chapter will conclude with valuable information on the demarcation of the small organisational environment among which the empirical study will be conducted.

4.2 THE STRUCTURE OF SMALL ORGANISATIONS GLOBALLY

Small organisations do not normally have the organisational architecture that is found in large organisations. While small organisations usually employ staff to perform multiple tasks, large organisations tend to use specialists who perform the same activity. It can be deduced therefore, that many of the structural features of small organisations arise because of their size (Robbins: 1992 in Ehlers, 2000: 44).

According to Ehlers (2000: 43-44) small organisations often break down their tasks into functional subsections and assign employees to the selected task. However, specialisation is only economically feasible if the organisation is large enough. If expertise is sought it can be externally sourced but experts are very expensive on a contract basis or employed on a full-time basis. If the volume of the work does not warrant full-time employment of an expert, then this work will have to be done by someone else - a non-specialist, a consultant or the owner him/herself. Since it is very likely that the non-specialist will not be as effective and sufficient as the specialist, some of the cost advantages of specialisation will be lost to the small organisation.

4.3 MANAGERIAL INFLUENCE AND CONTROL OF SMALL ORGANISATIONS GLOBALLY

The owners of small organisations frequently experience tension between exercising the right to dictate organisational policy and goals and at the same time to react and respond to the knowledge and wishes of the employees.

Owners occupy a dominant position and the potential for tension exists between the desire of the owner to exert a strong influence on events and the need to empower employees (Ehlers, 2000: 44).

Owners co-ordinate the day-to-day activities within their organisations by direct, face-to-face supervision; they use one-way communication and the decision-making process is central in the person of the owner/manager of the organisation (Ehlers, 2000: 44).

Although the owners of small organisations would like to retain a substantial element of decision-making power, they are also seeking to promote flexibility, innovation and problem solving among employees.

In managing a small organisation creativity, adaptation, change, ambiguity, flexibility, problem-solving and collaboration occur regularly. These occurrences are the result of the changing environment in which small organisations operate - an environment where obtaining business orders are difficult, making predicting, planning and formalising more difficult.

4.4 THE GLOBAL IMPORTANCE OF SMALL ORGANISATIONS

Small organisations constitute at least 95% of organisations in the European Community. Despite their huge importance, and the relevance given to the small firm sector in terms of economic development, the message seemed to be ignored by the financial and economic commentators (Ehlers, 2000: 47).

Sengenberger, Loveman and Piore (1990) in Ehlers (2000: 47) did a comprehensive review on an international comparison between small organisations in France, Germany, Italy, Japan, the United States and the United Kingdom. The most important empirical result to emerge from the country reports is that there has been an increase in the share of total employment in small organisations that are defined as those who employ fewer than 100 employees. In general, the increase has been at the expense of large organisations. For the purposes of this study small organisations will be classified as those organisations employing 50 employees or less.

Kroon and Moolman (1992: 129) mention the following reasons for the importance of small organisations in any country:

- Small organisations are multitudinous, suppliers of employment and creators of work opportunities, innovators and initiators, subcontractors for large organisations, responsible for the manifestation of the free market

system, in many instances the entry point into the business world, playing an important socio-economic role.

- Small organisations can have a multiplying effect on the economy.
- Small organisations provide economic stability and a better distribution of economic activities.

While small organisations have remained an enigma for years, a series of empirical studies (Hall,1987; Evens and Javanovic, 1989; Loveman and Sengenberger, 1991; Scherer, 1991; Ivernizzi and Revelli, 1991 and Hughes, 1991) have enabled researchers to reach a far better understanding of the economic role of small organisations.

As a result of the above-mentioned studies Sexton and Kasarda (1996) in Ehlers (2000: 49) present stylised facts on the economic role of small organisations in different global market economies:

- There has been a shift in the size distribution of organisations away from larger organisations towards smaller ones.
- The growth rate decreased with organisational size and organisational age.
- Small organisations are at least as innovative as large organisations on an employee basis and generally have the innovative advantage found in high-technology industries.
- The small organisation's share of employment is growing faster in the goods-producing sectors than for the economy as a whole.
- Organisational survival is positively related to organisational size and organisational age.

- Small organisations produce at least a proportionate share of new jobs.

Apart from the global importance of small organisations there are certain advantages and disadvantages linked to small organisations.

The advantages and disadvantages will be discussed in the next section.

4.5 THE ADVANTAGES AND DISADVANTAGES OF SMALL ORGANISATIONS OPERATING GLOBALLY

It is important to reiterate that small organisations are not simply smaller versions of large organisations. They differ from large organisations according to their legal form, market position, staff capabilities, managerial styles, organisational structure and financial resources.

4.5.1 The advantages of small organisations

According to Boone and Kurtz (1996: 125-127) the differences between large and small organisations provide small organisations with the following unique advantages:

- **Innovation** – Small organisations are often the first to be offering new products to the market.
- **Better customer service** – A small organisation can be more flexible than a large organisation, allowing it to tailor its products and services to the exact needs of potential and current customers.
- **Lower cost** – Small organisations can often provide products and services at a cheaper price than large organisations. Small organisations usually have lower costs and can earn profits on lower prices than larger organisations.
- **Filling of isolated niches** – The size of large organisations can exclude

them from some markets. This situation provides substantial opportunities for small organisations with lower overhead cost.

4.5.2 The disadvantages of small organisations

Despite the unique advantages, small organisations have a variety of disadvantages. These disadvantages include the potential for poor management, a risk of inadequate financing and government regulations.

The most important global disadvantages for small organisations according to Boone and Kurtz (1996: 128-130) are:

- **Poor management** – Poor management is a common reason for the failure of small organisations. A lack of business training and knowledge often leads to bankruptcy. Only a few small organisation owners possess the specialised knowledge of an attorney, a professional marketer or an accountant and outside professionals should be sourced externally when needed.
- **Inadequate financing** – Many organisations start with inadequate capital and soon run short of funds. They often lack the resources to survive through tough economic times or to expand if they are successful.
- **Government regulations** – Small organisations all over the world complain extensively about regulations and red tape. Small organisations, cannot cope with the excessive paper work and they often have to utilise external experts to complete the necessary forms and to compile the necessary reports. This places a burden on the financial position of the small organisation.

The advantages and disadvantages discussed in paragraphs 4.5.1 and 4.5.2 are linked to certain secondary research objectives formulated in chapter one and research propositions to be discussed in the next chapter.

The discussion thus far provided a global view of small business. The rest of the discussion to follow will be directed at the South African economy and in particular the role of small, medium and micro organisations in South Africa. This will be emphasised by the content and role of the White Paper on the national strategy for the development and promotion of SMMEs in South Africa.

4.6 THE SOUTH AFRICAN ECONOMY

Different economic activities are performed across various industry sectors in South Africa, ranging from agriculture, mining, manufacturing, wholesale, retail and finance to transport, business services, personal services and imports and exports.

The South African economy furthermore is characterised by a low growth rate, a high inflation rate, taxes such as Valued Added Tax (VAT) and a high rate of unemployment. The South African economy grew at a growth rate of 2.5% during 1994, the first year after the first democratic elections and the opening of global trading boundaries for importing foreign products and exporting local products.

In 1995 the growth rate improved to 2.9%, but with the depreciation of the rand, which started at the end of 1996, the growth rate declined sharply to a mere 0.1% for 1998 (Ntsika, 1999: 17). The actual growth rate for the South African economy in 2000 was 3.10%, it is estimated that the growth rate will decline to 2.90% in 2001 and a growth rate of 3.00% is forecast for 2002 (<http://www.citadel.co.za>).

According to Ntsika (1999: 17 - 19):

- South Africa lags behind developing countries such as Argentina, Botswana, Brazil, Chile, South Korea and Malaysia in terms of employment and GDP growth.

- Apart from the low growth rate achieved, unemployment increased from 29.20% in 1995 to a high of 37.60% in 1997. According to Statistics South Africa, the South African economy lost half-a-million jobs since 1998.
- Apart from the low growth rate and high rate of unemployment, the turmoil in the financial markets caused monetary instability with lower direct foreign investment and capital flows in 1998.

All activities performed by the nearly 100 000 large, medium and small organisations are thus important to stimulate and provide economic growth (Bureau of Market Research - Report 245). Small and medium size organisations are an important part of the South African economy based on their significant contribution to the Gross Domestic Product (GDP) and employment.

According to Ntsika (1999: 45):

- Small organisations accounted for 28% of GDP and medium organisations for 13% in 1998.
- Small and medium enterprises accounted for almost 73% GDP in the community, social and personal services industries and they were also prominent in the agricultural, trade and construction industries with a contribution to GDP of more than 60% in each of these industries.

A more quantitative breakdown of the number of large, medium and small organisations in the different South African industries and industries per province will be provided in table format in chapter six. This quantification will be used as the basis for the stratified sampling procedure in the empirical part of this study.

4.7 THE SMME SECTOR IN SOUTH AFRICA

According to Ntsika (1999: 61) data on small organisations is, in general poor in South Africa and data that can be used to study small organisational trends is even poorer. The number of new registrations of organisations can provide an indication for measuring small organisational activities, but registrations are often influenced by take-overs, relocation or changes in activity or legal status and this phenomenon does not necessarily translate into growth.

A sharp increase occurred in organisational registrations in South Africa between 1990 and 1998. According to Ntsika (1999: 61):

- The number of Pty Ltds registered increased from 6369 in 1990 to 23 655 in 1998. This represents an almost 3.5 fold increase in nearly a decade.
- The number of Close Corporations (CCs) increased from 28 008 in 1990 to 73 114 in 1998, representing an approximate 2.5 fold increase during this period.

Large increases in new registrations occurred in trade, transport, finance and business services and the construction sector. According to Ntsika (1999: 63):

- The trade sector had the highest registration increase - from 1793 new registrations of Pty Ltds in 1990 to 7193 in 1998.
- The financial and business services sectors also showed a remarkable increase in the number of new registrations of Pty Ltds from 3039 new registrations in 1990 to 13 534 in 1998.
- The mining and manufacturing sectors have lagged behind.

- The manufacturing sector had moderate growth, with 1170 Pty Ltd registrations in 1998 and 662 registrations in 1990. One of the reasons for this moderate growth over a period of eight years could contribute to increased international competition since 1994 while lower gold prices impacted negatively on the mining sector.

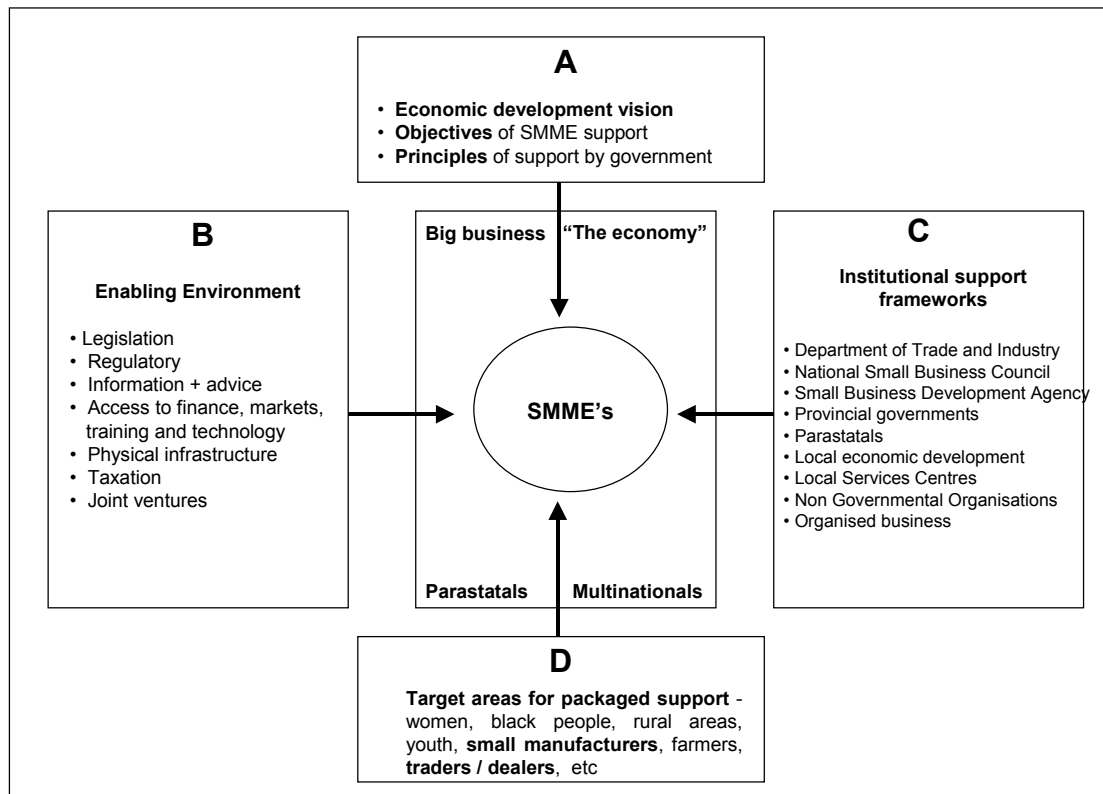
New registrations alone provide an incomplete picture of SMME sector in South Africa and it is also vital to look at the number of deregistrations. During 1990 to 1998 the rate of deregistration was very high, with one deregistration for every three new Pty Ltd registrations (Ntsika, 1999: 64). For close corporations, about one deregistration occurred for every six new registrations.

Based on the importance and contribution of small organisations to the South African economy as described in the preceding section, the government developed a small business promotion strategy directed at the socio-economic, macroeconomic and business and regulatory environments to be discussed in the next section.

4.8 WHITE PAPER ON NATIONAL STRATEGY FOR THE DEVELOPMENT AND PROMOTION OF SMMEs IN SOUTH AFRICA

The White Paper on small business, published by the Department of Trade and Industry, was tabled in Parliament on 20 March 1995. The main objective of this Act is to regulate, stimulate and promote small business activities in South Africa. The objective was to implement it across the full spectrum of the small-enterprise community including non-governmental organisations, private consultancies, partnerships and companies.

The White Paper is the result of an intensive process of consultation with key stakeholders in small businesses in South Africa and it consists of various parts as depicted in Figure 4.1.

Figure 4.1: The national SMME support strategy

Adapted from: White Paper (1995: 51)

The next section will be devoted to a discussion on each of the parts/components (A – D) as depicted in Figure 4.1.

4.8.1 Part A – Visions, objectives and principles

Part A of the national SMME strategy as depicted in Figure 4.1 consists of economic development, objectives of SMME support and principles of support by government.

(a) Economic development and vision

This section of the White Paper (1995: 10 – 15) provides the following on the economic development of small business in the South African economy based on size and diversity.

Based on size and diversity the policy stances in the White Paper accounts for the following four categories:

-
- (i) **Survivalist enterprises** – activities performed by people who are unable to find a paid job or get into an economic sector of their choice.
 - (ii) **Micro-enterprises** – very small businesses, often involving only the owner, some family member(s) and at most one or two paid employees.
 - (iii) **Small enterprises** – constitute the bulk of the established business, with employment ranging between 5 and 50. The enterprises will usually be owner-managed or directly controlled by owner-communities.
 - (iv) **Medium enterprises** – 51 to 200 employees and a turnover of R5 million per annum.

(b) Objectives of SMME support

The **key objectives** described in this section of the White Paper (1995: 16 – 24) of the national small business strategy are:

- (i) Create an enabling environment for small enterprises.
- (ii) Facilitate greater equalisation of income, wealth and earning opportunities.
- (iii) Address the legacy of apartheid-based disempowerment of black businesses.
- (iv) Support the advancement of women in all business sectors.
- (v) Create long-term jobs.
- (vi) Stimulate sector-focused growth.
- (vii) Strengthen cohesion between small enterprises.
- (viii) Level the playing field between bigger and small businesses as well as between rural and urban businesses.
- (ix) Prepare small businesses to comply with the challenges of an internationally competitive economy.

Apart from the objectives of SMME support, Part A also includes key principles of government support to realise the national SMME support strategy. These principles are discussed in the next section.

(c) Principles of support by government

Ten **key principles** are underlying the government's national small business strategy:

- (i) The strategy is based on a joint vision for big, medium and small businesses in South Africa.
- (ii) All the segments of the small business sectors – survivalists, micro-, small and medium enterprises – need attention.
- (iii) The business efficiency and competitiveness of the whole small enterprise sector has to be developed, with due recognition of social, financial and other compliance standards relevant to an internationally competitive economy.
- (iv) An integrated support strategy has to give attention to both the supply and demand sides of small business activities.
- (v) Black advancement in the enterprise sector is a key factor in all spheres of the strategy; special emphasis also falls on other marginalised or disadvantaged groups.
- (vi) The scarcity of public funds demands careful prioritisation of support programmes and the skilful matching of different resources.
- (vii) Support policies will be sector focused and targeted with strict control of the application of public funds and full recognition of the market orientation of the economy.
- (viii) The institutional framework for small business support has to be restructured in order to reflect the evolving institutional diversity, the provincial thrust of policy implementation and effective bottom-up and top-down co-operation and co-ordination.
- (ix) Ultimate responsibility for the national strategy rests with the Department of Trade and Industry.
- (x) The private enterprise sector, co-operatives, NGO's, business associates and foreign assistance programmes all have a critical role to play in an integrated small business strategy.

The implication of the economic development and mission, objectives of SMME support and the principles of support by the government is that the government should put frameworks in place to realise this national SMME

strategy. The development of these frameworks will be discussed in the next section.

4.8.2 Part B – The enabling environment

The following factors depicted in Part B of Figure 4.1 and mentioned in the White Paper (1995: 25-40) will enhance the execution of the SMME support strategy:

- (a) Creating an enabling legal framework with special attention to a national Small Business Act, a Transaction and Procurement Act and a Small Business Finance Act.
- (b) To streamline regulatory conditions by reforming the small-claims courts and to establish a user-friendly environment for the simplification and standardisation of documents.
- (c) Access to information and advice by specifically providing certain principles as a guide for the involvement of government in this process.
- (d) Access to marketing and procurement.
- (e) Access to finance by supporting initial start-up equities, concessionaires, and commercial funding and ongoing subsidisation. By providing micro-enterprise with finance, venture finance, credit guarantees and information on access to finance, the initial initiative will be strengthened further.
- (f) Physical infrastructure with emphasis on providing support for home based businesses and entrepreneurs.
- (g) Training in entrepreneurship, skills and management by means of sharing knowledge, changing school curricula, modularising training programmes, training initiatives, research and a business mentorship system.
- (h) Industrial relations and the business environment to clear any misunderstanding between labour and small enterprise in creating a stable working environment.
- (i) Access to appropriate technology to make modern technology more accessible to small businesses.
- (j) Encouraging joint ventures with experienced local or foreign partners.

- (k) Capacity building and institutional strengthening by consulting with all the relevant stakeholders about developments.
- (l) Differential taxation and other financial incentives.

The factors mentioned above need to be institutionalised to assist interested organisations and/or individuals and to assign responsibilities to certain organisations and authorities.

These institutional frameworks will be discussed in the next section.

4.8.3 Part C – Institutional support frameworks

The government is serious about its intention to ensure that scarce public resources are channelled in the most effective way through its system. The following institutional support frameworks provided in the White Paper (1995: 41-47) will be streamlined in order to reach the above-mentioned goal (see Part C of Figure 4.1):

- (a) Department of Trade and Industry (DTI)
- (b) National Small Business Council (NSBC)
- (c) Small Business Development Agency (SBDA)
- (d) Wholesale funding agency
- (e) Restructuring of the Small Business Development Corporation (SBDC)
- (f) Small business support by provincial governments
- (g) Local authorities
- (h) Local Services Centres
- (i) NGOs and small business support
- (j) Organised business

The different elements of the national support strategy for small business as described above are linked to a process of strategy implementation based on a broad time framework. The funding for the implementation and monitoring of this national strategy will be obtained from various sources including funds from the local public, the private sector and foreign countries.

In order to achieve the objectives of this strategy funding by government allocation for SMME support will be increased to at least one percent of total budget spending for the next decade up to the year 2008.

4.8.4 Part D – Target areas for packaged support

As depicted in paragraph 4.6 small organisations have a very important role in, and contribution to make to the local economy. It is clear from the White Paper that the small business sector is playing a crucial role in the effort to meet the basic needs and helping marginalised groups. These marginalised groups include small manufacturers, traders/dealers, female heads of households, disabled people and rural families described as the target areas for packaged support as depicted in Figure 4.1.

4.9 SCOPE OF THIS STUDY

As mentioned in the demarcation section of this study in the introductory chapter this is an exploratory study aimed at investigating the use and application of the product life cycle concept among small manufacturing and small dealer organisations in Gauteng, South Africa. The literature study revealed that the product life cycle concept as marketing decision-making instrument was tested mainly among large organisations abroad.

The White Paper discussed in paragraph 4.8 further revealed that there is a lack of research among small organisations in South Africa. According to the White Paper (1995: 15) the volume of research with practical orientation and/or policy relevance is still limited, considering the needs of South Africa and the overall research capacity. This phenomenon provides more substance and relevance to the execution of this study in order to make a contribution to address the need of research among small organisations in South Africa.

To execute the empirical part of this study among small manufacturing organisations and small dealer organisations it is necessary to use respected publications such as The Standard Industrial Classification and the BMR

Registers published by the Bureau of Market Research at the University of South Africa.

These SIC and BMR Registers will be discussed in the next section.

4.10 THE STANDARD INDUSTRIAL CLASSIFICATION (SIC) AND BUREAU OF MARKET RESEARCH (BMR) REGISTERS

As mentioned in the introductory chapter the empirical part of this research will be executed among small manufacturing organisations and small dealer organisations in Gauteng, South Africa based on the quantitative selection criteria that will be motivated in chapter six. It is however necessary to provide a discussion on the SIC as this source will be used to select the small manufacturing organisations and small dealer organisations from the economic active population in South Africa. The discussion will highlight the International Industrial Classification and the customised Bureau of Market Research Registers developed to suit local economic activities.

4.10.1 The Standard Industrial Classification and the BMR Registers

Most countries base the classification of their economic activities on the International Standard Industrial Classification of all Economic Activities (ISIC) to publish statistical information. The ISIC proposed by the United Nations (UN) must however be adapted to suit particular economic and statistical conditions prevailing in individual countries. The ISIC covers the entire field of economic activities, dividing it into major divisions, major groups, groups and subgroups.

Based on the proposed ISIC classification of economic activities by the United Nations Table 4.1 provides a description of the SIC major divisions for economic activities in South Africa.

Table 4.1: The codes and major divisions of the SIC

Code	Major division
1	Agriculture, forestry, hunting and fishing
2	Mining and quarrying
3	Manufacturing
4	Electricity, gas and water supply
5	Construction
6	Wholesale and retail trade, repair of motor vehicles, motor cycles and personal household goods, hotels and restaurants
7	Transport, storage and communication
8	Financial intermediation, real estate and business services
9	Commodity, social and personal services
0	Private households, extritorial organisations, representatives of foreign governments and other activities not adequately defined

Adapted from: **BMR Report 245 (1997: 2)**

The Bureau of Market Research at the University of South Africa developed a BMR register covering the different SIC major divisions or parts of a major division for the economic activities in South Africa. The BMR Registers provide an overview of the establishments active in the most important sectors of the South African economy.

The empirical execution of this study will be conducted among organisations in the Manufacturing Register (major division 3) and the Trade Register (major division 6). Table 4.2 provides a description of the BMR Registers and its major divisions.

Table 4.2: The BMR Registers and the major divisions

Register	Major division
Commercial Farmers Register	1
Mines Register	2
Manufacturing Register	3
Construction Register	5
Trade Register	6
Hotels and off-sales Register	6
Financial and Insurance Institutions Register	8
Business Services Register	8
Public Sector Register	9
Associations and Trade Unions Register	9
Importers Register	1 – 9
Exporters Register	1 – 9

Adapted from: **BMR Report 245 (1997: 4)**

4.10.2 A description of the two major divisions used in this study

According to the BMR Report 245 (1997: 84) the major division 3, (Manufacturing) is divided into ten divisions with two digit codes extending from code 30 (manufacture of food, beverages and tobacco) to code 39 (manufacture of furniture and recycling). These divisions are further subdivided into major groups with three-digits (e.g. 304: manufacture of other food products), groups with four digit codes (e.g. manufacture of bakery products), and subgroups with five digit codes (e.g. manufacture of nut foods).

According to the BMR Report 245 (1997: 84 – 90) the Major division 6 comprises of wholesale and retail trade, repair of motor vehicles, motor cycles and personal and household goods, hotels and restaurants. Major division 6 is further divided into 4 divisions with two digit codes extending from code 61 (wholesale and commission trade, except for motor vehicles and motor cycles) to code 64 (hotels and restaurants). These divisions are further subdivided into major groups with three-digits (e.g. code 631: sale of motor vehicles), groups with four digit codes (e.g. code 6311: wholesale of motor vehicles and retail sales of new and used motor vehicles). The four digit codes are further divided into subgroups with five digit codes (e.g. code 63121: ambulances, caravans, jeeps, landrovers, microbuses, passenger motor vehicles, trailers and semi-trailers and vehicles sold by auctioneers).

The national distribution of large, medium and small organisations across the various BMR Registers in South Africa will be provided in chapter six.

4.11 CONCLUSION

This chapter provided an explanation on overview of the environment in which this study will be conducted. Substance was given for the selection of small organisations to be included as the sample frame for the empirical part of this study. It furthermore provided a universal perspective on the importance of small organisations to economies world wide together with its advantages and disadvantages.

To localise this study and to link the current chapter to the literature survey in chapters two and three, the White Paper for the development and promotion of small businesses in South Africa and the BMR Registers were briefly explained. A motivation for the choice of small organisations will be provided in chapter six.

The next chapter will provide a discussion on the different research propositions and the motivation thereof.

CHAPTER 5

PROBLEM STATEMENT AND RESEARCH PROPOSITIONS

“The problem statement contains the need for the research project. The problem is usually represented by a management question. It is followed by a more detailed set of objectives” (Cooper and Schindler, 1998: 600).

5.1 INTRODUCTION

The problem statement and the various research propositions will be discussed and special reference will be given to the different research propositions formulated in the introductory chapter.

5.2 PROBLEM STATEMENT

Defining the research problem is perhaps the most important responsibility of the researcher (Dillon et al, 1993: 25). It is the responsibility of the researcher to assure that the problem at hand is defined accurately and precisely.

The product life cycle concept has been formulated as an explicit, verifiable model of sales behaviour. While the product life cycle concept leaves some question as to its applicability, it is clearly a realistic model of sales behaviour in certain market situations. It is quite eminent from the literature review presented in chapters two and three that the applicability of the product life cycle concept was tested in **mainly large organisations**, globally but no published research on the application of the product life cycle concept in South Africa was found.

When tested in an explicit form for given categories of products, the product life cycle concept can be a useful tool for marketing planning and sales forecasting (Polli and Cook, 1969: 385). Various writers in the academic and in the business press have however questioned the product life cycle concept. There are

furthermore major criticisms and problems against the application of the product life cycle concept as a marketing tool as depicted in Table 3.2 in chapter three.

The application of the product life cycle concept for marketing decision-making has been tested in mainly large organisations around the globe but not yet researched and tested locally. This **gap** provides substance and relevance to the execution of local research on the applicability of the product life cycle for marketing decision-making purposes. The White Paper (1995: 15) discussed in chapter four further strengthens the need of research by indicating that the volume of research with practical application on small organisations in South Africa is still limited.

The product life cycle concept has many application areas, ranging from product management, forecasting, and international trade, linking manufacturing to marketing, and strategic planning as indicated in Table 3.1 in chapter three.

Evidence from the literature search in chapter three indicates that the product life cycle seems still to be the dominant component of marketing theory. However, there are many unanswered questions and criticism about the practical application of the product life cycle as a marketing decision-making tool in the current dynamic environment:

- There is still doubt about the practical use of the product life cycle concept as a marketing tool.
- There is still doubt about the practical value of the product life cycle concept in practice.
- No evidence of the efficacy of the product life cycle concept as a tool to assist in formulating marketing strategy has been found.

- It is still difficult to determine in which phase of the product life cycle a product or service is in.
- The problem with the product life cycle concept is that sales are modelled primarily as a function of time and are expected to produce curves that display growth, levelling and decline.
- The product life cycle concept is still empty of empirical generality.
- The product life cycle concept itself is insufficiently uniform to provide a basis for decision-making.

By exploring the potential of the product life cycle to act as a marketing decision-making tool the empirical part of this exploratory study will endeavour to identify the ability of marketing decision-makers in small organisations in South Africa to apply the product life cycle concept.

5.3 RESEARCH PROPOSITIONS

According to Cooper and Schindler (1998: 43) the research literature disagrees about the meaning of the terms proposition and hypothesis. A research proposition is a statement about the concepts that may be judged as true or false if it refers to observable phenomena. When a proposition is formulated for empirical testing, it is called a hypothesis. As a declarative statement, a hypothesis is of a tentative and conjectural nature (Cooper et al: 1998: 43).

The researcher decided to use research propositions rather than hypotheses for the following reasons:

- The empirical part of this study is of an exploratory nature.

- The research is not based on previous models and can therefore be approached from a more pragmatic view, which will be more meaningful.

The following propositions were formulated in chapter 1 and will be motivated in the next section:

5.3.1 Proposition 1

The dynamic nature of today's global market places a premium on an organisation's ability to anticipate and to respond to customer needs as well as changing pressures. By using the product life cycle within this environment a marketing strategy can be developed and marketing decisions can be taken. As highlighted in the literature review the application of the product life cycle concept was empirically tested in mainly large manufacturing organisations (Agarwal: 1997, 571-585 and Magnan et al, 1999: 239-253). For this reason the following proposition was formulated:

- **Proposition 1**

There is a difference in the application of the product life cycle concept theory assumptions of small organisations in South Africa compared to Kotler's theory.

5.3.2 Propositions 2, 3, 4 and 5

Much has been written about the product life cycle concept and its implication for marketing strategy. Yet the subject remains a controversial one. Most people would agree that products pass through various phases over time (i.e. introduction, growth, maturity and decline).

The controversy that exists is whether the product life cycle concept has any utility for marketing planning and decision-making and whether the product life cycle concept has any practical use for the marketing manager (Doyle, 1976: 1 and Mercer, 1993: 274).

Apart from the criticism against the practical use and application of the product life cycle concept Thorelli & Burnett (1981: 97-108) and Magnan (1999: 239-253) is of the view that the product life cycle concept is a useful tool to be utilised by marketing managers.

Magnan et al (1999: 240) strongly emphasise that the product life cycle patterns provide an underlying structure to the life of products, allowing the product life cycle concept to serve as a planning framework in strategy development and as a common denominator for the co-ordination of functional strategies. Once the life cycle phases have been identified, predictive guidelines can be drawn to aid in the strategic planning process.

Thorelli and Burnett (1981: 108) pointed out that an intriguing and valuable characteristic of the product life cycle is that it is highly normative, which allows practitioners and researchers to make fairly strong statements regarding strategies to implement under the various phases.

Kotler (2000: 316) provides valuable information on product life cycle characteristics, objectives and strategies within the various product life cycle phases as described in chapter one and summarised in Table 3.5.

By using these characteristics, objectives and strategies the researcher wants to determine whether:

- Marketing managers of small organisations know the different **characteristics** in each of the four product life cycle phases as identified by Kotler (2000: 316).
- Marketing managers of small organisations set different **marketing objectives** during the four phases of the product life cycle as identified by Kotler (2000: 316).

- Marketing managers of small organisations apply the different **marketing strategies** during the four phases of the product life cycle as identified by Kotler (2000:316).

The following research propositions were formulated in the context of Kotler's view as described above:

- **Proposition 2:**

Marketing managers of small organisations in Gauteng, South Africa use the product life cycle concept to strategically plan and manage their products through the various phases of the product life cycle.

- **Proposition 3:**

Small manufacturing organisations in Gauteng apply and use the product life cycle concept for marketing decision-making purposes.

- **Proposition 4:**

Small dealer organisations in Gauteng apply and use the product life cycle concept for marketing decision-making purposes.

In order to determine whether small manufacturing and small dealer organisations use and application of the product life cycle concept for marketing decision-making purposes as formulated in propositions 3 and 4 differ significantly the following research proposition was formulated:

- **Proposition 5**

There is a significant difference between small manufacturing and small dealer organisations when applying and using the PLC concept for marketing decision-making purposes.

5.3.3 Proposition 6

The literature review in chapter three clearly indicated that the product life cycle concept is applied by large organisations in developing marketing strategies and used as the basis for marketing decision-making. The application of the product life cycle concept as decision-making tool was empirically tested in mainly large organisations.

The following proposition was set in the context of the above-mentioned:

- **Proposition 6:**

Small manufacturing organisations and small dealer organisations in Gauteng, South Africa don't have a marketing function responsible for applying the product life cycle concept when marketing strategy is developed and marketing decisions are taken.

Research proposition 6 will be important for cross-tabulation purposes to determine whether there are significant differences in the application of the product life cycle concept as decision-making tool between small manufacturing and small dealer organisations with a marketing function and small organisations without a marketing function.

5.4 CONCLUSION

This chapter reiterated and summarised criticism against the product life cycle concept as indicated in the literature review in chapters one, two and three. The problem statement formulated in chapter one together with the propositions formulated in this chapter will form the basis of the empirical study to follow.

The research design and procedures will be discussed in the next chapter.

CHAPTER 6

RESEARCH DESIGN AND PROCEDURE

“A research project is a specific research investigation; a study that completes or is planned to follow stages in the research process” (Zikmund, 2000: 59).

6.1 INTRODUCTION

Chapter five was devoted to a description of the problem statement and the various research propositions. This chapter presents the research process and approach planned for the empirical study. The research methodology will be discussed with special reference to data collection, questionnaire design and statistical procedures to be used.

6.2 THE DATA SOURCES

There are two types of data sources, primary and secondary data (Cooper and Schindler, 1998: 256). Primary data is original data collected specifically for the purpose of the research in question. Researchers gather secondary data for their own purposes, which can be used for the purposes of the research in question. Secondary data may be obtained from internal organisation sources or from external sources. This study will rely on both primary research and secondary data as sources.

6.3 DATA COLLECTION METHODS

The nature of research can be either qualitative or quantitative. Qualitative research is an unstructured, exploratory research method based on small samples intended to provide insight and understanding of the problem setting (Malhotra, 1996: 164). Quantitative research involves the collection of primary data from a large number of individuals, frequently with the intention of projecting the results to the larger population (Martins, Loubser & Van Wyk, 1996: 125).

The primary research data required for this research is firstly of a qualitative nature in order to derive issues to be included in the questionnaire. Qualitative research will be followed by quantitative research.

The qualitative research will be executed by means of personal interviews with selected manufacturers and retailers with the main aim to identify important aspects to be included in the questionnaire (measurement instrument).

Various methods of collecting primary research data exist namely: mail based self-administered questionnaires, telephone interviews, personal interviews (face-to-face) and focus groups.

Dillon et al (1993: 158-164) provide the factors that the researcher can consider during the selection of the best survey method. These factors are depicted in Table 6.1.

Table 6.1: A summary of the data collection methods

Criteria	Mail	Telephone	Face - to face
Versatility	Not much	Substantial but complex or lengthy scales are difficult to use	Highly flexible
Quantity of data	Substantial	Short, lasting typically between 15 and 30 minutes	Greatest quantity
Sample control	Little	Good, but non-listed households can be a problem	In theory, provides greatest control
Quality of data	Better for sensitive or embarrassing questions; no interviewer present to clarify what is being asked	Positive side: interviewer can clear up any ambiguities. Negative side: may lead to socially accepted answers	There is the possibility of cheating
Response rate	In general, low; as low as 10%	60 - 80%	Greater than 80%
Speed	Several weeks	Large studies can be completed in 3 to 4 weeks	Faster than mail but typically slower than telephone surveys
Cost	Inexpensive	Not as low as mail; depends on incidence rate and length of questionnaire	Can be relatively expensive, but considerable variability
Uses	Executive, industrial, medical and readership studies	Particularly effective in studies that require national samples	Still prevalent in product testing and other studies that require visual cues or product prototypes

Adapted from: Dillon, Madden, and Firtle (1993: 173)

The criteria will be discussed in the next section.

- **Versatility**

Versatility refers to the extent to which the survey method can handle different

question formats and scenarios.

- **Quantity of data**

Quantity refers to the amount of information that can be collected.

- **Sample control**

Sample control refers to the ease or difficulty of ensuring that desired respondents are contacted.

- **Quality of data**

Quality of data refers to the accuracy of the data collected using a particular data-collection method.

- **Response rate**

The response rate is calculated by the number of responses divided by the sample size.

- **Speed**

Speed refers to the total time it takes to complete the study by using a particular data-collection method.

- **Cost**

Cost refers to the cost per completed interview.

- **Uses**

Uses refer to the how the collected data will be used.

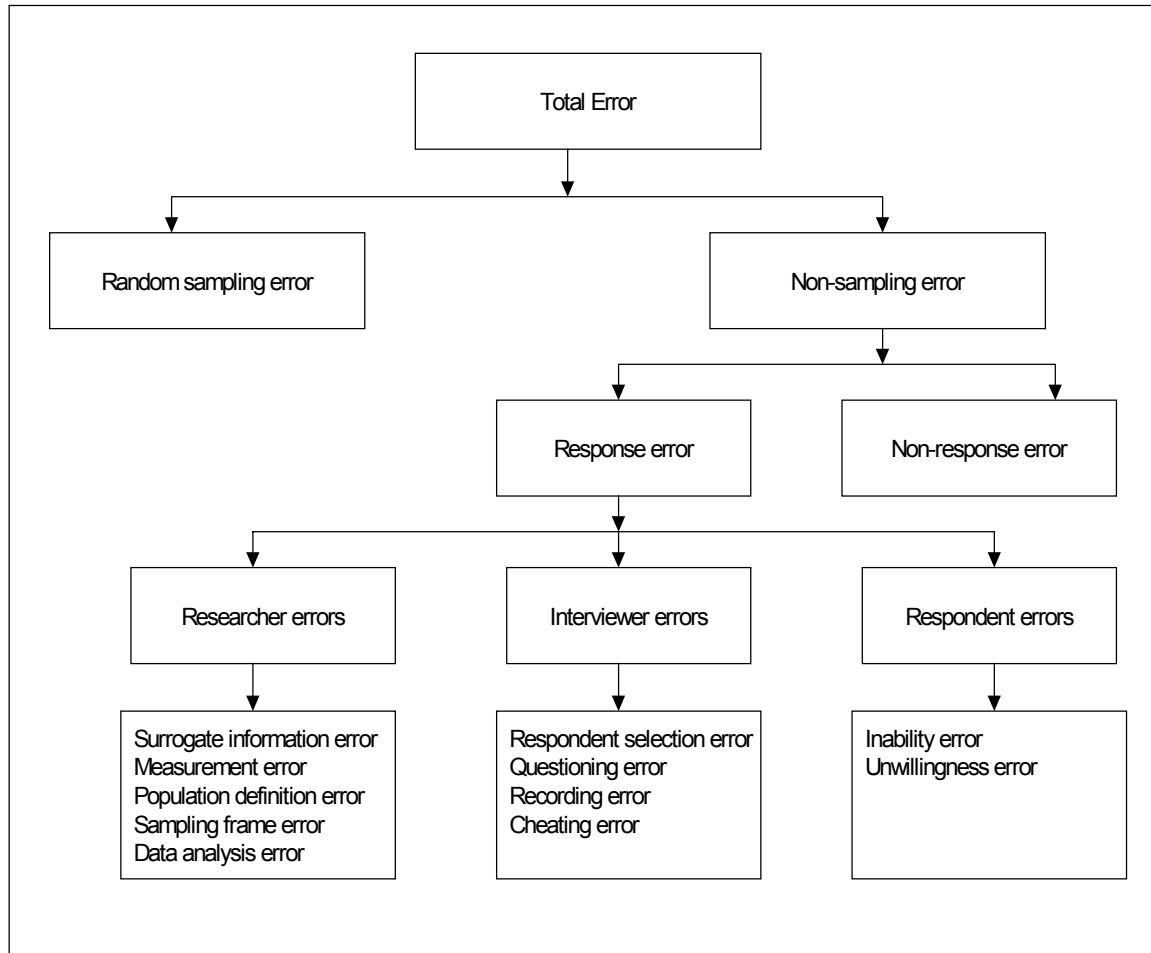
The researcher has chosen the face-to-face or personal interviewing method after carefully considering the above-mentioned criteria. The most important criteria that led to the choice of personal face-to-face interviewing is the quality of the data required. A comprehensive discussion on personal face-to-face interviewing will be done in paragraph 6.6.

6.4 POTENTIAL SOURCES OF ERRORS IN RESEARCH DESIGN

The usefulness of the collected data and the data analysis for this study will depend on the overall quality of the research design. Errors may occur in the research design and will have an influence on the various stages in the research process. Figure 6.1 identifies the types of errors that can affect

research design. A total error, a random sampling error and a non-sampling error will be discussed in paragraph 6.4.1.

Figure 6.1: Errors in research design



Adapted from: Malhotra (1996: 100)

The different errors will be discussed in the next section.

6.4.1 Total error

Malhotra (1996: 100) defines a total error as the total variation between the true mean value in the population of the variable of interest and the observed mean value obtained in a marketing research project. A total error can be divided into a random sampling error and a non-sampling error.

(a) Random sampling error

A random sampling error occurs when a particular selected sample is an

imperfect representation of the population of interest. A random sampling error may be defined as the variation between the true mean value for the sample and the true mean value of the population (Malhotra, 1996: 102)

(b) Non-sampling errors

Malhotra (1996: 102) described a non-sampling error as one that can be attributed to sources other than sampling and it can be random or non-random. Non-sampling errors consist of response errors and non-response errors

(i) Response errors

Malhotra (1996: 102) defines a response error as the variation between the true value mean of the variable in the net sample and the observed mean value obtained in a marketing research project. A response error is a non-sampling error arising from respondents who do respond but give inaccurate answers or whose answers are misrecorded or misanalysed. Researchers, interviewers or respondents can make response errors.

(ii) Non-response errors

Malhotra (1996: 102) defines a non-response error as the variation between the true value mean of the variable in the original sample and the true mean value in the net sample. A non-response error occurs when some respondents included in the sample do not respond. Non-responses will cause the obtained sample to be different in size or composition from the original sample.

6.4.2 Dealing with non-responses

According to Sudman and Blair (1999: 275) there has been a disturbing trend of a steady decline in sample co-operation in the past quarter of the century. There is a broad range of reasons most of which are not under the control of the researcher. The question arises whether careful probability design methods are valid and useful if co-operation rates continue to drop. Sudman et al (1999: 27) believe that reasonably high-quality samples will continue to be possible but they will only be achieved with greater effort and cost. New

methods are needed but will probably be more expensive than existing methods. The new methods will be justified if they significantly improve the quality of information obtained.

On the basis of the above trend Sudman et al (1999) suggest the following possibilities:

- More contact attempts to locate respondents.
- Greater use of mixed modes to obtain co-operation
- Higher compensation to interviewers and respondents.
- As co-operation declines, it will become increasingly important that intensive efforts be made to get a sample of previous non-respondents so that better post-survey adjustments of data are possible.
- Current statistical efforts to adjust for non-co-operation as well as for imputation of missing data will be intensified and improved as problems grow worse, as seen in Groves (1989) and Rubin (1986).

To reduce any possible non-response errors in this research it will be necessary that all the selected individual elements be contacted.

6.5 SAMPLING

The basic principle of sampling is that by selecting some of the elements in a population, a researcher may draw conclusions about the entire population (Malhotra, 1996: 359). The population in question is all small organisations in South Africa and the sample is a subset of this particular population as mentioned in chapter one.

Sampling, whether consumer or business, is thus appropriate when the population size is large and if the cost and time associated with obtaining information from the population is high. Sudman and Blair (1999: 273) identified several issues that distinguish business samples from consumer samples:

- The most significant distinguishable issue is the enormous variability in the

size of business organisations. The most commonly used method to sample businesses according to size is to use annual sales.

