

**TARGET COSTING AS A STRATEGIC COST MANAGEMENT TOOL IN THE  
SOUTH AFRICAN MOTOR INDUSTRY**

**by**

**MICHAEL SLATER**

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**SUPERVISOR: PROFESSOR P.J.W. PELLE**

## **DECLARATION**

This dissertation is an original piece of work, which is made available for photocopying, and for inter-library loan. Further this dissertation has not been previously submitted for assessment to another University or for another qualification.

Signed at Port Elizabeth on 8 January 2010

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**SIGNATURE**

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**CHAPTER 1****INTRODUCTION AND BACKGROUND****1.1 INTRODUCTION**

Traditional cost-accounting approaches have served manufacturers well over a long period, but due to the changing nature of the modern manufacturing environment shortcomings have resulted and are no longer regarded as suitable (Gagne & Discenza 1993: 68). Similarly, Monden and Lee (1993: 22) state that many practitioners and academicians have questioned the effectiveness of standard cost systems, which have been used as the primary cost control measure for the last several decades. Cooper and Slagmulder (1997: 2) point out that in contrast to the conventional cost management techniques, target costing adopts a feed-forward approach. The objective of target costing is to design costs out of products, and not to find ways of eliminating costs after the products enter production. Few firms can afford to ignore such a powerful mechanism to increase profits in today's highly competitive environment.

The modern business environment is characterised by the intensification of global competition, the rapid pace of automation and computer technology, environmental and safety issues, short product life-cycle, consumers' need for high quality and innovative products at reasonable prices. In such a challenging environment, a company's survival depends among other things on its capacity to produce and market innovative products that satisfy levels of quality and price expected by its market niche (Bonzemba & Okano 1998: 3). Manufacturers face the difficulty of having to match the lower prices of global

competitors and still offer the highest quality products customers demand (Helms, Ettkin, Baxter & Gordon 2005: 49).

The goals of becoming and remaining internationally competitive in terms of price and quality are of utmost importance for the survival of the South African motor manufacturing industry. According to Furlonger (2002), the quality of exported vehicles from South Africa is considered world-class. Automechanika South Africa (2009), regards the performance of the South African motor industry as “one of the outstanding elements in the economic miracle that has occurred since the first democratic elections in 1994.”

Automechanika South Africa (2009) ascribes the success and growth of the South African motor industry to the implementation of the Motor Industry Development Programme (MIDP) in 1995. The National Association of Automotive Component and Allied Manufacturers of South Africa (NAACAM 2009) supports this view by stating:

...the South African automotive industry is a remarkable accomplishment and the Motor Industry Development Programme (MIDP) has been recognised around the world as one of the most successful and innovative country strategies to develop automotive manufacturing and open up a domestic market in the new environment of globalisation.

Furlonger (2002) states that, before the MIDP, local-content programmes, which were highly protectionist, governed the industry. Outside competition was restricted by imposing tariffs of more than 100% on imported cars. Further, the industry was overcrowded and the domestic market could not sustain all seven South African motor manufacturers.

The aims of the MIDP included the lowering of production costs, raising quality levels, making vehicles more affordable to South Africans, stabilising industry

employment, and encouraging exports (Furlonger 1998). In a presentation to Swedish Business and Trade Representatives in October 2007, Nico Vermeulen of the National Association of Automobile Manufacturers of South Africa (NAAMSA), explained that the MIDP took into account international realities, such as trade liberalisation, globalisation of markets against the background of rapid technological change, rising customer expectations and increasingly demanding markets (NAAMSA 2007).

Whilst the South African motor industry has achieved considerable success as a result of the MIDP, the industry still has challenges to meet and problems to overcome. Furlonger (1998) states that the implementation of the MIDP resulted in a flood of imported vehicles into the South African market. This was because manufacturers were encouraged to import vehicles by the MIDP's export incentives, which enable manufacturers to earn rebates equal to the locally generated value of exports. These imported vehicles are available at competitive prices – even after paying import duties.

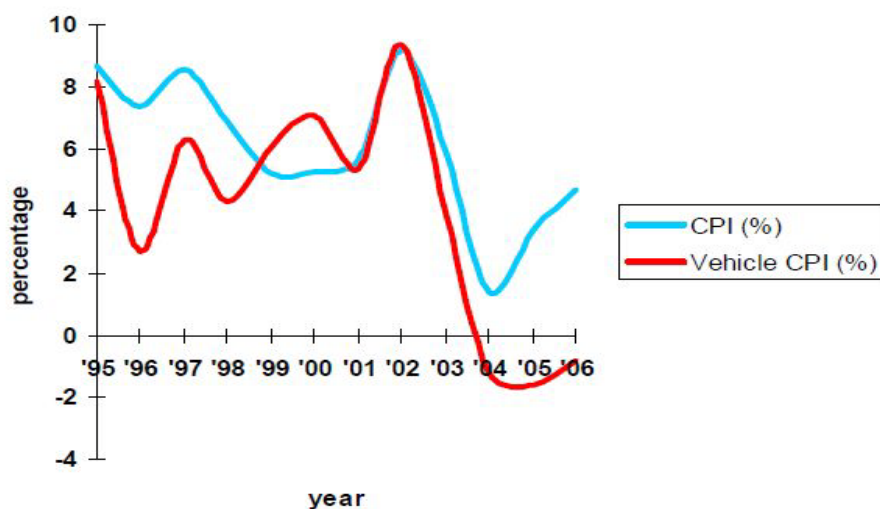
Pretorius, Visser and Bibbey (2003: 97) regard international competitiveness and profitability as the two primary areas of concern for the South African motor manufacturers. Since locally built cars are of world-class quality, the only factor, which can be manipulated, is a competitive pricing strategy, which success depends on the methods and techniques that are used to manage cost strategically.

Furlonger (1998) observes that cost pressures on local manufacturers are fierce and intensifying, while bitter price wars have kept prices low. Buyers could choose from a total of 853 unique models and derivatives and 32 brands in 2000. These figures had grown to 1676 and 55 respectively in 2008. The influx of new brands from China and India have played a dampening role on prices (EIs 2008).



According to Thomaz (2009), importers and manufacturers have had to implement price increases to recover increases in cost of materials and automotive inputs and further to compensate for the weaker rand. However, these price increases were in most instances below the domestic inflation rate. Affordability of vehicles has been a key performance indicator of the industry. This is illustrated in Figure 1.1, which reflects new vehicle prices have been below inflation for 9 out of 12 years (NAAMSA 2007). Similarly, Nico Vermeulen, of NAAMSA, is quoted as saying that in 11 of the 14 years since the MIDP started, vehicle prices have increased slower than inflation (Furlonger 2009).