- The second sampling issue is deciding what is the appropriate unit within the organisation to study.
- The third issue is determining who within the organisation are the appropriate respondents or informants.

The researcher considered the three aspects above and has chosen small organisations based on the number of employees (11 – 50). Manufacturers and dealers were chosen based on their contribution to the percentage of people employed per province and the contribution to GDP to be discussed later in this chapter. Finally the researcher decided that the person in the organisation responsible for marketing decision-making would complete the questionnaire.

There has been a substantial increase in research volume, especially in the areas of customer satisfaction and new product evaluation during the past 20 years. The procedural developments include disk-by-mail and e-mail surveys. There was however, no change in sampling issues and sampling procedures.

Before the steps in the sampling process are discussed it is essential to describe the population and to define terminology that will be used:

- **Population (universe)**

A population or universe is the aggregate of all elements. According to Martins et al (1996: 251) the population must be defined in terms of the element, sample units, time and size. The population selected in this study is all large, medium and small organisations in South Africa across all the Standard Industrial Classification (SIC) of all economic activities. See Table 6.2 in the next section for a detailed description of the population used in this study.

- **Survey population**

The survey population is described by Martins et al (1996: 252) as the aggregate of elements from which the sample is drawn. In practice one seldom finds complete lists or records of all the elements. The sample has to be drawn from lists that do not always contain all of the elements.

There will be a difference between the survey population and the population or universe. The survey population selected for this study is all small organisations in South Africa. Small organisations were selected based on their contribution of nearly 57% of the people employed in the private sector in South Africa and a 42% contribution to the Gross Domestic Product (Ntsika, 1999: 49-51).

- **Sample frame**

A sample frame is a record of all the sample units available for selection at a given stage in the sampling process. A frame may be a register of industries or merchants, a telephone directory or even a map (Martins et al, 1996: 252). Each phase in the sampling process requires its own frame.

According to Martins et al (1996: 252) a reliable sample frame meets several requirements:

- It represents all the elements of the population.
- There is no duplication of elements.
- It is free from foreign elements.

The sample frame selected for this study is the small manufacturers and dealers (wholesalers and retailers) in Gauteng. See paragraph 6.5.2 for a description of the selection of the sample frame.

- **Element**

An element is the unit about which information is needed (Martins et al, 1996: 251). The sample element selected is all manufacturers and dealers (wholesalers and retailers) on a national basis, employing 11 – 50 people.

- **Sample unit**

Martins et al (1996: 251) describe a sample unit as the unit for selection at some stage of the sampling process. The sample unit selected is all small manufactures and dealers (wholesalers and retailers) in Gauteng, with 11 – 50 employees.

There are six distinctive steps in sampling (Martins et al, 1996: 252):

- Step 1:** Defining the population
- Step 2:** Identifying the sample frame
- Step 3:** Selecting the sampling method
- Step 4:** Determining the sample size
- Step 5:** Selecting the sample elements

The six steps will now be discussed in the context of the research scope:

6.5.1 Defining the population

The population comprises of all large, small and medium organisations in South Africa. Statistics South Africa, Ntsika (1999) and The Bureau of Market Research (BMR) were contacted to obtain relevant information on the population.

The Standard Industrial Classification (SIC) published in the form of 12 BMR registers was chosen based on the recency of the information. See Table 6.2 for the national breakdown according to the BMR registers.

Table 6.2: National distribution of large, medium and small organisations in South Africa based on employment size

BMR Registers	Micro	Small	Medium	Large	Head offices	Total
Agricultural	-	-	-	-	-	13 574
Mining	339	189	87	48	27	690
Manufacturing	4293	5323	2761	1445	668	14490
Construction	4519	2266	682	253	11	7731
Dealers (wholesalers and Retailers)	21 236	7219	553	304	89	29 701
Financing	-	-	-	-	289	289
Hotel and guest houses	878	976	401	84	0	2339
Business Services	2005	1459	80	30	0	4839
Public sectors	-	-	-	-	-	1141
Importers	-	-	-	-	-	6445
Exporters	-	-	-	-	-	3805
Associations and trade unions	-	-	-	-	-	3839
* Incompletes	-	-	-	-	-	8115
TOTAL						96 998

Source: BMR – Report –245

- **Special note:** * Incompletes are organisations not assigned to SIC classifications based on criterion purposes.

Small, micro and medium size organisations represent 56.97% (55 266/96 998) of the national distribution depicted in Table 6.2.

The national distribution as depicted in Table 6.2 was based on employment size as illustrated in Table 6.3 below.

Table 6.3: BMR Register and employment size

BMR Registers	Number of employees			
	Micro	Small	Medium	Large
Mining	1 - 50	51 - 500	501 - 3000	3000+
Manufacturing	1 - 10	11 - 50	51 - 200	200+
Construction	1 - 10	11 - 50	51 - 200	200+
Dealers (wholesalers and Retailers)	1 - 10	11 - 50	51 - 100	100+
Hotel and guest houses	1 - 10	11 - 50	51 - 250	251+
Business Services	1 - 8	9 - 70	71 - 150	151+
Agricultural, Financing, Public sectors, Associations, Importers, Exporters, Trade unions and Incompletes	No employee classification criteria exists			

Source: BMR – Report –245

It is evident from Table 6.3 that various Registers can not be classified according to the number of employees. For example, the Import and Export registers are classified according to the Rand value of imports and exports annually.

The Registers depicted in Table 6.3 list the names and addresses of institutions and establishments in the major sectors of the economy in South Africa. Each listing includes size indicators such as number of employees and electricity consumption, SIC code and district code (Martins et al, 1996: 112).

6.5.2 Identification of the sample frame

The quantitative criteria as described in Table 6.3 seek to distinguish between the following size classes: micro, small, medium and large organisations.

The sample units are the small manufacturers and dealers in Gauteng with between 11 and 50 employees. This criterion of the number of employees is based on the classification by the State of Small Businesses in South Africa (Ntsika, 1999: 41) as depicted in Table 6.4. The quantitative criteria in Table 6.4 however, seek to distinguish between the following size classes: micro, very small, small and medium organisations based on the criteria related to employment, turnover and asset value.

It is evident from Table 6.4 that there is no uniform classification of small and medium organisation according to employment number across the SIC sectors. The upper limited for medium organisations is 100 employees except for Mining and Quarrying, Manufacturing and Construction. For all the other SIC sectors medium organisations employ up to 100 employees. Small organisations employ 50 and less employees across all the SIC sectors. The upper limited for very small organisations is 10 employees except for Mining and Quarrying, Manufacturing and Construction. For all the other SIC sectors medium organisations employ up to 10 employees. The classification of micro organisations are uniform based on an upper limit of 5 employed employees.

Table 6.4: National Small Business Act classification of organisations

Column 1 Sector or Sub-sectors in accordance with the SIC	Column 2 Size-Class	Column 3 Total equivalent full-time of employees (Less than)	Column 4 Total annual turnover (Less than)	Column 5 Total gross asset value (fixed property excluded) (Less than)
Agriculture	Medium	100	R 2.80m	R 2.80m
	Small	50	R 1.25m	R 1.25m
	Very small	10	R 0.25m	R 0.25m
	Micro	5	R 0.15m	R 0.10m
Mining and Quarrying	Medium	200	R 40.00m	R 30.00m
	Small	50	R 10.00m	R 7.50m
	Very small	20	R 4.00m	R 3.00m
	Micro	5	R 0.15m	R 0.10m
Manufacturing	Medium	200	R 25.00m	R 7.50m
	Small	50	R 6.00m	R 1.75m
	Very small	20	R 2.00m	R 0.60m
	Micro	5	R 0.15m	R 0.10m
Construction	Medium	200	R 18.00m	R 3.50m
	Small	50	R 4.00m	R 0.80m
	Very small	20	R 0.50m	R 0.20m
	Micro	5	R 0.15m	R 0.10m
Retail and Motor Trade and Repair Services	Medium	100	R 25.00m	R 3.00m
	Small	50	R 12.50m	R 1.50m
	Very small	10	R 2.50m	R 0.25m
	Micro	5	R 0.15m	R 0.10m
Wholesale Trade, Commercial Agents and Allied Services	Medium	100	R 70.00m	R 12.00m
	Small	50	R 35.00m	R 6.00m
	Very small	10	R 6.00m	R 1.00m
	Micro	5	R 0.15m	R 0.10m
Catering, Accommodation and Other Trade	Medium	100	R 8.00m	R 1.50m
	Small	50	R 5.00m	R 0.60m
	Very small	10	R 1.00m	R 0.15m
	Micro	5	R 0.15m	R 0.10m
Transport, Storage and Communications	Medium	100	R 12.00m	R 3.00m
	Small	50	R 6.00m	R 1.20m
	Very small	10	R 1.20m	R 0.25m
	Micro	5	R 0.15m	R 0.10m
Finance and Business Services	Medium	100	R 10.00m	R 2.00m
	Small	50	R 3.00m	R 0.60m
	Very small	10	R 0.50m	R 0.20m
	Micro	5	R 0.15m	R 0.10m
Community, Social and Personal Services	Medium	100	R 9.00m	R 4.50m
	Small	50	R 4.50m	R 2.25m
	Very small	10	R 0.45m	R 0.40m
	Micro	5	R 0.15m	R 0.10m

Source: Ntsika (1999: 41)

For this research employment size has been selected because it is the most stringent criterion and it is used most often to distinguish between small and large organisations (Ntsika: 1999: 41).

According to Ntsika (1999: 53) Gauteng alone accounts for 47% of all large organisations, 46% of medium organisations and 44% of small organisations. According to the BMR (Report 245) Gauteng accounts for 28.25% (27403/96998) of all organisations in South Africa as depicted in Table 6.5 below. Based on these contributions, **Gauteng** was selected as the sample frame. Also see Table 6.5 in this regard.

Table 6.5 provides the provincial breakdown of large, medium and small organisations per SIC code.

Table 6.5: Provincial allocation – Large, medium and small organisations in SA including the incomplete organisations

BMR – registers	Provinces										TOTAL
	Western Cape	Eastern Cape	Northern Cape	Free State	Kwazulu Natal	North West	Gauteng	Mpumalanga	Northern Province	Othar	
Agricultural	-	-	-	-	-	-	-	-	-	-	13 574
Mining	97	40	93	61	46	69	115	113	56	-	690
Manufacturing	2251	1039	258	808	2106	406	6234	928	192	268	14 490
Construction	2636	1152	160	142	688	61	2672	144	45	31	7731
Wholesale and Retail	4909	2652	843	1828	4869	1501	10 061	1743	1245	50	29701
Financing	27	5	0	1	15	1	240	0	0	-	289
Hotel and guest houses	709	207	90	132	355	99	490	165	92	-	2339
Business Services	1212	333	98	233	641	142	1861	219	100	-	4839
Public sectors	194	143	86	129	100	61	222	107	76	23	1141
Importers	1254	371	23	92	872	83	3421	73	46	210	6445
Exporters	644	172	21	39	565	43	2087	154	46	34	3805
Associations and trade unions	-	-	-	-	-	-	-	-	-	-	3839
Total before incompletes	13 933	6114	1672	3465	10 257	2466	27 403	3646	1898	616	88 883
Incompletes	-	-	-	-	-	-	-	-	-	-	8 115
TOTAL	13 933	6114	1672	3465	10 257	2466	27 403	3646	1898	616	96 998

Source: BMR – Report 245

It is important to note from literature discussed in chapters two and three that mainly large organisations were used to study the application of the product life cycle theory abroad. The researcher has chosen **small organisations** in South Africa based on statistics that the SMME sector absorbed nearly 57% of the people employed in the private sector and contributed 42% of formal total GDP according to Ntsika (1999: 11).

Table 6.6 provides the provincial breakdown in total numbers and percentages of large, medium and small organisations per SIC code.

Table 6.6: Distribution of small organisations in Gauteng with 11 – 50 employees

BMR – SIC classification	Total distribution	Percentage of total distribution
Manufacturing	2289	19%
Construction	793	7%
Dealers (Wholesalers and Retailers)	2461	20%
Financing	240	2%
Hotels and guest houses	204	2%
Business Services	562	5%
Other	5958	28%
TOTAL	12507	100%

Source: BMR – Report 245

Manufactures and dealers (wholesalers and retailers) with 11 – 50 employees were selected based on their 39% contribution as displayed in Table 6.6.

6.5.3 Sample size determination and the selection of the sampling method

A sampling method can be based on a probability or non-probability method. The preferred approach however, is to use probability sampling in which case all the members of the population have a known probability of being selected for the sample. Non-probability sampling relies on the judgement of the researcher and is only as representative as the researcher's luck and skills permit (Martins et al, 1996: 253).

(a) Sample size determination

A sample size can be determined through the use of statistical procedures or through ad hoc methods. Ad hoc methods are used when a researcher knows from experience what sample size to select or when there are known constraints. The constraints may be issues such as time and available funding.

Four factors can influence the determination of a sample size:

- The value of the information in the study in general and the degree of

reliability that is to be placed on the results.

- The number of groups or subgroups to be analysed within the sample.
- The cost of the sample.
- The variability of the population - as variability increases, so does the required sample size.

According to Dillon et al (1993: 251) a sample size can be determined for means and proportions. If the statistic of interest is a proportion rather than mean, the approach of determination is similar for means and proportions. The sample size can furthermore be determined for an ending and a non-ending population.

The sample size determined by the researcher in this study is based on a sample proportion for an ending population of 12507 small organisations in Gauteng, shown in Table 6.6.

The following formula was applied to determine the sample size (Dillon et al: 1993: 253) for small dealer and manufacturing organisations in Gauteng:

$$n = \frac{\hat{P} \hat{Q}}{\frac{H^2}{Z_{CI}^2} + \frac{\hat{P} \hat{Q}}{N}}$$

Where:

n	=	Sample size
\hat{P}	=	Initial approximation of the population of interest
\hat{Q}	=	$1 - \hat{P}$
Z_{CI}^2	=	Required confidence level
N	=	Frequency
H^2	=	Required precision

As the \hat{P} value in the sample size formula represents the initial approximation of the population of interest, the researcher conducted a preliminary telephonic study to determine what percentage of the selected

population knows about the product life cycle concept and applies the concept during marketing strategy formulation and marketing decision-making. Eighty randomly selected organisations - 20 manufacturers and 20 dealers from Pretoria, 20 manufacturers and 20 dealers from Johannesburg, from the BMR list were contacted telephonically. The telephonic interviewer asked to speak to the person in the organisation responsible for making marketing decisions. In 40% of the cases the person responsible for making marketing decisions indicated that he/she knows about the existence of the product life cycle concept and that his/her organisation applies the concept during strategic marketing planning and marketing decision-making.

The calculation of the sample size used was adjusted according to the above finding as follows:

$$n = \frac{\hat{P} \hat{Q}}{\frac{H^2}{Z_{CI}^2} + \frac{\hat{P} \hat{Q}}{N}}$$

$$n = \frac{(0.4)(0.6)}{(0.05)^2 + \frac{(0.4)(0.6)}{12507}}$$

$$= \underline{\underline{358}}$$

(b) Stratified sampling

Stratified sampling is defined as a probability sampling technique that uses a two-step process to partition the population into sub-populations or strata. Elements are selected from each stratum by a random procedure (Malhotra: 1996: 372).

A stratified sample is a probability sample that differs in two respects from the simple random or systematic sample (Martins et al, 1996: 259). First the population is divided into strata and then the selection is done in every

stratum exactly as in simple random or systematic sampling. The requirements for a probability sample, namely that all elements must have a known chance of being included are adhered to.

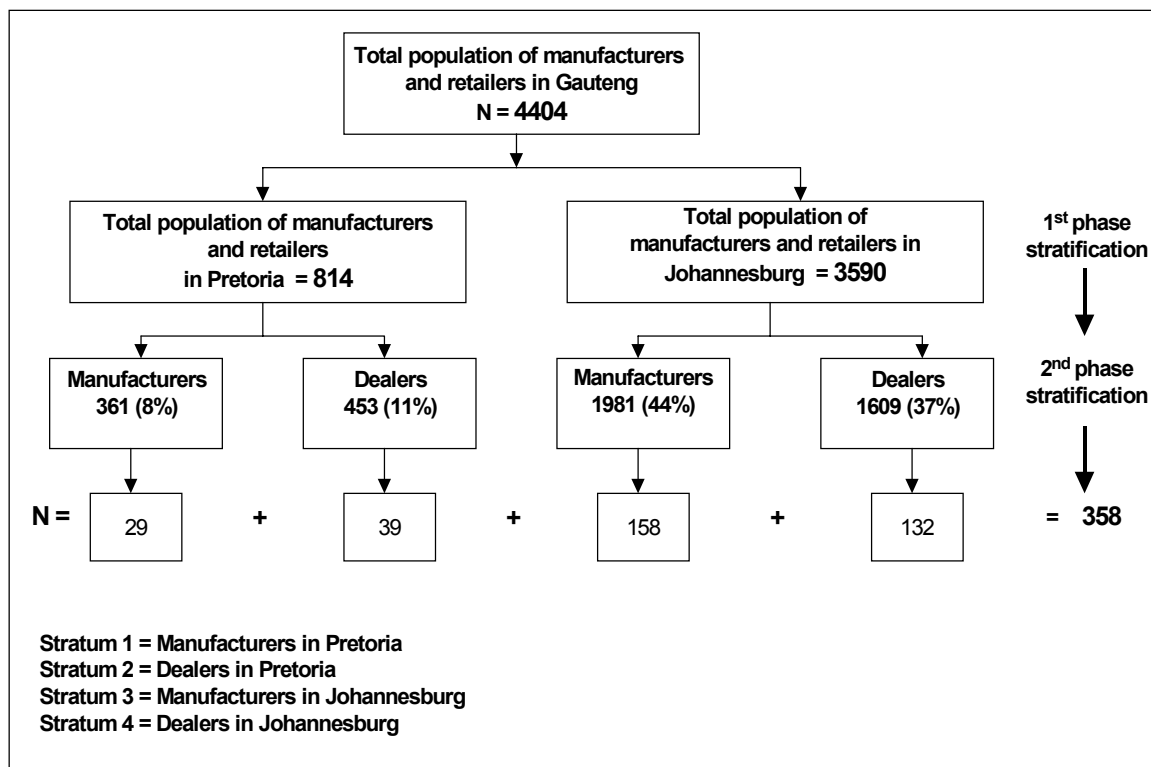
Stratified random sampling is used when a population is heterogeneous in the qualities being investigated, and can be divided into more homogeneous groups (strata) with reference to these qualities. The division of the sample into more homogeneous strata enhances the precision or reduces sample errors in two ways (Martins et al, 1996: 372). First, it ensures that the various elements are included in the sample in their correct proportions. Second, variability of the qualities being investigated decreases within the various strata. If a researcher can succeed in dividing the population into strata whose elements are exactly the same there will be no sample error.

According to Martins et al (1996: 260) stratification is worthless unless the researcher succeeds in classifying the population into strata that are more homogeneous in the quality being investigated than the population as a whole. Figure 6.2 illustrates the process followed by the researcher in drawing a two-phase stratified sample.

- The total population of manufacturers and retailers in Gauteng is 4404 as obtained from a BMR list containing physical street addresses and telephone numbers.
- Gauteng consists mainly of two main cities with telephone codes of 011 and 012 for Johannesburg and Pretoria respectively. The number of numbers per code was counted.
- Of 814 small manufacturing organisations and small dealer organisations were counted for Pretoria and 3590 for Johannesburg – **1st stratification phase**.
- During the **2nd stratification** phase the number of numbers obtained from the first stratification phase for small manufacturing organisations and small dealer organisations were divided into the total of 4404. For example, small manufacturing organisations in Pretoria 361 divided by 4404 = 8%. This procedure was followed for all strata.

- The percentage figure obtained during the second phase of stratification was then multiplied by the number of small organisations in each stratum. For example, 361 small manufacturing organisations multiplied by 8% = 29. This procedure was followed for all strata.
- The above-mentioned procedure resulted in a stratified sample size of 358 as calculated in paragraph 6.5.3(a).

Figure 6.2: A two-phased stratified sampling



6.5.4 Selection of the sample elements

To enable the fieldworkers to systematically select the sample elements from the BMR list, the sample elements in each stratum was calculated as follows:

- **Stratum 1:** Every 13th (29/361) element will be drawn systematically from the BMR list.
- **Stratum 2:** Every 12th (39/453) element will be drawn systematically from the BMR list.

- **Stratum 3:** Every **13th** (158/1981) element will be drawn systematically from the BMR list.
- **Stratum 4:** Every **12th** (132/1609) element will be drawn systematically from the BMR list.

The sample can be summarised as follows:

Region				Total
Manufacturers		Dealers		
Pretoria	Johannesburg	Pretoria	Johannesburg	
29	158	39	132	358
187		+	171	

6.6 PERSONAL INTERVIEWING

As mentioned in paragraph 6.3.1 the following section will be devoted to a discussion on face-to-face or personal interviewing to be used as the data collection method during the empirical part of this study.

Table 6.1 summarised the various data collection methods at the disposal of the researcher. The researcher has chosen personal interviews based on the high unfamiliarity rate of the sample with the product life cycle concept as discussed in paragraph 6.5.3(a). Flash cards were used for the illustration of the product life cycle curve and the explanation of key concepts used.

Based on the above mentioned the telephone and mail methods of data collection was as possible data collection methods to be employed during the empirical execution of this study.

6.6.1 Definition of a personal interview

A personal interview is a two-way conversation initiated by an interviewer to obtain information from a respondent (Cooper and Schindler, 1988: 291).

6.6.2 Evaluation of a personal interview

There are clear advantages and limitations associated with the use of a personal interview when compared to the other survey methods available to a researcher (Cooper and Schindler, 1988: 291) and summarised in Table 6.1. The following value description will highlight the choice of the researcher to use a personal interviewing method:

(a) Advantages of a personal interview

- Depth of information and detail that can be secured when compared with a telephone, mail, self-administered and mall intercept surveys.
- The interviewer has more flexibility to improve the quality of the information received than with any of the other survey methods.
- Interviewers have more control over the interview and any disturbances that may occur.
- Interviewers can probe for additional questions and gather supplemental information through observation.
- Interviewers can pre-screen to ensure that the correct respondent is participating in the interview.

(b) Limitations linked to the use of a personal interview

Cost and time are limitations linked to a personal interview (Cooper and Schindler, 1988: 291).

An interview may cost from a few to several hundreds of rand and the cost is particularly high if the study covers a wide geographical area or if the sample has stringent criteria. It can take time to fill a sample if some of the respondents to be included in a sample are hard-to-reach people.

6.6.3 Requirements for a successful personal interview

According to Cooper and Schindler (1988: 292) there are three broad conditions to be met to have a successful personal interview. These conditions are:

- Availability of the needed information from the respondent.

- An understanding of the respondent of his or her role.
- Adequate motivation by the respondent to co-operate.

It is the task of the interviewer to ensure that the personal interview is successful. The interviewer can influence the respondent in many ways and it is the responsibility of the interviewer to motivate the respondent to take part in the interview. There are a few techniques namely:

6.6.4 Personal interviewing techniques

The following techniques are available to interviewers for personal face-to-face interviews (Cooper and Schindler, 1988: 293-296):

(a) Introduction

Interviewer appearance and conduct of behaviour are critical in making a good impression on the potential respondent in order to convince the respondent to participate. The interviewer's introduction and explanations should be no more detailed than necessary.

(b) If the respondent is busy

If it is obvious that the respondent is busy, it may be a good idea to give a general introduction and try to stimulate enough interest to arrange an interview at another time.

(c) Establishing a good relationship

The successful interview is based on rapport – meaning a relationship of confidence and understanding between the interviewer and the respondent as interviews are often new to respondents and they need help in defining their roles.

(d) Gathering the data

After the completion of the introduction and the establishment of initial rapport, the interviewer turns to the technical task of gathering information. A difficult task in interviewing is to make certain the answers adequately satisfy the

questions' objectives. The interviewer should follow the exact wording of the questions, ask them in the order presented, and ask every question that is specified.

(e) Probing

The technique of stimulating respondents to answer more fully and relevantly is called probing. A probe should be neutral not to cause bias and should appear as a neutral part of the conversation. According to Cooper and Schindler (1988: 295) there are several probing styles:

- A brief assertion of understanding and interest.
- An expectant pause
- Repeating the question
- Repeating the respondent's reply
- A neutral question or comment
- Question clarification

(f) Recording the interview

While the methods used in recording varies, the interviewer usually writes down the answer of the respondent. Some guidelines can make this task easier:

- Record the responses as they occur
- If there is a time constraint the interviewer should use a shorthand system.
- Abbreviating words and using of key words are good ways of recording.

6.6.5 Interview problems

Cooper and Schindler (1988: 297) indicate that during personal interviewing the researcher deals with the two interrelated aspects of bias and cost. Bias results from three types of error – sampling error, non-response error and response error as discussed in paragraph 6.4 and illustrated in Figure 6.1.

The most reliable solution to non-response problems is to make call-backs. If enough attempts are made, it is usually possible to contact most target respondents, although unlimited call-backs are expensive. One way to

improve the productivity of call-backs is to vary them by time of day and day of week.

When data reported differ from the actual data, response errors occur. Errors can be made in the process of tabulating the data or when the respondent fails to report fully and accurately. Consistent control or elimination of response errors is a problem that has yet to be solved (Cooper and Schindler, 1988: 298).

As professional interviewers' salaries are typically high, Cooper and Schindler (1988: 299) reiterates that interviewing is costly and these costs continue to rise. Much of the cost results from the substantial interviewer time due to administrative tasks and travelling. To counter the problem of research costs, organisations can:

- Pay interviewers an hourly rate.
- Use the telephone to schedule personal interviews.
- Use self-administered questionnaires.

The researcher will discuss the interviewing procedure employed during the fielding of the study in paragraph 6.8.

6.7 MEASUREMENT AND MEASUREMENT SCALES

Before the process of questionnaire design can be explained it is necessary to provide information on the possible measurement scales to the disposal of the researcher.

6.7.1 Measurement

Measurement is a process of assigning numbers to objects to represent quantities of attributes (Dillon et al, 1993: 302). Measurement relates to the procedure used to assign numbers that reflect the amount of an attribute possessed. Many characteristics that are investigated in marketing research studies can be measured in a variety of ways. Particular attention must be

given to the objectives of the study and the precise definition of the characteristics to be measured.

6.7.2 Level of measurement

Measurement can be undertaken at different levels. The levels reflect the correspondence of numbers assigned to the characteristics in question and the meaningfulness of performing mathematical operations on the numbers assigned.

The different levels of measurement will be discussed in the next section.

(a) Nominal measurement

Nominal measurement is measurement where the numbers assigned allow the researcher to place an object in one and only one of a set of mutually exclusive and collectively exhaustive classes with no implied ordering (Dillon et al, 1993: 273).

(b) Ordinal measurement

Ordinal measurement is a measurement in which the response alternatives define an ordered sequence so that the choice listed first, is less (greater) than the second, the second less (greater) than the third, and so forth (Dillon et al, 1993: 274). The number assigned does not reflect the magnitude of an attribute possessed by an object.

(c) Interval measurement

Interval measurement allows the researcher to indicate how far apart two or more objects are with respect to the attribute and consequently to compare the differences between the numbers assigned (Dillon et al, 1993: 275). Because the interval lacks natural or absolute origin, the absolute magnitude of the numbers cannot be compared.

(d) Ratio measurement

Ratio measurement has the same properties as interval scales, but also has a natural and absolute origin (Dillon et al, 1993: 277).

The different appropriate statistical options available to the researcher are illustrated in Table 6.7.

Table 6.7: Appropriate statistics for nominal, ordinal interval and ratio data

Scale	Range	Central tendency	Dispersion
Nominal	Number of categories	Mode	Frequency in each category
Ordinal	Number of scalar positions	Median	Percentage or interquartile range
Interval and ratio	Top scores minus bottom score plus 1	Mean	Standard deviation

Adapted from: Dillon, Madden, and Firtle (1993: 275)

The different scale types depicted in Table 6.7 will be discussed in the next section.

6.7.3 Scale types

Measurement scales fall into two broad categories of comparative and non-comparative scales (Dillon et al, 1993: 277).

(a) Non-comparative scaling

According to Dillon et al (1993: 277) non-comparative scaling is a method whereby the respondent is asked to evaluate each object on a scale independently of the other objects being investigated.

According to Dillon et al (1993: 277 - 281) there are various types of non-comparative scaling:

(i) Line marking/Continuous rating scales

This is a procedure that instructs the respondent to assign a rating by placing a marker at the appropriate position on a line that best describes the object under study. There is no explicit standard for comparison.

(ii) Itemised rating scales

The respondent is provided with a scale having numbers and/or brief descriptions associated with each category and asked to select one of the limited number of categories, ordered in terms of scale position, that best describes the object under study.

When using itemised rating scales the researcher must make the following decisions:

- **The number of categories**
When making a decision on the number of categories the researcher can decide to include any number of response categories provided that the respondents have to discriminate among alternatives. The researcher can include between 5 - 9 response categories.
- **The number of favourable and unfavourable categories**
When using a balanced scale, the scale has an equal number of favourable and unfavourable categories. When using an unbalanced scale the scale has unequal numbers of favourable and unfavourable scale categories.
- **The nature and degree of verbal description**
Verbal category descriptors help to ensure that each respondent is operating from the same base. Pictures and other types of graphic illustrations can also be used, especially if the respondents are children or do not have a high literacy rate.
- **The presence of a neutral position**
Odd number versus even number of scale items. In odd numbers of scale the middle scale becomes the neutral point.
- **Forced and unforced itemised rating scales**
With forced itemised rating scales the respondent must indicate answers even though he/she has no opinion or knowledge about the subject. It is better to use subjects about which the respondents have knowledge and opinion.

(b) Comparative scaling

Comparative scaling is a scaling process in which the subject is asked to compare a set of stimulus objects directly against one another (Dillon et al, 1993: 281).

According to Dillon et al (1993: 281-288) the following types of comparative scaling are available:

(i) Paired comparisons scale

This is a scale whereby the respondents are provided with two objects at a time and the respondents are asked to select one of the two according to some criterion.

(ii) Geared paired comparisons

This scale type is an extension of the paired comparison method, by asking respondents to indicate for instance which brand is preferred and how much they are willing to pay to acquire their preferred brand.

(iii) Rank-order scales

These are scales where respondents are presented with several objects simultaneously and requested to “order” or “rank” them. Conditional rank-order scale is a procedure whereby respondents consider each object in turn as a standard for comparisons. Respondents assign ranks to other objects according to this standard.

(iv) Constant sum scales

This is a procedure whereby respondents are instructed to allocate a number of points among alternatives according to the same criterion, for example, preference, importance.

(v) Line marking/Continuous rating comparative scale

A procedure whereby respondents are presented with object pairs and the respondents are asked to judge their similarity by placing a mark on a continuous line.

6.7.4 Single-item versus multiple-item scales

After a researcher has decided on a scaling type or a combination thereof, he/she should decide whether to use a single-item or a multiple item scale or a combination thereof.

A multiple-scale usually consists of a number of statements that the respondent must react to. For example, the respondent can be asked to indicate how favourable or unfavourable each statement is. According to Dillon et al (1993: 288) multiple item scales are usually used in attitude measurement. There are three different multiple item scales available to the researcher:

(a) Semantic differential scale

A semantic differential scale is a scaling technique where a measure of the person's attitude is obtained by rating the object or behaviour in question on a set of bipolar adjective scales, Dillon et al (1993: 289). According to Cooper and Schindler (1988: 189) the semantic differential scale measures the psychological meanings of an attitude object.

(b) Stapel scale

According to Dillon et al (1993: 290) a staple scale is a procedure using a single criterion or key words and instructing the respondent to rate the object on a scale. A stapel scale is used as an alternative to the semantic differential scale, especially when it is difficult to find bipolar adjectives that match the investigation question (Cooper and Schindler, 1988: 190).

- **Likert scale**

The Likert scale is a measurement scale consisting of a number of evaluative statements (Dillon et al, 1993: 292). The Likert scale is the most frequently used variation of the summated rating scale (Cooper and Schindler, 1988: 189). Summated scales consist of statements that express either a favourable or unfavourable attitude toward the object of interest. The respondent is asked to agree or disagree with each statement. Each response is given a numerical score to reflect its degree of attitude

favourableness, and the scores may be totalled to measure the respondent's attitude. Likert scales help researchers to compare one person's score with the distribution of scores from a well-defined group.

6.8 QUESTIONNAIRE DESIGN AND TESTING

The research problem together with the research objectives and propositions have been formulated in chapter one and further discussed in chapter five. The process of designing the measurement instrument should be in accordance with the research problem, propositions, primary and secondary research objectives and the different measurement aspects.

All the measurement aspects as discussed in paragraph 6.7 – the levels of measurement and the different measurement scale types - will be considered during the process of designing the questionnaire to be used during the empirical execution of this study. Questionnaire design will be explained in terms of four interrelated activities – preliminary considerations, asking of questions, construction of the questionnaire and the pre-testing of the questionnaire (Dillon et al, 1993: 302).

6.8.1 Preliminary considerations

According to (Dillon et al, 1993: 302) a researcher should translate the research problem into a set of research questions before he/she starts with the formulation of the questions. The research questions should identify:

- What information is required?
- Who the appropriate target respondents are?
- What data collection method to use?

The researcher addressed the three aspects above in chapter one, explained the appropriate target respondents in chapters four and provided substance for the use of the personal interviewing to be used as the data collection method in paragraph 6.6.

6.8.2 Asking questions

Dillon et al (1993: 303) provide three general guidelines to help in devising an effective questionnaire:

- A researcher should write specific questions only after he/she has thoroughly thought through the research objectives and research propositions.
- When a researcher is designing a questionnaire, he/she should constantly refer to the research objectives and research propositions.
- For each question a researcher writes down, he/she should consider how the information obtained from the responses would help in answering the research propositions.

There are a number of specific considerations to keep in mind in developing questions. Dillon et al (1993: 304) provide the following basic principles:

- Principle 1: Be clear and concise
- Principle 2: Response choices should not overlap
- Principle 3: Use natural and familiar language
- Principle 4: Do not use words or phrases that show a bias
- Principle 5: Avoid double-barrelled questions
- Principle 6: State explicit alternatives
- Principle 7: Questions should meet the criteria of validity and reliability

The issue is whether or not a researcher is truly measuring what he/she was attempting to measure and whether or not the researcher can replicate these responses at a later point in time. The researcher can not assume that the same questioning approach will work equally well for all product/service categories and all interviewing methods.

When the researcher constructed the questionnaire to be used as the measurement instrument for this research he adhered strictly to the above-mentioned principles.

6.8.3 Open-ended and closed-ended questions

A researcher can make use of open-ended and close-ended question formats.

(a) Open-ended question format

With open-ended questions the respondent is allowed to choose any response deemed appropriate, within the limits implied by the question.

According to Dillon et al (1993: 310) there are several good reasons for asking open-ended questions.

- Open-ended questions are useful to check and/or corroborate the results of quantitative or closed-ended questions.
- Open-ended questions may be used to obtain direct comparisons and to specify particular causes for preference or rejection when two or more stimuli are involved in a test.
- Open-ended questions are useful in determining whether a particular communication vehicle (e.g. commercial or concept) conveys its intended objectives.
- Open-ended questions elicit of a respondent's general reactions to or feelings on exposure to specific ads or packages involved in a test.

Open-ended questions are not well suited for self-administered questionnaires and answers to open-ended questions may be more of an indication of the respondents' knowledge about or interest in the issue being investigated. Interview bias can be a serious problem with the use of open-ended questions and open-ended questions must be coded or categorised for analysis, which can be a tedious task laden with ambiguities.

(b) Closed-ended question format

With closed-ended questions the respondent is provided with numbers and/or predetermined descriptions and is asked to select the one that best describes his or her feelings.

There are several issues related to itemised question formats (Dillon et al,

1993: 310):

- The number of response alternatives.
- The nature and degree of verbal description.
- The number of favourable and unfavourable categories.
- The statement of a neutral position.
- The forced or unforced nature of scale.

According to Dillon et al (1993: 310) the obvious advantages of the closed-ended question format relate to:

- Their ease of use in the field.
- Their ability to reduce interview bias.
- Their ability to reduce bias based on differences in how articulate respondents are.

6.8.4 Constructing the questionnaire

The questionnaire was divided into five distinct sections as can be observed in the final questionnaire on pages 1 – 13 in Appendix 2:

- **Introduction, qualification and screening questions**
- **Section A:** Classification questions
- **Section B:** Specific product life cycle questions.
- **Section C:** PLC related to strategic marketing, strategic planning, and marketing mix variables.
- **Section D:** The importance of the marketing mix variables, PLC characteristics and strategies linked to the different phases of the product life cycle

The questionnaire was compiled based the level of expected marketing expertise derived from the sample size in paragraph 6.5.3(a) and on the theoretical discussion in paragraphs 6.7 and 6.8 concerning:

- The different measurement scales.
- Preliminary considerations associated with questionnaire design.
- General guidelines for asking questions in a questionnaire.

6.8.5 Pre-testing of the questionnaire

According to Cooper and Schindler (1988: 349) pre-testing is the final step toward ultimately improving survey results. Pre-testing is not only an established practice for discovering errors but is also useful for training the research team. Pre-testing was done by the researcher and not by the interviewers because all seven were marketing graduates familiar with the concepts used and well trained with previous research survey experience.

The value and the necessity for pre-testing proved necessary because important changes were made to the questionnaire before it was finally accepted as the final questionnaire. See pages 1 to 9 in Appendix 1 for the pre-testing questionnaire and pages 1 to 13 in Appendix 2 for the final questionnaire. The pre-testing was done in an unconventional manner. It was executed among respondents similar to those eligible to be incorporated in the study (dealers, manufacturers and entrepreneurs) and larger organisations such as South African Breweries and Nedcor where respondents were familiar with marketing research. During each pre-testing interview all questions were tested. Apart from the pre-testing of each question the following components were also evaluated:

- Interviewer instructions.
- Question formats – refer to paragraphs 6.8.3.(a) and 6.8.3.(b) where open-ended and closed-ended question formats was discussed.
- Questionnaire layout – refer to 6.8.1 and 6.8.2 where preliminary considerations, specific considerations and the principles for questionnaire design is explained.
- Terminology – refer to the principles for questionnaire design as illustrated in 6.8.2

Only minor changes were made to the layout, but the following two important changes were made:

- Clear interviewer instructions were developed to serve as a guide for the interviewer in conducting the personal face-to-face interviews.

- The importance of aspects regarding generic marketing variable aspects in each phase of the product life cycle was divided into two questions in the final questionnaire as apposed to the single question in the pre-testing questionnaire. It was split into two questions (15 and 19) because it was too lengthy if asked in one question due to the unfamiliarity of the respondents with the different aspects tested.

It was very clear from the pre-testing that flash cards should be developed to clarify and explain the meaning of concepts used in this study. See pages 1 and 2 in Appendix 3 for the flash cards used to illustrate the product life cycle concept and to explain the key concepts used in the questionnaire.

6.8.6 Questions in the questionnaire

Each question will now be discussed with reference to the theoretical discussion of questionnaire design in paragraph 6.8.

Page 1 of the final questionnaire, as shown in Appendix 2, indicates procedure for the interviewer on:

- How to approach and select the respondent that qualifies to participate in this study.
- How to make an appointment with an eligible respondent.

The first part of page two provided two paragraphs that the interviewers used when they met the respondent for the interview.

Before the questions will be explained on a question-by –question basis Table 6.8 will indicate the linkage between the questions, research objectives and research propositions.

Table 6.8: The linkage between the questions in the questionnaire, secondary research objectives and research propositions

Questions linked to secondary objectives	
Objectives	Questions
(a) To determine whether marketing decision-makers in small organisations in South Africa can identify in what phase of the product life cycle an individual product or a product range is.	8, 9 & 10
(b) To identify the application of marketing decision-making variables in the various phases of the product life cycle concept by small organisations.	15 & 19
(c) To determine whether there are differences between small manufacturing and small dealer organisations with regard to the application of marketing decision-making variables in the various phases of the product life cycle concept.	2, 15 & 19
(d) To identify the importance of elements of the marketing mix variables by small manufacturing and small dealer organisations in the different product life cycle phases.	2, 15 & 19
(e) To investigate the ability of small organisations to describe the marketing objectives within the various product life cycle phases as indicated in the theory.	16
(f) To establish the ability of small organisations to identify product life cycle characteristics as depicted in marketing literature.	18
(g) To investigate the ability of small organisations to link marketing strategies with phases of the product life cycle theory according to the theory classification.	20
(h) To identify the different marketing objectives that small organisations formulate for their products in each phase of the product life cycle.	10.3
(i) To establish whether there are differences in the application of the product life cycle theory between small manufacturing and small dealer organisations.	2, 16, 18 & 20
(j) To identify the factors influencing a product through the various phases of the product life cycle among small organisations in South Africa.	10.2
(k) To determine the potential of the product life cycle concept for decision-making among small manufacturing and small dealer organisations in South Africa.	2 & 13
(i) To determine who is responsible for marketing decision-making in small manufacturing and small dealer organisations	2 & 14
Questions linked to propositions	
Propositions	Questions
Proposition 1 - There is a difference in the application of the product life cycle concept theory assumptions of small organisations in South Africa compared to Kotler's theory.	16, 18 & 20
Proposition 2 - Marketing managers of small organisations in Gauteng, South Africa use the product life cycle concept to plan and manage their products through the various phases of the product life cycle.	2, 11, 13 & 17
Proposition 3 - Small manufacturing organisations in Gauteng apply and use the product life cycle concept for marketing decision-making purposes.	2 & 17
Proposition 4 - Small dealer organisations in Gauteng apply and use the product life cycle concept for marketing decision-making purposes.	2 & 17
Proposition 5 - There is a significant difference between small manufacturing and small dealer organisations when applying and using the PLC concept for marketing decision-making purposes.	2, 6 & 17
Proposition 6 - Small manufacturing organisations and small dealer organisations in Gauteng, South Africa don't have a marketing function responsible for applying the product life cycle concept when marketing strategy is developed and marketing decisions are taken.	4

The primary objective as set in the introductory chapter one is not depicted in Table 6.8, but it can be related to questions 1 to 5 plus 6, 7, 8, 9, 11, 12, 13 &

14.

Table 6.9 illustrates the linkage between the different sections, different questions, question formats and the different scale types used in the questionnaire.

Table 6.9: The linkage between the different sections, questions, question formats and the different scale types.

Section	Question	Question format	Scale type
Section A	1	Closed-ended	-
	2	Closed-ended	-
	3	Open-ended	-
	4	Closed-ended	-
	5	Closed-ended	-
Section B	6	Closed-ended	5-point Likert scale plus a "don't know"
	7	Open-ended	-
	8	Closed-ended	-
	9	Closed-ended	Dichotomous
Section C	10	Open-ended and closed-ended	-
	11	Closed-ended	Dichotomous
	12	Closed-ended	-
	13	Closed-ended	5-point Likert scale
	14	Closed-ended	5-point Likert scale
	15	Closed-ended	5-point Likert scale
	16	Open-ended	-
Section D	17	Closed-ended	5-point Likert scale
	18	Closed-ended	-
	19	Closed-ended	5-point Likert scale
	20	Closed-ended	-

It is eminent from Table 6.9 that an unbalanced 5-point Likert scale was used based on the expectation that the distribution of responses might be skewed and that most of the respondents could have been favourable or unfavourable towards the various issues at hand. Respondents, who did not have a favourable or unfavourable inclination, were provided with a neutral position and the researcher could therefore determine the top box scores. The top box score refers to the percentage of respondents rating a brand, product, or concept in the most favourable category on the rating scale and is continuously used as a criterion of performance in marketing research (Dillon et al 1993: 278). Please refer to paragraph 6.7.3 where comparative and non-comparative scaling were discussed.