**Figure 1.1: Vehicle price increases vs. CPI**

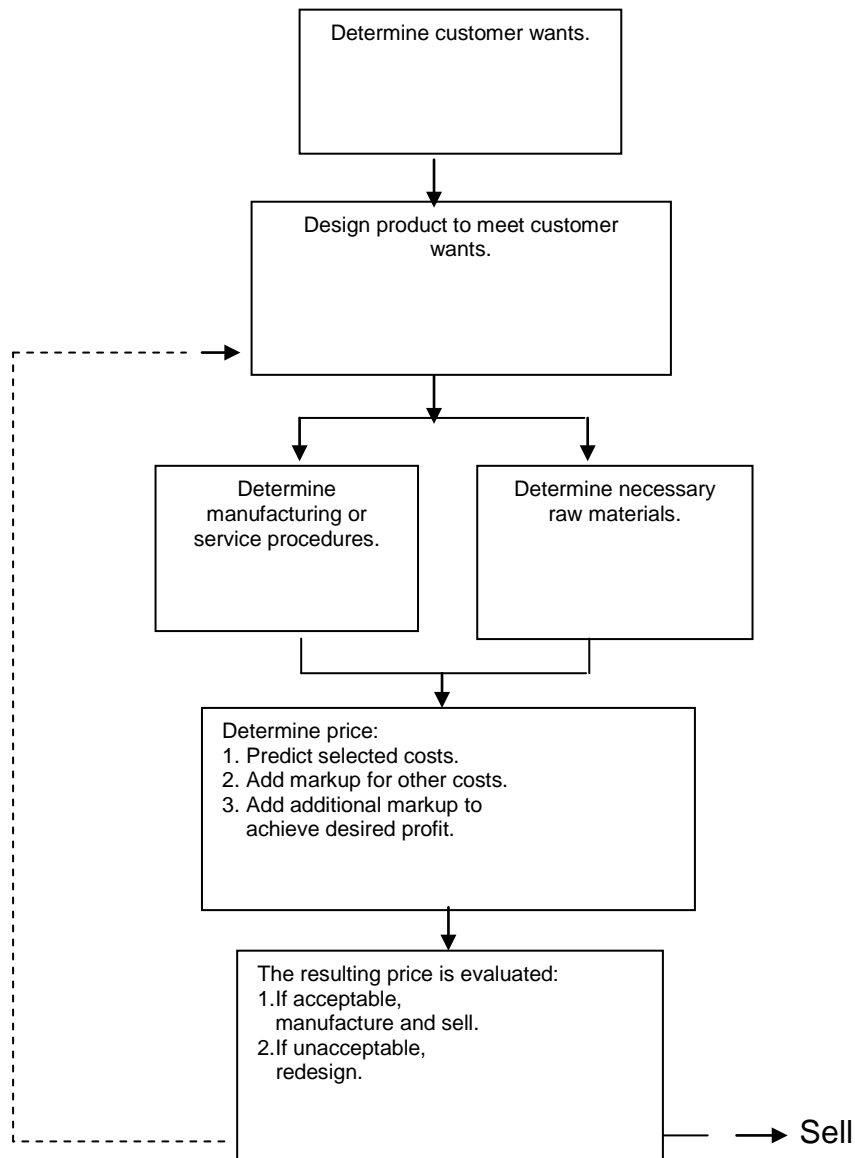


(Source: NAAMSA 2007)

Traditional cost-based pricing, which is illustrated in Figure 1.2 became the dominant approach to pricing during the period when products were long-lived and there was relatively little competition. However, in today's competitive

environment, cost-based prices may not be competitive, as worldwide competition places intense downward pressure on prices and removes slack from pricing formulas. Furthermore, due to these competitive pressures, the life-cycle of products and the time to bring new products to the market have reduced (Morse, Davis, & Hartgraves 1996: 225).

**Figure 1.2: Traditional cost-based pricing for a new product**



(Source: Morse et al 1996: 220)

Morse et al (1996: 225) regards the failure to involve suppliers in the early stages of product design a problem with the cost-plus pricing model. Where component parts must be developed and manufactured by suppliers, the failure to involve suppliers until after the final product is designed causes significant delays and may result in cost saving and quality enhancing opportunities going unnoticed.

Some theorists believe that cost-driven pricing should be done away with. Druker (2005) regards cost-driven pricing as a “deadly business sin.” He says:

...most American and practically all European companies arrive at their prices by adding up costs and then putting a profit margin on top. And then, as soon as they have introduced the product, they have to start cutting the price, have to redesign the product at enormous expense, have to take losses--and, often have to drop a perfectly good product because it is priced incorrectly.

Pretorius et al (2003: 103), conclude from their survey that none of the motor manufacturers in South Africa use the cost-plus basis to determine prices, rather the prices are market based. Their findings are therefore consistent with the views of Morse et al (1996: 225), to the extent that cost-based prices are no longer appropriate in today's competitive environment.

The financial success of any business in the long term depends on whether its prices exceed its costs sufficiently to finance growth, provide for reinvestment and yields satisfactory returns to its shareholders. Market forces influence prices significantly more, as competition increases and supply exceeds demand. To achieve a sufficient margin over its costs, a company must manage costs relative to the prices the market allows or the price the firm sets to achieve certain market penetration objectives (AICPA 2000).

Many companies have little flexibility when setting a price due to intense competition. Reducing a firm's production costs may be the only source of increased earnings where selling price and profit margin are fixed by competitive pressures and management policies. Many companies have been forced to reduce their costs in order to survive the intense competition and pressure from customers to reduce prices (Schmelze, Geier & Buttross 1996: 26).

Pretorius et al (2003: 98) caution that costs and the manner in which costs influence pricing and the profit margin should be closely monitored. Awareness of the cost structure and cost behaviour (as part of cost management strategies), together with information about the market, enables firms to deal more effectively with competitive pressures than merely to lower its prices.

In literature, cost management is understood in different ways. Monden and Sakurai (1989: 3) state that some people think of it in terms of cost reduction and cost control activities; others think of it solely as cost control. These authors define cost management in terms of the first interpretation, as it is their view that those who insist on the second interpretation will lose ground in a period of low economic growth. Horngren, Foster and Datar (1997: 29) define cost management as the set of actions that managers take to satisfy customers while continuously reducing and controlling costs. Similarly cost management is defined as a "proactive process of identifying causes of costs, with the objectives of managing and minimising the total costs associated with the production of products and services to customers" (Accountancy SA, 2009).

The field of cost management has gone from stagnation to intense innovation. Cooper (1996a: 20) points out that companies need to be more proactive in the manner that costs are managed, as survival for many is dependent on their abilities to develop sophisticated cost management systems that create intense

pressure to reduce costs across the entire value chain. Similarly, Roos and Chivaka (2008: 517) state that cost management is a key factor in the survival of organisations where innovative products at lower costs than competitors, together with ensuring the profitability of the firm needs to be achieved.

According to Cooper and Slagmulder (1997: 1), firms must develop low cost, high quality products that have the functionality customers demand in order to generate the desired level of profits. This is particularly relevant to the South African motor industry, which is regarded as a high-cost manufacturing base (Furlonger 2009). Volkswagen SA Managing Director David Powels is quoted in Furlonger (2009) as saying that the typical production costs in South Africa are 20% higher than in Europe and 40% higher than in China and India.

Cost management and management accounting has evolved greatly in response to the shift in the business environment. Approaches such as Activity-Based Costing (ABC), Activity-Based Management (ABM), Total Quality Management (TQM), Target Costing or Target Cost Management (TCM), life-cycle costing, balanced scorecard, and other new concepts have emerged to support the drive towards the need for strategic cost management (Bonzemba & Okano, 1998: 3).

According to Accountancy SA (2009), strategic cost management may be defined as:

the process of integrating cost management within the company's strategic plan in order to ensure that cost management is part of a company's operating procedures aimed at the provision of the best possible products/services with the amount of resources available.

The objective of strategic cost management is to reduce costs while simultaneously strengthening the strategic position of the company. Strategic cost management is not a technique or a tool, but rather a philosophy that

underpins how a company integrates its cost management initiatives with its business strategy.

One of the most important cost management and profit planning tools according to Pretorius et al (2003: 105) is target costing. Similarly, Ansari, Bell and the CAM-I Target Cost Core Group (1997: 6) state that target costing is one of the strategic cost management approaches better suited to strengthen a company's competitiveness in meeting today's business challenges. A well-designed target costing system incorporates all three elements of the strategic triangle: quality cost and time.

Lee (1994: 68) comments that by focussing on market position and product leadership, target costing enables companies to attain low costs which ensure low prices and thereby assists in maintaining market share. Cooper and Slagmulder (1997: 2) point out that target costing transmits the cost pressure that is placed on the firm by the market to all parties involved in the product design process. Through this pressure, target costing focuses the creativity of the firm's designers on developing products that satisfy customers and which can be manufactured at the desired target costs. Gopalakrishnan, Samuels & Swenson (2007: 41) state that target costing instils discipline by requiring new products meet their cost targets before being produced.

According to Feil, Yook and Kim (2004: 10), target costing originated in Japan in the 1960s. However, Western companies have only been making extensive efforts to adopt target costing since the 1980s, when target costing was widely recognised as a major factor for the superior competitive position of Japanese companies. In order to enhance their cost management and increase their competitiveness, many large companies in North America and Europe have attempted to adopt target costing. As a result, many variations of target costing have been developed and are successfully being used in different countries.

Even though there are variations of target costing, it remains a tool, which has proven itself as an effective cost management technique.

Ansari et al (1997: 1) identify several success stories of firms implementing target costing. After facing an uncertain future in 1990, Chrysler management introduced target costing with the launch of the Neon program. The results of using target costing on the Neon were impressive:

- The Neon met customer requirements for safety and driveability by providing dual airbags and a powerful (132 cc) engine.
- The Neon was named Auto of the Year in 1994.
- The Neon a relatively short development time, going from product concept to market in 31 months.
- The Neon came in below its projected development and investment budget.
- The Neon was one of the few small cars that earned a positive return.

Other benefits Chrysler experienced as a result of implementing a target costing process include the following:

- The firms share price has gone from \$10 per share in 1990 to \$54 per share in 1995.
- Revenues have increased by 70 percent (since 1990).
- Market share in numbers of cars and trucks sold has increased by 2.1 percent (since 1990).
- Profits and cash flow have increased by nearly 400 percent (since 1990).
- The profit margin ratio has increased from 0.33 percent in 1990, to 7.1 percent in 1995.