(a) Questions in Section A

Questions 1 to 5 are classification questions formulated to gather profile information on the different manufacturers and dealers as seen on pages 1 to 3 in Appendix 2. **Questions 1 – 5** will be cross-tabulated and used to partly answer propositions 1, 3, 4, 5 and 6. Questions 1, 2, 4 and 5 were closed ended question formats and question 3 was an open-ended question format to classify manufactures and dealers at a micro level for possible linkage to the SIC classification discussed in chapter 4.

(b) Questions in Section B

Questions 6 to 10 were formulated to determine the importance of the product life cycle concept in the execution of certain functions and aspects within small manufacturers and dealers as seen on pages 4 to 6 in Appendix 2.

A closed-ended question format was used for **question 6** because all the possible application areas were derived from the literature study discussed in chapter three. A 5-point Likert scale was used and the scale values were labelled from not important at all, indicated by a scale value of 1, to extremely important, indicated by a scale value of 5. A “don’t know” option was included to make provision for the probability that respondents might not be familiar with the application of the product life cycle concept on all the aspects in his/her organisation.

The reason for the inclusion of **Question 7** was to determine the aspects that provide a competitive advantage to small manufacturers and dealers. In particular this question can provide direction to the importance of the service component. This question can provide further justification to the view of Rafiq and Ahmed (1995: 4 – 15) that a generic marketing mix should be applicable irrespective of the type of marketing – whether consumer, industrial or services marketing. An open-ended question format was used, as the researcher could not anticipate all possible aspects, which may provide a competitive advantage to small manufacturers and dealers.

Questions 8 and 9 were included as they indicated the nature of the product assortment. A closed-ended questions format was used as the researcher derived the different types of product assortments from the literature study. A dichotomous format was used for question 9, as the answer to this question could either have been yes or no.

Questions 10, 10.1, 10.2 and 10.3 were formulated to determine in what PLC phase the primary product or product range is and for the respondents to provide a short description, reasons and a marketing objective for the primary product in that product life cycle phase. Answers to these questions can be compared to the marketing objectives provided by Kotler (2000: 316) as discussed in chapter three. Question 10 was an open-ended question directly related to the different phases of the product life cycle concept derived from the literature study. Questions 10.1 – 10.3 were all open-ended questions based on the possible diverse descriptions, reasons and marketing objectives that could not be anticipated beforehand.

(c) Questions in Section C

Questions 11 to 17, where respondents were asked to determine the role of the product life cycle concept in strategic marketing and strategic marketing planning, can be seen on pages 7 to 11 in Appendix 2. Questions 11, 12 and 13 will provide answers to the way in which small organisations use the product life cycle concept as an instrument for decision-making as stated in the title of this thesis. Questions 14 to 17 furthermore tested the control that small manufacturers and dealers have over the different marketing mix variables, especially the importance of the people, processes and physical evidence and marketing objectives within each phase of the product life cycle

Question 11 was formulated to determine whether small manufacturers and dealers use the product life cycle concept for strategic marketing planning and development purposes. A dichotomous format was used, because the answers to this question could be yes or no.

Question 12 assessed the time frame manufacturers and dealers used to do strategic marketing planning and development. This question is closely related to question 11 to provide a time frame.

Question 13 was formulated to determine the extent to which the product life cycle concept influences the process of marketing strategy planning and development. A 5-point Likert scale was used and the scale values were labelled from a very low influence indicated by a scale value of 1 to an extremely high influence indicated by a scale value of 5.

Question 14 tests the degree of control that manufacturers and dealers have over its marketing mix variables. A 5-point Likert scale was used and the scale values were labelled from no control at all indicated by a scale value of 1 to full control indicated by a scale value of 5.

Question 15 tests the importance that manufacturers and dealers attach to marketing mix variable aspects associated with people, processes and physical evidence. The marketing mix variables were developed from the literature to be generic for the marketing of physical products and services. The remainder of the marketing mix elements will be covered in question 19. A 5-point Likert scale was used and the scale values were labelled from not important at all, indicated by a scale value of 1, to extremely important indicated by a scale value of 5. This is an effort by the researcher to compare it to the strategies provided by Kotler (2000: 316), illustrated in Table 3.5 in chapter three and formulated as secondary objective (d) in the introductory chapter.

Question 16 differs from question 10.3 as this question intends to determine the **marketing objectives** that marketing decision-makers in small manufacturing and dealer organisations link to each phase of the product life cycle. This can be regarded as a generic type of question as the results on this question will be compared to the marketing objectives provided by Kotler (2000: 316), illustrated in Table 3.5. It will be used to achieve secondary objective (e) set in the introductory chapter.

Question 17 was formulated to establish the likelihood that current manufacturers and dealers using the product life cycle concept will continue to do so in future. The likelihood was tested for both general decision-making and marketing decision-making.

(d) Questions in Section D

Question 18 was formulated to evaluate the ability of marketing decision-makers in small manufacturers and dealers to link the *characteristics* provided by Kotler (2000: 316) and illustrated in Table 3.5 to each phase of the product life cycle. The results on this question will be compared to the marketing characteristics provided by Kotler (2000: 316) as depicted in Table 3.5.

Question 19 was formulated to determine the importance that manufacturers and dealers attach to marketing mix variable aspects associated with product, price, place and promotion. This question is closely related to question 15 that addresses people, processes and physical evidence. A 5-point Likert scale was used and the scale values were labelled from not important, indicated by a scale value of 1, to extremely important, indicated by a scale value of 5. This is an effort by the researcher to compare it to the *strategies* provided by Kotler (2000: 316) and illustrated in Table 3.5.

Question 20 was formulated to evaluate the ability of marketing decision-makers in small manufacturers and dealers to link the *strategies* provided by Kotler (2000: 316) to each phase of the product life cycle concept. The results on this question will be compared to the marketing strategies provided by Kotler (2000: 316) as depicted in Table 3.5.

6.9 INTERVIEWING PROCEDURE

The interviewers were trained during a training session by the researcher to ensure that they:

- Were familiar with the selection procedure of a sample element from the BMR list provided.

- Understood the procedure of making appointments with respondents adhering to the two qualifying or screening questions as seen on page 1 in Appendix 2.
- Were familiar with all the interviewer instructions as indicated in the dark highlighted areas in the questionnaire as seen on pages 1, 3, 6, 7, 8, 10, 11 and 13 (Appendix 2).
- Understood the concepts used in the questionnaire.
- Were familiar with the use of the different flash cards as can be seen on pages 1 to 4 in Appendix 3.

The interviewers should follow the interviewing procedure indicated by the interviewer instructions and this was reiterated during the training session. After an interview was finalised the interviewers followed the interviewer instructions as indicated in the dark highlighted areas in the questionnaire. No incentives were given to the respondents, but the interviewers were instructed to inform each respondent that the researcher would arrange a workshop and that the results obtained from this study would be shared during that occasion.

6.10 CODING AND EDITING

All questionnaires were numbered for the ease of possible future reference.

6.10.1 Coding

Coding is the assignment of a numerical value (code) or alphanumerical symbol to represent a specific response to a specific question along with the column position that the designated code or symbol will occupy on the data record (Dillon et al, 1993: 37). Numerical values were assigned to the closed-ended questions during questionnaire design, while responses to open-ended questions were written down and grouped together according to categories. Both the closed-ended and open-ended questions will be pre-coded, checked, edited and subjected to a content analysis process.

6.10.2 Editing

Editing involves the review of the questionnaires for accuracy and precision (Dillon et al, 1993: 37). During the editing process of this study all the usable questionnaires had been checked for maximum accuracy and precision. For accuracy purposes, attention was given to signs of interviewing bias or cheating.

6.10.3 Transferring of data

Data was captured on an internal database at the University of Pretoria and subjected to a verification process in order to eliminate non-response and data capturing mistakes. A data cleaning process was executed and the missing responses were identified. The various approaches dealing with missing responses will be discussed in the paragraph 6.11.1.

6.11 STATISTICAL PROCEDURES AND STATISTICAL TREATMENT USED IN THE ANALYSIS

The SAS computer statistical software package was used for data processing and the results and research findings will be discussed in chapter seven. The following statistical procedures can be applied:

6.11.1 Missing responses

There are various approaches dealing with missing responses by either preserving missing or blank spaces or by assigning values to missing data through mean response or imputed response.

Preserving missing or blank responses is an acceptable practice for different types of analysis. Missing or blank responses can be entertained by applying casewise deletion or by means of pairwise deletion.

- **Casewise deletion** is a strategy for missing responses by any respondent (case). The respondent (case) is removed if any of his or her answers are identified as missing (Dillon et al, 1993: 348).

- **Pairwise deletion** is a strategy for missing responses that involves using all of the available non-missing data for each calculation (Dillon et al, 1993: 348).

If 75% or more of a questionnaire is not completed the researcher will employ casewise deletion where all the answers provided by the respondent will be discarded.

The assignment of values to the missing data is also an acceptable way of handling missing responses. The researcher has a choice between a mean response strategy and an imputed response strategy.

- A **mean response** is an approach to missing responses that involves replacing the missing response with a constant mean, median or mode response to the question depending on the measurement scale used (Dillon et al, 1993: 348). The missing response items in this data transferring process were treated in a way that used a mean substitution approach. If applicable, each missing response item was replaced by the mean score of the answers by all the other respondents to those specific questions.
- An **imputed response** is an approach to missing responses where the respondent's answer to other questions used to impute or deduce an appropriate response to the missing question. The researcher did not employ this method.

6.11.2 Descriptive statistics

Descriptive statistics is a single number used by the researcher to summarise data. The researcher can use measures of central tendency and variability to routinely report when tabulating a study (Dillon et al, 1993: 372).

(a) Measures of central tendency, dispersion and distribution

A measure of central tendency is used to provide data on elevation – how

high or how low the scores on a question tend to be. A researcher can use the mean, mode and median to indicate central tendency, dispersion and distribution of data.

(i) The mean

The mean is the arithmetic average of a variable (Sudman and Blair, 1998: 456) and a measure of central tendency for interval and ratio scaled data (Dillon et al, 1993: 374).

(ii) The mode

The mode is the most frequently occurring value used as a measure of central tendency for data assuming a limited number of values (Dillon et al, 1993: 374).

(iii) The median

The median is the value that is halfway between the highest and the lowest value in a data set (Dillon et al, 1993: 375).

The researcher envisaged to make use of the mean values on scaled questions in order to determine the means score for the total sample and to make comparisons between small manufacturing organisations and small dealer organisations based on their mean value scores.

(b) Measures of variability

A researcher can use the range and the variance to indicate variability of data. Measures of variability indicate the degree of dispersion to the researcher – how spread out are the responses to a question (Dillon et al, 1993: 372).

(i) The range

The range is the difference between the largest and the smallest observation in a data set (Dillon et al, 1993: 375).

(ii) The variance

The variance is the average squared distance between the values of

individual observations on some variable and the mean of that variable (Sudman and Blair, 1998: 459).

(iii) The standard deviation

The standard deviation is the positive square root of the variance (Malhotra, 1996: 508).

Variances and standard deviations will be used by the researcher to determine whether mean differences between small manufacturing organisations and small dealer organisations can be regarded as significant differences or not.

6.11.3 Statistical techniques and procedures to be adopted in this research

The following are the main statistical procedures for possible inclusion in this research:

(a) Cross tabulation

Cross tabulation is a statistical technique that describes two or more variables simultaneously and results in tables that reflect the joint distribution of two or more variables that have a limited number of categories or distinct values.

(b) Validity

Validity according to Malhotra (1996: 240) is the extent to which differences in observed scale scores reflect true differences among objects on the characteristic being measured, rather than systematic or random errors. Malhotra (1996: 240) distinguishes between internal validity and external validity. Internal validity is the measure of accuracy of an experiment and external validity is a determination of whether the cause-and-effect relationships found in the experiment can be generalised.

For validity purposes of this study a decision was taken to have strict control over item non-responses.

According to Diamantopoulos and Sclegelmilch (1997: 35 - 36) there are three validity assessment approaches:

- (i) **Content validity** – the extent to which a measure appears to measure the characteristic it is supposed to measure. Content validity can be determined by means of face validity and sampling validity. Face validity is the extent to which one measure seems to capture the characteristic of interest. Sampling validity is the extent to which a “content population” of situations/behaviours relating to the characteristic of interest is adequately represented by the measure concerned.
- (ii) **Criterion validity** – the extent to which a measure can be used to predict an individual’s score on some other characteristics (the criterion). Content validity can be determined by means of concurrent and predictive validity. Concurrent validity is the extent to which a measure is related to another measure when both are measured at the same point in time. Predictive validity is the extent to which current scores on a given measure can predict future scores of another measure.
- (iii) **Construct validity** – the extent to which a measure behaves in a theoretically sound manner. Construct validity can be determined by means of convergent validity, discriminant validity and nomological validity. *Convergent validity* is the extent to which a measure is positively related to other measures of the same concept obtained by independent methods. *Discriminant validity* is the extent to which a measure is not related to measures of different concepts with which no theoretical relationships are expected. *Nomological validity* is the extent to which a measure is related to measures of other concepts in a manner consistent with theoretical expectations.

To report the validity of the results for this study the researcher will make use of content validity. The use of content validity is based on the uniqueness of

the questionnaire (use of open-ended questions) and the exploratory nature of the study.

6.11.4 Statistical treatment

The researcher will treat the statistical analysis as follows:

- (a) As far as the analysis permits, the researcher will use mean substitution on scaled question where the scale values will be replaced by the mean score of all the other respondents on the same question especially to treat the “don’t know” options in question 6.
- (b) The researcher will employ the mean response strategy to report tendencies, dispersions and distribution in the data for the total realised sample and per organisational type – small manufacturers and dealers in Gauteng.
- (c) The researcher will use standard deviations to report variability in the data for the total realised sample and per organisational type – small manufacturers and dealers in Gauteng.
- (d) The researcher will make use of cross tabulations on variables and organisational type to compare results achieved on the total realised sample and per organisational type – small manufacturers and small dealers in Gauteng.
- (e) The researcher will employ t-tests to determine whether differences identified between groups and or variables can be regarded as significant differences or not.
- (f) The researcher intends to utilise content validity to indicate that the measurements used, captured the characteristics of interest.

6.12 CONCLUSION

This chapter provided a description of the various data collection methods and the personal face-to-face interviewing technique to be used as data collection method. Special reference was made to the two phased stratified sampling procedure, the determination of the sample size, the compilation of the final questionnaire and the pre-testing procedure followed during the empirical execution of the research.

The next chapter (chapter seven) will provide a discussion on the results and interpretation thereof along with the outcomes of the different research propositions as formulated in the introductory chapter and substantiated in chapter five.

CHAPTER 7

RESEARCH RESULTS AND INTERPRETATION

7.1 INTRODUCTION

This chapter will be an exposition of the results on a question-by-question basis. The result of each individual question will start with a repetition of the questions as formulated in the final questionnaire (Appendix 2). Results will be presented in a table format and the variable numbers (V) as used in the questionnaire will be shown in all relevant tables.

The reporting will start with an illustration of the results achieved by the total sample realised, based on a descriptive statistical analysis of frequencies, mean scores, top-box scores, low-box scores and standard deviations. Hereafter a cross tabulation procedure will be executed to reveal possible differences or similarities by organisational type (small manufacturing organisations and small dealer organisations). T-tests will be performed to determine whether differences per organisational type are significant or not.

The research results will be supplemented by a discussion of other relevant and important cross tabulations, the representativeness of the sample and the validity of the questionnaire. The reporting will be concluded with a summary of the major findings and possible support for the various research propositions.

7.2 REALISATION RATE

A sample frame as described in chapter 6 was obtained from the Bureau of Market Research (BMR) Register at the University of South Africa. The sample frame used in this study to fill the different strata is shown in Table 7.1 and it depicts the composition of the different strata per organisational type in Gauteng – manufacturer and dealer organisations employing between 11 – 50 employees.

Table 7.1: A description of the sample frame

Area	Organisational type		TOTAL
	Manufacturers	Dealers	
Pretoria	361 (stratum 1)	453 (stratum 2)	814
Johannesburg	1981 (stratum 3)	1609 (stratum 4)	3590
TOTAL	2342	2062	4404

The fieldwork was conducted in Pretoria and Johannesburg by three fieldworkers from 20 March 2001 to 4 May 2001 and the realisation rate from the sample frame is depicted in Table 7.2

Table 7.2: The realisation rate

Description	Pretoria		Johannesburg		Total
	Manufacturers	Dealers	Manufacturers	Dealers	
<i>Number of organisations on the BMR list</i>	361	453	1981	1609	4404
Wrong telephone numbers on the BMR list	96	94	374	317	881
<i>Number of organisations after the deduction of all the wrong telephone numbers</i>	265	359	1607	1292	3523
Three calls made but no answer	45	50	180	109	384
<i>Number of organisations after the deduction of all the wrong telephone numbers and three calls made but no answer</i>	220	309	1427	1183	3139
Don't know or don't apply the PLC	132	185	856	709	1882
<i>Number of organisations after the deduction of all the wrong telephone numbers, three calls made but no answer and don't know or don't apply the PLC = Total number of small manufacturing and dealers in Gauteng organisations knowing of and applying the PLC</i>	88	124	571	474	1257
Actual calls made	40	65	335	403	843
Interviews granted	2	9	19	63	93
Realisation rate of the total organisations knowing of and applying the PLC concept	(2/88) 2.27%	(9/124) 7.25%	(19/571) 3.33%	(63/474) 13.29%	(93/1257) 7.39%

The reasons for the low overall realisation rate of **7.39%** depicted in Table 7.2 are:

- A large number (**20%**) wrong numbers appeared on the BMR list.

- Three calls made to **10.89%** of the numbers listed where no answer was received.
- A large number (**59.95%**) of the organisations listed on the BMR don't know of and don't apply the PLC concept. This percentage is a confirmation of the exercise completed during the determination of the sample size in chapter 6, whereby 40% of the 80 organisations selected randomly from the BMR list indicated that they know of and apply the PLC concept.

It is evident from Table 7.2 that only **11.03%** (93/843) of the organisations called, granted an interview. Reasons for this phenomenon are:

- The **confidentiality** of PLC information to the organisation.
- Marketing decision-makers **not interested** in an interview.
- Marketing decision-makers **not having the time available** for an interview.

It is important to note that of the 93 responses received only one questionnaire was eliminated for statistical analysis due to its incompleteness. Data on the remaining 92 questionnaires were captured and 86 (**93.47%**) of the 92 questionnaires were fully completed.

The main finding from the realisation rate is that 40.05% (1257/3139) of marketing decision-makers within small manufacturing organisations and small dealer organisations of the sample in Gauteng with between 11 – 50 employees indicated that their organisations know of and apply the product life cycle concept as a decision-making vehicle.

7.3 THE REPRESENTATIVENESS, VALIDITY AND RELIABILITY OF RESULTS

Before a question-by-question exposition of the results will be reported it is important to describe the representativeness, validity and the reliability of the

results. This is necessary to provide the correct context in which the results can be interpreted and conclusions can be drawn.

7.3.1 Representativeness of the results

Although the sampling elements were randomly selected from each stratum as illustrated in Figure 6.2 and depicted in paragraph 6.5.4, the results achieved during this study are **only** representative of the industries and area in which it was conducted as the researcher strictly followed the intended stratified sampling procedure.

The different strata in the sample was not filled due to the following phenomena:

- A strict criterion was applied and resulted in 60% of the sample frame not qualifying to participate in the study.
- A high percentage (20%) of the telephone numbers appearing on the list / sample frame as obtained from the Bureau of Market Research (BMR) appeared to be wrong.
- Poor co-operation was received from the eligible sample elements - only 93 of the 1257 eligible sample elements were willing to grant an interview.

7.3.2 Validity of the results

Validity and reliability tests were applied to determine whether or not the researcher truly measured what was intended to be measured and whether or not the researcher can replicate these responses at a later stage.

As the research design for this study is of an exploratory nature the questionnaire was designed from the literature and tested in a specific industry with a very low sample realisation as depicted in Table 7.2. Based on this the validity and reliability cannot be proven statistically, but the validity can be evaluated based on the face validity of the questionnaire.

As portrayed in chapter six, **validity** is the extent to which differences in observed scale scores reflect true differences among objects on the

characteristic being measured, rather than systematic or random errors (Malhotra, 1996: 240).

The content validity approach was used by the researcher to measure the validity of the results obtained during this study by determining whether questions in the measurement instruments used measured the characteristic it was supposed to measure. Experts from organisations such as South African Breweries (SAB) and Nedcor validated the questions as described in the pre-testing procedure (paragraph 6.8.5).

The content of the measures in the questionnaire originated from previous studies reported in the literature review and was regarded to be sufficient to address the objectives of this study formulated in chapter one.

7.4 RESULTS ON A QUESTION-BY-QUESTION BASIS

The researcher will report the results on scaled questions by using the mean value, top-box score, low-box score and standard deviation. If necessary the standard deviation will be used to indicate homogeneity and/or heterogeneity on the mean scores per organisational type (small manufacturing organisations and small dealer organisations).

7.4.1 Section A

The purpose of Section A was to obtain classification information on manufacturers and dealers in Gauteng included in the empirical part of this study. The following results provide the necessary classification information that will be vital for cross-tabulation purposes later on in the analysis.

(a) Questions 1 and 2

Q 1: Location of the organisation	Pretoria	Johannesburg
Q2: Classification	Manufacturer	Dealer

The result of location and classification is illustrated in Table 7.3.

Table 7.3: Classification of organisations realised per region

Area	Organisational type				Total	
	Manufacturers		Dealers			
	Number	Percentage	Number	Percentage	Number	Percentage
Pretoria	2	9.52%	8	11.26%	10	10.87%
Johannesburg	19	90.48%	63	88.74%	82	89.13%
TOTAL	21	100%	71	100%	92	100%

The majority (**89.13%**) of responses as illustrated in Table 7.3 was realised in Johannesburg.

Because of the relatively low response rate in the Pretoria region the regions can and will not be compared - only the organisational types (small manufacturing organisations and small dealer organisations).

(b) Question 3

What is the nature of your core business?

The classification of organisations based on their core business activities is classified in Table 7.4.

The result of this question clearly indicates that the majority of organisations realised by the stratified sampling procedure is information technology (IT) manufacturers and dealers with a total of **17.39%** followed by vehicle manufacturers and dealers (**9.78%**), clothing and footwear manufacturers and dealers (**8.70%**), FMCG dealers (**7.61%**) and electronic manufacturers and dealers (**6.52%**) as listed in Table 7.4.

The majority of dealer organisations are from information technology (IT) with a frequency of **14.13%** followed by electronics and vehicles (**6.52%**) and multimedia, furniture and FMCG's (**5.43%**).

Table 7.4: Classification of organisations by core business activities

Description of the core business	Frequency					
	Manufacturers		Dealers		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Stationery	3	3.26%	2	2.17%	5	5.43%
Pharmaceuticals	3	3.26%	1	1.09%	4	4.35%
Electronics	0	0.00%	6	6.52%	6	6.52%
Garden equipment	0	0.00%	1	1.09%	1	1.09%
Multi-media	0	0.00%	5	5.43%	5	5.43%
Clothing and footwear	1	1.09%	7	7.61%	8	8.70%
IT (Computers, Software, hardware, wholesale & retail)	3	3.26%	13	14.13%	16	17.39%
Security	2	2.17%	2	2.17%	4	4.34%
Building	2	2.17%	1	1.09%	3	3.26%
Vehicles	3	3.26%	6	6.52%	9	9.78%
Paint	0	0.00%	2	2.17%	2	2.17%
Hardware	0	0.00%	3	3.26%	3	3.26%
Furniture	0	0.00%	5	5.43%	5	5.43%
Meat	0	0.00%	1	1.09%	1	1.09%
Import and export	0	0.00%	1	1.09%	1	1.09%
Cell phones and accessories	0	0.00%	3	1.09%	3	3.26%
Sports equipment	1	1.09%	1	1.09%	2	2.18%
Jewellery	1	1.09%	0	0.00%	1	1.09%
FMCG's	2	2.17%	5	5.43%	7	7.61%
Books	0	0.00%	3	3.26%	3	3.26%
Interior decorating / Flower/ Florist	0	0.00%	1	1.09%	1	1.09%
Vehicle fitment products	0	0.00%	1	1.09%	1	1.09%
Office equipment	0	0.00%	1	1.09%	1	1.09%
TOTAL	21	22.83%	71	77.17%	92	100%

Manufacturers are not as widely represented across the different categories as dealers and are mainly from stationery, pharmaceuticals, IT, and vehicle manufacturers with a frequency of **3.26%** in each of these categories.

(c) Question 4

Name all the **departments** or **functions** in your organisation?

The total frequency distribution is depicted in Table 7.5 and indicates that the majority of organisations in Gauteng have an accounts department or function (V6) **92.39%**, sales department or function (V17) **91.30%**, marketing department or function (V14) **68.47%**, customer service department or

function (V9) **60.87%** and public relations / PR department or function (V16) **20.66%**.

Table 7.5: Departments and functions within manufacturer and dealer organisations

Departments or functions		Frequency					
		Manufacturers		Dealers		Total of sample (N = 92)	
		Number	Percentage	Number	Percentage	Number	Percentage
V6.	Accounts	20	21.74%	65	70.65%	85	92.39%
V7.	Buying / Purchasing	15	16.30%	65	70.65%	80	86.95%
V8.	Communication	1	1.09%	11	11.96%	12	13.05%
V9.	Customer service	10	10.87%	46	50.00%	56	60.87%
V10.	Finance	11	11.96%	37	40.22%	48	52.18%
V11.	Human resources	6	6.52%	19	20.65%	25	27.17%
V12.	Information Technology (IT)	8	8.70%	18	19.57%	26	28.26%
V13.	Legal	6	6.65%	18	19.57%	24	26.09%
V14.	Marketing	18	19.57%	45	48.91%	63	68.47%
V15.	Production	13	14.13%	4	4.35%	17	18.48%
V16.	Public relations (PR)	1	1.09%	18	19.57%	19	20.66%
V17.	Sales	19	20.65%	65	70.65%	84	91.30%
V18.	Technical support	6	6.52%	19	27.17%	25	27.17%
V19.	Research and development (R&D)	6	6.52%	5	5.43%	11	11.95%
V20.	Other	2	2.17%	5	5.43%	7	7.60%

The frequency distribution for the marketing department or function (V14) (**68.47%**) as depicted in Table 7.5 is an important trend to be used for cross tabulation purposes in order to provide answers to certain aspects (for example; the identification of marketing characteristics) evaluated during this study. It is furthermore an indication of the level of marketing expertise and should be taken into account when the application of marketing related activities are analysed.

According to Table 7.5 only 17 (**18.48%**) of the organisations indicated that they have a production department or function (V15). Twenty-one of the sample were manufacturers according to Table 7.4 but only 62% indicated that they had a production department (V15) in Table 7.5. One would have

assumed that all of the manufacturing organisations would have indicated having a production department or function. The functions reported under “**Other**” (V20) in Table 7.5 include administration, workshop, medical department and receiving, with a frequency of **7.60%**.

The departmental or functional frequency will provide possible distinguishable answers when manufacturers and dealers are compared as to the importance of specific marketing mix aspects and the identification of marketing characteristics, marketing objectives and marketing strategies in the different PLC phases in the latter part of the analysis.

The main finding is that 68.47% of manufacturer and dealer organisations have a marketing department or function although 91.30% indicated that they have a sales function.

(d) Question 5

How many employees are working in your organisation?

The majority of organisations in Gauteng employ between 11 and 20 employees indicated by the cumulative percentage of **52.17%** depicted in Table 7.6. This cumulative percentage is an indication that more than half of the organisations in the sample is very small with reference to organisational size, as quantified in terms of the number of employees.

Table 7.6: Organisational size according to the number of employees

Number of employees	Frequency	Percentage	Cumulative percentage
11 – 15	23	25.00%	25.00%
16 – 20	25	27.17%	52.17%
21 – 30	18	19.57%	71.74%
31 – 40	14	15.22%	86.96%
41 – 50	12	13.04%	100%
TOTAL	N = 92	100	-

Table 7.6 indicates that **27.17%** of all manufacturing and dealer organisations in Gauteng employ between 16 and 20 employees. Furthermore, 28.26%

(**15.22% + 13.04%**) of these organisations can be regarded as “large” small organisations as they employ between 31 and 50 people. Table 7.7 will however reveal possible differences between manufacturers and dealers based on the number of employees.

Table 7.7: Organisational size according to the number of employees by organisational type

Number of employees	Frequency					
	Manufacturers		Dealers		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
11 – 15	3	3.26%	20	21.74%	23	25.00%
16 – 20	1	1.09%	24	26.09%	27	27.17%
21 – 30	8	8.70%	10	10.87%	19	19.57%
31 – 40	5	5.43%	9	9.78%	15	15.22%
41 – 50	4	4.35%	8	8.70%	13	13.04%
TOTAL	21	22.83%	71	77.17%	92	100%

Table 7.7 illustrates a more even spread of employment size among manufacturers within the different categories. On the contrary dealers are mainly small as indicated by the frequency percentages of **21.74%** and **26.09%** employing between 11 – 15 and 16 – 20 respectively.

The main finding is that the majority of manufacturer and dealer organisations in the sample can be regarded as small, based on the fact that they have between 11 – 20 employees.

7.4.2 Section B

The purpose of Section B was to determine the product life cycle’s importance and to test the ability of marketing decision-makers of manufacturers and dealers in Gauteng on PLC phase identification and application. The following results provide the necessary information on PLC importance and application ability.

(a) Question 6

How **important** is the application of the product life cycle concept in the execution of the following aspects in your organisation? (**“1” would indicate that the aspect is not important at all and “5” would indicate that the aspect is extremely important**).

The aspects, which are regarded as important as associated with the application of the product life cycle concept, are illustrated in Figure 7.8.

Table 7.8: Aspects of importance in the application of the PLC concept

Aspect	*N	Mean	Top-box score	Low-box score	Standard deviation
V22. Buying	90	4.70	75.56%	0.00%	0.56
V23. Costing	90	4.32	54.44%	0.00%	0.87
V24. Forecasting	89	3.61	26.97%	1.12%	1.05
V25. Manufacturing	89	2.68	26.97%	25.84%	1.54
V26. Product development	87	3.03	27.59%	14.94%	1.38
V27. Pricing	90	4.56	70.00%	1.11%	0.80
V28. Distribution	90	4.23	48.89%	0.00%	0.87
V29. Advertising	90	4.17	47.78%	1.11%	0.94
V30. Sales promotion	90	4.16	48.89%	3.33%	1.04
V31. Monitoring market share	90	3.26	15.56%	5.56%	1.07
V32. Competitive evaluation	90	3.91	33.33%	1.11%	0.95
V33. Managing brands	90	3.60	32.22%	8.89%	1.27
V34. Allocating resources	90	3.83	31.11%	1.11%	1.03

* N = the number of respondents who answered the question

Buying (V22) is indicated by the total realised sample to be the most important aspect when applying the product life cycle concept as shown by a mean score of **4.70**, a top-box score of **75.56%** (respondents who selected extremely important) and a standard deviation of **0.56** depicted in Table 7.8. Buying (V22) as the most important application area of the product life cycle concept is followed by pricing (V27) and costing (V23) with mean scores of **4.56** and **4.32** and top-box scores of **70.00%** and **54.44%** respectively. The

low-box scores depicted in Table 7.8 indicate that results vary between **0.00%** and **25.84%**.

The standard deviation of buying (V22) is the lowest of all the aspects. One can conclude that the sample was the most homogeneous on the importance of buying as an aspect in the application of the PLC.

Manufacturing (V25) had the highest standard deviation (**1.54**) as depicted in Table 7.8 and the sample responses are therefore the most heterogeneous on the importance of manufacturing in the application of the PLC. This deduction should be treated with caution as the majority of the sample consisted of small dealer organisations.

Table 7.9 illustrates whether there are differences in the importance of certain aspects in the application of the PLC concept between manufacturers and dealers.

Table 7.9: Aspects of importance in the application of the PLC concept

Aspect	Manufacturers			Dealers		
	*N	Mean	Standard deviation	*N	Mean	Standard deviation
V22. Buying	21	4.47	0.67	69	4.76	0.51
V23. Costing	21	4.38	0.80	69	4.30	0.89
V24. Forecasting	20	3.70	0.80	69	3.68	1.11
V25. Manufacturing	21	4.61	0.92	69	2.54	1.36
V26. Product development	21	4.19	1.20	69	3.07	1.33
V27. Pricing	21	4.28	0.95	69	4.65	0.74
V28. Distribution	21	4.28	0.71	69	4.21	0.92
V29. Advertising	21	3.47	1.07	69	4.39	0.79
V30. Sales promotion	21	3.61	1.02	69	4.33	0.99
V31. Monitoring market share	21	3.23	1.17	69	3.27	1.05
V32. Competitive evaluation	21	3.57	1.12	69	4.01	0.88
V33. Managing brands	21	3.09	1.13	69	3.75	1.28
V34. Allocating resources	21	4.23	0.53	69	3.71	1.11

* N = the number of respondents who answered the question

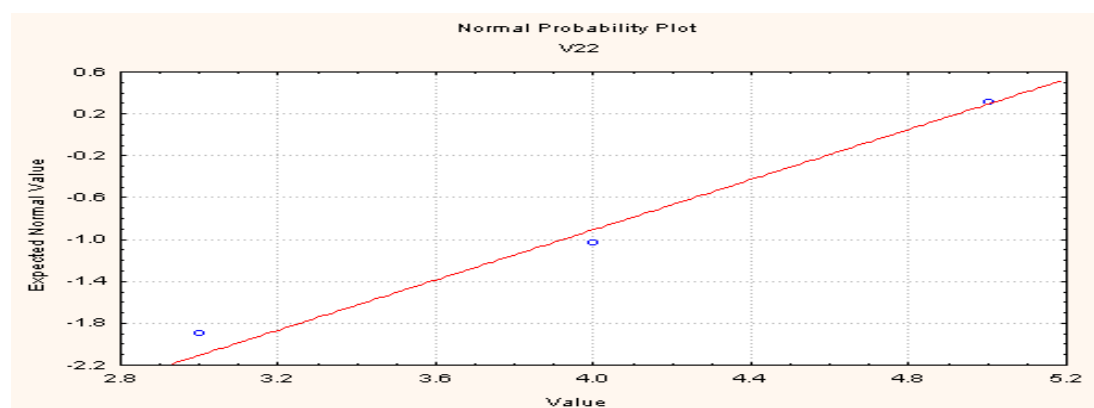
The application of the product life cycle concept is the most important to manufacturers for manufacturing (V25) as indicated by a mean score of **4.61**,

followed by buying (V22) and costing (V23) with mean scores of **4.47** and **4.38** respectively as depicted in Table 7.9. Dealers indicated that the product life cycle concept is most important to them for buying (V22) purposes as indicated by a mean score of **4.76**, followed by pricing (V27) and advertising (V29) with mean scores of **4.65** and **4.39** respectively. Dealers in comparison with manufacturers indicated a higher importance of applying the product life cycle concept for marketing mix related purposes.

The product life cycle concept is of lesser importance to manufacturers when applying the product life cycle concept for managing brands (V33) indicated by a mean score of **3.09**, followed by monitoring market share (V31) and advertising (V29) with means scores of **3.32** and **3.47** respectively (Table 7.9). Dealers indicated in Table 7.9 that the product life cycle concept is of lesser importance to them when applying the product life cycle for manufacturing (V25) indicated by a low mean score of **2.54**, followed by product development (V26) and monitoring market share (V31) of **3.07** and **3.27** respectively.

The Shapiro-Wilks' W test was computed to determine whether the variables in this question were normally distributed or not. Figure 7.1 illustrates the Shapiro-Wilks' W test result for the test of normality computed on buying (V22) in question 6.

Figure 7.1: Normal probability plot



Kolmogorov-Smirnov one-sample D statistic = .19780, $p < .01$; Lilliefors $p < .01$ and Shapiro-Wilks' W test = 0.84095, $p < .0000$

The normal probability plot indicates that buying (V22) does not have a normal distribution as the point on the normal probability plot was scattered around the diagonal line. Three statistical tests for normality including the Lilliefors test and Kolmogorov-Smirnov one-sample D statistic were conducted. The results of all three these tests indicate that V22 is not normally distributed. This can for example be seen from a highly significant p-value of 0.0000 of the Shapiro-Wilks' W test. This test result is regarded as the preferred test of normality because of its good power properties as compared to alternative tests. Similar results were obtained for all the other variables tested. The procedure will therefore not be repeated when other non-parametric statistics are employed.

As the researcher didn't anticipate the use of non-parametric statistics in the discussion of the statistical treatment methodology in chapter 6, the different non-parametric tests used for analysis will be described on page 4 in Appendix 4.

Table 7.10 illustrates significance testing done by the employment of the Mann Whitney U test to determine whether the mean scores in Table 7.9 on the importance of aspects between small manufacturing organisations and small dealer organisations can be regarded as significant.

If the decision-rule that a p-value ≤ 0.05 is indicative of a significant difference, then the p-values depicted in Table 7.10 show significant differences on mean values between manufacturers and dealers on manufacturing (V25) **0.0000**, advertising (V29) **0.0003**, product development (V26) **0.0007**, sales promotion (V30) **0.0011**, pricing (V27) **0.017**, managing brands (V33) **0.0197** and buying (V22) **0.0272**. These differences can therefore be regarded as significant.

It is evident from Table 7.10 that dealers regard buying (V22) with a mean value of **4.76**, pricing (V27) with a mean value of **4.65** and advertising (V29) with a mean value of **4.39** as more important than manufacturers.

Table 7.10: Significance testing of means regarding aspects of importance

Aspect	Mean		p-value
	Manufacturers	Dealers	
V22. Buying	4.47	4.76	0.0272
V23. Costing	4.38	4.30	0.8039
V24. Forecasting	3.70	3.68	0.9187
V25. Manufacturing	4.61	2.54	0.0000
V26. Product development	4.19	3.07	0.0007
V27. Pricing	4.28	4.65	0.0170
V28. Distribution	4.28	4.21	0.9876
V29. Advertising	3.47	4.39	0.0003
V30. Sales promotion	3.61	4.33	0.0011
V31. Monitoring market share	3.23	3.27	0.8105
V32. Competitive evaluation	3.57	4.01	0.0912
V33. Managing brands	3.09	3.75	0.0197
V34. Allocating resources	4.23	3.71	0.0683

Manufacturers regarded manufacturing (V25) with a mean value of **4.61** and product development (V26) with a mean value of **4.19** as more important than dealers.

The main finding is that there are significant differences between small manufacturing organisations and small dealer organisations when applying the product life cycle concept. Small dealers regarded buying, pricing and advertising as more important than small manufacturers.

Another main finding is that small manufacturers regarded manufacturing and product development as more important than small dealers do.

The p-values in Table 7.10 on distribution (V28), forecasting (V24), costing (V23), monitoring market share (V31), competitive evaluation (V32) and allocating resources (V34) are all larger than 0.05 and the differences on these mean values cannot be regarded as significant.

The main finding from this is that there are no significant differences between small manufacturing organisations and small dealer

organisations when applying the product life cycle concept in the execution of distribution, forecasting, costing, monitoring market share, competitive evaluation and allocation of resources, although these aspects are important.

The relatively low mean scores of manufacturing (V25) and product development (V26) of dealers can be expected as they are buyers and sellers of goods and services and the low mean score on advertising (V29) by manufacturers can be indicative of manufacturers supporting dealers in related advertising activities.

The main finding is that small manufacturing organisations in Gauteng regard *manufacturing*, and small dealer organisations regard *price*, as the most important aspects when applying the product life cycle concept.

(b) Question 7

Name three aspects that provide a competitive advantage for your organisation?

Competitive advantage is an organisation's ability to perform in one or more ways that competitors will not or cannot match (Kotler, 2000: 316). It was revealed in the literature study in chapter two that the PLC concept is an important aspect to create a competitive advantage and is realised through the organisation's marketing strategy, the implementation thereof and the context in which competition unfolds.

This question resulted into **50 reasons** for achieving a competitive advantage and these reasons are shown in Table 7.11. The reasons include marketing strategy elements for competitive advantage as discussed in chapter two. Marketing mix instruments are dominant aspects together with core competencies, resources, management and relationships with major stakeholders. Table 7.11 depicts the various marketing mix instruments that

are used to create a competitive advantage for the small manufacturing and small dealer organisations.

Table 7.11: Factors providing a competitive advantage

Aspect	Frequency					
	Manufacturers		Dealers		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
1. Price	8	2.94%	42	15.44%	50	18.38%
2. Delivery	1	0.37%	0	0.00%	1	0.37%
3. Supply (reliability / relationship)	4	1.47%	15	5.51%	19	6.99%
4. Manufacturing process	2	0.74%	1	0.37%	3	1.10%
5. Distribution	6	2.21%	11	4.04%	17	6.25%
6. Brand	2	0.74%	12	4.41%	14	5.15%
7. Buyer relationships	2	0.74%	6	2.21%	8	2.94%
8. Quality	7	2.57%	10	3.68%	17	6.25%
9. Franchise name	0	0.00%	3	1.10%	3	1.10%
10. Service quality	4	1.47%	10	3.68%	14	5.15%
11. Peripheral service	0	0.00%	1	0.37%	1	0.37%
12. Sole manufacturer	1	0.37%	0	0.00%	1	0.37%
13. Government support	1	0.37%	1	0.37%	2	0.74%
14. Promotion	0	0.00%	1	0.37%	1	0.37%
15. Buy large quantities	0	0.00%	1	0.37%	1	0.37%
16. Advertising	0	0.00%	9	3.31%	9	3.31%
17. Few competitors	3	1.10%	2	0.74%	5	1.84%
18. Management	2	0.74%	2	0.74%	4	1.47%
19. Large target market	1	0.37%	0	0.00%	1	0.37%
20. Good industry relationships	2	0.74%	2	0.74%	4	1.47%
21. Customer relationships	3	1.10%	3	1.10%	6	2.21%
22. Specialists	2	0.74%	3	1.10%	5	1.84%
23. Size (customer volume)	0	0.00%	2	0.74%	2	0.74%
24. Reputation	0	0.00%	3	1.10%	3	1.10%
25. Niche market	0	0.00%	2	0.74%	2	0.74%
26. Location	0	0.00%	18	6.62%	18	6.62%
27. Product phasing out	0	0.00%	1	0.37%	1	0.37%
28. Customer base	1	0.37%	2	0.74%	3	1.10%
29. Well-trained staff	2	0.74%	1	0.37%	3	1.10%
30. Forecasting	0	0.00%	4	1.47%	4	1.47%
31. Resource allocation	1	0.37%	0	0.00%	1	0.37%
32. Competitive evaluation	1	0.37%	8	2.94%	9	3.31%
33. Sales promotion	1	0.37%	10	3.31%	10	3.68%
34. Product availability	0	0.00%	4	1.47%	4	1.47%
35. Low expenses	0	0.00%	1	0.37%	1	0.37%
36. Support	0	0.00%	1	0.37%	1	0.37%
37. Product development	0	0.00%	0	0.37%	1	0.37%
38. Quality control	1	0.37%	0	0.00%	1	0.37%
39. Warranties	0	0.00%	1	0.37%	1	0.37%
40. Manufacturing	0	0.00%	1	0.37%	1	0.37%
41. In-store promotion	0	0.00%	1	0.37%	1	0.37%
42. Good value for money	1	0.37%	0	0.00%	1	0.37%
42. Wide product range	0	0.00%	3	1.10%	3	1.10%
43. Infrastructure	0	0.00%	1	0.37%	1	0.37%
44. Loyal customers	0	0.00%	2	0.74%	2	0.74%
45. Good sales team	0	0.00%	1	0.37%	1	0.37%
46. Strong marketing ability	1	0.37%	0	0.00%	1	0.37%
47. International backing or support	0	0.00%	1	0.37%	1	0.37%
48. After sales support	1	0.37%	0	0.00%	1	0.37%
49. Performance culture	0	0.00%	1	0.37%	1	0.37%
50. Costing	1	0.37%	6	2.21%	7	2.57%
TOTAL*	61	22.43%	211	77.57%	272	100%

* The total reflects more than the total sample because of multiple mentions

The following list of marketing mix related aspects as depicted in Table 7.12 together with the appropriate frequencies are derived from Table 7.11:

Table 7.12: Marketing mix instruments and marketing related aspects responsible for providing a competitive advantage

Marketing mix instrument	Marketing related aspects	Frequency
Product	Quality (no 8) (6.25%), service quality (no 10) (5.15%), brand (no 6) (5.15%), product availability (no 34) (1.47%), wide product range (no 42) (1.10%), warranties (no 39) (0.37%) and product development (no 37) (0.37%)	19.86%
Price	Price (no 1) (18.38%) and good value for money (no 42) (0.37%)	18.75%
Place	Location (no 26) (6.62%) and distribution (no 5) (6.25%)	12.87%
Promotion	Promotion (no 14) (3.68%), advertising (no 16) (3.31%) and in-store promotions (41) (0.37%)	7.36%
People	Well-trained staff (no 29) (1.10%) and a good sales team (45) (0.37%)	1.47%
Processes	Manufacturing (no 40) (1.10%), quality control (no 38) (0.37%) and after sales support (48) (0.37%)	1.84%
Physical evidence	Reputation (no 24) (1.10%)	1.10%

It is evident from Table 7.12 that marketing decision-makers of small manufactures and small dealers in Gauteng can identify aspects providing a competitive advantage to their respective organisations. These marketing related aspects can be related to all seven marketing mix instruments as illustrated in Table 7.12. Price (no 1) **18.38%** is the most popular marketing related aspect responsible for providing a competitive advantage as depicted in Table 7.12.