Further, the target costing process has transformed the organisation by creating

a culture characterised by effective cross-functional teams; using simple product/process design rules; basing engineering decisions on cost impact; using productivity enhancing production processes; eliminating expensive and time consuming changes to products; and early customer, supplier, and dealer input into product design. The Chrysler situation illustrates how target costing can improve a firm's competitive position by reducing costs, improving quality, and reducing time between production and delivery to market (Ansari et al 1997: 2).

The results of target costing have been impressive even in organisations that have not fully implemented target costing. In the case of Boeing, significant cost savings on the 777 planes were realised, even before a fully integrated costing system had been implemented. Other Boeing projects, illustrated in Table 1.1, have also yielded impressive results as a result of the application of target costing techniques, such as value engineering (Ansari et al 1997: 3). Value engineering is described by Cooper and Slagmulder (1997: 9) as “the primary technique used to find ways to decrease product costs while maintaining the functionality and quality the customer demands.” This technique will be discussed in more detail in Chapter 2.

**Table 1.1 Effect of Target Costing on Various Boeing Projects**

<b>Project</b>	<b>Results</b>
737 Flight Deck Valve	90% recurring cost reduction 79% part count reduction
737/757 Sidewall Panel Assembly	\$14,700 savings per aeroplane 45% part count reduction
737#1 Window Replacement	Time reduced from 12 hours to 3 hours.
737 Entry Door Operating Force	Improved Door Forces
737-X Stowage Bin Support	56% cost reduction 12 lbs per ship set savings

(Source: Ansari et al 1997: 4)



According to Cooper and Slagmulder (1997: 2), the following four questions determine whether a firm uses target costing:

- Early in the design process, does the firm identify the target cost of products by subtracting their desired profit margin from their expected selling price?
- Does the firm specifically design new products so that they can be manufactured at their target cost?
- Are product-level target costs achieved most of the time?
- Does the firm decompose the target costs of its products to the component level and use the resulting component-level target costs as the basis for negotiations with suppliers?

Cooper and Slagmulder (1997: 2) conclude that if the answer to any of the above questions is no, the firm is not taking full advantage of target costing. The risk is that costly products, which are over designed relative to customer requirements, are being introduced into the market.

## **1.2 PROBLEM STATEMENT**

The purpose of this study is to investigate whether target costing is used as a strategic cost management tool in the South African motor manufacturing industry.

### **1.2.1 Sub-problems**

- Access the goals that companies try to achieve with this technique.
- Access how target costing is applied within the organisation.

- Establish how effective target costing is as a strategic cost management technique.
- Ascertain the reasons for the non-adoption of target costing.
- Determine the role target costing plays in the strategy of the firms.

### **1.3 OBJECTIVES TO BE ACHIEVED**

A literature study on target costing will be conducted in order to gain an understanding of the principles of target costing and the role it plays in strategic cost management.

The empirical study will assess whether target costing techniques used by South African motor manufacturers are consistent with those described in the chosen literature.

### **1.4 SIGNIFICANCE OF THE RESEARCH**

Target costing and target cost management, according to literature, are often associated with Japanese companies. Empirical research into the practices of target costing has mainly been performed by Japanese researches for the Japanese situation. Few efforts have been made to investigate the relevance and occurrence of these practices in non-Japanese companies. The expectation is to find that the drivers for using these methods are not restricted to Japan and that target costing could also be used in a non-Japanese situation, although the actual application of such practices in other countries may be different from the typical Japanese way.

In South Africa not much research of target costing as a possible cost management practice has been done. Despite the need for a tool by South African managers to deal with the effect of local and global competition, and the need to be educated about cost management practices as a strategic instrument, little has been done about these issues. The fact that many South African firms are exporters and that there is increasing competition at home suggests there is a need to make a study on target costing in the South African environment. In this study an attempt is made to investigate the occurrence and application of practices that resemble target costing for South African companies.

### **1.5 RESEARCH DESIGN AND METHODOLOGY**

A comprehensive literature study of secondary data from books, journals, the internet and electronic data bases will be conducted to provide a conceptual framework for this dissertation. This activity will be useful in preparing the questionnaire.