The main finding is that *price* (18.38%) is the major aspect responsible for creating a competitive advantage as reported by the total sample.

Collectively product (**19.86%**) is the marketing mix instrument with the most associated marketing related aspects and physical evidence is the marketing mix instrument with the least associated marketing related aspects (**1.10%**).

The main finding is that *product* (19.86%) is the most important marketing mix instrument for creating a competitive advantage based on the collective summation of marketing related aspects as reported by the total sample.

Other reasons (excluding the marketing mix instruments) for providing a competitive advantage are listed in Table 7.13.

Table 7.13: Other marketing related aspects responsible for providing a competitive advantage

Marketing related aspects	Description of the marketing related aspects	Frequency
Relationships	Supplier relationships (no 3) (6.99%), buyer relationships (no 7) (2.94%) customer relationships (no 21) (2.21%) and industry relationships (no 20) (1.47%)	13.61%
Competition	Competitive evaluation (no 32) (3.31%)	3.31%
Costing	Costing (no 50) (2.57%)	2.57%
Forecasting	Forecasting (no 30) (1.47%)	1.47%

The main finding is that *relationships* (13.61%) are the most important *other marketing mix related aspect* creating a competitive advantage (more important than place, promotion, people, processes and physical evidence) as reported by the total sample.

The marketing related aspects depicted in Table 7.12 and Table 7.13 were revealed in the literature study in chapter three, but it is however surprising that the product life cycle concept as such is not mentioned as one of the aspects responsible for creating a competitive advantage. It is surmised that respondents (marketing decision-makers) know of and apply the PLC but focused on the result of using the PLC and not the PLC as a means in decision-making to create an advantage.

When marketing aspects responsible for providing a competitive advantage in Table 7.11 are compared between manufacturers and dealers, then the most important marketing aspects per group are reported in Table 7.14.

Table 7.14: Competitive advantage comparison by organisational type

Organisational type	Marketing aspects responsible for competitive advantage
Small manufacturers	Price (no 1) 2.94% , quality (no 8) 2.57%, distribution (no 5) 2.21%, supply (no 3) 1.47%, service quality (no 10) 1.47%, a few competitors (no 17) 1.10%, customer relationships (no 21) 1.10%, brand (no 6) 0.74%, buyer relationships (no 7) 0.74%, specialists (no 22) 0.74% and well-trained staff (no 29) 0.74%.
Small dealers	Price (no 1) 15.44% , location (no 26) 6.62%, supply (no 3) 5.51%, brand (no 6) 4.41%, distribution (no 5) 4.04%, quality (no 8) 3.68%, service quality (no 10) 3.68%, advertising (no 16) 3.31%, sales promotion (no 33) 3.31%, competitive evaluations (no 32) 2.94%, buyer relationships (no 7) 2.21% and costing (no 50) 2.21%.

As depicted in Table 7.14 both manufacturers (2.94%) and dealers (15.44%) regard price as the most important aspect for achieving a competitive advantage followed by the importance of quality, service quality and relationships.

The main finding is that price is the major aspect responsible for creating a competitive advantage cited independently by small manufacturing organisations and small dealer organisations.

(c) Question 8

Indicate the **nature** of your **product assortment**.

Apart from the size of the organisation this study sought to reveal the range of the product assortment among organisations in Gauteng as illustrated by the percentage distribution in Table 7.15.

Table 7.15: The nature of product assortment

Nature of product assortment	Total Frequency	
	Number	Percentage
Single product	13	14.13%
One product range ¹⁾	24	26.09%
Multiple product ranges	55	59.78%
TOTAL	N = 92	100

¹⁾ A one product range can consist of more than 1 (single) product

Table 7.15 shows that a majority (**59.78%**) of all small organisations in Gauteng have **multiple product ranges**, followed by **26.09%** with **one product range** and **14.13%** with a **single product**.

Table 7.16 reveals possible differences in the nature of product assortment per organisational type.

Table 7.16: The nature of product assortment by organisational type

Organisational type	Frequency					
	Single product		One product range		Multiple product ranges	
	Number	Percentage of total (N = 92)	Number	Percentage of total	Number	Percentage of total
Manufacturers	2	2.17%	7	7.61%	12	13.04%
Dealers	11	11.96%	17	18.48%	43	46.74%
TOTAL	13	14.13%	24	26.09%	55	59.78%

The majority of manufacturers (12 out of a total of 21) and 43 out of a total of 71 dealers indicated that they have **multiple product ranges** as depicted in Table 7.16.

The main finding is that manufacturing and dealer organisations in Gauteng have mostly multiple product ranges, less one product ranges and the least single products.

(d) Question 9

If you have **multiple product ranges**, will you apply the PLC concept on each individual product within each product range?

It was assumed that organisations which indicated that they have either a single product or a one product range do apply the PLC concept for each product. They were therefore not required to answer question 9.

This question was compulsory for the **55** manufacturers and dealers in Gauteng who indicated in question 8 (Table 7.15) that they **have multiple product ranges**. Table 7.17 provides responses of organisations in Gauteng who answered yes or no.

Table 7.17: Application of the PLC on each individual product within each product range

Application of PLC	Frequency	Percentage
Yes	26	49.06%
No	27	50.94%
TOTAL	N = 53	100

Two organisations with multiple product ranges did not answer this question. Table 7.17 indicates that there is almost an equal distribution in the use and non-use of the PLC on each individual product within each product range.

The main finding is that less than half of the marketing decision-makers in manufacturing and dealer organisations that have indicated that they have multiple product ranges apply the product life cycle concept on each individual product within each product range.

(e) Question 10

In what phase of the product life cycle concept is your **primary product** positioned? ***The primary product can be regarded as the best selling product or product range in your organisation.***

It was important to the researcher to measure the marketing decision-makers' ability to identify the phase in which their primary products or product range (best seller) are positioned.

Table 7.18 indicates the positioning of the primary products/best sellers in each phase of the product life cycle.

Table 7.18: Positioning of primary products in each PLC phase for the total sample

PLC phase	Frequency	Percentage
Introductory phase	6	6.52%
Growth phase	47	51.09%
Maturity phase	37	40.22%
Decline phase	2	2.17%
TOTAL	N = 92	100%

Table 7.18 indicates that **51.09%** of the primary products or product ranges (best sellers) are positioned by the marketing decision-makers of manufacturers and dealers to be in the **growth phase** of the product life cycle.

Apart from this high positioning in the growth phase of the product life cycle **40.22%** of marketing decision-makers positioned their best sellers in the **maturity phase** of the product life cycle. A low percentage of best sellers are positioned in the **introductory (6.52%)** and **decline (2.17%)** phases of the PLC.

Table 7.19 will indicate whether the percentage breakdown among manufacturers and dealers reveal a different positioning perspective for best sellers on an organisational type basis.

Table 7.19: Percentage of primary products in each PLC phase per organisational type

Organisational type	Frequency per PLC phase								Total
	Introductory phase		Growth phase		Maturity phase		Decline phase		
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	
Manufacturers	1	4.76%	10	47.61%	9	42.85%	1	4.76%	21
Dealers	5	7.04%	37	52.11%	28	39.43%	1	1.41%	71
TOTAL	6	6.52%	47	51.08%	37	40.21%	2	2.17%	92

Similar to the result for the total sample represented in Table 7.18 the breakdown by organisational type illustrated in Table 7.19 reveals that the majority of manufacturers and dealers positioned their primary product ranges

in the growth phase of the product life cycle. In **52.11%** of all cases dealers indicated that their primary product is positioned in the growth phase while **47.61%** of manufacturers provided a similar positioning.

Both manufacturers and dealers provided a positioning where their primary products are mainly in the growth phase of the product life cycle followed by a positioning in the maturity, introductory and decline phases.

The main finding is that forty-eight percent of the marketing decision-makers in small manufacturing organisations and more than half of the marketing decision-makers in small dealer organisations indicated that their primary products or best sellers are positioned in the growth phase of their product life cycles.

Three interrelated questions following on question 10 were asked:

- **Question 10.1** was formulated to reveal a **description** of the primary product or product range (best seller).
- **Question 10.2** was formulated to reveal **reasons** why the primary product or product range was identified as the best seller.
- **Question 10.3** was formulated to reveal the ability of marketing decision-makers to identify the subsequent **marketing objective** of their best sellers in the identified PLC phases.

(i) Question 10.1

Provide a **short description** of your **primary product / product range**.

Question 10.1 is closely related to question 10 as marketing decision-makers of manufacturers and dealers in Gauteng had to describe their primary products or product ranges (best sellers). Table 7.20 provides the verbatim response from manufacturers and dealers of what their primary products (best selling product or product range) are.

Table 7.20: Verbatim representation of primary products/best sellers per organisational type

Organisational type	
Manufacturers	Dealers
Self inking stamp, Diabetes medicine, Liquid assisting weight loss, Bandages and plasters to hospitals, Cheap casual wear – T-shirts, Cheaper local modems, Lumber for roofing, Gates (manual and automatic), Wall & fencing, Double axled trailers, Suspensions for new trucks, Generic brake pads and clutches, Gold jewellery, Billiard and snooker tables, Cables and accessories, Network cables for large businesses, High blood pressure medication, Boiled sweets, Flour	CD's, Popular CD's, New brand jeans (CK, Diesel & Polo), Cables and power cards to electricians, Paint, Cement and bricks, Office furniture, assortment of office furniture, Prescriptive drugs, Passenger vehicles, All makes of televisions, Plastic Beetle shells on VW chassis, Desktops, Assorted meat, Assortment of tools, Clutch systems for cars, Desktop and laptop (IBM), Desktop and laptop computers, Refractory material, Desktop computers and accessories, Lower cost vehicles, Exhausts, High quality clothing and footwear, Low cost clothing and fashion accessories, Pre-cast walls, Maternity wear, Popular books, Baby educational toys, Electrical wiring, Electrical gates, Wolf lawnmowers, Colour TV's, Toshiba hi-fi's, Seasonal flowers, Building bricks, Copiers, Printers, Cell phones, Infant wear, Nescafé Classic, Oros in the soft drink product range, Christian biblical book, Pantene Shampoo within a product range, Sugar within a product range, Cereals within a product range, Academic books – prescribed, Lounge and bedroom suites, Cars, Gold jewellery, Tools

The information in Table 7.20 was deemed necessary to illustrate the nature and broad type of products of the two groups included in the study.

It is evident from Table 7.20 that most of the organisations' best sellers can be related to their core business. FMCG dealer organisations and other dealers however provided specific brand names such as Wolf, CK, Diesel, Polo, IBM, Toshiba, Nescafé Classic, Oros and Pantene. Manufacturers only provided the name of the product type or product item such a self-inking rubber stamp, diabetes medication, liquid assisting weight loss, bandages and plasters, cheap casual wear, modems, hand control gates and garage doors, lumber products, double axled trailers and suspensions for trucks.

(ii) Question 10.2

Provide a **reason(s)** why this product or product range is your **best seller**.

Table 7.21 illustrates the reasons why small manufacturers and small dealers regarded their products or product ranges as best sellers.

Table 7.21: Reasons why primary products or product ranges are best sellers

Reasons	Frequency					
	Manufacturers		Dealers		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
1. Easy to use product	1	0.88%	1	0.88%	2	1.775
2. Brand name and quality	3	2.65%	10	8.85%	13	11.50%
3. Cheap local alternative	1	0.88%	0	0.00%	1	0.88%
4. Price	2	1.77%	20	17.70%	22	19.47%
5. Few competitors	2	1.77%	2	1.77%	4	3.54%
6. Large quantities	0	0.00%	1	0.88%	1	0.88%
7. Demand	4	3.54%	5	4.42%	28	7.96%
8. A price quality relationship	1	0.88%	0	0.00%	1	0.88%
9. Few manufacturers	1	0.88%	0	0.00%	1	0.88%
10. Good industry relationships or networking	0	0.00%	2	1.77%	2	1.77%
11. Location	0	0.00%	2	1.77%	2	1.77%
12. Size of the market	0	0.00%	2	1.77%	2	1.775
13. Niche market or opportunity	1	0.88%	2	1.77%	3	2.65%
14. Import	1	0.88%	0	0.00%	1	0.88%
15. Growing market	0	0.00%	3	2.65%	3	2.65%
16. A necessity product	3	2.65%	22	19.47%	25	22.12%
17. Low cost	1	0.88%	0	0.00%	1	0.88%
18. Product range	0	0.00%	1	0.88%	1	0.88%
19. Advertising message	0	0.00%	3	2.65%	3	2.65%
20. Value-for-money	0	0.00%	3	2.65%	3	2.65%
21. Reputation (company)	0	0.00%	2	1.77%	2	1.77%
22. Versatility	0	0.00%	1	0.88%	1	0.88%
23. Guarantees	0	0.00%	1	0.88%	1	0.88%
24. Good profit margin	0	0.00%	2	1.77%	2	1.77%
25. Relationships	0	0.00%	1	0.88%	1	0.88%
26. After-sales service	0	0.00%	1	0.88%	1	0.88%
27. Sales incentives	1	0.88%	0	0.00%	1	0.88%
28. Fashionable	0	0.00%	1	0.88%	1	0.88%
29. Supplementary product	0	0.00%	1	0.88%	1	0.88%
30. Specialisation	0	0.00%	1	0.88%	1	0.88%
31. Manufacturer promotions	0	0.00%	1	0.88	1	0.88%
TOTAL*	22	19.47%	91	80.53%	113	100%

* The total exceeds 92 responses because more than one reason was mentioned in some instances

Product necessity (no 16) with a total frequency percentage of **22.12%** is the most popular reason for the best seller, followed by price (no 4) **19.47%**, and brand name and quality (no 2) **11.50%** as shown in Table 7.21.

The reasons for best sellers exposed in Table 7.21 indicate that marketing decision-makers of manufacturing and dealer organisations in Gauteng mentioned marketing related reasons as primary reasons for creating best sellers. The necessity for a product (no 16), price (no 4), brand name and quality (no 2) are prominent marketing related reasons. Other marketing or marketing mix related reasons for best sellers are location, product range,

advertising message, value for money, reputation, guarantees, after sales service, supplementary products, specialisation and manufacturer promotions.

Table 7.21 indicates that dealers regard a necessity product (**19.47%**), price (**17.70%**) and brand name and quality (**8.85%**) as their main reasons for best sellers. Manufacturers disclosed their main reasons for best sellers to be demand (**3.54%**), brand name and quality (**2.65%**) and the necessity of the product (**2.65%**).

The total frequency of demand (no 7) **7.96%** and the frequency of demand for manufacturers (**3.54%**) are surprising, as the best seller is the result of demand and demand is not the reason for a best seller. A possible misunderstanding by some respondents is suggested.

The main finding is that the majority of the marketing decision-makers in manufacturing and dealer organisations indicated that necessity of the product is the primary reason for individual products or product ranges to be best sellers, followed by price.

(iii) Question 10.3

Describe the marketing objective for the primary product or product range in the product life cycle phase indicated in Q10.

Marketing decision-makers of manufacturers and dealers in Gauteng described the marketing objective of their primary products and/or product ranges (best sellers) within the PLC phase indicated in question 10 (Table 7.19). It is important to reiterate that **51.08%** of the best sellers are positioned in the **growth** phase of the product life cycle, followed by **40.21%** in the **maturity** phase, **6.52%** in the **introductory** phase and **2.17%** in the **decline** phase.

Table 7.22 presents marketing objectives for the primary products in the different PLC phases as mentioned by the marketing decision-makers in small organisations in Gauteng.

Table 7.22: Marketing objectives for primary products or product ranges in the PLC phases

Marketing objectives	Product life cycle phase				Total
	Introductory phase	Growth phase	Maturity phase	Decline phase	
1. High/maximum sales	3.13%	20.31%	10.93%	0.78%	35.15%
2. Low price	0.00%	5.47%	6.26%	0.00%	11.73%
3. Build on a solid introduction	0.00%	0.78%	0.00%	0.00%	0.78%
4. Use brand image	0.00%	0.00%	2.34%	0.00%	2.34%
5. Sufficient stock levels	0.00%	0.00%	0.78%	0.00%	0.78%
6. Product range and variety	0.00%	0.78%	1.56%	0.00%	2.34%
7. Meet the demand	0.00%	2.34%	0.78%	0.00%	3.13%
8. Intensive marketing	0.78%	0.00%	0.00%	0.00%	0.78%
9. Better buyer relationships	0.00%	0.78%	0.00%	0.00%	0.78%
10. Quality	0.00%	3.13%	0.00%	0.00%	3.13%
11. Maximum profit	0.00%	0.78%	2.34%	0.00%	3.13%
12. Keep current customers happy	0.00%	0.00%	0.78%	0.00%	0.78%
13. Exploit niche markets	0.00%	0.78%	0.00%	0.00%	0.78%
14. High or increased market share	0.00%	0.78%	0.00%	0.00%	0.78%
15. Low mark-up	0.78%	1.56%	0.00%	0.00%	2.34%
16. Customer retention	0.00%	3.91%	4.69%	0.00%	8.60%
17. Repeat purchases	0.00%	0.00%	0.78%	0.00%	0.78%
18. Increased advertising and promotion	1.56%	3.13%	2.34%	0.78%	7.81%
19. Customer acquisition	0.00%	0.78%	0.78%	0.00%	1.56%
20. Customer support	0.78%	1.56%	0.00%	0.00%	2.34%
21. Evaluating the product	0.00%	0.00%	0.00%	0.78%	0.78%
22. Service	0.00%	0.78%	0.00%	0.00%	0.78%
23. High return on investment (ROI)	0.00%	0.78%	0.00%	0.00%	0.78%
24. High profits	0.00%	0.78%	0.78%	0.00%	1.56%
25. Product awareness	0.78%	0.00%	0.00%	0.00%	0.78%
26. Intense competition	0.00%	1.56%	0.00%	0.00%	1.56%
27. Word-of-mouth / referrals	0.00%	0.00%	1.56%	0.00%	1.56%
28. Distribution	0.00%	0.78%	0.00%	0.00%	0.78%
29. Warranties	0.00%	1.56%	0.00%	0.00%	1.56%
TOTAL	7.81%	53.13%	36.72%	2.34%	100%

Table 7.22 portrays 29 marketing objectives provided by marketing decision makers on an open-ended response format and it yielded an allocation of **7.81%** of the marketing objectives to the introductory phase, **53.13%** to the

growth phase, **36.72%** to the maturity phase and **2.34%** to the decline phase. High/maximum sales is the marketing objective with the highest frequency in each of the four PLC phases – **3.13%** in the introductory phase, **20.31%** in the growth phase, **10.93%** in the maturity phase and **0.78%** in the decline phase. It is important to note that increased advertising and promotion (no 18) and evaluation the product (no 21) also achieved a frequency of **0.78%** in the decline phase.

The most important marketing objectives (highest frequencies) revealed by the respondents in each PLC phase are:

- Introductory phase – high/maximum sales (no 1) **3.13%**, increased advertising and sales promotion (no 18) **1.56%**.
- Growth phase – high/maximum sales (no 1) **20.31%**, low price (no 2) **5.47%** and customer retention (no 16) **3.91%**.
- Maturity phase – high/maximum sales (no 1) **10.93%**, low price (no 2) **6.26%** and customer retention (no 16) **4.69%**.
- Decline phase - high/maximum sales (no 1) and increased advertising and sales promotion (no 18) and evaluating of the product (no 21) **0.78%** respectively. The frequency is very low and must be viewed as not too an important finding.

The main finding is that marketing decision-makers in small organisations (small manufacturers and small dealers) provided primary marketing objectives in each PLC phase: high/maximum sales, increased advertising and sales promotion in the introductory phase, high/maximum sales and low price in the growth and maturity phases respectively and high/maximum sales, increased advertising & sales promotion and evaluating the product in the decline phase.

It is important to mention that by observing the above-mentioned marketing objectives, one can surmise that the respondents confused marketing objectives with marketing strategies because some of the “objectives” can be

regarded as strategies (e.g. increase advertising). This main finding should therefore be treated with some caution.

Table 7.23 presents marketing objectives for the primary products in the different PLC phases as mentioned by the marketing decision-makers per organisational type.

Table 7.23: Marketing objectives for primary products or product ranges per organisational type

Marketing objectives	Frequency					
	Manufacturers		Dealers		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
1. High/maximum sales	5	3.91%	40	31.24%	45	35.15%
2. Low price	4	3.13%	11	8.60%	15	11.73%
3. Build on a solid introduction	1	0.78%	0	0.00%	1	0.78%
4. Use brand image	0	0.00%	3	2.34%	3	2.34%
5. Sufficient stock levels	1	0.78%	0	0.00%	1	0.78%
6. Product range and variety	0	0.00%	3	2.34%	3	2.34%
7. Meet the demand	1	0.78%	0	0.00%	1	0.78%
8. Intensive marketing	1	0.78%	0	0.00%	1	0.78%
9. Better buyer relationships	1	0.78%	0	0.00%	1	0.78%
10. Quality	1	0.78%	3	2.34%	4	3.13%
11. Maximum profit	1	0.78%	3	2.34%	4	3.13%
12. Keep current customers happy	1	0.78%	0	0.00%	1	0.78%
13. Exploit niche markets	0	0.00%	1	0.78%	1	0.78%
14. High or increased market share	0	0.00%	1	0.78%	1	0.78%
15. Low mark-up	1	0.78%	2	1.56%	3	2.34%
16. Customer retention	4	3.13%	7	5.47%	11	8.59%
17. Repeat purchases	0	0.00%	1	0.78%	1	0.78%
18. Increased advertising and promotion	0	0.00%	10	7.81%	10	7.81%
19. Customer acquisition	0	0.00%	2	1.56%	2	1.56%
20. Customer support	0	0.00%	3	2.34%	3	2.34%
21. Evaluating the product	1	0.78%	0	0.00%	1	0.78%
22. Service	0	0.00%	1	0.78%	1	0.78%
23. High return on investment	0	0.00%	1	0.78%	1	0.78%
24. High profits	0	0.00%	2	1.56%	2	1.56%
25. Product awareness	0	0.00%	1	0.78%	1	0.78%
26. Intense competition	0	0.00%	2	1.56%	2	1.56%
27. Word-of-mouth / referrals	0	0.00%	2	1.56%	2	1.56%
28. Distribution	1	0.78%	0	0.00%	1	0.78%
29. Warranties	1	0.78%	1	0.78%	1	1.56%
TOTAL	25	19.53%	103	80.47%	128	100%

The result depicted in Table 7.23 attempted to describe the various marketing objectives yielded by the total sample provided by a frequency distribution per organisational type – small manufacturing organisations and small dealer organisations.

From the percentage of total results in Table 7.23 it can be seen that small dealers indicated high/maximum sales (no 1) with a frequency of **31.24%** as the number one marketing objective, followed by low price (no 2) with a frequency of **8.60%** and increased advertising and promotions (no 18) with a frequency of **7.81%**. Small manufacturers selected high/maximum sales (no 1) with a frequency of **3.91%** as the number one marketing objective, followed by low price (no 2) and customer retention (no 16) both with a frequency of **3.13%**.

If the number of frequencies in Table 7.23 are not expressed as a percentage of the total frequency, but per organisational type (25 small manufacturing organisations and 103 small dealer organisations), then the percentages are as follows:

- small manufacturing organisations provided high/maximum sales (no 1) 20% ($5/25 \times 100$), low price (no 2) 16% (4) and customer retention (no 16) 16% (4) as the marketing objectives for their best sellers.
- small dealer organisations provided high/maximum sales (no 1) 38.83% (40), low price (no 2) 10.67% (11) and increased advertising and promotion (no 18) 9.70% (10).

The main finding is that marketing decision-makers in both small manufacturing organisations and small dealer organisations provided high/maximum sales as the primary marketing objective for their best seller, followed by low price (and customer retention for small manufacturers as the third most important objective).

7.4.3 Section C

The purpose of Section C was to mainly focus on how, and how often small manufacturers and dealers in Gauteng engage in strategic planning and development. This section furthermore wanted to reveal the extent to which small manufacturers and dealers use the PLC concept in strategic planning and development and the subsequent control they have over the marketing mix instruments. The following results provide the necessary information on marketing strategy planning and development and control over marketing mix elements that can be used for potential cross-tabulation purposes later on in the analysis.

(a) Question 11

Does your organisation engage in **strategic marketing planning and development** using the product life cycle phases?

Table 7.24 provides the answer to what extent the PLC phases are used for strategic marketing planning and development purposes.

Table 7. 24: Strategic marketing planning and development by using the product life cycle phases

Strategic planning and development by using the PLC	Frequency	Percentage
Yes	70	76.09%
No	22	23.91%
TOTAL	N = 92	100

Seventy-six percent of the respondents indicated that they use the PLC phases when they engage in strategic planning and development.

Table 7.25 displays differences between manufacturers and dealers in using the PLC phases when they engage in strategic marketing planning and development.

Table 7.25: The use of the PLC in strategic marketing planning and development per organisational group

	Manufacturers		Dealers	
	Number	Percentage	Number	Percentage
Yes	16	76.19%	54	76.05%
No	5	23.81%	17	23.95%
TOTAL	21	100%	71	100%

Table 7.25 illustrates that there is no difference between the small manufacturers and small dealers with regard to the percentage use of the PLC in strategic marketing planning and development.

The main finding is that more than three-quarters of manufacturing and dealer organisations in Gauteng engage in strategic marketing planning and development by using the product life cycle phases.

(b) Question 12

If yes on Question 11, how often does your organisation do strategic marketing planning and development?

Manufacturers and dealers in Gauteng engage in strategic marketing and planning on an annual basis in **53.03%** of all cases as depicted in Table 7.26. The result in Table 7.26 shows that small manufacturers and small dealers in Gauteng engage in strategic marketing and planning on a six monthly basis or less in **33.33%** of all cases as indicated by the cumulative percentage.

Table 7.26: Involvement in strategic marketing planning and development for the total sample

Engagement occurrence	Frequency	Percentage	Cumulative percentage
Monthly	9	13.64%	13.64%
Six monthly	13	19.69%	33.33%
Annually	35	53.03%	96.36%
Other(more than 12 months)	9	13.64%	100%
TOTAL	N = 66*	100	-

* Four respondents didn't complete this question when compared to the 70 respondents who have said "yes" in Table 7.24

One can deduce that small manufacturers and small dealers in Gauteng realise the importance of adapting to the fast pace of developments and changes in the external environment as described in the theory on the strategic audit and SWOT analysis in chapter two.

The main finding is that small manufacturing organisations and small dealer organisations in Gauteng do strategic marketing planning and development on an annual basis or less frequently (96% of the sample).

Table 7.27 illustrates the differences between manufacturers and dealers using the PLC phases according to the period of involvement in strategic marketing planning and development.

Table 7.27: Involvement in strategic marketing planning and development per organisational type

Organisational type	Strategic marketing planning and development by using the PLC phases							
	Monthly		Six monthly		Annually		Other	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Manufacturers	1	11.12%	4	30.76%	10	28.57%	0	0.00%
Dealers	8	88.88%	9	69.24%	25	71.43%	9	100%
TOTAL	9	100%	13	100%	35	100%	9	100%

When compared to the results in Table 7.25 then it is clear that one manufacturer and three dealers did not answer this question.

It can be seen in Table 7.27 that 35 of the 66 respondents (**53.03%**) of small dealers and small manufacturers engage in strategic marketing planning and development on an annual basis. Manufacturers (10) represented **28.57%** of this total and dealers (25) **71.43%**.

An encouraging sign from the result illustrated in Table 7.27, among manufacturers and retailers (22/66) is the practice to engage in strategic marketing planning and development on a monthly basis (9/66) and even more (13/66) on a 6 monthly basis.

The main finding is that **66.66% (10/15)** of small manufacturing organisations in Gauteng and **49.01% (25/51)** of small dealer organisations in Gauteng do strategic marketing planning and development on an annual basis.

(c) Question 13

To what extent does the product life cycle concept influence **marketing strategy planning and development** in your organisation? (**“1” would indicate a very low influence and “5” an extremely high influence**).

The extent of influence by the PLC on marketing strategy planning and development is illustrated in Table 7.28.

Table 7.28: Influence of the PLC concept on marketing strategy planning and development for the total sample

Extent of influence	Frequency	Percentage	Cumulative percentage
1	0	0.00%	0.00%
2	7	7.61%	7.61%
3	36	39.13%	46.74%
4	32	34.78%	81.52%
5	17	18.48%	100.00%
TOTAL	N = 92	100	

Mean from the total sample = **3.64**

From Table 7.28 it can be seen that **7.61% (7)** of the respondents indicated a relatively low influence of the PLC concept on marketing strategy planning and development.

The marketing strategy planning process and development is to a very high extent influenced by the product life cycle concept as indicated by the mean score of **3.64** for the total sample as reported in Table 7.28. A high percentage (92.39%) of decision-makers in manufacturing and dealer organisations indicated an average to above average extent of influence by the PLC concept on strategic marketing planning and development.

The main finding is that 92% of manufacturing and dealer organisations in Gauteng indicated that the product life cycle influences marketing strategy and development from an average to an above average extent.

Table 7.29 reveals the influence of the product life cycle concept on marketing strategy planning and development per organisational type.

Table 7.29: Influence of the PLC concept on marketing strategy planning and development by organisational type

Organisational type	Mean	Standard deviation	p-value
Manufacturers	3.71	0.78	0.6015
Dealers	3.61	0.90	

Marketing decision-makers in both manufacturing and dealer organisations revealed above average mean scores and low standard deviations on the extent of influence of the PLC concept on marketing strategy planning in development as depicted in Table 7.29.

The different mean scores for each group together with the p-value will illustrate whether the mean differences between manufacturers and dealers can be regarded as significant. If the decision rule that a p-value of ≤ 0.05 is an indication of a significant difference in the mean scores between manufacturers and dealers then the p-value as depicted in Table 7.26 indicates a difference of non-significance. Thus, there is no significant difference in the extent to which the PLC concept influences marketing strategy planning and development by manufacturers and dealers based on the different mean scores reported in Table 7.29.

The main finding is that there is no difference between small manufacturing and small dealer organisations in Gauteng in the extent to which the product life cycle influences marketing strategy and development.

(d) Question 14

What degree of control does the organisation have over the marketing mix instruments? (**“1” would indicate no degree of control and “5” would indicate a full degree of control**).

This question was intended to reveal the degree of control that marketing decision-makers in organisations have over the different marketing mix instruments. Table 7.30 indicates that the respondents have the best control over product (V53) as a marketing mix instrument depicted by a mean score of **4.30**, followed by people (V57) **4.29**, place (V55) **4.13**, price (V 54) **4.09**, promotion (V 56) **4.08**, processes (V58) **4.05** and physical evidence (V59) **3.91**.

Table 7.30: Degree of control over the marketing mix instruments for the total sample

Marketing mix instrument	Frequency	Mean	Top-box score	Low-box score	Standard deviation
V53. Product	92	4.30	54.35%	2.17%	0.94
V54. Price	92	4.09	41.30%	0.00%	0.91
V55. Place	92	4.13	35.87%	0.00%	0.84
V56. Promotion	92	4.08	38.04%	1.09%	0.90
V57. People	92	4.29	48.91%	0.00%	0.83
V58. Processes	92	4.05	39.13%	0.00%	0.98
V59. Physical evidence	92	3.91	36.96%	0.00%	1.05

A majority of **54.35%** (top-box score) of the total sample indicated that they have full control over product (V53) as a marketing mix instrument, followed by control over people (V57) (**48.91%**), price (V54) (**41.30%**), processes (VV58) (**39.13%**), promotion (V56) (**38.04%**), physical evidence (V59) (**36.96%**) and place (V55) (**35.87%**).

If the standard deviations in Table 7.30 are analysed, then the respondents in the sample were the most heterogeneous on physical evidence (V59) when compared to the standard deviations on the other marketing mix instruments.

The result depicted in Table 7.30 is further strengthened by low-box scores of **0.00%** for price (V54), place (V55), people (V57), processes (V58) and physical evidence (V59) as well as the relatively low scores for product (**2.17%**) and promotion (**1.09%**) indicating that few manufacturers and dealers in the sample have no degree of control over their marketing mix instruments. Table 7.31 demonstrates whether there are differences in the degree of control over the marketing mix instruments between manufacturers and dealers.

Table 7.31: Degree of control over the marketing mix instruments between manufacturers and dealers

Marketing mix instruments	Mean		p-value
	Manufacturers	Dealers	
V53. Product	4.76	4.16	0.0104
V54. Price	4.38	4.01	0.1293
V55. Place	3.80	4.22	0.2921
V56. Promotion	3.90	4.14	0.3189
V57. People	4.33	4.28	0.8827
V58. Processes	4.19	4.01	0.3173
V59. Physical evidence	3.71	3.97	0.3671

It is important to determine whether the differences on the mean scores in Table 7.31 are significant or not. The Mann-Whitney U test for non-parametric statistics was used for significant testing between manufacturers and dealers for V53 to V59. The p-values from the Mann-Whitney U test are illustrated in Table 7.31.

When the decision-rule that a p-value ≤ 0.05 is an indication of a significant difference is applied, then all the p-values depicted in Table 7.31 are indicative that the majority of differences in mean scores between manufacturers and dealers on the degree of control over the various marketing mix instruments are not significant. The only significant difference

between manufacturers and dealers is on product as a marketing mix instrument indicated by a p-value of 0.0104.

The main finding is that with regard to the degree of control the only significant difference between small manufacturing organisations and small dealer organisations is with the product mix variable.

Manufacturers have the highest degree of control over product (V53) as a marketing mix instrument, indicated by a mean score of **4.76**. On the contrary, dealers have the highest degree of control over people (V57) as a marketing mix instrument, indicated by a mean score of **4.28**.

Both manufacturers and dealers revealed that they have the least control over physical evidence, indicated by mean scores of **3.71** and **3.97** respectively.

The main finding is that small manufacturing organisations have the highest degree of control over product while small dealer organisations have the highest degree of control over people as a marketing mix instrument.

(e) Question 15

How **important** is each of the following aspects* when you associate them with the four phases of the product life cycle. (**"1" would indicate that the aspect is not important at all and a "5" would indicate that the aspect is extremely important**).

* The reader is referred to the questionnaire in Appendix 2 where the aspects are listed, inter alia with regard to people, processes and physical evidence.

Marketing decision-makers in manufacturing and dealer organisations rated the importance of marketing mix related aspects of people, processes and physical evidence within each product life cycle phase. (In question 19 marketing decision-makers had the opportunity to rate the importance of marketing mix related aspects on product, price place and promotion within each product life cycle phase). With the result of these two questions the

researcher endeavours to develop marketing mix related aspects that can be associated with each PLC phase.

The importance of the marketing mix instrument related aspects regarding the expanded marketing mix instruments of people, processes and physical evidence in the various product life cycle phases are illustrated in Table 7.32 (introductory phase), Table 7.33 (growth phase), Table 7.34 (maturity phase) and Table 7.35 (decline phase). The importance of the aspects in the introductory phase of the PLC shown in Table 7.32 will now be discussed.

Table 7.32: The importance of marketing mix related aspects (people, processes and physical evidence) in the introductory phase of the PLC

Marketing mix instrument	Introductory phase					
	Aspects	Responses	Mean	Top-box score	Low-box score	Standard deviation
People	77. Training of personnel	91	4.49	62.64%	0.00%	0.76
	81. Incentives to personnel	91	4.61	68.13%	0.00%	0.61
	85. Knowledge of personnel	91	4.26	47.25%	0.00%	0.81
	89. Commitment of personnel	91	3.93	40.66%	3.30%	1.13
Processes	93. Information systems	90	3.76	31.11%	7.78%	1.20
	97. Complaints handling	88	3.95	31.82%	1.14%	0.92
	101. Toll free number	89	4.04	32.58%	1.12%	0.83
	105. Policies and procedures	88	4.05	36.36%	1.14%	0.92
Physical evidence	109. Organisation's reputation	90	4.76	82.22%	0.00%	0.56
	113. Organisation's name	90	4.82	84.44%	0.00%	0.43
	117. Organisation's logo	90	4.81	82.22%	1.11%	0.42
	121. Corporate dress (appearance of employees)	90	4.68	74.44%	0.00%	0.57

The results in Table 7.32 indicate that the respondents regard incentives to personnel (no 81) as the most important **people** aspect in the introductory phase of the product life cycle with a mean score of **4.61** and a top-box score of **68.31%** and a low-box score of **0.00%**

If the standard deviations in Table 7.32 on all the aspects tested are compared, then the standard deviations of **1.13** on commitment of personnel (no 89) and **1.20** on information systems (no 93) are indicative of higher heterogeneity.

The main finding is that marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard incentives to personnel as the most important *people* aspects in the introductory phase of the PLC.

Policies and procedures (V105) (**4.05**) and the organisation's name (no 113) **4.82** are regarded as the most important with regard to process and physical evidence elements respectively.

The main finding is that policies and procedures are regarded by marketing decision-makers in small manufacturing and small dealer organisations in Gauteng as the most important *process* aspect in the introductory phase of the PLC.

The highest top-box score of **84.44%** was achieved by the organisation's name (no 113) as a physical evidence aspect. A very positive result is indicated by the low-box scores of **0.00%** on various aspects as depicted in Table 7.32.

Another main finding is that the organisation's name is regarded by marketing decision-makers in small manufacturing and small dealer organisations in Gauteng as the most important *physical evidence* aspect in the introductory phase of the PLC.

Table 7.33 provides a similar analysis on the importance of marketing mix related aspects for the sample in the growth phase of the product life cycle.

Table 7.33: The importance of marketing mix related aspects (people, processes and physical evidence) in the growth phase of the PLC

Marketing mix instrument	Growth phase					
	Aspects	Responses	Mean	Top-box score	Low-box score	Standard deviation
People	78. Training of personnel	91	3.79	41.76%	2.20%	1.23
	82. Incentives to personnel	91	4.08	43.96%	1.10%	0.96
	86. Knowledge of personnel	90	3.94	33.33%	1.11%	0.94
	90. Commitment of personnel	91	3.74	30.77%	1.10%	1.04
Processes	94. Information systems	90	4.24	55.56%	1.11%	1.03
	98. Complaints handling	90	4.44	61.11%	3.33%	0.80
	102. Toll free number	90	4.34	52.22%	3.33%	0.80
	106. Policies and procedures	90	4.28	53.33%	0.00%	0.90
Physical evidence	110. Organisation's reputation	90	4.08	43.33%	1.11%	0.99
	114. Organisation's name	90	4.10	43.33%	1.11%	0.94
	118. Organisation's logo	90	4.20	47.78%	1.11%	0.90
	122. Corporate dress (appearance of employees)	90	4.08	43.33%	2.22%	0.97

Table 7.33 indicates that the respondents regard incentives to personnel (no 82) as the most important people aspect with a mean score of **4.08**, a top-box score of **43.96%** and a low-box score of **1.10%** in the growth phase of the product life cycle. Complaints handling (no 98) with a mean score of **4.44** and a toll free number (no 102) with a mean score of **4.34** were the most important **process** aspects. The organisation's logo (no 118) with a mean score of **4.20** and organisation's name (no 114) **4.10** are regarded as the most important **physical evidence** aspects. The highest top-box score of **55.56%** was achieved by the information systems as a process aspect.

The low-box scores of between **0.00%** and **3.33%** on various aspects as depicted in Table 7.33 are very positive results because the majority of the respondents regarded the aspects as relatively important (lowest mean score was 3.74).

The main finding is that marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard incentives to personnel as the most important *people* aspect in the growth phase of the PLC.

Another main finding is that marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard complaints handling (followed by a toll free number) as the most important *process* aspects in the growth phase of the PLC.

The last main finding from Table 7.33 is that marketing decision-makers in small manufacturing organisations and small dealer organisations in Gauteng regard the organisation's logo as the most important *physical evidence* aspect in the growth phase of the PLC, followed by the organisation's name.

If the standard deviations in Table 7.33 on all the aspects tested are compared, then the standard deviations on training of personnel (no 78) of **1.23**, commitment of personnel (no 90) of **1.04** and on information systems (no 94) of **1.03** are indicative of a higher heterogeneity.

Table 7.34 provides an analysis on the importance of marketing mix related aspects for the sample in the maturity phase of the product life cycle.

Table 7.34 indicates that the respondents regard incentives to personnel (no 83) as the most important people aspect with a mean score of **4.24**, a top-box score of **50.55%** and a low-box score of **1.10%** in the maturity phase of the product life cycle. This is followed by the training of personnel (no 79) with a mean score of **4.14**.

Complaints handling (no 99) (**2.66**), the organisation's logo (no 119) (**3.86**) and the organisation's name (no 115) (**3.83**) are regarded as the most important process and physical evidence aspects respectively.

Table 7.34: The importance of marketing mix related aspects (people, processes and physical evidence) in the maturity phase of the PLC

Marketing mix instrument	Maturity phase					
	Aspects	Responses	Mean	Top-box score	Low-box score	Standard deviation
People	79. Training of personnel	91	4.14	51.65%	1.10%	1.06
	83. Incentives to personnel	91	4.24	50.55%	1.10%	0.89
	87. Knowledge of personnel	91	4.12	41.76%	1.10%	0.89
	91. Commitment of personnel	91	4.03	42.86%	1.10%	1.00
Processes	95. Information systems	90	2.56	17.78%	35.56%	1.49
	99. Complaints handling	90	2.66	15.56%	26.67%	1.40
	103. Toll free number	90	2.63	13.33%	28.89%	1.37
	107. Policies and procedures	90	2.63	13.33%	30.00%	1.40
Physical evidence	111. Organisation's reputation	90	3.76	33.33%	7.78%	1.19
	115. Organisation's name	90	3.83	33.33%	4.44%	1.07
	119. Organisation's logo	90	3.86	35.56%	4.44%	1.08
	123. Corporate dress (appearance of employees)	90	3.78	33.33%	5.56%	1.11

The main finding is that marketing decision-makers in small manufacturing organisations and small dealer organisations in Gauteng regard incentives to personnel as the most important *people* aspect in the maturity phase of the PLC, followed by training of personnel.

The highest mean score of **2.66** on complaints handling (no 99) in the maturity phase is relatively low when compared to the highest mean scores for people (**4.24**) and physical evidence (**3.86**). The highest top-box score of **50.55%** was achieved by the incentives to personnel (no 83) as a people aspect. The low-box scores in Table 7.34 on all the information system aspects (no 95) are somewhat surprising because one would have expected information systems to be considered important, but it can be surmised that information systems are already established and working well.

Another main finding is that marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard

complaints handling as the most important *process* aspect in the maturity phase of the PLC (although the mean score was relatively low).