Secondly, in order to obtain empirical perspectives on target costing techniques used by South African motor manufacturers, and to give effect to the stated research objectives, an empirical study will be conducted. The empirical study will consist of self-administered questionnaires directed at the motor manufacturers in South Africa. The results obtained from the questionnaires will be compared with the literature study for evaluation and conclusion.

The design of the questionnaire and the types of questions are discussed in Chapter 4. The results of the empirical survey are analysed in Chapter 5. The recommendations on the results are discussed in Chapter 6.

## **1.6 DELIMITATION OF THE RESEARCH**

The empirical study is limited to the South African motor manufacturing industry. Information on the selection of the sample is contained in Chapter 4.

## **1.7 DEFINITION OF CONCEPTS**

As South African companies may use similar techniques to those described in literature without knowing its specific theoretical counterpart, a broad definition of 'target costing', based on its general characteristics has been adopted for this study. In addition, the techniques companies may use may to some extent deviate from the prescriptions or general ideas about target costing in literature, in so far as what these techniques consist of and how they are applied in practice by companies.

It is deemed important to identify companies that use a reverse costing mechanism in the development of products, in which the attainable selling price and necessary profit margin are used to determine the allowable cost price of a product. Thus target costing in this study is defined as a technique that uses the following formula to calculate the allowable cost price:

Maximum allowable cost price = attainable selling price – required profit margin

## **1.8 REVIEW OF RELATED RESEARCH**

Pretorius et al (2003) analyse the various pricing methods that are used by the motor manufacturers in South Africa, in order to ascertain the effectiveness of these methods and to understand the role that cost management plays in the making of pricing decisions. An additional objective of this research was to

determine the various contemporary management accounting concepts, methods and techniques, such as cost management and strategic cost management, which are used by motor manufacturers in South Africa.

Cooper and Slagmulder (1997) analyse the cost management systems at 25 Japanese manufacturing companies, including motor manufacturers such as Nissan Motor Company Ltd and Toyota Motor Corporation. The primary purpose of this research was to provide insights into the nature of the systems and the conditions under which the techniques are likely to be most beneficial.

In a study undertaken by Bonzamba and Okano (1998) the author analysed how target costing had been implemented by Renault, the leading French automobile manufacturer. Similarly, Abdul, Baillie, Larsen, Lindahl, Mattila, and Svenson (2002) used a case study approach covering Saab Automobile and Volvo Corporation to analyse how target costing is implemented and used in Sweden. To determine the extent of the implementation of target costing in the Netherlands, Dekker and Smidt (2001) conducted an exploratory study covering the Dutch listed manufacturing companies.

Forsman and Lindgren (2006: 7) note in their study of comparing target costing applications in Japan and Sweden that two books were heavily relied upon in the literature review, namely *Target Costing: The Next Frontier in Strategic Cost Management* (Ansari et al 1997) and *Target Costing and Value Engineering* (Cooper & Slagmulder 1997). As was the case in the afore-mentioned study, these books will form the basis of describing target costing for this study. Since both the books were published in 1997, it could be argued that the nature of target costing may have changed and that the theory from these sources is no longer relevant. Forsman and Lingren (2006: 7) however point out that recent research has continued to rely on these references to describe target costing.

## 1.9 **CHAPTER OUTLINE**

This research study has been divided into the following chapters:

- Chapter 1 Introduction and background to the study
- Chapter 2 Understanding the target costing concept
- Chapter 3 Implementing target costing as a strategic cost management tool
- Chapter 4 Research design and methodology
- Chapter 5 Empirical study and presentation of results
- Chapter 6 Summary and Conclusions

**CHAPTER 2****UNDERSTANDING THE TARGET COSTING CONCEPT**

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**CHAPTER 2****UNDERSTANDING THE TARGET COSTING CONCEPT****2.1 INTRODUCTION**

The concept of target costing is based on the logic that a company should manufacture products that yield desired profits. In the event of a product not yielding adequate profits, either the design should be changed or alternatively the product should be abandoned (Amara 1998: 3).

Everaert (1999: 34) points out that target costing is not a costing system such as full costing, direct costing or activity based costing. Brausch (1994: 49) agrees by pointing out that target costing has not impacted on how to cost products, rather it has influenced the way in which available costing information is used in the approach to products and their profitability. Similarly Booth (1995: 42) states that by influencing products and processes, target costing is concerned with shaping the foundations of the organisation and can be regarded as the most proactive of all the uses of costing.