The high standard deviations on processes and physical evidence depicted in Table 7.34 are an indication that the sample is less homogeneous on the aspects pertaining to these two marketing mix instruments than on the aspects related to people.

The last main finding from Table 7.34 is that marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard the organisation's logo as the most important *physical evidence* aspect in the maturity phase of the PLC, followed by the organisation's name.

Table 7.35 illustrates a similar analysis on the importance of marketing mix related aspects for the sample in the decline phase of the product life cycle.

Table 7.35: The importance of marketing mix related aspects (people, processes and physical evidence) in the decline phase of the PLC

Marketing mix instrument	Decline phase					
	Aspects	Responses	Mean	Top-box score	Low-box score	Standard deviation
People	80. Training of personnel	91	4.56	64.84%	1.10%	0.67
	84. Incentives to personnel	91	4.59	59.34%	0.00%	0.49
	88. Knowledge of personnel	90	4.45	51.11%	0.00%	0.60
	92. Commitment of personnel	91	4.28	49.45%	1.10%	0.63
Processes	96. Information systems	90	4.12	38.89%	1.11%	0.87
	100. Complaints handling	89	4.25	47.19%	1.12%	0.85
	104. Toll free number	90	4.30	47.78%	1.11%	0.81
	108. Policies and procedures	89	4.19	42.70%	1.12%	0.86
Physical evidence	112. Organisation's reputation	91	3.97	45.05%	4.40%	1.16
	116. Organisation's name	91	4.07	47.25%	2.20%	1.08
	120. Organisation's logo	91	4.08	47.25%	2.20%	1.07
	124. Corporate dress (appearance of employees)	91	4.04	43.96%	2.20%	1.08

Table 7.35 indicates that the respondents regard incentives to personnel (no 84) (**4.59**) as the most important **people** aspects and training of personnel (no 80) (**4.56**) as the second most important people aspect in the decline phase of the product life cycle. This is closely followed by the knowledge of personnel (no 88) with a mean score of **4.45**. A toll free number (no 104) (**4.30**) and complaints handling (no 100) (**4.25**) are viewed as very important **process** aspects. The organisation's logo (no 120) (**4.08**) and organisation's name (no 116) (4.07) are regarded as the most important **physical evidence** aspects. The highest top-box score of **64.84%** was achieved by the training of personnel (no 80) as a people aspect.

The low-box scores of between **0.00%** and **4.40%** on all the aspects as depicted in Table 7.35 are very positive because the majority regarded all aspects as relatively important (lowest mean score 3.97).

The high standard deviations on physical evidence shown in Table 7.35 are an indication that the sample is less homogeneous on the aspects pertaining to this marketing mix instrument aspects than on the aspects pertaining to people and processes.

The main finding is that marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard incentives to personnel as the most important *people* aspect in the decline phase of the PLC, followed by training of personnel.

Another main finding is that marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard a toll free number as the most important *process* aspect in the decline phase of the PLC, followed by the organisation's name.

The last main finding from Table 7.35 is that marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard the organisation's logo as the most important *physical evidence*

aspect in the decline phase of the PLC although the organisation's name had virtually the same importance.

Tables 7.32 to 7.35 illustrated the importance of the three expanded marketing mix instruments in the product life cycle phases and their related aspects. A summarised representation across all four of the product life cycle phases on each of the expanded marketing mix instruments is provided in Table 7.36.

Table 7.36: The importance of marketing mix related aspects in the various PLC phases

Marketing mix instrument	Aspect	Mean values per PLC phase			
		Introductory	Growth	Maturity	Decline
People	(77 – 80) Training of personnel	4.49	3.79	4.14	4.56
	(81 – 84) Incentives to personnel	4.61	4.08	4.24	4.59
	(85 – 88) Knowledge of personnel	4.26	3.94	4.12	4.45
	(89 – 92) Commitment of personnel	3.93	3.74	4.03	4.28
Processes	(93 – 96) Information systems	3.76	4.24	2.56	4.12
	(97 – 100) Complaints handling	3.95	4.44	2.66	4.25
	(101 – 104) Toll free number	4.04	4.34	2.63	4.30
	(105 – 108) Policies and procedures	4.05	4.28	2.63	4.19
Physical evidence	(109 – 112) Organisation's reputation	4.76	4.08	3.76	3.97
	(113 – 116) Organisation's name	4.82	4.10	3.83	4.07
	(117 – 120) Organisation's logo	4.81	4.10	3.86	4.08
	(121 - Corporate dress (appearance of employees)	4.68	4.08	3.78	4.04

Table 7.36 reiterates the interpretation and deductions made from Tables 7.32 to 7.35 and illustrates the high mean scores on the importance of all the marketing aspects except for the low mean scores on all the marketing mix aspects for processes in the maturity phase as highlighted.

The main finding is that all the marketing mix related aspects pertaining to people, processes and the physical evidence mix are important

except for the marketing mix aspects linked to processes in the maturity phase.

Table 7.37 provides a summary of the mean values per marketing mix instrument.

Table 7.37: Importance of the three expanded marketing mix instruments

Marketing mix instrument	Mean
People (no 77 – 92)	4.36
Processes (no 93 – 108)	3.74
Physical evidence (no 109 – 124)	4.07

It is evident that the mean values on the importance of the marketing mix instruments based on certain aspects are all above average as depicted in Table 7.37. **Processes** has the lowest mean value of **3.74** and **people** has the highest mean value of **4.36**. A similar analysis will be conducted on the marketing mix related aspects for the other 4Ps namely product, price, place and promotion in question 19.

The finding is that marketing decision-makers in the sample attached high importance to the people, processes and physical evidence (expanded marketing mix) across all four phases of the product life cycle concept.

It is important to determine how the mean values for each marketing mix instrument compare in all four PLC phases. Table 7.38 illustrates the importance of each marketing mix instrument in the different PLC phases based on mean values.

The mean values depicted in Table 7.38 are indicative of the high importance given to the expanded marketing mix instruments in all the PLC phases. The standard deviations depicted in Table 7.38 are indicative of heterogeneity on

the importance of aspects pertaining to people, processes and physical evidence.

Table 7.38: The importance of the marketing mix instruments in the different PLC phases

	PLC phase	Mean	Standard deviation
People	Introductory	4.32	0.75
	Growth	3.88	0.57
	Maturity	4.13	0.59
	Decline	4.47	0.71
Processes	Introductory	3.95	0.92
	Growth	4.32	0.74
	Maturity	2.62	0.66
	Decline	4.21	0.70
Physical evidence	Introductory	4.76	0.78
	Growth	4.09	0.71
	Maturity	3.80	0.70
	Decline	4.04	0.74

If the mean values in Table 7.38 on the marketing mix aspects are compared among the four PLC phases, then:

- **physical evidence (4.76)** is the most important marketing mix instrument in the introductory phase of the PLC,
- **processes (4.32)** is the most important marketing mix instrument in the growth phase of the PLC,
- **people (4.13)** is the most important marketing mix instrument in the maturity phase of the PLC, and
- **people (4.47)** is the most important marketing mix instrument in the decline phase of the PLC.

The main finding is that marketing decision-makers regard physical evidence as the most important marketing mix instrument in the introductory phase of the product life cycle.

Another main finding is that marketing decision-makers regard processes as the most important marketing mix instrument in the growth phase of the product life cycle.

The last main finding from Table 7.38 is that marketing decision-makers regard people as the most important marketing mix instrument in the both the maturity and decline phases of the product life cycle.

Table 7.39 illustrates the importance of the different marketing mix instruments in each of the PLC phases per organisational group (manufacturers and dealers).

Table 7.39: The importance of the marketing mix instrument in the different PLC phases per organisational type

Marketing mix instrument	PLC phase	Organisational type			
		Manufacturers		Dealers	
		Mean	Standard deviation	Mean	Standard deviation
People	Introductory	4.19	0.70	4.29	0.76
	Growth	3.35	0.50	4.41	0.59
	Maturity	4.16	0.44	4.20	0.63
	Decline	4.24	0.42	4.23	0.78
Processes	Introductory	3.85	0.89	3.91	0.93
	Growth	4.77	0.52	3.97	0.80
	Maturity	2.71	0.48	2.53	0.70
	Decline	3.89	0.45	4.53	0.76
Physical evidence	Introductory	4.77	0.87	4.75	0.73
	Growth	3.96	0.66	4.24	0.72
	Maturity	3.77	0.63	3.83	0.71
	Decline	3.97	0.63	4.17	0.76

As shown in Table 7.39 **people** are the most important marketing mix aspect for small manufacturers (**4.24**) in the decline phase and to small dealers (**4.41**) in the growth phase. **Process** is the most important marketing mix instrument for small manufacturers (**4.77**) in the growth phase while it is the most important to small dealers (**4.53**) in the decline phase. **Physical evidence** is the most important marketing mix instrument to both small manufacturers (**4.77**) and small dealers (**4.75**) in the introductory phase.

The main finding is that **physical evidence** is the only marketing mix instrument with the highest degree of importance for both small manufacturers and small dealers in the same PLC phase, namely introductory.

Another main finding is that small manufacturers attach an equal degree of importance to processes and physical evidence as marketing mix instruments in the *growth* and *introductory* phases respectively compared to the importance of the people mix instrument in the other PLC phases.

The last main finding from Table 7.39 is that dealers regard physical evidence as the most important marketing mix variable in the introductory phase followed by processes as the most important in the decline phase compared to the other PLC phases.

Table 7.40 reveals whether there are significant differences on the mean values of the marketing mix instruments in the different PLC phases.

The Friedman's two-way analysis of variance for non-descriptive statistics was used to compare the mean scores on the importance of the different marketing mix instruments in the different PLC phases. See Appendix 4 for more detail on non-parametric statistics and the Friedman two-way analysis of variance.

Table 7.40: Significance test on the importance of the marketing mix instruments in the different PLC phases

PLC phases	Marketing mix instrument						p-value
	People		Processes		Physical evidence		
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	
Introductory phase	4.32	0.75	3.95	0.92	4.76	0.78	0.1530
Growth phase	3.88	0.57	4.32	0.74	4.09	0.71	0.2839
Maturity phase	4.13	0.59	2.62	0.66	3.80	0.70	0.6306
Decline phase	4.47	0.71	4.21	0.70	4.04	0.74	0.0520

When the decision-rule that a p-value ≤ 0.05 is an indication of a significant difference is applied, then all the p-values depicted in Table 7.40 indicating that there are no significant differences in the mean values for the different marketing mix instruments in the same PLC phase.

The test for significant differences in Table 7.40 emphasises the high importance placed on the three expanded marketing mix instruments.

The main finding is that there is no significant difference in the importance of the mean values for each of the three expanded marketing mix instruments within the same PLC phase.

(f) Questions 16

Provide a short description of the appropriate **marketing objective** that you would associate within each phase of the product life cycle.

The different marketing objectives in each PLC phase will be shown in a table format including the objectives provided by all the respondents and by the two groups (small manufacturing organisations and small dealer organisations).

(i) Question 16.1

Provide a short description of the appropriate **marketing objective** that you would associate with the **introductory phase** of the product life cycle.

Marketing decision-makers of small manufacturing and dealer organisations in Gauteng mentioned 21 different marketing objectives that can be associated with the introductory phase of the product life cycle as depicted in Table 7.40.

Table 7.41 shows that heavy/intensive advertising (no 1) has the highest total frequency of **36.89%** followed by the building of strong brand image and awareness (no 2) with a total frequency of **21.32%**. The total frequencies on all the promotional components of advertising (no 1), sales promotion (no 4) and personal selling (no 5) provide a frequency of **41.80%** (51/122).

Table 7.41: Marketing objectives in the introductory phase of the PLC

Marketing objectives	Frequency					
	Manufacturers		Dealers		Total	
	Number ¹	Percentage	Number ¹	Percentage	Number ¹	Percentage
1. Heavy/intensive advertising	9	7.58%	36	29.51%	45	36.89%
2. Build strong brand image and awareness	5	4.10%	21	17.22%	26	21.32%
3. Lower prices	1	0.82%	6	4.92%	7	5.74%
4. Sales promotion	0	0.00%	4	3.28%	4	3.28%
5. Personal selling	1	0.82%	1	0.82%	2	1.64%
6. Cold calling	1	0.82%	0	0.00%	1	0.82%
7. High sales	1	0.82%	10	8.20%	11	9.02%
8. Simple product/ product line	3	2.46%	1	0.82%	4	3.28%
9. Build reputation	0	0.00%	1	0.82%	1	0.82%
10. Limited product range	0	0.00%	2	1.64%	2	1.64%
11. Training of personnel (sales team)	0	0.00%	3	2.46%	3	2.46%
12. Building customer base	1	0.82%	2	1.64%	3	2.46%
13. Competitiveness	1	0.82%	0	0.00%	1	0.82%
14. Establish good distribution	2	1.64%	1	0.82%	3	2.46%
15. Competitive prices	0	0.00%	1	0.82%	1	0.82%
16. Penetration	0	0.00%	1	0.82%	1	0.82%
17. Build strong relationships	1	0.82%	0	0.00%	1	0.82%
18. Research for better quality	1	0.82%	0	0.00%	1	0.82%
19. Limited product / lines	1	0.82%	1	0.82%	2	1.64%
20. Continuous market monitoring	0	0.00%	1	0.82%	1	0.82%
21. Encourage brand switching	0	0.00%	1	0.82%	1	0.82%
TOTAL	29	23.97%	93	76.23%	122	100%

¹ Number of times that these objectives were mentioned by respondents

The main finding is that the sample described heavy/intensive advertising as the primary marketing objective in the *introductory phase* of the PLC, followed by the building of a strong brand image and awareness.

If the number of frequencies in Table 7.41 are not expressed as a percentage of the total frequency, but per organisational type (29 small manufacturing organisations and 93 small dealer organisations), then the percentages are as follows:

- small manufacturing organisations provided heavy/intensive advertising (no 1) **31.03%** (9/29), build strong brand image and awareness (no 2) **17.24%** (5/29) and simple product/product line (no 8) **10.34%** (3/29) as the three main marketing objectives in the introductory phase of the product life cycle.

- small dealer organisations provided heavy/intensive advertising (no 1) **38.70%** (36/93), build strong brand image and awareness (no 2) **22.58%** (21/93) and high sales (no 7) **10.75%** (10/93) as the three main marketing objectives in the introductory phase of the product life cycle.

The above-mentioned deductions concur with the main finding of total frequencies. It can be assumed that marketing decision-makers in small manufacturing organisations and small dealer organisations may have confused marketing objectives and marketing strategies in the introductory phase of the PLC. They reported marketing objectives that are in fact marketing strategies such as offering a *simple product/product line*.

The main finding is that marketing decision-makers in both small manufacturing organisations and small dealer organisations independently described heavy/intensive advertising as the primary marketing objective in the *introductory phase* of the PLC, followed by building strong brand image and awareness. (This is the same finding as for the total sample).

(ii) Question 16.2

Provide a short description of the appropriate **marketing objective** that you would associate with the **growth phase** of the product life cycle.

Marketing decision-makers of organisations in Gauteng described 21 different marketing objectives to be associated with the growth phase of the product life cycle as depicted in Table 7.42.

Table 7.42 shows that high turnover (no 3) has the highest frequency of **39.31%** followed by increased advertising (no 1) with a total frequency of **20.52%**.

Table 7.42: Marketing objectives in the growth phase of the PLC

Marketing objectives	Frequency					
	Manufacturers		Dealers		Total	
	Number ¹	Percentage	Number ¹	Percentage	Number ¹	Percentage
1. Increased advertising	8	6.84%	16	13.67%	24	20.52%
2. Building brand image	1	0.85%	1	0.85%	2	1.71%
3. High turnover	9	7.69%	37	31.62%	46	39.31%
4. Build relationships	2	1.71%	1	0.85%	3	2.56%
5. Increased advertising and sales promotion ²⁾	1	0.85%	6	5.10%	7	5.95%
6. Sell additional products	0	0.00%	4	3.42%	4	3.42%
7. Increase marketing effort	0	0.00%	2	1.71%	2	1.71%
8. Variety	1	0.85%	2	1.71%	3	2.56%
9. Better service quality	0	0.00%	2	1.71%	2	1.71%
10. Build a strong reputation	0	0.00%	2	1.71%	2	1.71%
11. Be innovative	1	0.85%	0	1.71%	1	0.85%
12. Low price	1	0.85%	3	2.56%	4	3.42%
13. Product quality	0	0.00%	1	0.85%	1	0.85%
14. Increase customer awareness	0	0.00%	3	2.56%	3	2.56%
15. Customer acquisition	0	0.00%	2	1.70%	2	1.70%
16. Entice trial	0	0.00%	2	1.71%	2	1.71%
17. Availability of product	0	0.00%	1	0.85%	1	0.85%
18. Increase sales force	1	0.85%	0	0.85%	1	0.85%
19. Warranties	1	0.85%	4	3.42%	5	4.27%
20. Keep product line simple	0	0.00%	1	0.85%	1	0.85%
21. Product differentiation	1	0.85%	0	0.85%	1	0.85%
TOTAL	27	23.08%	90	76.92%	117	100%

¹ Number of times that these objectives were mentioned by respondents

² Treated separately because of the sales promotion which was included with increased advertising

The main finding is that the total sample described high turnover as the primary marketing objective in the *growth phase* of the PLC, followed by increased advertising.

If the number of frequencies in Table 7.42 are not expressed as a percentage of the total frequency, but per organisational type (27 small manufacturing organisations and 90 small dealer organisations), then the percentages are as follows:

- small manufacturing organisations consider high turnover (no 3) **33.33%** (9/27), increased advertising (no 1) **29.62%** (8/27), and building relationships (no 4) **7.40%** (2/27) as the three main marketing objectives in the growth phase of the product life cycle.

- small dealer organisations chose high turnover (no 3) **41.11%** (37/90), increased advertising (no 1) **17.77%** (16/90) and increased advertising and sales promotion (no 5) **6.66%** (6/90) as the three main marketing objectives in the introductory phase of the product life cycle.

It can be assumed that marketing decision-makers in small manufacturing organisations and small dealer organisations may have confused marketing objectives and marketing strategies in the growth phase of the PLC. They reported marketing objectives such as *increase sales force* that are fact marketing strategies.

The main finding is that marketing decision-makers in small manufacturing organisations identified high turnover as the primary marketing objective in the *growth phase* of the PLC, followed by increase in advertising and the building of relationships.

Another main finding is that marketing decision-makers in small dealer organisations described high turnover as the primary marketing objective in the *growth phase* of the PLC, followed by increase in advertising and the selling of additional products.

(iii) Question 16.3

Provide a short description of the appropriate **marketing objective** that you would associate with the **maturity phase** of the product life cycle.

Marketing decision-makers of organisations in Gauteng mentioned 32 different marketing objectives to be associated with the maturity phase of the product life cycle as depicted in Table 7.43.

Table 7.43 shows that the objective of maximising sales (no 8) has the highest frequency of **19.45%** followed by reduced advertising (no 1) and maximise/high profit (no 2) with a total frequency of **13.27%** respectively.

Table 7.43: Marketing objectives in the maturity phase of the PLC

Marketing objectives	Frequency					
	Manufacturers		Dealers		Total	
	Number ¹	Percentage	Number ¹	Number ¹	Number ¹	Percentage
1. Reduce advertising	2	1.76%	13	11.50%	15	13.27%
2. Maximise/high profit	4	3.52%	11	9.73%	15	13.27%
3. Reduce cost	3	2.65%	5	4.42%	8	7.08%
4. Research and development	3	2.65%	0	0.00%	3	2.65%
5. Quality	1	0.88%	0	0.00%	1	0.88%
6. Add value	2	1.77%	3	2.65%	5	4.42%
7. Brand awareness	0	0.00%	2	1.77%	2	1.77%
8. Maximise sales	3	2.64%	19	16.72%	22	19.45%
9. Reduce prices	0	0.00%	1	0.88%	1	0.88%
10. Customer retention	4	3.54%	9	7.96%	13	11.50%
11. Assessing positioning	0	0.00%	1	0.88%	1	0.88%
12. Evaluating products or lines	1	0.88%	2	1.77%	3	2.65%
13. Reduce promotion	0	0.00%	1	0.88%	1	0.88%
14. Identify key clients	1	0.88%	0	0.00%	1	0.88%
15. Monitor competition	0	0.00%	1	0.88%	1	0.88%
16. Build relationships	0	0.00%	1	0.88%	1	0.88%
17. Benefit from word-of-mouth	0	0.00%	1	0.88%	1	0.88%
18. Maintain standards	1	0.88%	0	0.00%	1	0.88%
19. Customer awareness	0	0.00%	1	0.88%	1	0.88%
20. Increase prices	0	0.00%	2	1.77%	2	1.77%
21. Competitive pricing	0	0.00%	1	0.88%	1	0.88%
22. Offer best possible product	0	0.00%	2	1.77%	2	1.77%
23. Increase promotions	0	0.00%	2	1.77%	2	1.77%
24. Maintain sales levels	0	0.00%	2	1.77%	2	1.77%
25. Availability of products	0	0.00%	1	0.88%	1	0.88%
26. Repeat purchases	0	0.00%	1	0.88%	1	0.88%
27. Warranties	0	0.00%	1	0.88%	1	0.88%
28. Get rid of unprofitable products	0	0.00%	1	0.88%	1	0.88%
29. Additional services	1	0.88%	0	0.00%	1	0.88%
30. Monitor customers	0	0.00%	1	0.88%	1	0.88%
31. Acquire new customer	0	0.00%	1	0.88%	1	0.88%
32. Rely on workmanship	1	0.88%	0	0.00%	1	0.88%
TOTAL	27	23.89%	86	76.11%	113	100.00%

¹ Number of times that these objectives were mentioned by respondents

The main finding is that the total sample indicated maximising sales as the primary marketing objective in the *maturity phase* of the PLC, followed by reduced advertising and maximised/high profit.

If the number of frequencies in Table 7.43 are not expressed as a percentage of the total frequency, but per organisational type (27 small manufacturing organisations and 86 small dealer organisations), then the percentages are as follows:

- small manufacturing organisations considered maximised/high profit (no 2) and customer retention (no 10) **14.81%** (4/27) each, reduced cost (no 3), research and development (no 4) and maximised sales (no 8) **11.11%** (3/27) each as the main marketing objectives in the maturity phase of the product life cycle.
- small dealer organisations identified maximise sales (no 8) **22.09%** (19/86), reduce advertising (no 1) **15.11%** (13/86) and maximised/high profit (no 2) **12.79%** (11/86) as the three main marketing objectives in the maturity phase of the product life cycle.

It can be assumed that marketing decision-makers in small manufacturing organisations and small dealer organisations may have confused marketing objectives and marketing strategies in the maturity phase of the PLC. They reported marketing objectives such as *increase prices* that are in fact marketing strategies.

The main finding is that marketing decision-makers in small manufacturing organisations described maximised/high profit and customer retention as the primary marketing objectives to be associated with the *maturity phase* of the PLC, followed by reduced cost and research and development.

Another main finding is that marketing decision-makers in small dealer organisations described maximised sales as the primary marketing objective to be associated with the *maturity phase* of the PLC, followed by reduced advertising and maximised/high profit.

(iv) Question 16.4

Provide a short description of the appropriate **marketing objective** that you would associate with the **decline phase** of the product life cycle.

Marketing decision-makers of small organisations in Gauteng mentioned 27 different marketing objectives to be associated with the decline phase of the product life cycle as depicted in Table 7.44.

Table 7.44: Marketing objectives in the decline phase of the PLC

Marketing objectives	Frequency					
	Manufacturers		Dealers		Total	
	Number ¹	Percentage	Number ¹	Number ¹	Number ¹	Percentage
1. Phase out the product	1	0.85%	14	11.97%	15	12.82%
2. New product should be available	1	0.85%	7	5.98%	8	6.84%
3. Milk product	1	0.85%	1	0.85%	2	1.71%
4. Reduce prices	13	11.05%	33	28.05%	46	39.10%
5. Sell out old stock	1	0.85%	5	4.27%	6	5.13%
6. Extend product life as long as possible	1	0.85%	1	0.85%	2	1.71%
7. Evaluate product success	1	0.85%	2	1.71%	3	2.56%
8. Increase awareness	0	0.00%	3	2.56%	3	2.56%
9. Maintain relationships with key clients	1	0.85%	1	0.85%	2	1.71%
10. Customer acquisition	0	0.00%	2	1.71%	2	1.71%
11. Reduce advertising	0	0.00%	3	2.56%	3	2.56%
12. Rely on word-of-mouth	0	0.00%	1	0.85%	1	0.85%
13. Maintain standards	1	0.85%	1	0.85%	2	1.71%
14. Increase special promotions	0	0.00%	5	4.27%	5	4.27%
15. Advertise new products	0	0.00%	2	1.71%	2	1.71%
16. Research and development	1	0.85%	1	0.85%	2	1.71%
17. Monitor customer demand	0	0.00%	1	0.85%	1	0.85%
18. Prevent losses	0	0.00%	1	0.85%	1	0.85%
19. Assist loyal customers	0	0.00%	1	0.85%	1	0.85%
20. Rent products out	0	0.00%	1	0.85%	1	0.85%
21. Feed on reputation/use reputation	2	1.71%	1	0.85%	1	2.56%
22. Sell in bulk	0	0.00%	1	0.85%	1	0.85%
23. Quality control	0	0.00%	1	0.85%	1	0.85%
24. New product development	1	0.85%	0	0.00%	1	0.85%
25. Warranties	0	0.00%	1	0.85%	1	0.85%
26. Reduce promotion	0	0.00%	1	0.85%	1	0.85%
27. Increase price	1	0.85%	0	0.00%	1	0.85%
TOTAL	26	22.22%	91	77.78%	117	100.00%

¹ Number of times that these objectives were mentioned by respondents

Marketing decision-makers mentioned reduced prices (no 4) as the primary marketing objective in the decline phase of the PLC with a total frequency of **39.10%** followed by phasing out the product (no 1) with a total frequency of **12.82%** and new product availability (no 2) with a total frequency of **6.84%**.

The main finding is that the total sample described reduced prices as the primary marketing objective to be associated with the *decline phase* of the PLC, followed by the phasing out of the product.

If the number of frequencies in Table 7.44 are not expressed as a percentage of the total frequency, but per organisational type (26 small manufacturing organisations and 91 small dealer organisations), then the percentages are as follows:

- small manufacturing organisations provided reduced prices (no 4) **50%** (13/26) and the use of reputation (no 27) **7.69%** (2/26) as the main marketing objectives in the decline phase of the product life cycle.
- small dealer organisations regarded reduced prices (no 4) **36.26%** (33/91), phasing out the product (no 1) **16.27%** (14/86) and the availability of a new product (no 2) **7.69%** as the three main marketing objectives in the decline phase of the product life cycle.

The main finding is that marketing decision-makers in small manufacturing organisations described reduced prices as the primary marketing objective to be associated with the *decline phase* of the PLC, followed by the feed on/use of reputation.

Another main finding is that marketing decision-makers in small dealer organisations described reduced prices as the primary marketing objective to be associated with the *decline phase* of the PLC, followed by the phasing out of the product.

It can be assumed that marketing decision-makers in small manufacturing organisations and small dealer organisations may have confused marketing objectives and marketing strategies in the decline phase of the PLC. They reported marketing objectives such as *assisting loyal customers and renting out the product* that are indeed marketing strategies.

The results in Tables 7.41 to 7.44 suggest that the respondents may have confused some objectives with marketing strategies.

The main finding is that marketing decision-makers in small manufacturing organisations and small dealer organisations may have confused certain marketing objectives with marketing strategies in the different PLC phases.

From the results in Tables 7.41 to 7.44, the most important primary objectives per organisational type are illustrated in Table 7.45. These primary objectives are cross-tabulated with the results of question 4 as discussed in paragraph 7.4.1(c).

Table 7.45: The primary marketing objectives in the different PLC phases for the organisations per organisational type

Organisational type	Primary marketing objectives in the different PLC phases			
	Intro	Growth	Maturity	Decline
Small manufacturers	<ul style="list-style-type: none"> • Heavy/intensive advertising • Build strong brand image and awareness • Simple product/line 	<ul style="list-style-type: none"> • High turnover • Increase advertising • Build relationships 	<ul style="list-style-type: none"> • Maximise/High profit • Customer retention • Reduce cost • Research and development • Maximise sales 	<ul style="list-style-type: none"> • Use reputation • Reduce prices
Small dealers	<ul style="list-style-type: none"> • Heavy/intensive advertising • Build strong brand image and awareness • High sales 	<ul style="list-style-type: none"> • High turnover • Increase advertising • Sell additional products 	<ul style="list-style-type: none"> • Maximise sales • Reduce advertising • Maximise/high profit 	<ul style="list-style-type: none"> • Reduce prices • Phase out the product • New product availability
	Table 7.41	Table 7.42	Table 7.43	Table 7.44

The marketing objectives listed in Tables 7.41 to 7.44 will be used to compare the marketing objectives provided by the respondents with the marketing objectives provided by Kotler (2000: 316).

When compared to the marketing objectives provided by Kotler (2000: 316) and described in Table 3.5 the primary marketing objectives given by small manufacturers and small dealer organisations are not exactly the same as the theory.

Table 7.46: Comparison between the marketing objectives by Kotler (2000:316) and the marketing objectives provided by the sample

Marketing objectives	PLC phases			
	Introductory phase	Growth phase	Maturity phase	Decline phase
Create product awareness and trial ¹⁾	Maximise market share ¹⁾	Maximise profit while defending current market share ¹⁾	Reduce expenditure and milk the brand ¹⁾	
Heavy/intensive advertising ²⁾ Build strong brand image and awareness ²⁾	High turnover ²⁾ Increased advertising ²⁾	Maximise sales ²⁾ Reduce advertising ²⁾ Maximise/high profit ²⁾	Reduce prices ²⁾ Phase out the product ²⁾	

Note: ¹⁾ = Kotler's theory and ²⁾ = Survey responses

In the introductory phase objectives provided by the sample namely building of a strong brand image and awareness can be related to Kotler's creation of product awareness and trial. The other objective of heavy/intensive advertising may have been interpreted by the respondents as **how** they can create awareness.

It is however suggested that they can be associated with Kotler's marketing objectives in the **growth, maturity** and **decline** phases of the product life cycle.

The main finding is that marketing decision-makers in small manufacturing and small dealer organisations described marketing objectives, in the different phases of the PLC which are relatively similar to the theory, provided by Kotler (2001: 316).

(g) Question 17

What is the likelihood that you will continue using the product life cycle concept in future for (a) general management decision-making and (b) marketing decision-making? ("**1**" indicates very unlikely and "**5**" indicates extremely likely).

The likelihood that marketing decision-makers in organisations will continue using the product life cycle concept for marketing and general management decision-making in future is an important indicator of the utilisation potential and value of the product life cycle concept. Table 7.47 and Table 7.48 will provide an indication of the likelihood that marketing decision-makers in the sample will continue using the product life cycle in future for general management and marketing decision-making purposes respectively.

Table 7.47: Likelihood of continuing with the use of the product life cycle in future for general management decision-making

Extent of influence	Frequency	Percentage	Cumulative frequency	Cumulative percentage
1	0	0.00%	0	0.00%
2	9	9.78%	9	9.78%
3	25	27.18%	34	36.96%
4	32	34.78%	66	71.75%
5	26	28.26%	92	100.00%
TOTAL	N = 92	100%	-	-

Mean score from the total sample = **3.81**

A majority of 63.04% of the marketing decision-makers in organisations in Gauteng indicated an average (a scale value of 3) to high likelihood of the continued use of the product life cycle for general management decision-making in future as depicted in Table 7.47.

This result provides a positive indication that the product life cycle concept has a continuous usage potential among manufacturers and dealers in Gauteng for general management decision-making purposes in the future.

Table 7.48 illustrates the likelihood of the continued use of the product life cycle for marketing decision-making in the future.

A majority of 67.39% of the marketing decision-makers in organisations in Gauteng indicated a high likelihood (scale value of 4 and 5) of continuously

using the product life cycle for marketing decision-making in future as depicted in Table 7.48.

Table 7.48: Likelihood of continuing with the use of the product life cycle in future for marketing decision-making

Extent of influence	Frequency	Percentage	Cumulative frequency	Cumulative percentage
1	0	0.00%	0	0.00%
2	5	5.43%	5	5.43%
3	25	27.18%	30	32.61%
4	34	36.96%	64	69.57%
5	28	30.43%	92	100.00%
TOTAL	N = 92	100	-	-

Mean score from the total sample = **3.92**

As can be deduced from Tables 7.47 and 7.48 there is not a large difference between the mean scores of the likelihood of the continued use of the product life cycle concept for general management decision-making and for marketing decision-making in the future. Table 7.49 will however reveal whether the differences in the mean scores on the future likelihood of using the product life cycle for general and marketing decision purposes are significant or not.

Table 7.49: Significance test of the likelihood of continuing with the use of the product life cycle in future for general management and marketing decision-making

Likelihood of using the PLC for	Frequency	Mean	p-value
V68. general management decision-making	92	3.81	0.0956
V69. marketing decision-making	92	3.92	

The likelihood of the continued use of the product life cycle concept in future is higher for general decision-making than for marketing decision-making as depicted by the mean scores in Table 7.49, - the difference is however very small. The **Wilcoxon t-test statistic** to determine differences between dependent groups was executed and a p-value of 0.0956 resulted. If the decision-rule that a p-value ≤ 0.05 signals a significant difference, then the p-

value of 0.0956 depicted in Table 7.49 shows that the differences in the means scores for the total sample on the likelihood on the continuous use of the product life cycle for general management and marketing decision-making purposes in future is not significant.

The main finding is that there is no significant difference between general management and marketing decision-making with regard to the likelihood of continued future use of the product life cycle.

Table 7.50 discloses possible differences between manufacturers and dealers of the likelihood of the continued use of the product life cycle for general management and marketing decision-making purposes in the future.

Table 7.50: Likelihood of continuing with the use of the product life cycle in future for general management and marketing decision-making per organisational type

Likelihood of using the PLC for	Organisational type						p-value
	Manufacturers			Dealers			
	N	Mean	Standard deviation	N	Mean	Standard deviation	
V68. general management decision-making	21	3.85	0.96	21	3.95	0.86	0.5271
V69. marketing decision-making	71	3.80	0.96	71	3.91	0.90	0.1167

The mean scores of **3.85** and **3.80** as portrayed in Table 7.50 seem to indicate a similar likelihood of the continued use of the product life cycle for general management decision-making in future among manufacturers and dealers. The **Wilcoxon t-test statistic** to determine differences between dependent groups was executed and a p-value of 0.5271 was found. The decision-rule of a p-value ≤ 0.05 was applied for significance. The p-value of 0.5271 depicted in Table 7.50 demonstrates that the differences in the mean scores between manufacturers and dealers on the likelihood of the continued use of the product life cycle for general management purposes in future are not significant.

The main finding is that marketing decision-makers in manufacturing and dealer organisations show no significant differences with regard to the likelihood of continued use of the product life cycle in future for general management decision-making purposes.

Table 7.50 also demonstrates that the differences in the mean scores of manufacturers and dealers on the likelihood of the continued use of the product life cycle for marketing decision-making purposes in future are not significant.

The main finding is that marketing decision-makers in manufacturing and dealer organisations show no significant differences with regard to the likelihood of continued use of the product life cycle in future for marketing decision-making purposes.

Apart from the above-mentioned main finding it is important to cross-tabulate questions 4 and 17. The results on question 4 as discussed in paragraph 7.4.1(a) and the results on question 17 as illustrated in Table 7. 49 will be used to do the cross-tabulation. This cross tabulation result will be illustrated in Table 7.51.

Table 7.51: Likelihood of continuing with the use of the product life cycle in future by organisations with and without a marketing department for general management and marketing decision-making for the total sample

Likelihood of using the PLC for	Mean		p-value
	Organisations with a marketing department or function	Organisations without a marketing department or function	
V68. general management decision-making	3.71	4.03	0.1584
V69. marketing decision-making	3.88	4.00	0.5096

The Mann-Whitney U test to compare the mean scores of variables between two independent groups was executed. If the decision-rule is applied that a p-

value ≤ 0.05 is an indication of a significant difference, then the p-values as shown in Table 7.51 are non-significant.

The main finding is that the likelihood of continuing with the use of the product life cycle concept in future, for general and marketing decision-making, is equally high irrespective whether small manufacturing and small dealer organisations have a marketing department or not.

7.4.4 Section D

Section D was mainly focusing on testing the ability of marketing decision-makers in manufacturer and dealer organisations in Gauteng to match the different marketing characteristics with the various product life cycle phases as provided in the theory by Kotler (2000: 316) and illustrated in Table 3.5. This section furthermore tested the ability of marketing decision-makers in manufacturing and dealer organisations in Gauteng to link the different marketing strategies with the various product life cycle phases provided in the theory by Kotler (2000: 316). The results are aimed at providing information on the ability of marketing decision-makers to apply their knowledge according to existing theory.

(a) Question 18

Match the following characteristics in Column A to the most appropriate phase in Column B by means of a cross next to the word or description in Column A

* The reader is referred to the questionnaire in Appendix 2 where the characteristics are listed.

The main objective with question 18 was to determine whether organisations differ or concur with the theory on marketing characteristics associated with the various product life cycle phases provided by Kotler (2000: 316). Table 7.52 provides a frequency of the total sample (small manufacturers and small dealers).

The total frequency for each characteristic associated with the different PLC phases is reflected in Table 7.52 and the highest frequency of each

characteristic in each phase is accentuated. For example: low sales (no 143 to no 146) is the characteristic with the highest total frequency of 64 in the decline phase.

Table 7.52: Frequency distribution of the total sample with regard to the characteristics in each of the PLC phases

Characteristics	Phases in the PLC per group											
	Total sample (P)				Manufacturers (M)				Dealers (D)			
	I	G	M	D	I	G	M	D	I	G	M	D
143 – 146 Low sales	52	0	24	64	4	0	4	14	38	0	20	50
151 – 154 Increasing sales	32	84	9	0	5	20	2	0	27	64	7	0
199 – 202 Peak sales	9	47	59	1	0	9	8	0	9	38	51	1
159 – 162 Declining sales	2	0	31	78	0	0	4	21	2	0	27	57
171 – 174 High cost per customer	48	14	29	41	12	1	7	8	36	13	22	33
175 – 178 Average cost per customer	18	62	34	4	3	16	5	3	15	36	29	1
155 – 158 Low cost per customer	24	45	45	15	5	6	14	6	19	39	31	9
163 – 166 Negative profits (Losses)	33	2	15	71	11	2	2	16	22	0	13	55
195 – 198 Increasing profits	23	79	25	1	7	19	3	0	16	60	22	1
147 – 150 High profits	21	55	57	4	1	8	15	2	20	47	42	2
187 – 190 Declining profits	3	3	28	70	0	0	5	18	3	3	23	52
167 – 170 Few competitors	50	3	24	60	11	2	8	17	39	1	16	43
191 – 194 Growing number of competitors	53	61	13	5	13	15	3	1	40	46	10	4
179 – 182 Stable number of competitors but beginning to decline	2	7	80	21	0	3	17	5	2	4	63	16
183 – 186 Declining number of competitors	0	4	33	67	0	4	8	1	0	0	25	66

Note: I = Introductory phase, G = Growth phase, M = Maturity phase, D = Decline phase

The total frequencies depicted in Table 7.52 seem to be high but a characteristic could have appeared in more than one PLC phase (see Appendix 2 in the questionnaire).

All the highest frequencies as depicted in Table 7.52 were used to compile Table 7.53 and Table 7.54 indicating the highest frequencies achieved for each characteristic in each PLC phase for the total sample (P), small manufacturers (M), small dealers (D). This result was then compared with Kotler's theory.

Table 7.53 provides a comparison between the responses of the total sample (P) and Kotler's theory.

Table 7.53: Comparison of the total sample's responses of characteristics with the theory (T) in each of the PLC phases

Characteristics		PLC phases			
		Intro phase	Growth phase	Maturity phase	Decline phase
Sales	143 – 146 Low sales	T			X
	151 – 154 Increasing sales		✓		
	199 – 202 Peak sales			✓	
	159 – 162 Declining sales				✓
Cost	171 – 174 High cost per customer	✓			
	175 – 178 Average cost per customer		✓		
	155 – 158 Low cost per customer		X	✓	T
Profits	163 – 166 Negative profits (Losses)	T			X
	195 – 198 Increasing profits		✓		
	147 – 150 High profits			✓	
	187 – 190 Declining profits				✓
Competitors	167 – 170 Few competitors	T			X
	191 – 194 Growing number of competitors		✓		
	179 – 182 Stable number of competitors but beginning to decline			✓	
	183 – 186 Declining number of competitors				✓

Note: ✓ = perfect association of the total sample with the theory on the characteristic in the specific PLC phase
 X = no association of the total sample with the theory on the characteristic in the specific PLC phase
 T = Kotler's theory

It is evident from Table 7.53 that the total sample concurred with 75% ($12 \div 16 \times 100$) of the characteristics in the phases in the product life cycle according to Kotler's (2000: 316) theory.

The respondents had the highest frequency for low sales (no 143 – 146) in the decline phase of the PLC indicated by an (X) in Table 7.53. This can be an indication of possible confusion by the respondents on the difference between low sales (no 143 – 146) and declining sales (no 159 – 162).

The respondents had the highest frequency for negative profits (no 163 – 166) in the decline phase of the PLC indicated by an (X) in Table 7.53. This can also be indicative of a possible confusion by the respondents on the

difference between negative profits/losses (no 163 – 166) and declining profits sales (no 187 – 190).

The respondents had the highest frequency for a few competitors (no 167 – 170) in the decline phase of the PLC indicated by an (X) in Table 7.53. This might imply that the respondents did not distinguish between a few competitors (no 163 – 166) and declining number of competitors (no 183 – 186).

The main finding is that the total sample of small organisations in Gauteng achieved a 75% match with the characteristics in each product life cycle phase as provided by theory (Kotler, 2000: 316).

The concurrence or difference per organisational type's (small manufacturers and small dealers) association with Kotler's (2000: 316) theory on marketing characteristics in each of the product life cycle phases is shown in Table 7.54.

Table 7.54: Comparison, per organisational type, of the characteristics in each of the PLC phases with the theory

Characteristics		Phases in the PLC			
		Intro phase	Growth phase	Maturity phase	Decline phase
Sales	143 – 146 Low sales	T			M D
	151 – 154 Increasing sales		T ^M T ^D		
	199 – 202 Peak sales		M	T ^D	
	159 – 162 Declining sales				T ^M T ^D
Cost	171 – 174 High cost per customer	T ^M T ^D			
	175 – 178 Average cost per customer		T ^M T ^D		
	155 – 158 Low cost per customer		D	T ^M	T
Profits	163 – 166 Negative profits (Losses)	T			M D
	195 – 198 Increasing profits		T ^M T ^D		
	147 – 150 High profits		D	T ^M	
	187 – 190 Declining profits				T ^M T ^D
Competitors	167 – 170 Few competitors	T			M D
	191 – 194 Growing number of competitors		T ^M T ^D		
	179 – 182 Stable number of competitors but beginning to decline			T ^M T ^D	
	183 – 186 Declining number of competitors			M	T ^D

Note: T = Theory as provided by Kotler (2000: 316), T^M = small manufacturers in Gauteng providing a fit with T, T^D = small dealers in Gauteng providing a fit with T, M = small manufacturers and D = small dealers

As illustrated in Table 7.54 small manufacturers (**M**) matched 62.50% ($10 \div 16 \times 100$) characteristics to the appropriate phases in the product life cycle as depicted in Kotler's theory (**T**) indicated by **T^M** in the same PLC phase. Small dealers (**D**) also achieved a 62.50% ($10 \div 16 \times 100$) match of characteristics to the appropriate phases in the product life cycle as depicted in Kotler's theory (**T**) and indicated by a **T^D** in the same PLC phase.

The main findings on the differences between small manufacturing organisations and small dealer organisations with regard to Kotler's characteristics (M with D) are:

(i) Sales

Small manufacturers indicated peak sales in the growth phase while small dealers reported peak sales in the maturity phase.

(ii) Cost

Small manufacturers indicated low cost per customer in the maturity phase while dealers reported low cost per customer in the growth phase.

(iii) Profits

Small manufacturers indicated high profits in the maturity phase while dealers reported high profits in the growth phase.

(iv) Competitors

Small manufacturers indicated declining number of competitors in the maturity phase while dealers reported declining number of competitors in the decline phase.

The main finding is that small manufacturers and small dealers achieved a match success rate of 62.50% with Kotler's (2000: 316) theory on characteristics in each phase of the PLC.

Table 7.55 demonstrates possible differences or similarities between organisations with a marketing department or function and Kotler's theory (**T**). The fit in Table 7.55 is based on the characteristics with the highest reported frequency in that specific PLC phase.

Table 7.55: Association of respondents' perceptions of marketing characteristics with Kotler's theory in each of the PLC phases for the total sample of organisations with a marketing department or function

Characteristics		Phases in the PLC			
		Intro phase	Growth phase	Maturity phase	Decline phase
Sales	Low sales	T			P ^M
	Increasing sales		T P ^M		
	Peak sales			T P ^M	
	Declining sales				T P ^M
Cost	High cost per customer	T			P ^M
	Average cost per customer		T P ^M		
	Low cost per customer		P	T P ^M	T
Profits	Negative profits (Losses)	T			P ^M
	Increasing profits		T P ^M		
	High profits		P ^M	TP	
	Declining profits				T P ^M
Competitors	Few competitors	T			P ^M
	Growing number of competitors		T P ^M		
	Stable number of competitors but beginning to decline			T P ^M	
	Declining number of competitors				T P ^M

Note: T = Theory as provided by Kotler, P^M = Organisations in the total sample with a marketing department

Small manufacturing and dealer organisations with a marketing department reported a 62,50% ($10 \div 16 \times 100$) fit with Kotler's theory (T) depicted in Table 7.55.

The main finding of differences between small manufacturing organisations and small dealer organisations with a marketing department/function and Kotler's characteristics (P^M with T) are:

(i) Sales

Small manufacturers and small dealers with a marketing department reported low sales in the decline phase while Kotler indicated low sales in the introductory phase.

(ii) Cost

Small manufacturers and small dealers with a marketing department reported high cost per customer in the decline phase while Kotler indicated high cost per customer in the introductory phase.

(iii) Profits

Small manufacturers and small dealers with a marketing department reported negative profits in the decline phase while Kotler indicated negative profits in the introductory phase.

Small manufacturers and small dealers with a marketing department reported high profits in the growth phase while Kotler indicated high profits in the maturity phase.

(iv) Competitors

Small manufacturers and small dealers with a marketing department reported few competitors in the decline phase while Kotler indicated few competitors in the introductory phase.

The main finding is that marketing decision-makers in small manufacturing and small dealer organisations with a marketing department provided a relatively good association (62%) with Kotler's theory as far as the characteristics within the different PLC phases are concerned.

Table 7.56 indicates possible differences or similarities per organisational type (with marketing departments or functions) when compared with the characteristics provided by Kotler (2000: 316). The fit in Table 7.56 is based on the allocation of the characteristic with the highest reported frequency to that specific PLC phase.

Manufacturers with a marketing department have a 81.25% ($13 \div 16 \times 100$) fit with Kotler's characteristics as indicated by (M^{MD}) and dealers with a marketing department have a 50% ($8 \div 16 \times 100$) fit indicated by (D^{MD}) in Table 7.56.

Table 7.56: Association of respondents' perceptions of marketing characteristics with Kotler's theory in each of the PLC phases per organisational type for organisations with a marketing department or function

Characteristics		Phases in the PLC							
		Intro phase		Growth phase		Maturity phase		Decline phase	
Sales	Low sales	T	M					M ^{MD}	D ^{MD}
	Increasing sales			M ^{MD}	D ^{MD}				
	Peak sales			D ^{MD}		T	M ^{MD}		
	Decline sales							M ^{MD}	D ^{MD}
Cost	High cost per customer	T	M ^{MD}						D ^{MD}
	Average cost per customer			M ^{MD}	D ^{MD}				
	Low cost per customer			D ^{MD}		T	M ^{MD}		T
Profits	Negative profits (Losses)		T					M ^{MD}	D ^{MD}
	Increasing profits			M ^{MD}	D ^{MD}				M ^{MD}
	High profits			D ^{MD}		T	M ^{MD}		
	Decline profits							M ^{MD}	D ^{MD}
Competitors	Few competitors		T					M ^{MD}	D ^{MD}
	Growing number of competitors			M ^{MD}	D ^{MD}				
	Stable number of competitors but beginning to decline					M ^{MD}	D ^{MD}		
	Declining number of competitors							M ^{MD}	D ^{MD}

Note: T = Theory as provided by Kotler (2000: 316), M^{MD} = Small manufacturing organisations with a marketing department, D^{MD} = Small dealer organisations with a marketing department

The main findings on differences between small manufacturing organisations and small dealer organisations with a marketing department/function and Kotler's characteristics (M^{MD} and D^{MD} with T) are:

(i) Sales

Small manufacturers and small dealers with a marketing department reported low sales in the decline phase while Kotler indicated low sales in the introductory phase.

(ii) Cost

- Small dealers with a marketing department reported high cost per

customer in the decline phase while Kotler indicated high cost per customer in the introductory phase.

- Small dealers with a marketing department reported low cost per customer in the growth phase while Kotler indicated low cost per customer in the maturity phase.
- Small dealers and manufacturers with a marketing department reported low cost per customer in the growth and maturity phases respectively, while Kotler indicated low cost per customer in the decline phase.

(iii) Profits

- Small manufacturers and small dealers with a marketing department reported negative profits in the decline phase while Kotler indicated negative profits in the introductory phase.
- Small dealers with a marketing department reported high profits in the growth phase while Kotler indicated high profits in the maturity phase.

(iv) Competitors

Small manufacturers and small dealers with a marketing department reported few competitors in the decline phase while Kotler indicated few competitors in the introductory phase.

The main finding is that marketing decision-makers in manufacturing organisations with a marketing department or function provided a better fit with Kotler's theory on the characteristics within the different PLC phases than dealer organisations with a marketing department or function.

(b) Question 19

How **important** is each of the following aspects when you associate them with the four phases of the product life cycle. (*"1" would indicate that the aspect is not important at all and "5" indicates that the aspect is extremely important*).

* The reader is referred to the questionnaire in Appendix 2 where the aspects are listed, inter alia with regard to product, price, place and promotion

Marketing decision-makers in manufacturing and dealer organisations had to rate the importance of marketing mix related aspects of product, price, place and promotion in each product life cycle phase. The importance of the

marketing mix related aspects regarding the traditional marketing mix instruments of product, price, place and promotion in the various product life cycle phases are illustrated in Tables 7.58, 7.59, 7.60 and 7.61 respectively.

Before these tables are provided it is necessary to show the mean scores on all four marketing mix instruments in total for all the aspects tested. These mean scores are depicted in Table 7.57.

Table 7.57: Importance of the traditional marketing mix related aspects

Marketing mix instrument	Mean
Product (aspects no 203 – 218)	3.96
Price (aspects no 219 – 234)	3.31
Place (aspects no 235 – 250)	3.25
Promotion (aspects no 251 – 266)	3.85

It is evident from Table 7.57 that product (no 203 – 218) is regarded as the most important traditional marketing mix instrument (according to the marketing mix related aspects) by the total sample with a mean score of **3.96**. The mean scores on the other three marketing mix instruments are lower than 4 but higher than the average scale value of 3.

Table 7.58 provides an exposition of the importance of the marketing mix aspects in the introductory phase of the product life cycle.

Table 7.58 indicates that the respondents rated product features and options (no 211) to be the most important product aspect in the introductory phase of the PLC with a mean score of **4.72**, a top-box score of **73.56%**. Low price (no 227) achieved a mean score of **3.30**. A large number of outlets (no 239) with a mean score of **4.03** and advertising (no 255) with a mean score of **4.58** are regarded as the most important aspects of price, place and promotion respectively.

Table 7.58: The importance of marketing mix (product, price, place and promotion) related aspects in the introductory phase of the PLC

Marketing mix instrument	Introductory phase					
	Aspects	Responses	Mean	Top-box score	Low-box score	Standard deviation
Product	203. Quality	88	4.50	63.64%	2.27%	0.75
	207. Brand name	87	4.67	72.41%	0.00%	0.56
	211. Features and options	87	4.72	73.56%	0.00%	0.47
	215. Warranties	86	4.54	61.63%	0.00%	0.62
Price	219. High price	88	2.28	13.64%	32.95%	1.32
	223. Discounts	88	2.78	18.18%	19.32%	1.32
	227. Low price	88	3.30	25.00%	9.09%	1.24
	231. Payment terms	88	3.29	18.18%	12.50%	1.23
Place	235. Location of premises	88	3.97	52.27%	7.95%	1.31
	239. Large number of outlets (<i>intensive</i>)	87	4.03	48.28%	2.30%	1.13
	243. Small number of outlets (<i>selective</i>)	88	3.98	45.45%	2.27%	1.15
	247. Specialised outlets (<i>exclusive</i>)	88	3.94	45.45%	3.41%	1.21
Promotion	251. Sales promotion	88	4.39	53.41%	0.00%	0.76
	255. Advertising	87	4.58	66.67%	1.15%	0.65
	259. Personal selling	88	3.94	38.64%	5.68%	0.97
	263. Publicity / PR	88	3.45	36.36%	5.68%	1.38

The main finding is that the respondents regarded product features and options as the most important marketing mix related aspect in the introductory phase of the PLC.

Another main finding is that respondents regarded product features and options as the most important product aspect, low price as the most important price aspect, intensive distribution as the most important place aspect and advertising as the most important promotion aspect in the introductory phase of PLC.

The low mean scores on price aspects (no's 219, 223, 227 and 231) together with the high low-box scores are indicating that price is regarded by the respondents as the least important marketing mix instrument in the introductory phase.

The main finding is that the respondents regarded price as the least important marketing mix instrument in the introductory phase.

Table 7.59 provides an exposition of the importance of the marketing mix aspects by small manufacturers and small dealers in the growth phase of the product life cycle.

Table 7.59 indicates that the total sample rated product features and options (no 212) as the most important product aspect in the growth phase of the PLC with a mean score of **4.29**, a top-box score of **52.87%** and a low box score of **2.30%**.

Payment terms (no 232) with a mean score of **4.00**, specialised outlets (no 248) with a mean score of **3.34** and advertising (no 256) with a mean score of **4.51** are regarded as the most important aspects of price, place and promotion respectively. The advertising aspect (no 256) achieved the highest top-box score of **57.47%** and the highest mean score of **4.51** when compared to all the other aspects.

Table 7.59: The importance of marketing mix (product, price, place and promotion) related aspects in the growth phase of the PLC

Marketing mix instrument	Growth phase					
	Aspects	Responses	Mean	Top-box score	Low-box score	Standard deviation
Product	204. Quality	88	4.04	51.14%	1.14%	1.15
	208. Brand name	87	4.25	51.72%	1.15%	0.94
	212. Features and options	87	4.29	52.87%	2.30%	0.91
	216. Warranties	87	2.90	54.02%	1.15%	0.95
Price	220. High price	88	2.89	18.18%	19.32%	1.38
	224. Discounts	88	3.06	15.91%	7.95%	1.22
	228. Low price	88	3.82	18.18%	0.00%	0.84
	232. Payment terms	88	4.00	32.95%	1.14%	0.92
Place	236. Location of premises	88	3.04	31.82%	28.41%	1.66
	240. Large number of outlets (<i>intensive</i>)	88	3.18	30.68%	19.32%	1.55
	244. Small number of outlets (<i>selective</i>)	88	3.09	25.00%	19.32%	1.46
	248. Specialised outlets (<i>exclusive</i>)	87	3.34	17.24%	20.69%	1.38
Promotion	252. Sales promotion	88	4.31	47.73%	0.00%	0.75
	256. Advertising	87	4.51	57.47%	1.15%	0.62
	260. Personal selling	88	3.72	30.68%	1.14%	1.05
	264. Publicity / PR	88	3.12	28.41%	11.36%	1.43

The main finding is that the respondents regarded advertising as the most important marketing mix related aspect in the growth phase of the PLC.

Another main finding is that respondents regarded product features and options as the most important product aspect, payment terms as the most important price aspect, exclusive distribution as the most important place aspect and advertising as the most important promotion aspect in the growth phase of PLC.

Table 7.60 illustrates the importance of the marketing mix aspects to small manufacturers and small dealers in the maturity phase of the product life

cycle. It can be deduced from Table 7.60 that the total sample regards product features and options (no 213) as the most important product aspect in the maturity phase of the PLC with a mean score of **3.85**, a top-box score of **41.38%** and a low-box score of **10.34%**.

Table 7.60: The importance of marketing mix (product, price, place and promotion) related aspects in the maturity phase of the PLC

Marketing mix instrument	Maturity phase					
	Aspects	Responses	Mean	Top-box score	Low-box score	Standard deviation
Product	205. Quality	88	3.46	38.64%	9.09%	1.44
	209. Brand name	87	3.63	35.63%	10.34%	1.33
	213. Features and options	87	3.85	41.38%	10.34%	1.28
	217. Warranties	86	3.75	36.05%	8.14%	1.23
Price	221. High price	88	3.86	31.85%	6.82%	1.15
	225. Discounts	88	3.56	21.59%	5.68%	1.12
	229. Low price	88	3.20	13.64%	9.09%	1.12
	233. Payment terms	88	3.31	27.27%	6.82%	1.28
Place	237. Location of premises	88	2.96	13.64%	13.64%	1.24
	241. Large number of outlets (<i>intensive</i>)	86	2.87	11.63%	13.95%	1.23
	245. Small number of outlets (<i>selective</i>)	87	3.14	14.94%	10.34%	1.16
	249. Specialised outlets (<i>exclusive</i>)	88	3.20	14.77%	12.50%	1.23
Promotion	253. Sales promotion	88	4.26	48.86%	2.27%	0.92
	257. Advertising	87	4.34	51.72%	2.30%	0.84
	261. Personal selling	88	3.90	31.82%	2.27%	0.99
	265. Publicity / PR	88	3.76	31.82%	6.82%	1.19

High price (no 221) with a mean score of **3.86**, specialised outlets (no 249) with a mean score of **3.20** and advertising (no 257) with a mean score of **4.34** are regarded as the most important aspects of price, place and promotion respectively.

The main finding is that the respondents regarded advertising as the most important aspect in the maturity phase of the PLC.

Another main finding is that respondents regarded product features and options as the most important product aspect, high price as the most important price aspect, exclusive distribution as the most important place aspect and advertising as the most important promotion aspect in the maturity phase of PLC.

Table 7.61 provides the results of the importance of the marketing mix aspects by small manufacturers and small dealers in the decline phase of the product life cycle.

Table 7.61: The importance of marketing mix (product, price, place and promotion) related aspects in the decline phase of the PLC

Marketing mix instrument	Decline phase					
	Aspects	Responses	Mean	Top-box score	Low-box score	Standard deviation
Product	206. Quality	88	3.42	43.18%	19.32%	1.62
	210. Brand name	87	3.70	41.38%	11.49%	1.38
	214. Features and options	87	3.89	36.78%	10.34%	1.23
	218. Warranties	86	3.89	37.21%	9.30%	1.22
Price	222. High price	88	3.20	29.55%	17.05%	1.50
	226. Discounts	88	3.40	26.14%	11.36%	1.34
	230. Low price	87	3.66	28.74%	10.34%	1.21
	234. Payment terms	87	3.60	28.74%	9.20%	1.23
Place	238. Location of premises	87	2.43	19.54%	39.08%	1.53
	242. Large number of outlets (<i>intensive</i>)	86	2.63	18.60%	29.07%	1.47
	246. Small number of outlets (<i>selective</i>)	86	3.06	23.26%	19.77%	1.42
	250. Specialised number of outlets (<i>exclusive</i>)	87	3.16	26.44%	21.84%	1.48
Promotion	254. Sales promotion	88	3.45	31.82%	7.95%	1.34
	258. Advertising	88	3.61	37.50%	9.09%	1.35
	262. Personal selling	88	3.27	23.86%	7.95%	1.26
	266. Publicity / PR	88	3.04	25.00%	14.77%	1.42

Table 7.61 indicates that the respondents rated product features and options (no 214) and warranties (no 218) as the most important product aspects in the

decline phase of the PLC both with a mean score of **3.89** each and a top-box score of **36.78%** and **37.21%** respectively.

Low-box scores of **10.34%** and **9.30%** respectively for product features and options (no 214) and warranties (no 218) were recorded in the decline phase of the product life cycle. Low price (no 230) with a mean score of **3.66**, specialised outlets (no 250) with a mean score of **3.16** and advertising (no 258) with a mean score of **3.61** are regarded as the most important aspects of price, place and promotion respectively.

The quality aspect (no 206) achieved the highest top-box score of **43.18%** compared to warranties with a top-box score of **37.21%**. These two aspects may be indicative of the fact that respondents feel that they still have to maintain their standards to customers when a product is in the decline phase of the PLC.

The main finding is that the respondents regarded product features and options as well as warranties as the most important aspects in the decline phase of the PLC.

Another main finding is that respondents regarded product features and options and warranties as the most important product aspect, low price as the most important price aspect, exclusive distribution as the most important place aspect and advertising as the most important promotion aspect in the decline phase of PLC.

The standard deviations depicted in Table 7.61 are indicative of relative equal homogeneity on the importance aspects pertaining to product, price, place and promotion.

The different mean scores on the four marketing mix instruments that typify the importance of marketing mix instruments in the different PLC phases for the total sample are provided in Table 7.62.

Table 7.62: The importance of the marketing mix instruments in the different PLC phases

Marketing mix instrument	PLC phase	Mean	Standard deviation
Product	Introductory	4.60	0.38
	Growth	3.87	0.85
	Maturity	3.67	0.78
	Decline	3.72	0.77
Price	Introductory	2.91	0.74
	Growth	3.44	0.68
	Maturity	3.48	0.58
	Decline	3.46	0.58
Place	Introductory	3.98	0.85
	Growth	3.16	0.87
	Maturity	3.04	0.87
	Decline	2.82	0.87
Promotion	Introductory	4.09	0.78
	Growth	3.91	0.72
	Maturity	4.06	0.83
	Decline	3.34	1.05

The mean values depicted in Table 7.62 are indicative of the high importance placed on all the marketing mix instruments in the PLC phases except for price (**2.91**) in the introductory phase and place (**2.82**) in the decline phase.

The main finding is that marketing decision-makers in the sample attached a very high importance to the four traditional marketing mix instruments across all the PLC phases except for price in the introductory phase and place in the decline phase (price and place with mean values lower than 3).

When the mean scores illustrated in Table 7.62 on the marketing mix instruments are compared per PLC phase then product is the most important marketing mix instrument in the introductory phase, promotion is the most important marketing mix instrument in the growth and maturity phases, while product is the most important marketing mix instrument in the decline phase.

Another main finding is that marketing decision-makers in the sample regarded promotion as the most important marketing mix instrument in

both the growth and maturity phases, while product is regarded as the most important marketing mix instrument in the introductory and decline phases.

Table 7.63 illustrates the importance of the different marketing mix instruments in each of the PLC phases per organisational group (manufacturers and dealers).

Table 7.63: The importance of the marketing mix instrument elements in the different PLC phases per organisational type

Marketing mix instrument	PLC phase	Organisational type			
		Manufacturers		Dealers	
		Mean	Standard deviation	Mean	Standard deviation
Product	Introductory	4.80	0.18	4.40	0.39
	Growth	3.82	0.76	3.92	0.87
	Maturity	4.13	0.67	3.21	0.81
	Decline	4.11	0.69	3.33	0.80
Price	Introductory	2.84	0.69	2.98	0.75
	Growth	3.02	0.43	3.86	0.74
	Maturity	3.45	0.39	3.51	0.63
	Decline	3.58	0.30	3.34	0.64
Place	Introductory	3.77	0.93	3.92	0.80
	Growth	3.44	0.85	2.88	0.86
	Maturity	2.67	0.98	3.41	0.82
	Decline	2.64	1.00	3.00	0.82
Promotion	Introductory	4.02	0.68	4.16	0.80
	Growth	3.80	0.84	4.02	0.67
	Maturity	4.05	0.72	4.07	0.84
	Decline	3.04	0.90	3.64	1.08

Product is most important to both manufacturers (**4.80**) and dealers (**4.40**) in the introductory phase of the PLC. **Price** is most important to manufacturers (**3.58**) in the decline phase and to dealers (**3.86**) in the growth phase. **Place** is most important to both manufacturers (**3.77**) and dealers (**3.92**) in the introductory phase. **Promotion** is the most important marketing mix aspect for manufacturers (**4.05**) in the maturity phase and to dealers (**4.16**) in the introductory phase.

The main finding is that product and place are most important to both small manufacturers and small dealers in the introductory phase of the PLC while place is most important in the introductory phase.

Another main finding is that small manufacturers regard price as most important in the decline phase while small dealers regard price as most important in the growth phase of the PLC.

The last main finding from Table 7.63 is that small manufacturers regard promotion as the most important in the maturity phase while small dealers regard price as mostly important in the introductory phase.

Table 7.64 reveals whether there are significant differences between the mean values of the marketing mix instruments in the different PLC phases.

Table 7.64: Significance test on the importance of the marketing mix instruments in the different PLC phases

PLC phases	Marketing mix instruments							
	Product		Price		Place		Promotion	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Introductory phase	4.60¹	0.38	2.91	0.74	3.98	0.85	4.09	0.782
Growth phase	3.87	0.85	3.44	0.68	3.16	0.87	3.91	0.72
Maturity phase	3.67	0.78	3.48	0.58	3.04²	0.87	4.06	0.83
Decline phase	3.72	0.77	3.46³	0.58	2.82	0.87	3.34	1.05

Note: Significant differences on mean values indicated by different superscripts ¹⁾ or ²⁾ or ³⁾ in the different PLC phases ($p \leq 0.05$)

- 1) Product differs significantly from price, place and promotion in the introductory phase.
- 2) Place differs significantly from product, price and promotion in the maturity phase.
- 3) Price differs significantly from product, place and promotion in the decline phase.

The Friedman's two-way analysis of variance for non-descriptive statistics was used to compare the mean scores on the importance of the different marketing mix instruments in the different marketing mix phases. See Appendix 4 for more detail on non-parametric statistics and the Friedman two-way analysis of variance.

The test for significant differences in Table 7.64 illustrates significant differences between the marketing mix instruments in the introductory, maturity and decline phases.

Product with a mean score of **4.60** is regarded by the sample as the most important marketing mix instrument in the *introductory phase* of the product life cycle. The importance of product as a marketing mix instrument in the introductory phase differs significantly from the importance of the price, place and promotion as indicated by the different subscripts ¹⁾ or ²⁾ or ³⁾ in Table 7.64.

Although all the mean values of all the marketing mix instruments in the introductory phase are high, the significance test may emphasise the importance of product in the introductory phase.

Promotion with a mean score of **3.91** is regarded by the sample as the most important marketing mix instrument in the *growth phase* of the product life cycle and there are no significant differences between the four marketing mix instruments in this PLC phase. This signifies that all the marketing mix instruments are important when a product is in the growth phase of the PLC.

Promotion with a mean score of **4.06** is regarded by the sample as the most important marketing mix instrument in the *maturity phase* of the product life cycle. The importance of place as a marketing mix instrument in the maturity phase differs significantly from the importance of product, price and promotion as indicated by the different subscripts in Table 7.64. Although all the marketing mix instruments are relatively important in the maturity phase this result emphasises the importance of product in the growth phase.

Product with a mean score of **3.72** is regarded by the sample as the most important marketing mix instrument in the *decline phase* of the product life cycle. The importance of price as a marketing mix instrument in the decline phase differs significantly from the importance of product, place and promotion as indicated by the different subscripts in Table 7.64.

Although all the marketing mix instruments are relatively important in the decline phase this result may stress the importance of price when a product is phased out.

The main finding is that product is regarded by the sample as the most important marketing mix instrument in the introductory phase and promotion as the most important marketing mix instrument in the growth phase.

Table 7.65 will summarise the most important marketing mix related aspects based on the highest mean value per PLC phase as obtained from Tables 7.32 to 7.35 (question 15) and Tables to 7.58 to 7.61 (question 19).

Table 7.65: Importance of marketing mix related aspects

Marketing mix instrument	PLC phases			
	Introductory phase	Growth phase	Maturity phase	Decline phase
Product	Product features and options (no 211)	Product features and options (no 212)	Product features and options (no 213)	Product features and options (no 214) & Warranties (no 218)
Price	Low price (no 227)	Payment terms (no 232)	High price (no 221)	Low price (no 230)
Place	Intensive distribution (no 239)	Exclusive distribution (no 248)	Exclusive distribution (no 249)	Exclusive distribution (no 250)
Promotion	Advertising (no 255)	Advertising (no 256)	Advertising (no 257)	Advertising (no 258)
People	Incentives to personnel (no 81)	Incentives to personnel (no 82)	Incentives to personnel (no 83)	Incentives to personnel (no 84)
Processes	Policies and procedures (no 105)	Complaints handling (no 98)	Complaints handling (no 99)	Toll free number (no 104)
Physical evidence	Organisation's name (no 113) Organisation's logo (no 117)	Organisation's logo (no 118) Organisation's name (no 114)	Organisation's logo (no 119) Organisation's name (no 115)	Organisation's logo (no 120) Organisation's name (no 116)
	Table 7.32	Table 7.33	Table 7.34	Table 7.35

It is evident from Table 7.65 that the marketing mix related aspects are slightly different across all PLC phases for price, place and processes but more uniform for product, promotion, people and physical evidence.

(c) Importance of marketing mix instruments

Table 7.66 is the combined results of Table 7.37 (the expanded marketing mix) and Table 7.57 (the traditional marketing mix) and illustrates the importance of all seven marketing mix instruments.

Table 7.66: Importance of marketing mix instruments

Marketing mix instrument	Mean	p-value
Product (aspects no 203 – 218)	3.96	0.010
Price (aspects no 219 – 234)	3.31	0.000
Place (aspects no 235 – 250)	3.25	0.004
Promotion (aspects no 251 – 266)	3.85	0.000
People (aspects no 77 – 92)	4.36	0.003
Processes (aspects no 93 – 108)	3.74	0.248
Physical evidence (aspects no 109 – 124)	4.07	0.212

It can be deduced from Table 7.66 that the sample regarded all the marketing mix instruments as important based on the above average mean scores.

A Friedman's two ANOVA was employed to determine whether the importance (mean values) of the different marketing mix instruments are significant or not. As illustrated in Table 7.66 there are significant differences in the importance of product (**0.010**), price (**0.000**), place (**0.004**), promotion (**0.000**) and people (**0.003**), as the p-values are ≤ 0.05 . The differences in the mean values on processes (**0.248**) and physical evidence (**0.212**) are not significant as indicated by a p-value ≥ 0.05 .

The significant differences ($p \leq 0.05$) on product, price, place, promotion and people as depicted in Table 7.66 can be indicative of the difference in importance of each marketing mix instrument in the different PLC phases. The non-significant difference ($p \geq 0.05$) linked to processes and physical evidence can be an indication of an equal importance of these two marketing mix instruments across all four phases of the PLC. People can be regarded as a more important marketing mix instrument when compared to processes and physical evidence.

Table 7.67: Importance of marketing mix instruments in the different PLC phases

Marketing mix instrument	PLC phases				Order of importance
	Intro	Growth	Maturity	Decline	
Product	✓			✓	3
Promotion		✓	✓		4
Place					7
Price					6
Processes		✓			5
People			✓	✓	1
Physical evidence	✓				2
Table 7.38 and Table 7.62					Table 7.66

As depicted by the total in Table 7.67 people is regarded as the most important marketing mix instrument followed by physical evidence and product, promotion, processes, price and place.

The main finding is that people is regarded as the most important marketing mix instrument followed by physical evidence, product, promotion, processes, price and place.

It is revealed in Table 6.67 that two of the expanded marketing mix instruments, namely people and physical evidence are the highest in importance.

The main finding is that two of the expanded marketing mix instruments have the highest importance (people and physical evidence).

Table 7.67 further indicates that product and physical evidence are the most important marketing mix instruments in the introductory phase, promotion and processes are the most important in the growth phase, promotion and people are most important in the maturity phase and product and people are most important in the decline phase.

The main finding is that marketing decision-makers in small manufacturing and small dealer organisations regard product and physical evidence as the most important marketing mix instruments in the introductory phase of the PLC.

Another main finding is that marketing decision-makers in small manufacturing and small dealer organisations regard promotion and processes as the most important marketing mix instruments in the growth phase of the PLC.

Another main finding is that marketing decision-makers in small manufacturing and small dealer organisations regard promotion and people as the most important marketing mix instruments in the maturity phase of the PLC.

The last main finding from Table 7.67 is that marketing decision-makers in small manufacturing and small dealer organisations regard product and people as the most important marketing mix instruments in the decline phase of the PLC.

(d) Question 20

Link the following strategies in Column A to the most appropriate phase in Column B by means of a cross next to the strategy described in Column A.

* The reader is referred to the questionnaire in Appendix 2 where the strategies are listed.

Marketing decision-makers in manufacturing and dealer organisations were given the opportunity to link the strategies in the different product life cycle phases to the strategies provided in the theory (Kotler: 2000: 316). Table 7.68 illustrates the linkage with theory for the sample and per organisational type. The marketing strategies with the highest frequencies in each phase of the product life cycle are highlighted in Table 7.68.

Table 7.68: Frequency distribution of the sample in linking the theory on the marketing strategies in each of the PLC phases

Marketing strategies	Product life cycle phases															
	Introductory phase				Growth phase				Maturity phase				Decline phase			
	T	M	D	P	T	M	D	P	T	M	D	P	T	M	D	P
V70. Diversify brands and models		4	10	14		2	15	17	✓	10	35	45		5	11	16
V71. Offer a basic product	✓	15	48	63		4	9	13		1	10	11		1	4	5
V72. Phasing out weak products		0	0	0		0	1	1		7	21	28	✓	14	49	63
V73. Offer product extensions, service and warranties		1	7	8		2	4	6	✓	11	25	36		7	34	41
V74. Cut prices		5	10	15		4	6	10		7	28	35	✓	5	27	32
V75. Charge a cost plus price	✓	9	9	18		5	18	23		5	37	42		2	7	9
V76. Set a price to match or better the prices of competitors		11	20	31		7	20	27	✓	2	31	33		1	0	1
V77. Set a price to penetrate the market		21	58	79	✓	0	12	21		0	1	1			0	0
V78. Build awareness and interest in the mass market through advertising		18	43	61	✓	3	24	27		0	3	3		0	1	1
V79. Reduce the advertising level needed to retain hard core loyal customers		2	0	2		1	1	2		16	56	72	✓	2	14	16
V80. Build product awareness among early adopters	✓	20	50	70		1	18	19		0	2	2		0	1	1
V81. Stress brand differences and benefits		10	21	31		4	15	19	✓	6	29	35		1	6	7
V82. Increase and encourage brand switching		9	20	29		5	17	22	✓	6	28	34		1	5	6
V83. Reduce sales promotion to the minimum level		0	1	1		0	1	1		5	27	32	✓	16	42	58
V84. Use heavy sales promotion to entice trial	✓	9	25	34		12	36	48		0	8	8		0	2	2
V85. Reduce sales promotion to take advantage of a heavy consumer demand		0	0	0	✓	1	9	10		17	54	71		3	8	11
V86. Build intensive distribution		16	52	68	✓	5	16	21		0	2	2		0	0	0
V87. Build selective distribution	✓	1	6	7		0	4	4		10	19	29		10	42	52
V88. Go selective and phase out all unprofitable outlets		1	0	1		0	1	1		8	12	20	✓	12	58	70
V89. Build more intensive distribution		2	14	16		19	48	67	✓	0	9	9		0	0	0

Note: T ✓ = Appropriate marketing strategy according to Kotler's theory in the different PLC phases, M = Small manufacturers, D = Small dealers, P = Total sample

Only the highest frequency of the total sample's responses (P) in Table 7.68 will be discussed because the frequencies per organisational type indicate the same importance ratio.

The main deductions from Table 7.68 are the following:

(i) Introductory phase

The highest frequencies that were mentioned are:

- Set a price to penetrate the market (V77)
- Build product awareness among early adopters (V80)
- Build intensive distribution (V86)
- Offer a basic product (V71)
- Build awareness and interest in the mass market through advertising (V78)

(ii) Growth phase

The highest frequencies that were mentioned are:

- Build more intensive distribution (V89)
- Use heavy sales promotion to entice trial (V84)
- Build awareness and interest in the mass market through advertising (V78)
- Increase and encourage brand switching (V82)
- Set a price to penetrate the market (V77)

(iii) Maturity phase

The highest frequencies that were mentioned are:

- Reduce advertising level needed to retain hard core loyal customers (V79)
- Reduce sales promotion to take advantage of a heavy consumer demand (V85)
- Diversify brands and models (V70)
- Charge a cost plus price (V75)

(iv) Decline phase

The highest frequencies that were mentioned are:

- Go selective and phase out all unprofitable outlets (V88)
- Phasing out weak products (V72)
- Reduce sales promotion to the minimum level (V83)
- Build selective distribution (V87)
- Offer product extensions, service and warranties (V73)

The responses on the strategies within the different PLC phases in Table 7.68 are shown in Table 7.69, which will enable one to calculate a linkage or fit of the total sample.

Table 7.69 illustrates the comparison between the sample and Kotler's theory.

Table 7.69: Comparison of the total sample response of marketing strategies with the theory in each of the PLC phases

Marketing mix instrument	Strategies	PLC phases			
		Intro phase	Growth phase	Maturity phase	Decline phase
Product (V70 – V73)	V 70. Diversify brands and models			✓	
	V 71. Offer a basic product	✓			
	V 72. Phasing out weak products				✓
	V 73. Offer product extensions, service and warranties		T		✗
Price (V74 – V77)	V74. Cut prices			✗	T
	V75. Charge a cost plus price	T		✗	
	V76. Set a price to match or better the prices of competitors			✓	
	V77. Set a price to penetrate the market	✗	T		
Advertising (V78 – V81)	V78. Build awareness and interest in the mass market through advertising	✗	T		
	V79. Reduce the advertising level needed to retain hard core loyal customers			✗	T
	V80. Build product awareness among early adopters	✓			
	V81. Stress brand differences and benefits			✓	
Sales Promotion (V82 – V85)	V82. Increase and encourage brand switching			✓	
	V83. Reduce sales promotion to the minimum level				✓
	V84. Use heavy sales promotion to entice trial	T	✗		
	V85. Reduce sales promotion to take advantage of a heavy consumer demand		T	✗	
Distribution (V86 – V89)	V86. Build intensive distribution	✗	T		
	V87. Build selective distribution	T			✗
	V88. Go selective and phase out all unprofitable outlets				✓
	V89. Build more intensive distribution		✗	T	

Note: ✓ = perfect association/agreement of the total sample with the theory on the marketing strategies in the specific PLC phase, ✗ = no association of the total sample with the theory on the marketing strategies in the specific PLC phase and T = Kotler's theory

Table 7.69 indicates that the sample generated a linkage success rate of 45% ($9 \div 20 \times 100$) as indicated by (✓). The sample achieved the best linkage with the strategies on product (V70 to V73) of 75% ($3 \div 4 \times 100$) and the weakest linkage of 25% ($1 \div 4 \times 100$) with strategies on price (V74 to V 77) and distribution (V86 to V 89).

The main finding is that the total sample provided a 45% linkage with Kotler's theory on marketing strategies in each PLC phase.

Another main finding is that the total sample showed the best linkage with the strategies on product (75%).

The last main finding from Table 7.69 is that the total sample showed the weakest linkage with price strategies (25%) and distribution strategies (25%).

Table 7.70 illustrates the linkage per organisational type – small manufacturers (M) and small dealers (D) with Kotler's theory (T).

The linkage of the different groups (small manufacturers and small dealers), highlighted as **MD** in Table 7.70 with the theory (T) was generated by means of assigning the strategy variable (V) with the highest frequency to the appropriate PLC phase.

Table 7.70: Linkage of strategies to the appropriate PLC phases per organisational type

Marketing mix instrument	Strategies	PLC phases			
		Intro phase	Growth phase	Maturity phase	Decline phase
Product (V70 – V73)	V 70. Diversify brands and models			T M D	
	V 71. Offer a basic product	T M D			
	V 72. Phasing out weak products				T M D
	V 73. Offer product extensions, service and warranties		T	M	D
Price (V74 – V77)	V74. Cut prices			M D	T
	V75. Charge a cost plus price	T M		D	
	V76. Set a price to match or better the prices of competitors	M	*D	T *D	
	V77. Set a price to penetrate the market	M D	T		
Advertising (V78 – V81)	V78. Build awareness and interest in the mass market through advertising	M D	T		
	V79. Reduce the advertising level needed to retain hard core loyal customers			M D	T
	V80. Build product awareness among early adopters	T M D			
	V81. Stress brand differences and benefits	M		T D	
Sales Promotion (V82 – V85)	V82. Increase and encourage brand switching	M		T D	
	V83. Reduce sales promotion to the minimum level				T M D
	V84. Use heavy sales promotion to entice trial	T	M D		
	V85. Reduce sales promotion to take advantage of a heavy consumer demand		T	M D	
Distribution (V86 – V89)	V86. Build intensive distribution	M D	T		
	V87. Build selective distribution	T	*M	*M	D
	V88. Go selective and phase out all unprofitable outlets				T M D
	V89. Build more intensive distribution		M D	T	

Note: T = Theory as provided by Kotler (2000: 316), M = small manufacturers in Gauteng, D = small dealers in Gauteng, *D = equal frequency in two of the PLC phases and *M = equal

frequency in two of the PLC phases

No deductions or discussions will be made from Table 7.70. This table will be used to compile Table 7.71. Extractions of the strategies that correspond with the theory will be shown. Table 7.71 illustrates the variables by organisational type and in total.

The total sample (**45%**), dealers (**45%**) and manufacturers (**35%**) displayed less than positive linkage success rate with Kotler's theory as indicated in the columns 6, 2 and 4 of Table 7.71.

Table 7.71: Strategies of small manufacturers and small dealers that correspond with Kotler's theory

Manufacturers (M)		Dealers (D)		Total sample (P)	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Fit or linkage – by variable number	% fit TM (Total in column 1 + 20)*	Fit or linkage – by variable number	% fit ^{TD} (Total in column 3+ 20)*	Fit or linkage – by variable number	% fit ^{TP} (Total in column 5+ 20)*
V70. Diversify brands and models V71. Offer a basic product V72. Phasing out a weak product V75. Charge a cost plus price V80. Build product awareness among early adopters V83. Reduce sales promotion to the minimum level V88. Go selective and phase out all unprofitable outlets	7 ÷ 20 x 100	V70. Diversify brands and models V71. Offer a basic product V72. Phasing out a weak product V76. Set a price to match or better the price of competitors V80. Build product awareness among early adopters V81. Stress brand differences and benefits V82. Increase and encourage brand switching V83. Reduce sales promotion to the minimum level V88 Go selective and phase out all unprofitable outlets	9 ÷ 20 x 100	V70. Diversify brands and models V71. Offer a basic product V72. Phasing out a weak product V76. Set a price to match or better the prices of competitors V80. Build product awareness among early adopters V81. Stress brand differences and benefits V82. Increase and encourage brand switching V83. Reduce sales promotion to the minimum level V88 Go selective and phase out all unprofitable outlets	9 ÷ 20 x 100
Total = 7	35%	Total = 9	45%	Total = 9	45%

* 20 - Maximum number of strategies in the different PLC phases

TM - Fit between theory (T) and manufacturer organisations (M)

^{TD} - Fit between theory (T) and dealer organisations (D)

^{TP} - Fit between theory (T) and the totalsample (P)

Small manufacturers (**TM**) associated 7 (35%) of the 20 marketing strategies provided in the theory depicted in Table 7.71 with the correct PLC phase. Small dealers (**TD**) associated 9 (45%) of the 20 marketing strategies provided in the theory and depicted in Table 7.71 with the correct PLC phase.

The less than positive linkage by the respondents of matching marketing strategies with the theory provided by Kotler (2000: 316) depicted in Table 7.71, can be compared to the result on question 16 discussed in paragraph 7.4 (f). It can be deduced that the respondents confused marketing objectives with marketing strategies.

The main finding is that marketing decision-makers in small manufacturing and small dealer organisations associated the marketing strategies in the PLC phases differently (more than 50%) from those marketing strategies predicated in theory.

It is also important to determine whether there are differences in the linkage of marketing strategies with Kotler's theory for organisations with and without a marketing department.

Table 7.72 illustrates the linkage of strategies to the appropriate PLC phase for small manufacturing and small dealer organisations with and without a marketing department.

Table 7.72 reveals the following differences:

- The total sample (**P**) with a marketing department reported a 45% ($9 \div 20 \times 100$) positive linkage with Kotler's theory (T).
- Manufacturing organisations (**M**) with a marketing department reported a 35% ($7 \div 20 \times 100$) linkage success rate with Kotler's theory (T). This is the same linkage percentage achieved by manufacturers as indicated in Table 7.71.
- Dealer organisations (**D**) with a marketing department reported a 50% ($10 \div 20 \times 100$) linkage with Kotler's theory (T). This is higher than the linkage of 45% for dealers indicated in Table 7.71.

Table 7.72: Linkage of strategies to the appropriate PLC phases per organisational type with or without a marketing department and Kotler's theory

Marketing mix instrument	Strategies	PLC phases								
		Intro phase		Growth phase		Maturity phase		Decline phase		
Product (V70 – V73)	V 70. Diversify brands and models									
	V 71. Offer a basic product									
	V 72. Phasing out weak products									
	V 73. Offer product extensions, service and warranties			T		M		P	D	
Price (V74 – V77)	V74. Cut prices					T	M	T	D	
	V75. Charge a cost plus price	T	M			P	D			
	V76. Set a price to match or better the prices of competitors		M			T	P	D		
	V77. Set a price to penetrate the market	F	M	D	T					
Advertising (V78 – V81)	V78. Build awareness and interest in the mass market through advertising	F	M	D	T					
	V79. Reduce the advertising level needed to retain hard core loyal customers					P	M	D	T	
	V80. Build product awareness among early adopters									
	V81. Stress brand differences and benefits		M			T	P	D		
Sales Promotion (V82 – V85)	V82. Increase and encourage brand switching		M			T	P	D		
	V83. Reduce sales promotion to the minimum level									
	V84. Use heavy sales promotion to entice trial		T		P	M	D			
	V85. Reduce sales promotion to take advantage of a heavy consumer demand				T		P	M	D	
Distribution (V86 – V89)	V86. Build intensive distribution	P	M	D	T					
	V87. Build selective distribution		T					P	M	D
	V88. Go selective and phase out all unprofitable outlets									
	V89. Build more intensive distribution				P	M	D	T		

Note: T = Theory as provided by Kotler (2000: 316), P = Total sample of small organisations with a marketing department, M = Small manufacturers with a marketing department, D = Small dealers with a marketing department,

The main finding is that marketing decision-makers in manufacturing and dealers organisations with a marketing department or function concurred slightly more with regard to strategies used in the different phases of the PLC when compared to Kotler's theory.

7.5 MAJOR FINDINGS

The results obtained in this study yielded the following findings that are representative of small manufacturers and dealers in Gauteng with between 11 – 50 employees. It is important to note that more than one finding will be used to determine whether the propositions in this study can be supported or not (discussed further in paragraph 7.6).

The following major findings are reported:

- (1) Forty percent of marketing decision-makers in small manufacturing organisations and small dealer organisations of the sample in Gauteng employing between 11 – 50 people indicated that their organisations know of and apply the product life cycle concept as a decision-making vehicle (p. 181).
- (2) Sixty eight percent of manufacturer and dealer organisations have a marketing department or function although 91.30% indicated that they have a sales function (p. 187).
- (3) The majority of manufacturer and dealer organisations (52%) in the sample can be regarded as small based on the fact that they have between 11 – 20 employees (p. 188).
- (4) There are significant differences between small manufacturing organisations and small dealer organisations when applying the product life cycle concept. Small dealers regarded buying, pricing and advertising as more important than small manufacturers (p. 193).
- (5) Small manufacturers regarded manufacturing and product development as more important than small dealers (p. 193).

- (6) There are no significant differences between small manufacturing organisations and small dealer organisations when applying the product life cycle concept in the execution of distribution, forecasting, costing, monitoring market share, competitive evaluation and allocating resources although these aspects are important (p. 194).
- (7) Small manufacturing organisations in Gauteng regard *manufacturing* and small dealer organisations regard *price* as the most important aspects when applying the product life cycle concept (p. 194).
- (8) Price is the major aspect responsible for creating a competitive advantage as reported by the total sample (p. 196).
- (9) Product is the most important marketing mix instrument for creating a competitive advantage based on the collective summation of marketing related aspects as reported by the total sample (p. 197).
- (10) Relationships are the most important *other marketing mix related aspect* creating a competitive advantage (more important than place, promotion, people, processes and physical evidence) as reported by the total sample (p. 197).
- (11) Price is the major aspect responsible for creating a competitive advantage cited independently by small manufacturing organisations and small dealer organisations (p. 198).
- (12) Small manufacturing and small dealer organisations in Gauteng have mostly multiple product ranges, less one product ranges and the least single products (p. 199).
- (13) Less than half of the marketing decision-makers in manufacturing and dealer organisations who have indicated that they have multiple product ranges apply the product life cycle concept on each individual product within each product range (p. 200).

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- (14) Forty-eight percent of the marketing decision-makers in small manufacturing organisations and more than half of the marketing decision-makers in small dealer organisations indicated that their primary products or best sellers are positioned in the growth phase of their product life cycles (p. 202).
- (15) The majority of the marketing decision-makers in manufacturing and dealer organisations indicated that necessity of the product is the primary reason for individual products or product ranges to be best sellers, followed by price (p. 205).
- (16) Marketing decision-makers in small organisations (small manufacturers and small dealers) provided primary marketing objectives in each PLC phase: high/maximum sales, increased advertising and sales promotion in the introductory phase, high/maximum sales and low price in the growth and maturity phases respectively and high/maximum sales, increased advertising and sales promotion in the decline phase. (p. 207).
- (17) Marketing decision-makers in both small manufacturing organisations and small dealer organisations provided high/maximum sales as the primary marketing objective for their best seller, followed by low price (p. 209).
- (18) More than three-quarters of manufacturing and dealer organisations in Gauteng engage in strategic marketing planning and development by using the product life cycle phases (p. 211).
- (19) Small manufacturing organisations and small dealer organisations in Gauteng do strategic marketing planning and development on an annual basis or less frequently (96% of the sample) (p. 212).

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- (20) Sixty six percent of small manufacturing organisations in Gauteng and forty nine percent of small dealer organisations in Gauteng do strategic marketing planning and development on an annual basis (p. 213).
- (21) Ninety two percent of manufacturing and dealer organisations in Gauteng indicated that the product life cycle influences marketing strategy and development from an average to an above average extent (p. 214).
- (22) There is no difference between small manufacturing and small dealer organisations in Gauteng in the extent to which the product life cycle influences marketing strategy and development (p. 214).
- (23) The only significant difference between small manufacturing organisations and small dealer organisations with regard to the degree of control is with the product mix variable (p. 217).
- (24) Small manufacturing organisations have the highest degree of control over product while small dealer organisations have the highest degree of control over people as a marketing mix instrument (p. 217).
- (25) Marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard incentives to personnel as the most important *people* aspect in the introductory phase of the PLC (p. 219).
- (26) Policies and procedures are regarded by marketing decision-makers in small manufacturing and small dealer organisations in Gauteng as the most important *process* aspect in the introductory phase of the PLC (p. 219).
- (27) The organisation's name is regarded by marketing decision-makers in small manufacturing and small dealer organisations in Gauteng as the most important *physical evidence* aspect in the introductory phase of the PLC (p. 219).
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- (28) Marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard incentives to personnel as the most important *people* aspect in the growth phase of the PLC (p. 221).
- (29) Marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard complaints handling, (followed by a toll free number) as the most important *process* aspect in the growth phase of the PLC (p. 221).
- (30) Marketing decision-makers in small manufacturing organisations and small dealer organisations in Gauteng regard the organisation's logo as the most important *physical evidence* aspect in the growth phase of the PLC, followed by the organisation's name (p. 221).
- (31) Marketing decision-makers in small manufacturing organisations and small dealer organisations in Gauteng regard incentives to personnel as the most important *people* aspect in the maturity phase of the PLC, followed by training of personnel (p. 222).
- (32) Marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard complaints handling as the most important *process* aspect in the maturity phase of the PLC (although the mean score was relatively low) (p. 222).
- (33) Marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard the organisation's logo as the most important *physical evidence* aspect in the maturity phase of the PLC, followed by the organisation's name (p. 223).
- (34) Marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard incentives to personnel as the most important *people* aspect in the decline phase of the PLC, followed by training of personnel (p. 224).

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- (35) Marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard a toll free number as the most important *process* aspect in the decline phase of the PLC, followed by the organisations name (p. 224).
- (36) Marketing decision-makers in small manufacturing and small dealer organisations in Gauteng regard the organisation's logo as the most important *physical evidence* aspect in the decline phase of the PLC although the organisation's name had virtually the same importance (p. 224).
- (37) All the marketing mix related aspects pertaining to people, processes and physical evidence mix are important except for the marketing mix aspects linked to processes in the *maturity* phase (p. 225).
- (38) Marketing decision-makers in the sample attached a high importance to the people, processes and physical evidence (expanded marketing mix) across all four phases of the product life cycle concept (p. 226).
- (39) Marketing decision-makers regard physical evidence as the most important marketing mix instrument in the *introductory* phase of the product life cycle (p. 227).
- (40) Marketing decision-makers regard processes as the most important marketing mix instrument in the *growth* phase of the product life cycle (p. 227).
- (41) Marketing decision-makers regard *people* as the most important marketing mix instrument in the both the *maturity* and *decline* phases of the product life cycle (p. 228).
- (42) *Physical evidence* is the only marketing mix instrument with the highest degree of importance for both small manufacturers and small dealers in the same PLC phase, namely *introductory* (p. 228).

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- (43) Small manufacturers attached an equal degree of importance to *processes* and *physical evidence* as marketing mix instruments in the *growth* and *introductory* phase respectively when compared to the degree of importance of the other marketing mix instruments in the other PLC phases (p. 229).
- (44) Small dealers regard *physical evidence* as the most important marketing mix variable in the *introductory* phase followed by *processes* as most important in the *decline* phase when compared to the other PLC phases (p. 229).
- (45) There is no significant difference in the importance of the mean values for each of the three expanded marketing mix instruments within the same PLC phase (p. 230).
- (46) The sample described *heavy/intensive advertising* as the primary marketing objective to be associated with the *introductory phase* of the PLC, followed by the building of a strong brand image and awareness (p. 231).
- (47) Marketing decision-makers in both small manufacturing organisations and small dealer organisations independently described *heavy/intensive advertising* as the primary marketing objective to be associated with the *introductory phase* of the PLC, followed by building strong brand image and awareness. (This is the same finding as for the total sample) (p. 232).
- (48) The total sample described *high turnover* as the primary marketing objective to be associated with the *growth phase* of the PLC, followed by increased advertising (p. 233).
- (49) Marketing decision-makers in small manufacturing organisations described *high turnover* as the primary marketing objective to be

associated with the *growth phase* of the PLC, followed by increase in advertising and the building of relationships (p. 234).

- (50) Marketing decision-makers in small dealer organisations described high turnover as the primary marketing objective to be associated with the *growth phase* of the PLC, followed by increase in advertising and the selling of additional products (p. 234).
- (51) The total sample described maximising sales as the primary marketing objective to be associated with the *maturity phase* of the PLC, followed by reduced advertising and maximising/high profit (p. 235).
- (52) Marketing decision-makers in small manufacturing organisations described *maximise/high profit* and *customer retention* as the primary marketing objective to be associated with the *maturity phase* of the PLC, followed by reduced cost and research and development (p. 236).
- (53) Marketing decision-makers in small dealer organisations described *maximise sales* as the primary marketing objective to be associated with the *maturity phase* of the PLC, followed by reduced advertising and maximise/high profit (p. 236).
- (54) The total sample described *reduced prices* as the primary marketing objective to be associated with the *decline phase* of the PLC, followed by the phasing out of the product (p. 238).
- (55) Marketing decision-makers in small manufacturing organisations described reduced prices as the primary marketing objective to be associated with the *decline phase* of the PLC, followed by the feed on/use of the reputation (p. 238).
- (56) Marketing decision-makers in small dealer organisations described reduced prices as the primary marketing objective to be associated

with the *decline phase* of the PLC, followed by the phasing out of the product (p. 238).

- (57) Marketing decision-makers in small manufacturing organisations and small dealer organisations may have confused certain marketing objectives with marketing strategies in the different PLC phases (p. 238).
- (58) Marketing decision-makers in small manufacturing and small dealer organisations described marketing objectives, in the different phases of the PLC, which are relatively similar to the theory provided by Kotler (2000: 316) (p. 240).
- (59) There is no significant difference between the high likelihood of the continued future use of the product life cycle for general management and for marketing decision-making purposes (p. 243).
- (60) Marketing decision-makers in manufacturing and dealer organisations show no significant differences between the high likelihood of continued use of the product life cycle in future for general management decision-making purposes (p. 244).
- (61) Marketing decision-makers in manufacturing and dealer organisations show no significant differences between the high likelihood of continued use of the product life cycle in future for marketing decision-making purposes (p. 244).
- (62) The likelihood of continuing with the use of the product life cycle concept in future for general and marketing decision-making is equally high irrespective whether small manufacturing and small dealer organisations have a marketing department or not (p. 245).

- (63) The total sample of small organisations in Gauteng achieved a 75% match with the characteristics in each product life cycle phase as provided by the theory (Kotler, 2000: 316) (p. 248).
- (64) The differences between small manufacturing organisations and small dealer organisations with regard to Kotler's characteristics are (p. 249):
- (i) Sales**
Small manufacturers indicated peak sales in the growth phase while small dealers reported peak sales in the maturity phase.
- (ii) Cost**
Small manufacturers indicated low cost per customer in the maturity phase while dealers reported low cost per customer in the growth phase.
- (iii) Profits**
Small manufacturers indicated high profits in the maturity phase while dealers reported high profits in the growth phase.
- (iv) Competitors**
Small manufacturers indicated declining number of competitors in the maturity phase while dealers reported declining number of competitors in the decline phase.
- (65) Small manufacturers and small dealers both achieved a match success rate of 62.50% with Kotler's (2000: 316) theory on characteristics in each phase of the PLC (p. 249).
- (66) The differences between the characteristics identified by the sample with a marketing department/function and Kotler's characteristics are (p. 250):
- (i) Sales**
Small manufacturers and small dealers with a marketing department reported low sales in the decline phase while Kotler indicated low sales in the introductory phase.
- (ii) Cost**
Small manufacturers and small dealers with a marketing department

reported high cost per customer in the decline phase while Kotler indicated high cost per customer in the introductory phase.

(iii) Profits

Small manufacturers and small dealers with a marketing department reported negative profits in the decline phase while Kotler indicated negative profits in the introductory phase.

Small manufacturers and small dealers with a marketing department reported high profits in the growth phase while Kotler indicated high profits in the maturity phase.

(iv) Competitors

Small manufacturers and small dealers with a marketing department reported few competitors in the decline phase while Kotler indicated few competitors in the introductory phase.

(67) Marketing decision-makers in manufacturing and dealer organisations with a marketing department provided a relatively good association (62%) with Kotler's theory on the characteristics within the different PLC phases (p. 251).

(68) Differences between the small manufacturing organisations and small dealer organisations with a marketing department/function and Kotler's characteristics are (p. 252):

(i) Sales

Small manufacturers and small dealers with a marketing department reported low sales in the decline phase while Kotler indicated low sales in the introductory phase.

(ii) Cost

- Small dealers with a marketing department reported high cost per customer in the decline phase while Kotler indicated high cost per customer in the introductory phase.

- Small dealers with a marketing department reported low cost per customer in the growth phase while Kotler indicated low cost per customer in the maturity phase.
- Small dealers and manufacturers with a marketing department reported low cost per customer in the growth phase and maturity phases respectively, while Kotler indicated low cost per customer in the decline phase.

(iii) Profits

- Small manufacturers and small dealers with a marketing department reported negative profits in the decline phase while Kotler indicated negative profits in the introductory phase.
- Small dealers with a marketing department reported high profits in the growth phase while Kotler indicated high profits in the maturity phase.

(iv) Competitors

Small manufacturers and small dealers with a marketing department reported few competitors in the decline phase while Kotler indicated few competitors in the introductory phase.

- (69) Marketing decision-makers in manufacturing organisations with a marketing department or function showed a better fit with Kotler's theory on the characteristics within the different PLC phases than dealer organisations with a marketing department or function (p. 253).
- (70) Respondents regarded product features and options as the most important marketing mix related aspect in the introductory phase of the PLC (p. 255).
- (71) Respondents regarded product features and options as the most important product aspect, low price as the most important price aspect, intensive distribution as the most important place aspect and advertising as the most important promotion aspect in the introductory phase of PLC (p. 255).

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- (72) Respondents regarded price as the least important marketing mix instrument in the introductory phase (p. 256).
- (73) Respondents regarded advertising as the most important marketing mix related aspect in the growth phase of the PLC (p. 257).
- (74) Respondents regarded product features and options as the most important product aspect, payment terms as the most important price aspect, exclusive distribution as the most important place aspect and advertising as the most important promotion aspect in the growth phase of the PLC (p. 257).
- (75) Respondents regarded advertising as the most important aspect in the maturity phase of the PLC (p. 258).
- (76) Respondents regarded product features and options as the most important product aspect, high price as the most important price aspect, exclusive distribution as the most important place aspect and advertising as the most important promotion aspect in the maturity phase of the PLC (p. 259).
- (77) Respondents regarded product features and options as well as warranties as the most important aspects in the decline phase of the PLC (p. 260).
- (78) Respondents regarded product features and options and warranties as the most important product aspects, low price as the most important price aspect, exclusive distribution as the most important place aspect and advertising as the most important promotion aspect in the decline phase of the PLC (p. 260).
- (79) Marketing decision-makers in the sample attached a very high importance to the four traditional marketing mix instruments across all

the PLC phases except for price in the introductory phase and place in the decline phase (price and place with mean values lower than 3) (p. 261).

- (80) Marketing decision-makers in the sample regarded promotion as the most important marketing mix instrument in both the growth and maturity phases, while product was regarded as the most important marketing mix instrument in the introductory and decline phases of the PLC (p. 261).
- (81) Product and place are mostly important to both small manufacturers and small dealers, in the introductory phase of the PLC while place is most important in the introductory phase (p. 263).
- (82) Small manufacturers regard price as the mostly important in the decline phase while small dealers regard price as most important in the growth phase of the PLC (p. 263).
- (83) Small manufacturers regard promotion as most important in the maturity phase while small dealers regard price as mostly important in the introductory phase of the PLC (p. 263).
- (84) Product is regarded by the sample as the most important marketing mix instrument in the introductory phase and promotion as the most important marketing mix instrument in the growth phase (p. 265).
- (85) People is regarded as the most important marketing mix instrument followed by physical evidence, product, promotion, processes, price and place (p. 267).
- (86) Two of the expanded marketing mix instruments have the highest importance (people and physical evidence) (p. 267).
- (87) Marketing decision-makers in small manufacturing and small dealer

organisations regard product and physical evidence as the most important marketing mix instruments in the introductory phase of the PLC (p. 268).

- (88) Marketing decision-makers in small manufacturing and small dealer organisations regard promotion and processes as the most important marketing mix instruments in the growth phase of the PLC (p. 268).
- (89) Marketing decision-makers in small manufacturing and small dealer organisations regard promotion and people as the most important marketing mix instruments in the maturity phase of the PLC (p. 268).
- (90) Marketing decision-makers in small manufacturing and small dealer organisations regard product and people as the most important marketing mix instruments in the decline phase of the PLC (p. 270).
- (91) The total sample provided a 45% linkage with Kotler's theory on marketing strategies in each PLC phase (p. 271).
- (92) The total sample provided the best linkage (75%) with the strategies on product (p. 272).
- (93) The total sample provided the weakest link of 25% with price strategies and distribution strategies respectively (p. 272).
- (94) Marketing decision-makers in small manufacturing and small dealer organisations associated the marketing strategies in the PLC phases differently (more than 50%) from those marketing strategies predicated in theory (p. 274).
- (95) Marketing decision-makers in manufacturing and dealer organisations with a marketing department or function concurred slightly more with regard to strategies used in the different phases of the PLC when compared to Kotler's theory (p. 275).

7.6 RESEARCH PROPOSITIONS

The research propositions as formulated in chapter 1 and motivated in chapter 5 will be evaluated against literature in the literature review, research results and main research findings.

7.6.1 Proposition 1

There is a difference in the application of the product life cycle concept theory assumptions of small organisations in South Africa compared to Kotler's theory.

The theoretical assumptions by Kotler (2000: 316) consisted of marketing objectives, characteristics and marketing strategies reflected in questions 16, 18 and 20 respectively.

- **Results on question 16:**

Marketing decision-makers in small manufacturing and small dealer organisations described marketing objectives, which to a large extent are similar to the theory, provided by Kotler [*Major finding 7.5(58), p. 284*].

It can be concluded that this finding can not support the aspect of marketing objectives in proposition 1.

- **Results on question 18:**

The total sample of small organisations in Gauteng achieved a 75% match with the *characteristics* in each product life cycle phase as provided by the theory (Kotler, 2000: 316) [*Major finding 7.5(63), p. 284*].

This finding indicates that the characteristics portion of the assumptions in proposition 1 can not be supported.

- **Results on question 20:**

The total sample provided a 45% linkage with Kotler's theory on **marketing strategies** in each PLC phase [**Major finding 7.5(91), p.290**].

This result showed that marketing strategies as part of the assumptions in proposition 1 differed substantially from Kotler's theory. This part (strategies) of proposition 1 can be supported.

If the results above are collectively viewed then this proposition can not conclusively be supported or not supported because of the mixed results.

7.6.2 Proposition 2

Marketing managers of small organisations in Gauteng, South Africa use the product life cycle concept to strategically manage their products through the various phases of the product life cycle.

Proposition 2 can be supported by the empirical research results from questions 2, 11, 13 and 17.

Before the support will be motivated it is important to realise that the substance of the support should be treated and viewed against the result that 68.47% of small manufacturing and dealer organisations indicated that they have a marketing function or department responsible for making marketing related decisions (question 4, p. 186).

- (i) More than three-quarters of small manufacturing organisations and small dealer organisations in Gauteng are using the product life cycle phases when they engage in strategic marketing planning and development [**Major finding 7.5(18), p. 278**].
- (ii) Ninety two percent of small manufacturing and small dealer organisations in Gauteng indicated that the product life cycle influences marketing strategy and development from an average to an above average extent [**Major finding 7.5(21), p. 279**].

- (iii) Marketing decision-makers in manufacturing and dealer organisations indicated a high likelihood of continued use of the product life cycle in future for general management decision-making purposes [*Major finding 7.5(60), p. 284*].
- (iv) The likelihood of continuing with the use of the product life cycle concept in future for general management decision-making purposes is equally high irrespective of the fact whether small manufacturing and small dealer organisations have a marketing department or not [*Major finding 7.5(62), p. 284*].

If the results above are collectively viewed then this proposition should be **supported**.

7.6.3 Proposition 3

Small manufacturers in Gauteng apply and use the product life cycle concept for marketing decision-making purposes.

Proposition 3 can be supported by the questions 2, and 17.

The support from the empirical results on this proposition should be viewed against the results of the 21 small manufacturing organisations in the sample on current and future use tested in this study.

Current use can be supported by:

- (i) Forty percent of small manufacturer organisations of the sample in Gauteng know of and apply the product life cycle concept as a decision-making vehicle [*Major finding 7.5(1), p. 276*].

Future use can be supported by:

- (i) Marketing decision-makers in small manufacturing organisations indicated a high likelihood of continued use of the product life cycle in

future for marketing decision-making purposes [*Major finding 7.5(61), p. 284*].

- (ii) The likelihood of continuing with the use of the product life cycle concept in future for marketing decision-making is equally high irrespective of whether small manufacturing organisations have a marketing department [*Major finding 7.5(62), p. 284*].

If the results above are holistically viewed then this proposition should be **supported**.

7.6.4 Proposition 4

Small dealers in Gauteng apply and use the product life cycle concept for marketing decision-making purposes.

Proposition 4 can be supported by questions 2, and 17.

The support from the empirical results on this proposition should be viewed against the results of the 71 small dealer organisations in the sample on current and future use tested in this study.

Current use can be supported by:

- (i) Forty percent of small manufacturer organisations of the sample in Gauteng know of and apply the product life cycle concept as a decision-making vehicle [*Major finding 7.5(1), p. 276*].

Future use can be supported by:

- (i) Marketing decision-makers in small dealer organisations indicated a high likelihood of continued use of the product life cycle in future for marketing decision-making purposes [*Major finding 7.5(61), p. 284*].
- (ii) The likelihood of continuing with the use of the product life cycle concept in future for marketing decision-making is equally high

irrespective of whether small dealer organisations have a marketing department **[Major finding 7.5(62), p. 284]**.

If the results above are holistically viewed then this proposition should be **supported**.

7.6.5 Proposition 5

There is a significant difference between small manufacturing and small dealer organisations when applying and using the PLC concept for marketing decision-making purposes.

This proposition was derived from propositions 3 and 4 and was formulated to assess whether the outcome of proposition 3 and 4 are significantly different when results are compared between small manufacturers and small dealers.

Proposition 5 can not be supported in the view of the results of questions 2, 6 and 17.

- (i) There are no significant differences between small manufacturing organisations and small dealer organisations when applying the product life cycle concept in the execution of distribution, forecasting, costing, monitoring market share, competitive evaluation and allocating resources although these aspects are however important **[Major finding 7.5(6), p. 276]**.
- (ii) Small manufacturing organisations in Gauteng regard *manufacturing*, and small dealer organisations regard *price*, as the most important aspects when applying the product life cycle concept **[Major finding 7.5(7), p. 277]**. This finding supports the proposition.
- (iii) There is no difference in the extent to which the product life cycle influences marketing strategy and development between small manufacturing and small dealer organisations in Gauteng **[Major finding 7.5(22), p. 279]**.

If the results above are holistically viewed then this proposition should **not** be **supported**.

7.6.6 Proposition 6

Small organisations in Gauteng, South Africa don't have a marketing function responsible for applying the product life cycle concept when marketing strategy is developed and marketing decisions are taken.

Proposition 6 cannot be supported by the results of question 4.

Small manufacturing and dealer organisations in Gauteng, South Africa have, in sixty-eight percent of all cases, a marketing department or function responsible for marketing decision-making [*Major finding 7.5(2), p. 276*].

The converse is that in thirty-two percent of the cases other functional departments or functions are responsible for making marketing decisions in manufacturing and dealer organisations in Gauteng, South Africa.

This proposition can therefore **not** be **supported** based on the above-mentioned result.

Small manufacturing and small dealer organisations who had a marketing department revealed interesting results [*Major findings 7.5(65), p. 285; 7.5(66), p. 285 and 7.5(95), p. 290*].

7.7 CONCLUSION

This chapter provided results on a question-by-question basis for the total sample and per organisational type (small manufacturers and dealers).

A list of the main findings was developed and the various propositions were evaluated against the literature review and/or empirical results (main findings). Proposition 1 could not be conclusively supported or not by the findings while propositions 2, 3, and 4 were supported and propositions 5 and 6 were not supported from the list of main findings.

Chapter 8 will provide conclusions and recommendations based on the major findings presented in this chapter.

CHAPTER 8

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

8.1 INTRODUCTION

In the previous chapter the research results were discussed. This final chapter focuses on the main conclusions, recommendations and the limitations of this exploratory study. Specific emphasis will be placed on the application outcomes of the product life cycle concept. Final conclusions will be drawn on the use and application of the product life cycle concept as an instrument for marketing decision-making. Recommendations for future research will also be made.

8.2 PRODUCT LIFE CYCLE APPLICATION OUTCOMES

As mentioned in the description of this study's purpose (paragraph 1.3 in chapter one) the focus of the study was to expose marketing decision-makers in small manufacturing organisations and small dealer organisations to Kotler's PLC assumptions. These assumptions comprise of marketing characteristics, marketing objectives and marketing strategies within each phase of the product life cycle.

Table 8.1 illustrates how marketing decision-makers in small manufacturing organisations and small dealer organisations applied the product life cycle concept theory compared to the product life cycle concept theory provided by Kotler (2000: 316).

Table 8.1: Characteristics, marketing objectives and strategies in the various phases of the product life cycle as proposed by Kotler (compared to how marketing decision-makers from small manufacturers and small dealers in Gauteng apply this concept)

	Product life cycle phases			
	Introductory phase	Growth phase	Maturity phase	Decline phase
Sales characteristics - Kotler - Sample results	Low Sales <i>Low sales</i>	Rapidly growing sales <i>Rapidly growing sales</i>	Peak sales <i>Peak sales</i>	Declining sales <i>Declining sales</i>
Cost characteristics - Kotler - Sample results	High cost per customer <i>High cost per customer</i>	Average cost per customer <i>Average cost per customer</i>	Low cost per customer <i>Low cost per customer</i>	Low cost per customer <i>High cost per customer¹⁾</i>
Profit characteristics - Kotler - Sample results	Negative profits <i>Negative profits</i>	Increasing profits <i>Increasing profits</i>	High profit <i>High profit</i>	Declining profits <i>Negative profits¹⁾</i>
Competitor Characteristics - Kotler - Sample results	Few competitors <i>Growing number of competitors¹⁾</i>	Growing number of competitors <i>Growing number of competitors</i>	Stable number of competitors <i>Stable number of competitors</i>	Declining number of competitors <i>Declining number of competitors</i>
Marketing objectives - Kotler - Sample results	Create product awareness and trial <i>Heavy/intensive advertising¹⁾</i>	Maximise market share <i>High turnover¹⁾</i>	Maximise profit while defending current market share <i>Maximise sales¹⁾</i>	Reduce expenditure and milk the brand <i>Reduced prices¹⁾</i>
Product strategy - Kotler - Sample results	<i>Offer a basic product</i> <i>Offer a basic product</i>	<i>Offer product extensions, service and warranties</i> <i>Diversify¹⁾</i>	<i>Diversify</i> <i>Diversify</i>	<i>Phase out the weak performers</i> <i>Phase out the weak performers</i>
Price strategy - Kotler - Sample results	<i>Charge cost plus</i> <i>Set a price to penetrate the market¹⁾</i>	<i>Price to penetrate the market</i> <i>Set a price to match or better the price of competitors¹⁾</i>	<i>Price to match or beat competitors</i> <i>Charge cost plus¹⁾</i>	<i>Cut price</i> <i>Cut price</i>
Distribution strategy - Kotler - Sample results	<i>Build selective distribution</i> <i>Build intensive distribution¹⁾</i>	<i>Build intensive distribution</i> <i>Build more intensive distribution¹⁾</i>	<i>Build more intensive distribution</i> <i>Build selective distribution¹⁾</i>	<i>Selective to phase out the unprofitable outlets</i> <i>Selective to phase out the unprofitable outlets</i>
Advertising strategy - Kotler - Sample results	<i>Build product awareness</i> <i>Build product awareness</i>	<i>Build awareness and interest in the market</i> <i>Build awareness and interest in the market</i>	<i>Highlight brand differences and benefits</i> <i>Reduce the level to retain loyal customers¹⁾</i>	<i>Reduce the level to retain loyal customers</i> <i>Reduce the level to retain loyal customers</i>
Sales Promotion Strategy - Kotler - Sample results	<i>Use heavy sales promotion to entice tria</i> <i>Use heavy sales promotion to entice tria</i>	<i>Reduce to take advantage of heavy consumer demand</i> <i>Use heavy sales promotion to entice trial¹⁾</i>	<i>Increase to encourage brand switching</i> <i>Reduce to take advantage of heavy consumer demand¹⁾</i>	<i>Reduce to a minimal level</i> <i>Reduce to a minimal level</i>

People strategy ²⁾ - Sample results	Incentives to personnel Training of personnel	Incentives to personnel Knowledge of personnel	Incentives to personnel Training of personnel	Incentives to personnel Training of personnel
Processes strategy ²⁾ - Sample results	Develop company policies and procedure. Toll free number	Focus on complaints handling Toll free number	Focus on complaints handling Toll free number	Toll free number Complaints handling
Physical evidence ²⁾ Strategy - Sample results	Organisation's name Organisation's logo	Organisation's logo Organisation's name	Organisation's logo Organisation's name	Organisation's logo Organisation's name

Note: ¹⁾ = The sample results differ from Kotler's theory in the specific PLC phase

²⁾ = Not covered in Kotler's theory

The comparative information in Table 8.1 is based on:

- The application of the **marketing characteristics** identified by Kotler (2000: 316) in Table 3.5 in chapter one and the results depicted in *Table 7.53* in chapter seven.
- The application of the **marketing objectives** proposed by Kotler (2000: 316) in Table 3.5 in chapter one and the results depicted in *Table 7.46* in chapter seven.
- The application of the **marketing strategies** proposed by Kotler (2000: 316) in Table 3.5 in chapter one and from the results depicted in *Table 7.68* in chapter seven.
- Marketing strategies on people, processes and physical evidence derived from the results on questions 15 and 19 [in paragraphs 7.4.3(e) and 7.4.4(b)].

The results in Table 8.1 illustrate how marketing decision-makers of small manufacturing organisations and small dealer organisations corresponded with Kotler's theory and indicate where the sample differed from Kotler's theory (indicated by ¹⁾). It can be assumed that marketing decision-makers in small manufacturing organisations and small dealer organisations confused certain characteristics and marketing strategies [Major finding 7.5(56) in chapter 7].

Also in Kotler's assumptions on sales, profit and competitor characteristics he posits that there must be low sales, negative profits and few competitors in the introductory phase. Declining sales, declining profits and declining number of competitors in the decline phase were cited by Kotler as sales, profit and competitor characteristics. The respondents might have interpreted the meaning of characteristics between the introductory and decline phases as similar (i.e. low sales = declining sales; negative profits = declining profits; and few competitors = declining number of competitors).

The results illustrated in Table 8.1 also provide an indication that the current product life cycle concept theory should be broadened to include the expanded marketing mix, especially the assumption on marketing strategy (indicated by ²). This will be further expanded in paragraph 8.3(d).

8.3 SUMMARY OF THE MAIN CONCLUSIONS AND IMPLICATIONS BASED ON THE MAIN FINDINGS

Based on the results provided in this study the major findings in chapter seven and conclusions in this chapter cannot be generalised beyond the circumstances and conditions in which they occurred. The results are only representative of small manufacturing and dealer organisations in Gauteng, South Africa who employ between 11 – 50 people.

It is furthermore important to reiterate that the objectives of this study did not include the questioning of the product life cycle's s-shape and or bell shaped curves. The researcher will however make a recommendation on the exposition of the product life cycle curve appearing in current marketing literature and textbooks.

This study investigated the use and application of the product life cycle concept as a marketing decision-making instrument by testing it against the theory provided by Kotler (2000: 316) on the described characteristics, proposed marketing objectives and suggested marketing strategies linked to the different PLC phases.

The next section is devoted to the main conclusions and implications based on the main findings.

(a) Main finding 1

There is a difference in the importance of the marketing mix instruments in the various phases of the product life cycle concept.

Marketing decision-makers in the sample regarded people as the most important marketing mix instrument followed by physical evidence, product, promotion, processes, price and place [**Major finding 7(85) in chapter seven**].

Marketing decision-makers in the sample regarded promotion as the most important marketing mix instrument in both the growth and maturity phases, while product was regarded as the most important marketing mix instrument in the introductory and decline phases of the PLC [**Major finding 7(80) in chapter seven**].

The **main conclusions** are that place and price are not regarded as the most important marketing mix instruments in any of the product life cycle phases. Significant is the fact that people and physical evidence (part of the expanded marketing mix) are the two most important marketing mix instruments.

The **implication** is that marketing decision-makers should bear this in mind in developing strategies in the different PLC phases.

(b) Main finding 2

The product life cycle concept theory has application potential as a strategic tool and there is a high likelihood for its use as a marketing decision-making instrument in future.

When the product life cycle concept is applied by marketing decision-makers in small manufacturing and dealer organisations in Gauteng, South Africa, it

seems that the concept has a great application potential and incidence rate of use as a marketing decision-making instrument.

- More than three-quarters of small manufacturing and dealer organisations are using the product life cycle concept when they engage in strategic marketing planning and developing, primarily on an annual basis as listed in **major finding 7.5(18) in chapter seven**.
- Marketing decision-makers in small manufacturing and small dealer organisations indicated that the product life cycle concept influences marketing strategy and development on an above average extent [**Major finding 7.5(21) in chapter seven**].
- Marketing decision-makers in small manufacturing organisations and small dealer organisations indicated a high likelihood for the continued use of the product life cycle concept in future for marketing decision-making purposes [**Major finding 7.5(61) in chapter seven**].

The **main conclusion** is that marketing decision-makers in small manufacturing and dealer organisations in Gauteng, South Africa do realise the application value of the product life cycle concept. It will be recalled that one of the screening questions was that organisations should know and should apply the PLC. Sixty percent did not apply with this criterion.

The **implication** is that the 60% of small manufacturing organisations and small dealer organisations should be made aware of the product life cycle and its potential for marketing decision-making as reported by the sample.

(c) Main finding 3

Marketing decision-makers in small manufacturing organisations and small dealer organisations tended to display a marketing knowledge level that was not in total unison with the existing marketing theory.

The following major findings are collectively indicative of the level of marketing knowledge and application of existing marketing theory within small manufacturing and dealer organisations in Gauteng:

- Marketing decision-makers as depicted in **major finding 7.5(8) in chapter seven** did not indicate the application of the product life cycle concept to be a reason or instrument *per se* for creating a competitive advantage to their respective organisations. They revealed price to be the major reason for creating a competitive advantage for their organisations.
- Less than half of the marketing decision-makers in small organisations mentioned that they apply the product life cycle concept on each individual product within each product range [**Major finding 7.5(13) in chapter seven**].
- The majority of the marketing decision-makers indicated the necessity of the product to be the primary reason for individual products or product ranges to be their best sellers - listed as **major finding 7.5(15) in chapter seven**. A pure marketing related reason was not revealed as the primary reason.
- Marketing decision-makers in small manufacturing and small dealer organisations associated the marketing strategies in the PLC phases differently (more than 50%) from those marketing strategies predicated in theory [**Major finding 7.5(94) in chapter seven**].
- Marketing decision-makers in small manufacturing and small dealer organisations with a marketing department/function concurred slightly more with Kotler's theory with regard to strategies used in the different phases of the PLC [**Major finding 7.5(95) in chapter seven**].

The **main conclusion** is that marketing decision-makers in small manufacturing and dealer organisations in Gauteng, South Africa use the PLC concept as a marketing mix instrument. These decision-makers however have different views and application practices of the PLC concept when compared to the existing marketing theory.

The **implication** is that the current product life cycle concept theory needs to be further re-evaluated and adapted through empirical research to test marketing practices and to compare it to theory.

(d) Main finding 4

The current product life cycle concept theory needs to be broadened to include strategies on the expanded marketing mix.

Paragraph 2.3.3(ii) indicated that products and services are different in many ways and unlike products or manufactured goods, services are intangible and can not be stored, transported or resold. In service organisations, flexibility of service delivery is the strength of the organisation and standardisation of output is sometimes not desirable. In goods manufacturing, on the other hand, repeatability and systematic controlled production are the key elements of success.

Marketing decision-makers in the sample regarded people as the most important marketing mix instrument followed by physical evidence, product, promotion, processes, price and place [**Major finding 7(85) in chapter seven**].

In addition, the marketing decision-makers regarded all the marketing mix related aspects pertaining to people, processes and physical evidence mix as important except for the marketing mix aspects linked to processes in the maturity phase [**Major finding 7.5(37) in chapter seven**].

Marketing decision-makers in both small manufacturing and small dealer organisations also attached a very high importance to the product, price,

place and promotion (*traditional marketing mix*) across all four phases of the product life cycle concept [**Major finding 7.5(79) in chapter seven**].

The following suggestions based on the results illustrated in Table 8.1 are provided for the possible broadening of the current product life cycle concept theory to include the additional three Ps :

- **People strategy**

- (a) *Introductory phase* – incentives to personnel are important to support the introduction of a new product on the market.
- (b) *Growth phase* – incentives to personnel and the knowledge of personnel are important to support the growth of a product after introduction on the market.
- (c) *Maturity phase* – incentives to personnel are important to support and maintain the product's current position in the market as competition increases.
- (d) *Decline phase* – incentives to personnel are important to still provide support to current/loyal customers when a product is phased out.

The frequent mentioning of incentives and training of personnel are indicative of the importance of internal communications and employee relations.

It is suggested that management has to make decisions on the extent of investment in the training and knowledge of personnel to support their products and services while moving through the product life cycle phases. This decision can be driven or influenced by the internal capabilities of the organisation (e.g. finance) and by the nature of the product and/or the nature of the market (i.e. competitiveness). This is further strengthened by the total sample's indication that relationships are the most important other marketing mix related aspect creating a competitive advantage [**Major finding 7.5(10) in chapter 7**].

- **Processes strategy**

- (a) *Introductory phase* – company policy and procedures can be used to

support the introduction of a new product on the market.

- (b) *Growth phase* – complaints handling and by implication service recovery and a toll free number are important to provide support and back-up as sales grow after the introduction of a product on the market.
- (c) *Maturity phase* – complaints handling and a toll free number are also important to provide back-up service and support in this phase. The successful management of these two aspects can provide a sustainable competitive advantage to an organisation.
- (d) *Decline phase* – complaints handling and a toll free number are also important to still continue providing back-up support and service to current/loyal customers when a product is phased out.

Management has to make decisions on the extent they want to invest in customer service, support and satisfaction as their products or services move through the various product life cycle phases.

- **Physical evidence strategy**

- (a) *Introductory phase* – the organisation's name and logo can be used to create the brand image and corporate image during the introduction of a new product on the market.
- (b) *Growth phase* – the organisation's name and logo are elements to be used to grow/enhance the brand image and to support an existing corporate image after the introduction of a product on the market.
- (c) *Maturity phase* – the organisation's name and logo are elements to be used to maintain and protect the brand image and to maintain and protect an established corporate image. The successful management of these two aspects can provide a sustainable competitive advantage to the organisation.
- (d) *Decline phase* – the organisation's name and logo are elements to be used to maintain and protect the brand image and to maintain and protect an established corporate image during the phasing out process of a product.

Decisions on the extent that an organisation want to build and protect the

image of their products and the image and reputation of their companies as their products and services are moving through the various product life cycle phases are important.

It is suggested from the above-mentioned that the current product life cycle concept should be broadened to make provision for the intangible aspects associated with the marketing of a product and a service. It is therefore suggested that the current marketing strategy section of Kotler's product life cycle concept be revised to include the marketing mix instruments of people, processes and physical evidence. This must however be tested and supported by further research.

These findings further strengthen the view of Rafiq and Ahmed (1995: 5), in paragraph 2.4 in chapter two, suggested the development of a generic marketing mix cutting across various industries ranging from services marketing, business-to-business marketing and the marketing of physical products.

The **main conclusion** is that the traditional marketing mix variables are no longer sufficient for the successful marketing of a *physical product* and a *service*. In many cases a service is part of the total offering and as such the expanded marketing mix should be added.

The **implication** is that current product life cycle concept theory needs to be adapted to include the proposed strategies on people, processes and physical evidence in all four phases of the product life cycle.

(e) Main finding 5

There were differences between small manufacturing organisations and small dealer organisations on marketing characteristics and marketing strategies in the different PLC phases.

Major finding 7.5(64) in chapter seven indicates the differences on characteristics:

- **Sales**

Small manufacturers indicated peak sales in the growth phase while small dealers reported peak sales in the maturity phase.

- **Cost**

Small manufacturers indicated low cost per customer in the maturity phase while dealers reported low cost per customer in the growth phase.

- **Profits**

Small manufacturers indicated high profits in the maturity phase while dealers reported high profits in the growth phase.

- **Competitors**

Small manufacturers indicated declining number of competitors in the maturity phase while dealers reported declining number of competitors in the decline phase.

The *differences on strategies* are indicated by **major findings 7.5(81), 7.5(82), 7.5(83) and 7.5(84) in chapter seven.**

- (i) Product and place are mostly important to both small manufacturers and small dealers in the introductory phase of the PLC [**Major finding 7.5(81) chapter seven**].
- (ii) Small manufacturers regard price as most important in the decline phase while small dealers regard price as the most important in the growth phase of the PLC [**Major finding 7.5(82) chapter seven**].
- (iii) Small manufacturers regard promotion as most important in the maturity phase while small dealers regard price as most important in the introductory phase of the PLC [**Major finding 7.5(83) chapter seven**].
- (iv) Product is regarded by the sample as the most important marketing mix instrument in the introductory phase and promotion as the most important marketing mix instrument in the growth phase [**Major finding 7.5(84) chapter seven**].

The **main conclusion** is that the significant differences in the application of the product life cycle concept listed in proposition 5 differ between the two samples from different industry categories in the different PLC phases.

The **implication** is that there are differences in the application of the current product life cycle concept between industries of the same category (employment size). This should be treated with caution when the application of the product life cycle concept is tested in different industries.

(f) Main finding 6

There are still many unanswered questions and doubt about the product life cycle concept as a marketing decision-making instrument.

The theory indicated that the product life cycle still seems to be the dominant component of marketing theory. There are however many unanswered questions and criticism about the practical application of the product life cycle as a strategic marketing and marketing decision-making instrument. The following criticisms listed in paragraph 1.6.2 are still prevalent:

- There is still doubt about the applicability and validity of the product life cycle concept as a marketing instrument.
- There is still no evidence of the efficacy of the product life cycle as a framework/instrument to predict marketing strategy.
- It is still difficult for marketing decision-makers to determine in which stage of the product life cycle a product or service is.

It can be **concluded** from the literature review and from the main findings listed above that all the above-mentioned criticisms still hold true.

The **implication** is that empirical evidence is still needed to address some of the criticisms and to provide justification on the value and the practical use of

the product life cycle concept theory as a marketing decision-making instrument. Certain criticisms in terms of organisation size and the South African environment were however addressed.

8.4 LINKING THE QUESTIONS AND RESEARCH RESULTS/MAJOR FINDINGS TO THE DIFFERENT RESEARCH OBJECTIVES

The results in chapter 7 enabled the researcher to support, or not support, the research propositions. Table 8.2 provides a linkage between the questions in the questionnaire, the secondary research objectives and the results/major findings.

Table 8.2: The linkage between the questions in the questionnaire, secondary research objectives and the major findings

Secondary objectives	Questions	Major Findings
(a) To determine whether marketing decision-makers in small organisations in South Africa can identify in what phase of the product life cycle an individual product or a product range is.	8, 9 & 10	12, 13, 14
(b) To identify the application of marketing decision-making variables in the various phases of the product life cycle concept by small organisations.	15 & 19	27 to 45 70 to 85
(c) To determine whether there are differences between small manufacturing and small dealer organisations with regard to the application of marketing decision-making variables in the various phases of the product life cycle concept.	2, 15 & 19	27 to 45 70 to 85
(d) To identify the importance of elements of the marketing mix variables by small manufacturing and small dealer organisations in the different product life cycle phases.	2, 15 & 19	27 to 45 70 to 85
(e) To investigate the ability of small organisations to describe the marketing objectives within the various product life cycle phases as indicated in the theory.	16	46 to 58
(f) To establish the ability of small organisations to identify product life cycle characteristics as depicted in marketing literature.	18	63 to 69
(g) To investigate the ability of small organisations to link marketing strategies with phases of the product life cycle theory according to the theory classification.	20	86 to 90
(h) To identify the different marketing objectives that small organisations formulate for their products in each phase of the product life cycle.	10.3	16 and 17
(i) To establish whether there are differences in the application of the product life cycle theory between small manufacturing and small dealer organisations.	2, 16, 18 & 20	46 to 58 63 to 69 86 to 90
(j) To identify the factors influencing a product through the various phases of the product life cycle among small organisations in South Africa.	10.2	15
(k) To determine the potential of the product life cycle concept for decision-making among small manufacturing and small dealer organisations in South Africa.	2 & 13	21 and 22
(l) To determine who is responsible for marketing decision-making in small manufacturing and small dealer organisations	2 & 14	2

All the secondary research objectives as set out in paragraph 1.4.2 in chapter one were achieved.

8.5 LIMITATIONS

This thesis is the result of an exploratory investigation into the application and use of the product life cycle concept by small organisations in Gauteng, South Africa with between 11 and 50. Specific limitations were formulated in the literature review and during the empirical part of this study.

8.5.1 Limitations in the literature review

Based on the literature review the researcher has formulated the following limitations:

- The aim of the literature search was to include all relevant literature on the topic. It is possible that some important empirical research on the wider application of the product life cycle concept may have been done but not yet documented in literature (and therefore excluded).
- There is limited literature available on the application of the product life cycle concept in small organisations.
- The researcher attempted to conduct a literature search with the aim of including all relevant literature but identified a definite lack of literature on the application of the product life cycle concept by large and small organisations in South Africa.

8.5.2 Limitations in the empirical research

After the completion of the empirical research and the reporting of the results, the following limitations can be cited:

- The nature of the questionnaire did not allow the researcher to provide statistical proof on the validity and reliability of the measurement instrument used in the empirical part of this thesis.
- The study was limited to only two industries - the manufacturing industry and dealer industry in Gauteng, South Africa.

- The criteria for respondents to be included in the final sample were very stringent. This was necessary to test the actual **application** of the PLC and not allowing marketing decision-makers in small manufacturing and dealer organisations to report their **perceptions** on the use and application of the product life cycle concept.
- The major limitation of this study is that the sample frame was relatively inaccurate and the response rate was lower than anticipated.

Multiple-item methodology was not used to measure product life cycle aspects due to the length of the questionnaire.

8.6 RECOMMENDATIONS

The following recommendations based on the literature review and the empirical results achieved in this research are put forward.

8.6.1 Recommendation for future research

The following are recommendations for future research on the application and use of the PLC concept:

- A comparative study among medium and large organisations in South Africa by using the same methodology and measurement instrument, should be done to draw possible comparisons and to provide better clarity on the current debate on the practical application of the product life cycle concept.
- Research is needed to provide empirical evidence to contribute to the ongoing debate whether the current product life cycle concept theory is still sufficient to be used as a basis for marketing strategy.
- Research is needed to provide empirical evidence to determine whether the current product life cycle concept theory is applicable to and sufficient

for the successful marketing of services.

- Further research should be done to provide empirical evidence to determine whether the current product life cycle concept theory is sufficient for the successful marketing of a physical product.
- Empirical research on the use and applicability of the product life cycle concept should concentrate more on smaller organisations as the majority of the research in the past focused on larger organisations containing strategic business units (SBUs).
- Empirical research is needed on the use and applicability of the product life cycle concept in **South Africa** concentrating on smaller organisations, due to the contribution of small organisations to the local economy expressed by their contribution to the gross domestic product (GDP).
- More empirical research on the product life cycle concept is necessary to enable small business people globally to use the PLC concept as a foundation and guideline to improve marketing decision-making.
- Current literature should be broadened through empirical research to assist South African marketing decision-makers in large, medium and small organisations to accurately identify in which phase of the product life cycle their products or services are.
- Further empirical research is needed to develop a separate product life cycle concept for services to be inclusive of the intangible nature linked to the marketing of services.
- A replication study should be conducted in other third world countries (SADC, Latin America, Eastern Europe) as well as in other first world countries.

8.6.2 Recommendations based on the literature review

The researcher formulated the following recommendations for possible future empirical research in reaction to current available literature of the application and use of the PLC concept:

- The researcher observed during the literature search that marketing definitions in current marketing literature (example: strategic marketing planning) are not uniform. Therefore, it is recommended that academics and academic writers should attempt to standardise marketing definitions across the various marketing textbooks.
- Marketing literature illustrates the sales curve as part of the PLC concept without labelling the curve as cumulative (s-shaped) or non-cumulative (bell-shaped). As this is confusing to the reader it needs to be addressed in new editions of marketing textbooks and future literature.
- The literature on the product life cycle concept theory should be treated with greater responsibility in marketing curricula and teaching on pre-graduate and post-graduate levels to illustrate whether it can be applied successfully in practice.
- If the increase in the literature of four pages in Kotler's first edition (1967) to a full chapter in his millennium edition (2000) is indicative of the importance and relevance of the product life cycle literature then empirical research is needed to critically analyse the current PLC concept theory.
- The current product life cycle concept literature in marketing textbooks need to be revised to include more empirical proof on the strategic value of the product life cycle concept to students, entrepreneurs and practitioners.
- Marketing case studies should be developed to illustrate how the current product life cycle concept theory can be translated into practice by

describing how it can be used by marketing managers in small and large organisations to develop marketing strategies.

- Literature needs to be developed on a generic marketing mix which is more inclusive across the multiple range of industries.
- The current literature on the **marketing strategies** in the product life cycle phases need to be revised to be inclusive of the intangible nature of the marketing of a service.
- More literature is needed on the application of the product life cycle concept by marketing decision-makers in small organisations globally, and in South Africa specifically.
- More literature is needed on the impact of the service component on the universal formulation of marketing objectives and marketing strategies by small organisations.
- The current product life cycle concept literature needs to be **broadened** to include the intangibility linked to the marketing of a physical product.
- The current product life cycle concept literature needs to be revised to include a **separate** product life cycle concept theory for services marketing.
- The current product life cycle concept theory should be revised to be more inclusive of the intangibility linked to services marketing.

8.7 SUMMARY

This study was conducted to investigate the product life cycle concept as an instrument in marketing decision-making among marketing decision-makers in small manufacturing organisations and small dealer organisations in South

Africa.

The primary objective and secondary objectives were achieved and it can therefore be concluded that the results added value to the body of knowledge on marketing theory in general and the product life cycle concept theory in particular.

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APPENDICES

APPENDIX 1

PRE-TESTING QUESTIONNAIRE

APPENDIX 2

FINAL QUESTIONNAIRE

APPENDIX 3

FLASH CARDS

APPENDIX 4

NON-PARAMETRIC STATISTICS

Questionnaire number

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QUESTIONNAIRE

Location of the organisation (Area)	Pretoria	Johannesburg
Classification	Manufacturer	Dealer
Nature of the core business		

INTRODUCTION

Good day, Sir / Madam. My name is ... (state your name). I represent Mr Frikkie Herbst who is a Doctorate student at the University of Pretoria and he is currently collecting data for his thesis. The thesis is on "**The product life cycle concept as an instrument in marketing decision-making.**"

May I please use a few minutes of your time to ask you some questions? The interview should take about **10 - 15 minutes** to complete.

I want to ensure you that the interview will be treated with the strictest confidence and that all information given to me will be used for research purposes only.

SECTION A - SCREENING QUESTION

Before we start, I have to determine whether you fall into the target market selected for this research project. In order to do this, I need to know the following:

Q 1: Who in your organisation is responsible for making marketing decisions?

Initials and Surname : _____

Designation / Title : _____

Interviewer instruction:
Ask to speak to this person and continue with the interview

Q 2: Do you know what the product life cycle concept is?

Yes	No
-----	----

Interviewer instruction:

*If **yes**, please answer the questions to follow based on your experience or application with of the product life cycle concept in your organisation.*

*If **no**, please answer the questions to follow based on your perception on how the product life cycle concept can be applied in your organisation.*

Q 3: Does your organisation apply the product life cycle concept in managing individual products, a single product range or multiple product ranges?

Yes	No
-----	----

SECTION B - THE PRODUCT LIFE CYCLE CONCEPT

Q 4: How important is the application of the product life cycle concept in the execution of the following aspects in your organisation? *(Use the scale in such a way that a “0” will indicate that the aspect is not important at all and that a “10” will indicate that the aspect is extremely important).*

	Not important at all										Extremely important	
	0	1	2	3	4	5	6	7	8	9	10	
Buying	0	1	2	3	4	5	6	7	8	9	10	
Costing	0	1	2	3	4	5	6	7	8	9	10	
Forecasting	0	1	2	3	4	5	6	7	8	9	10	
Manufacturing	0	1	2	3	4	5	6	7	8	9	10	
Product development	0	1	2	3	4	5	6	7	8	9	10	
Pricing	0	1	2	3	4	5	6	7	8	9	10	
Distribution	0	1	2	3	4	5	6	7	8	9	10	
Advertising	0	1	2	3	4	5	6	7	8	9	10	
Sales promotion	0	1	2	3	4	5	6	7	8	9	10	
Monitoring market share	0	1	2	3	4	5	6	7	8	9	10	
Competitive evaluation	0	1	2	3	4	5	6	7	8	9	10	
Managing brands	0	1	2	3	4	5	6	7	8	9	10	
Allocating resources	0	1	2	3	4	5	6	7	8	9	10	

Q 5: Indicate the **importance** of the following competitive advantages when your organisation applies the PLC concept. *(Use the scale in such a way that a “0” will indicate that the competitive advantage is not important at all and that a “10” will indicate that the competitive advantage is extremely important).*

	Not important at all										Extremely important	
Cost	0	1	2	3	4	5	6	7	8	9	10	
Quality	0	1	2	3	4	5	6	7	8	9	10	
Delivery	0	1	2	3	4	5	6	7	8	9	10	
Flexibility	0	1	2	3	4	5	6	7	8	9	10	
Innovation	0	1	2	3	4	5	6	7	8	9	10	

Q 6: Indicate the **nature** of your **product assortment**.

A single product	One product range	Multiple product ranges
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Q 7: If you have **multiple product ranges**, will you apply the PLC concept on each individual product within each product range?

Yes	No
-----	----

Q 8: In what phase of the product life cycle concept is your **primary product** positioned? *The primary product can be regarded as the best selling product in your organisation.*

Introductory phase	Growth phase	Maturity phase	Declining phase
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Please provide a reason / reasons for your answer above:

SECTION C - THE PLC CONCEPT, STRATEGY FORMULATION AND DECISION-MAKING

Q 9: Does your organisation engage in **strategic marketing planning** using the product life cycle stages?

Yes	No
-----	----

Q 10: If yes, how often does your organisation do strategic marketing planning?

Monthly	Six monthly	Annually	Other
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Q 11: To what extent does the product life cycle concept influence **marketing strategy development** in your organisation? *(Use the scale in such a way that “1” would indicate a very low influence and “7” an extremely high influence).*

Very low influence							Extremely high influence	
1	2	3	4	5	6	7		

Q 12: What degree of control does the organisation have on the following marketing mix instruments? *(Show the flash card to the respondent to provide the exact meaning of each marketing mix instrument + and a description of the marketing mix variables). (Use the scale in such a way that a “0” will indicate no degree of control “10” will indicate a full degree of control).*

Marketing mix instruments	No control										Full control
	0	1	2	3	4	5	6	7	8	9	
Product	0	1	2	3	4	5	6	7	8	9	10
Price	0	1	2	3	4	5	6	7	8	9	10
Place	0	1	2	3	4	5	6	7	8	9	10
Promotion	0	1	2	3	4	5	6	7	8	9	10
People	0	1	2	3	4	5	6	7	8	9	10
Processes	0	1	2	3	4	5	6	7	8	9	10
Physical evidence	0	1	2	3	4	5	6	7	8	9	10

Q 13: Provide a short description of the appropriate **marketing objective** that you would associate within each phase of the product life cycle.

13.1 **Introductory phase:** _____

13.2 **Growth phase:** _____

13.3 **Maturity phase:** _____

13.4 **Declining phase:** _____

Q 14: What is the **likelihood** that you will continue using the product life cycle concept for _____ purposes in future? (*Use the scale in such a way that "1" = very unlikely "7" = extremely likely*).

	Very unlikely				Extremely likely		
_____ general management decision - making	1	2	3	4	5	6	7
_____ marketing decisions making	1	2	3	4	5	6	7

Q 15: Name all the **departments** in your organisation?

Interviewer instruction:
Please do not read the list to the respondent. Mark the verbatim answer in the appropriate block.

Production	Customer service	Research and development	Buying
Communication	Credit	Debit	Legal
Marketing	Finance	Public relations	Sales

Other: _____

SECTION D - MATCHING CHARACTERISTICS AND STRATEGIES TO DIFFERENT PHASES OF THE PRODUCT LIFE CYCLE

Q 16: Link the following **characteristics** in **Column A** to the most appropriate phase of the product life cycle by allocating the number next to the word or description to **Column B**. (*Each number can only be used once*).

Column A	
1	Low Sales
2	High profit
3	Rapidly growing sales
4	Low cost per customer
5	Declining sales
6	Negative profit
7	Few competitors
8	High cost per customer
9	Average cost per customer
10	Low cost per customer
11	Stable number of competitors
12	Declining number of competitors
13	Declining profits
14	Growing number of competitors
15	Increasing profits
16	Peak sales

Column B			
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Introductory phase			

Growth phase			

Maturity phase			

Declining phase			

Q 17: How **important** is each of the following aspects when you associate them with the four phases of the product life cycle. *(Use the scale in such a way that a “0” will indicate that the aspect is not important at all and that a “7” will indicate that the aspect is extremely important).*

Interviewer instruction:
Only manufacturers should only answer this question!

ASPECTS	Introductory phase							Growth phase							Maturity phase							Declining phase						
	Not important				Extremely			Not important				Extremely			Not important				Extremely			Not important				Extremely		
	At all				important			At all				important			At all				important			At all				important		
Product extensions	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Product warranties	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Product diversification	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Phasing out of product(s)	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
High price	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Low price	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Special offers	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Discounts	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Number of middlemen	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Kind of middlemen	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Limited availability	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Unlimited availability	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
High advertising expenditure	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Sales promotion	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Sales force participation	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Personal selling expenditure	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Q 18: How **important** is each of the following aspects when you associate them with the four phase of the product life cycle. (*Use the scale in such a way that a “0” will indicate that the aspect is not important at all and that a “7” will indicate that the aspect is extremely important*).

Interviewer instruction:
Only dealers should answer this question!

ASPECTS	Introductory phase							Growth phase							Maturity phase							Declining phase						
	Not important				Extremely			Not important				Extremely			Not important				Extremely			Not important				Extremely		
	At all							At all							At all							At all						
Product extensions	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Product warranties	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Product diversification	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Phasing out of product(s)	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
High price	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Low price	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Special offers	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Discounts	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
High advertising expenditure	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Sales promotion	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Sales force participation	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Personal selling expenditure	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Training of personnel	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Incentives to personnel	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Appearance of personnel	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Involvement of personnel	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Quality	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Warranties	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Price	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Tangible clues	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Q 18: Continued

ASPECTS	Introductory phase							Growth phase							Maturity phase							Declining phase						
	Not important				Extremely important			Not important				Extremely important			Not important				Extremely important			Not important				Extremely important		
	At all							At all							At all							At all						
Layout of outlet	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Appearance of outlet	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Noise level of outlet	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Tangible clues	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7

SECTION E – CLASSIFICATION QUESTION

Q 19: How many **employees** are working in your organisation?

11 - 15	16 - 20	21 - 30	31 - 40	41 - 50
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Thank you for your kind co-operation!

For office use
only

Questionnaire number

V1

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1 - 3

QUESTIONNAIRE

Interviewer instruction:

Phone the number indicated on the list provided and ask the following

Good day, Sir / Madam. My name is ... (state your name). I represent Mr Frikkie Herbst who is a Doctorate student at the University of Pretoria and he is currently collecting data for his thesis. **Can you please tell me who in your organisation is responsible for marketing decision-making?**

Interviewer instruction:

Ask to speak to this person, **INTRODUCE YOURSELF** and ask the following question to him / her

Good day, Sir / Madam. My name is ... (state your name). I represent Mr Frikkie Herbst who is a Doctorate student at the University of Pretoria and he is currently collecting data for his thesis on the product life cycle concept. **May I please use a minute of your time to ask you a few questions?**

Screening Question:

Are you familiar with the product life cycle (PLC) concept and does your organisation apply this concept?

<p>Yes I am familiar with the PLC concept and my organisation does apply the PLC concept</p>	<p>Yes I am familiar with the PLC concept and my organisation does not apply the PLC concept</p>	<p>No I am not familiar with the PLC concept</p>
<p>↓</p> <p><u>Interviewer instruction:</u> Ask to make an appointment with this person</p>	<p>↓</p> <p><u>Interviewer instruction:</u> Terminate the interview and thank the respondent for his / her time</p>	<p>↓</p> <p><u>Interviewer instruction:</u> Terminate the interview and thank the respondent for his / her time</p>

↓
Date of interview: _____

Time of interview: _____

Physical address: _____

INTRODUCTION AT THE START OF THE INTERVIEW

Good day, Sir / Madam. My name is ... (state your name). I represent Mr Frikkie Herbst who is a Doctorate student at the University of Pretoria and he is currently collecting data for his thesis. The topic of the thesis is "**The product life cycle concept as an instrument in marketing decision-making.**"

May I please use a few minutes of your time to ask you some questions? The interview should take about **25 minutes**. I want to ensure you that the interview will be treated with the strictest confidence and that all information given to me will be used for research purposes only.

SECTION A

Q 1: Location of the organisation

Pretoria	Johannesburg
Manufacturer	Dealer

Q2: Classification

Q3: What is the nature of your core business?

V2		4
V3		5

V4		6 - 7
V5		8 - 9

Q 4: Name all the **departments** or **functions** in your organisation?

Interviewer instruction:
Please do not read the list to the respondent.
Mark the verbatim answer in the appropriate block!

Accounts
Buying / Purchasing
Communication
Customer service
Finance
Human resources
Information Technology (IT)
Legal
Marketing
Production
Public relations (PR)
Sales
Technical support
Research and development (R&D)

Other: _____

Q 5: How many employees are working in your organisation?

11 - 15	16 - 20	21 - 30	31 - 40	41 - 50
Other: _____				

V6	<input type="checkbox"/>	10
V7	<input type="checkbox"/>	11
V8	<input type="checkbox"/>	12
V9	<input type="checkbox"/>	13
V10	<input type="checkbox"/>	14
V11	<input type="checkbox"/>	15
V12	<input type="checkbox"/>	16
V13	<input type="checkbox"/>	17
V14	<input type="checkbox"/>	18
V15	<input type="checkbox"/>	19
V16	<input type="checkbox"/>	20
V17	<input type="checkbox"/>	21
V18	<input type="checkbox"/>	22
V19	<input type="checkbox"/>	23
V20	<input type="checkbox"/>	24 - 25
V21	<input type="checkbox"/>	26

SECTION B

Q 6: How **important** is the application of the product life cycle concept in the execution of the following aspects in your organisation? (*Use the scale in such a way that “1” would indicate that the aspect is not important at all and that “5” would indicate that the aspect is extremely important*).

	Not important at all		Extremely important			
	1	2	3	4	5	
Buying	1	2	3	4	5	Don't know
Costing	1	2	3	4	5	Don't know
Forecasting	1	2	3	4	5	Don't know
Manufacturing	1	2	3	4	5	Don't know
Product development	1	2	3	4	5	Don't know
Pricing	1	2	3	4	5	Don't know
Distribution	1	2	3	4	5	Don't know
Advertising	1	2	3	4	5	Don't know
Sales promotion	1	2	3	4	5	Don't know
Monitoring market share	1	2	3	4	5	Don't know
Competitive evaluation	1	2	3	4	5	Don't know
Managing brands	1	2	3	4	5	Don't know
Allocating resources	1	2	3	4	5	Don't know

V22 27

V23 28

V24 29

V25 30

V26 31

V27 32

V28 33

V29 34

V30 35

V31 36

V32 37

V33 38

V34 39

Q 7: Name three aspects that provide a competitive advantage for your organisation?

7.1 _____

7.2 _____

7.3 _____

V35 40 - 41

V36 42 - 43

V37 44 - 45

Q 8: Indicate the **nature** of your **product assortment**.

A single product	One product range	Multiple product ranges
------------------	-------------------	-------------------------

Q 9: If you have **multiple product ranges**, will you apply the PLC concept on each individual product within each product range?

Yes	No
-----	----

Q 10: In what phase of the product life cycle concept is your **primary product** positioned? *The primary product can be regarded as the best selling product or product range in your organisation.*

Introductory phase	Growth phase	Maturity phase	Declining phase
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Q 10.1: Provide a **short description** of your **primary product / product range**:

V38	<input type="checkbox"/>	46
V39	<input type="checkbox"/>	47
V40	<input type="checkbox"/>	48
V41	<input type="checkbox"/>	49 – 50
V42	<input type="checkbox"/>	51 – 52
V43	<input type="checkbox"/>	53 – 54

Q 10.2: Provide a **reason(s)** why this product / or product range is your **best seller**:

V44			55 – 56
V45			57 – 58
V46			59 - 60

Interviewer instruction:
Show the flash card to the respondent to familiarise the respondent with the meaning of a marketing objective



Q 10.3: Describe the **marketing objective** for the primary product or product range in the product life cycle phase indicated in **Q10:**

V47			61 - 62
V48			63 - 64
V49			65 - 66

Interviewer instruction:
Show the flash card to the respondent to familiarise him / her with the meaning of strategic marketing, strategic marketing planning & development and marketing strategy

SECTION C

Q 11: Does your organisation engage in **strategic marketing planning and development** using the product life cycle stages?

Yes	No
-----	----

V5067

Q 12: If yes, how often does your organisation do **strategic marketing planning and development**?

Monthly	Six monthly	Annually	Other
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V5168

Q 13: To what extent does the product life cycle concept influence **marketing strategy planning and development** in your organisation? *(Use the scale in such a way that “1” would indicate a very low influence and “5” an extremely high influence).*

Very low influence					Extremely high influence
1	2	3	4	5	

V5269

Q 14: What **degree of control** does the organisation have over the following marketing mix instruments. **(Use the scale in such a way that a “1” would indicate no degree of control and “5” would indicate a full degree of control).**

Interviewer instruction:
Show the flash card to the respondent to familiarise the respondent with a description of each marketing mix instrument



Marketing mix instruments	No control					Full control				
	1	2	3	4	5	1	2	3	4	5
Product	1	2	3	4	5	1	2	3	4	5
Price	1	2	3	4	5	1	2	3	4	5
Place	1	2	3	4	5	1	2	3	4	5
Promotion	1	2	3	4	5	1	2	3	4	5
People	1	2	3	4	5	1	2	3	4	5
Processes	1	2	3	4	5	1	2	3	4	5
Physical evidence	1	2	3	4	5	1	2	3	4	5

V53	<input style="width: 100%; height: 20px;" type="text"/>	70
V54	<input style="width: 100%; height: 20px;" type="text"/>	71
V55	<input style="width: 100%; height: 20px;" type="text"/>	72
V56	<input style="width: 100%; height: 20px;" type="text"/>	73
V57	<input style="width: 100%; height: 20px;" type="text"/>	74
V58	<input style="width: 100%; height: 20px;" type="text"/>	75
V59	<input style="width: 100%; height: 20px;" type="text"/>	76

Q 15: How **important** is each of the following aspects when you associate them with the four phases of the product life cycle. (Use the scale in such a way that a “1” would indicate that the aspect is not important at all and that a “5” would indicate that the aspect is extremely important).

		PHASES IN THE PRODUCT LIFE CYCLE																			
		Introductory phase					Growth phase					Maturity phase					Declining phase				
		Not important at all		Extremely important			Not important at all		Extremely important			Not important at all		Extremely important			Not important at all		Extremely important		
People	Training of personnel	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Incentives to personnel	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Knowledge of personnel	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Commitment of personnel	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Processes	Information systems	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Complaints handling	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Toll free number	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Policies and procedures	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Physical evidence	Organisation's reputation	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Organisation's name	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Organisation's logo	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Corporate dress (appearance of employees)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

				77 – 80
				81 – 84
				85 – 88
				89 – 92
				93 – 96
				97 – 100
				101 - 104
				105 - 108
				109 - 112
				113 - 116
				117 - 120
				121 - 124

Interviewer instruction:
Show the flash card to the respondent to familiarise the respondent with the meaning of a marketing objective



Q 16: Provide a short description of the appropriate **marketing objective** that you would associate within each phase of the product life cycle.

16.1 Introductory phase:

16.2 Growth phase:

16.3 Maturity phase:

16.4 Declining phase:

V60		125 - 126
V61		127 - 128
V62		129 - 130
V63		131 - 132
V64		133 - 134
V65		135 - 136
V66		137 - 138
V67		139 - 140

Q 17: What is the **likelihood** that you will continue using the product life cycle concept in future for general management decision-making and marketing decision-making? (Use the scale in such a way that “1” would indicate very unlikely and that“5” would indicate extremely likely).

	Very unlikely		Extremely likely		
general management decision-making	1	2	3	4	5
marketing decision-making	1	2	3	4	5

V68 141

V69 142

SECTION D

Q 18: Match the following **characteristics** in **Column A** to the most appropriate phase in **Column B** by means of a cross next to the word or description in **Column A**

Interviewer instruction:
 A characteristic in COLUMN A can appear in one ore more of the phases of the product life cycle in COLUMN B. Give the flash card with COLUMN A and COLUMN B to the respondent

COLUMN A	COLUMN B			
	Introductory phase	Growth phase	Maturity phase	Declining phase
Low sales				
High profits				
Increasing sales				
Low cost per customer				
Declining sales				
Negative profits (Losses)				
Few competitors				
High cost per customer				
Average cost per customer				
Stable number of competitors but beginning to decline				
Declining number of competitors				
Declining profits				
Growing number of competitors				
Increasing profits				
Peak sales				

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	143 – 146
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	147 – 150
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	151 – 154
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	155 – 158
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	159 – 162
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	163 – 166
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	167 – 170
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	171 – 174
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	175 – 178
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	179 – 182
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	183 – 186
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	187 – 190
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	191 – 194
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	195 – 198
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	199 – 202

Q 19: How **important** is each of the following aspects when you associate them with the four phases of the product life cycle. (Use the scale in such a way that a “1” would indicate that the aspect is not important at all and that a “5” would indicate that the aspect is extremely important).

		PHASES IN THE PRODUCT LIFE CYCLE																			
		Introductory phase					Growth phase					Maturity Phase					Declining phase				
		Not important at all		Extremely important			Not important at all		Extremely important			Not important at all		Extremely important			Not important at all		Extremely important		
Product	Quality	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Brand name	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Features and options	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Warranties	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Price	High price	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Discounts	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Low price	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Payment terms	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Place	Location of premises	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Large number of outlets (<i>intensive</i>)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Small number of outlets (<i>selective</i>)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Specialised number of outlets (<i>exclusive</i>)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Promotion	Sales promotion	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Advertising	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Personal selling	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	Publicity / PR	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

					203 – 206
					207 – 210
					211 – 214
					215 – 218
					219 – 222
					223 – 226
					227 – 230
					231 – 234
					235 – 238
					239 – 242
					243 – 246
					247 – 250
					251 – 254
					255 – 258
					259 – 262
					263 – 266

Q 20: Link the following strategies in Column A to the most appropriate phase in Column B by means of a cross next to the strategy described in Column A.

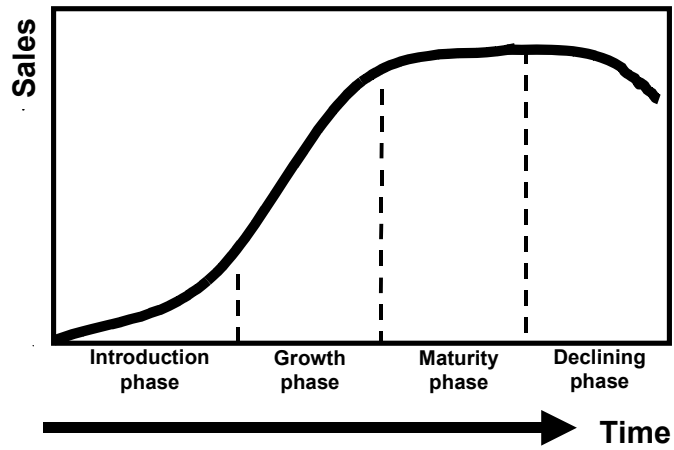
Interviewer instruction:
Each strategy can only be linked once!
Give the flash card with COLUMN A and COLUMN B to the respondent

COLUMN A	COLUMN B			
	Introductory phase	Growth phase	Maturity phase	Declining phase
Diversify brands and models				
Offer a basic product				
Phasing out weak products				
Offer product extensions, service and warranties				
Cut prices				
Charge a cost plus price				
Set a price to match or better the prices of competitors				
Set a price to penetrate the market				
Build awareness and interest in the mass market through advertising				
Reduce the advertising level needed to retain hard core loyal customers				
Build product awareness among early adopters				
Stress brand differences and benefits				
Increase and encourage brand switching				
Reduce sales promotion to the minimum level				
Use heavy sales promotion to entice trial				
Reduce sales promotion to take advantage of a heavy consumer demand				
Build intensive distribution				
Build selective distribution				
Go selective and phase out all unprofitable outlets				
Build more intensive distribution				

V70	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	267
V71	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	268
V72	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	269
V73	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	270
V74	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	271
V75	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	272
V76	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	273
V77	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	274
V78	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	275
V79	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	276
V80	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277
V81	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	278
V82	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	279
V83	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	280
V84	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	281
V85	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	282
V86	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	283
V87	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	284
V88	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	285
V89	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	286

THANK YOU FOR YOUR CO-OPERATION!!

FLASH CARD
THE PRODUCT LIFE CYCLE (PLC)



FLASH CARD - TERMINOLOGY

Strategic marketing is a market-driven process of strategy development, taking into account a constantly changing business environment and the need to achieve high levels of customer satisfaction. Strategic marketing **focuses** on organisational performance rather than the traditional concern about increasing sales. Strategic marketing **links** the organisation with the environment and views marketing as a responsibility of the entire organisation.

Strategic marketing planning and development involves the planning and development of the broad marketing objectives and strategy based on analysis of the current market situation and opportunities. It is the process of planning, developing and maintaining a strategic fit between the organisation's goals and capabilities and its changing environment.

Marketing strategy is the marketing logic by which an organisation hopes to achieve its marketing objectives. It involves the formulation of marketing objectives, developing, implementing and managing the marketing programme designed to meet the needs of customers in each market target. It includes product, price, place, promotion, people, processes and physical evidence decisions and can be seen as specific tactics to execute the strategic marketing plan.

Marketing objectives are goals that the marketing department like to attain. **E.g.** marketing management must continuously develop new products on which a high rate of return can be realised.

The **marketing mix** is a set of marketing **instruments** that the organisation uses to pursue its marketing objectives in the target market.

Marketing mix instruments

Product = quality, brand name, warranty, features and options
Price = price level, discounts, allowances, payment terms, customer's perceived value
Place = location, accessibility, distribution channels and distribution coverage
Promotion = advertising, publicity, sales promotion, personal selling, direct marketing
People = personnel training, personnel discretion, personnel commitment, personnel incentives, personnel appearance, interpersonal behaviour, attitudes
Processes = quality, speed, information systems, complaints handling, toll free number and policies & procedures
Physical evidence = layout and noise level of the environment, reputation, name, logo and corporate dress

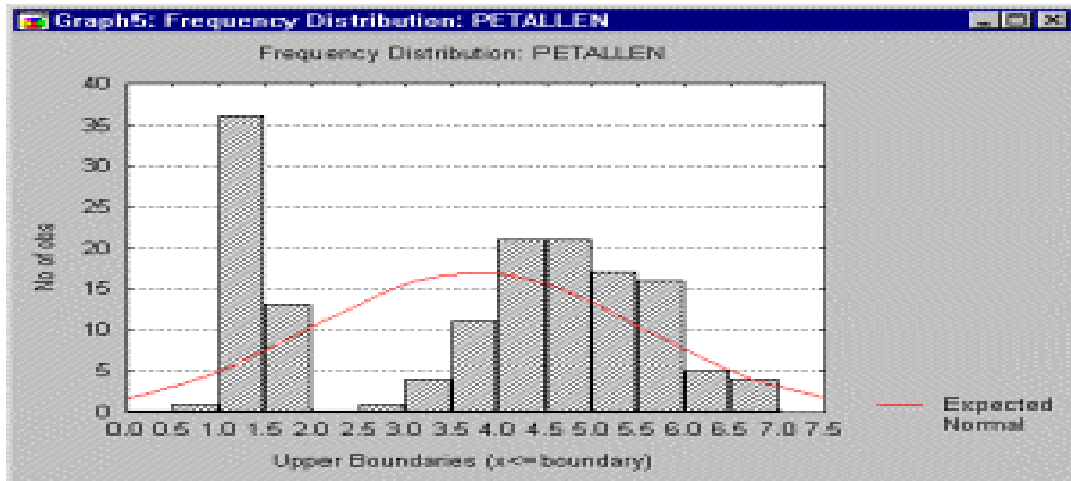
NON-PARAMETRIC STATISTICS ***(<http://www.Statsoft.com>)****1. GENERAL PURPOSE****1.1 Brief review of the idea of significance testing**

To understand the idea of non-parametric statistics (the term non-parametric was first used by Wolfowitz, 1942) first requires a basic understanding of parametric statistics. The Elementary Concepts chapter of the manual introduces the concept of statistical significance testing based on the sampling distribution of a particular statistic (you may want to review that chapter before reading on). In short, if we have a basic knowledge of the underlying distribution of a variable, then we can make predictions about how, in repeated samples of equal size, this particular statistic will “behave,” that is, how it is distributed. For example, if we draw 100 random samples of 100 adults each from the general population, and compute the mean height in each sample, then the distribution of the standardized means across samples will likely approximate the normal distribution (to be precise, Student’s t distribution with 99 degrees of freedom; see below). Now imagine that we take an additional sample in a particular city (“Tallburg”) where we suspect that people are taller than the average population. If the mean height in that sample falls outside the upper 95% tail area of the t distribution then we conclude that, indeed, the people of Tallburg are taller than the average population.

1.2 Are most variables normally distributed?

In the above example we relied on our knowledge that, in repeated samples of equal size, the standardized means (for height) will be distributed following the t distribution (with a particular mean and variance). However, this will only be true if in the population the variable of interest (height in our example) is normally distributed, that is, if the distribution of people of particular heights follows the normal distribution (the bell-shape distribution).

* This material is a verbatim presentation.



For many variables of interest, we simply do not know for sure that this is the case. For example, is income distributed normally in the population? – Probably not. The incidence rates of rare diseases are not normally distributed in the population, the number of car accidents is also not normally distributed, and neither are very many other variables in which a researcher might be interested.

For more information on the normal distribution, see Elementary Concepts; for information on tests of normality, see Normality tests.

1.3 Sample size

Another factor that often limits the applicability of tests based on the assumption that the sampling distribution is normal is the size of the sample of data available for the analysis (sample size; n). We can assume that the sampling distribution is normal even if we are not sure that the distribution of the variable in the population is normal, as long as our sample is large enough (e.g., 100 or more observations). However, if our sample is very small, then those tests can be used only if we are sure that the variable is normally distributed, and there is no way to test this assumption if the sample is small.

1.4 Problems in measurement

Applications of tests that are based on the normality assumptions are further limited by a lack of precise measurement. For example, let us consider a study where grade point average (GPA) is measured as the major variable of

interest. Is an A average twice as good as a C average? Is the difference between a B and an A average comparable to the difference between a D and a C average? Somehow, the GPA is a crude measure of scholastic accomplishments that only allows us to establish a rank ordering of students from "good" students to "poor" students. This general measurement issue is usually discussed in statistics textbooks in terms of types of measurement or scale of measurement. Without going into too much detail, most common statistical techniques such as analysis of variance (and t-tests), regression, etc. assume that the underlying measurements are at least of interval, meaning that equally spaced intervals on the scale can be compared in a meaningful manner (e.g, B minus A is equal to D minus C). However, as in our example, this assumption is very often not tenable, and the data rather represent a rank ordering of observations (ordinal) rather than precise measurements.

1.5 Parametric and non-parametric methods

Hopefully, after this somewhat lengthy introduction, the need is evident for statistical procedures that allow us to process data of "low quality," from small samples, on variables about which nothing is known (concerning their distribution). Specifically, non-parametric methods were developed to be used in cases when the researcher knows nothing about the parameters of the variable of interest in the population (hence the name non-parametric). In more technical terms, non-parametric methods do not rely on the estimation of parameters (such as the mean or the standard deviation) describing the distribution of the variable of interest in the population. Therefore, these methods are also sometimes (and more appropriately) called parameter-free methods or distribution-free methods.

2. BRIEF OVERVIEW OF NON-PARAMETRIC METHODS

Basically, there is at least one non-parametric equivalent for each parametric general type of test. In general, these tests fall into the following categories:

- Tests of differences between groups (independent samples)

- Tests of differences between variables (dependent samples)
- Tests of relationships between variables

2.1 Differences between independent groups

Usually, when we have two samples that we want to compare concerning their mean value for some variable of interest, we would use the t-test for independent samples in Basic Statistics. Non-parametric alternatives for this test are the Wald-Wolfowitz run test, the **Mann-Whitney U test**, and the Kolmogorov-Smirnov two-sample test. If we have multiple groups, we would use analysis of variance (see ANOVA/MANOVA) the non-parametric equivalents to this method are the Kruskal-Wallis analysis of ranks and the Median test.

2.2 Differences between dependent groups

If we want to compare two variables measured in the same sample we would customarily use the t-test for dependent samples (in Basic Statistics for example, if we wanted to compare students' math skills at the beginning of the semester with their skills at the end of the semester). Non-parametric alternatives to this test are the Sign test and **Wilcoxon's matched pair test**. If the variables of interest are dichotomous in nature (i.e., "pass" vs. "no pass") then McNemar's Chi-square test is appropriate. If there are more than two variables that were measured in the same sample, then we would customarily use repeated measures ANOVA. Non-parametric alternatives to this method are **Friedman's two-way analysis of variance** and Cochran Q test (if the variable was measured in terms of categories, e.g., "passed" vs. "failed"). Cochran Q is particularly useful for measuring changes in frequencies (proportions) across time.

2.3 Relationships between variables

To express a relationship between two variables one usually computes the correlation coefficient. Non-parametric equivalents to the standard correlation coefficient are Spearman R, Kendall Tau, and coefficient Gamma (see Non-parametric correlations). If the two variables of interest are categorical in

nature (e.g., "passed" vs. "failed" by "male" vs. "female") appropriate non-parametric statistics for testing the relationship between the two variables are the Chi-square test, the Phi coefficient, and the Fisher exact-test. In addition, a simultaneous test for relationships between multiple cases is available: Kendall coefficient of concordance. This test is often used for expressing inter-rater agreement among independent judges who are rating (ranking) the same stimuli.

2.4 Descriptive statistics

When one's data are not normally distributed, and the measurements at best contain rank order information, then computing the standard descriptive statistics (e.g., mean, standard deviation) is sometimes not the most informative way to summarize the data. For example, in the area of psychometrics it is well known that the rated intensity of a stimulus (e.g., perceived brightness of a light) is often a logarithmic function of the actual intensity of the stimulus (brightness as measured in objective units of Lux). In this example, the simple mean rating (sum of ratings divided by the number of stimuli) is not an adequate summary of the average actual intensity of the stimuli. (In this example, one would probably rather compute the geometric mean.) Non-parametrics and distributions will compute a wide variety of measures of location (mean, median, mode, etc.) and dispersion (variance, average deviation, quartile range, etc.) to provide the "complete picture" of one's data.

3. WHEN TO USE WHICH METHOD

It is not easy to give simple advice concerning the use of non-parametric procedures. Each non-parametric procedure has its peculiar sensitivities and blind spots. For example, the Kolmogorov-Smirnov two-sample test is not only sensitive to differences in the location of distributions (for example, differences in means) but is also greatly affected by differences in their shapes. The Wilcoxon matched pairs test assumes that one can rank order the magnitude of differences in matched observations in a meaningful manner. If this is not the case, one should rather use the Sign test. In general, if the result of a study is important

(e.g., does a very expensive and painful drug therapy help people get better?), then it is always advisable to run different non-parametric tests; should discrepancies in the results occur contingent upon which test is used, one should try to understand why some tests give different results. On the other hand, non-parametric statistics are less statistically powerful (sensitive) than their parametric counterparts, and if it is important to detect even small effects (e.g., is this food additive harmful to people?) one should be very careful in the choice of a test statistic.

3.1 Large data sets and non-parametric methods

Non-parametric methods are most appropriate when the sample sizes are small. When the data set is large (e.g., $n > 100$) it often makes little sense to use non-parametric statistics at all. The Elementary Concepts chapter of the manual briefly discusses the idea of the central limit theorem. In a nutshell, when the samples become very large, then the sample means will follow the normal distribution even if the respective variable is not normally distributed in the population, or is not measured very well. Thus, parametric methods, which are usually much more sensitive (i.e., have more statistical power) are in most cases appropriate for large samples. However, the tests of significance of many of the non-parametric statistics described here are based on asymptotic (large sample) theory; therefore, meaningful tests can often not be performed if the sample sizes become too small. Please refer to the descriptions of the specific tests to learn more about their power and efficiency.

4. NON-PARAMETRIC CORRELATIONS

The following are three types of commonly used non-parametric correlation coefficients (Spearman R, Kendall Tau, and Gamma coefficients). Note that the chi-square statistic computed for two-way frequency tables, also provides a careful measure of a relation between the two (tabulated) variables, and unlike the correlation measures listed below, it can be used for variables that are measured on a simple nominal scale.

- **Spearman R**

Spearman R (Siegel & Castellan, 1988) assumes that the variables under consideration were measured on at least an ordinal (rank order) scale, that is, that the individual observations can be ranked into two ordered series. Spearman R can be thought of as the regular Pearson product moment correlation coefficient, that is, in terms of proportion of variability accounted for, except that Spearman R is computed from ranks.

- **Kendall tau**

Kendall tau is equivalent to Spearman R with regard to the underlying assumptions. It is also comparable in terms of its statistical power. However, Spearman R and Kendall tau are usually not identical in magnitude because their underlying logic as well as their computational formulas are very different. Siegel and Castellan (1988) express the relationship of the two measures in terms of the inequality:

$$-1 \leq 3 * \text{Kendall tau} - 2 * \text{Spearman R} \leq 1$$

More importantly, Kendall tau and Spearman R imply different interpretations: Spearman R can be thought of as the regular Pearson product moment correlation coefficient, that is, in terms of proportion of variability accounted for, except that Spearman R is computed from ranks. Kendall tau, on the other hand, represents a probability, that is, it is the difference between the probability that in the observed data the two variables are in the same order versus the probability that the two variables are in different orders.

- **Gamma**

The Gamma statistic (Siegel & Castellan, 1988) is preferable to Spearman R or Kendall tau when the data contain many tied observations. In terms of the underlying assumptions, Gamma is equivalent to Spearman R or Kendall tau; in terms of its interpretation and computation it is more similar to Kendall tau than Spearman R. In short, Gamma is also a probability; specifically, it is

computed as the difference between the probability that the rank ordering of the two variables agree minus the probability that they disagree, divided by 1 minus the probability of ties. Thus, Gamma is basically equivalent to Kendall tau, except that ties are explicitly taken into account.