Brausch (1994: 49) points out that “the single largest change in our thinking has been to stop thinking what products should cost and instead to report what products will cost.” Similarly Roos and Chivaka (2008: 518) point out that by asking the question “what may a product cost?” instead of “what does a product cost?”, target costing ensures that products which are designed by the organisation are profitable in the market. Cooper and Slagmulder (1997: 1) further state that target costing treats cost as an input to the product development process, not as an outcome of it.

There are many different definitions of target costing in literature. Everaert (1999: 34) summarizes the various definitions according to two categories namely, the determination of the target cost and achieving the target cost. Kwah (2004: 43) makes the observation that common to most of the definitions is a process which is founded on a competitive environment in terms of which market prices drive cost and investment decisions, cost planning, reduction efforts occurring early in the design and development process, and participation by cross functional teams.

The definition widely referred to in literature is that provided by Ansari et al (1997: 11) which is stated as follows:

The target costing process is a system of profit planning and cost management that is price led, customer focused, design centred, and cross functional. Target costing initiates cost management at the earliest stages of product development and applies it throughout the product cycle by actively involving the entire value chain.

This definition gives rise to various principles, which will be covered in some detail later in this chapter.

## **2.2 TARGET COSTING VERSUS TRADITIONAL COST MANAGEMENT**

The traditional approach to profit planning is a cost plus approach. This approach estimates production costs and then adds a profit margin in order to obtain a market price. Should the market be unwilling to pay the price, the firm will then attempt to find cost reductions. Alternatively, target costing commences with a market price and a planned profit margin for a product and establishes an allowable cost for the product. Product and process design is used to reduce product cost in order that it is equal to this allowable cost (Ansari et al 1997: 16). The differences between the cost plus and target costing approaches are summarized in Table 2.1.

**Table 2.1: Comparison of target costing and cost-plus approaches**

<b>Cost Plus</b>	<b>Target Costing</b>
Market considerations not part of cost planning.	Competitive market considerations drive cost planning.
Cost determines price.	Prices determine costs.
Waste and inefficiency is the focus of cost reduction.	Design is key to cost reduction.
Cost reduction is not customer driven.	Customer input guides cost reduction.
Cost accountants are responsible for cost reduction.	Cross-functional teams manage costs
Suppliers are involved after product is designed.	Suppliers are involved early.
Minimizes initial price paid by customer.	Minimises cost of ownership to customer.
Little or no involvement of value chain in cost planning.	Involves the value chain in cost planning.

(Source: Ansari et al 1997: 16)

### **2.3 INTELLECTUAL FOUNDATIONS OF TARGET COSTING**

According to Ansari et al (1997: 16) a traditional cost plus approach is depicted as a “closed systems” approach, while target costing represents an “open systems” approach. The differences between these two approaches are summarized in Table 2.2 below.

**Table 2.2: Intellectual foundations of cost management compared**

<b>Systems Theory Concept</b>	<b>Traditional Cost Management (Closed Systems)</b>	<b>Target Costing (Open Systems)</b>
Relations with external environment	Ignores external environment; cost system focuses on internal measures of efficiency.	Interacts with external environment to respond to customer needs and competitive threats.
Number of variables considered	No consideration of cross- functional or extra-organizational impact of cost system.	Considers many complex relationships among functions and across the value chain.
Form of regulation	After the fact, based on cost incurred and correction of error using variance information.	Before the fact, by anticipating and designing costs out of a product before production.
Purpose of regulation or control	Keep costs to a pre-specified limit set by standards or budgets.	Continuous improvement of cost for both customers and producers over a product's life.

(Source: Ansari et al 1997: 17)

## **2.4 IMPLICATIONS FOR PRACTICE**

Ansari et al (1997: 18) identifies the following implications for practice:

- Target costing needs to be holistically applied i.e. it is insufficient to institute one element of target costing and conclude that a target costing system is in place.

- The effective use of target costing demands adherence to both the open systems theory and the fundamental principles of the target costing approach. All principles need to be adopted for the full benefits to be realised. For example, problematic supplier partnerships do not encourage suppliers to generate cost reductions or improvement ideas.

Brausch (1994: 45) concludes that the implementation of target costing requires long-term profit planning, commitment to minimizing costs, and recognition that strategic cost accounting can greatly impact the performance of the firm. Further target costing presumes interaction between cost accounting and the other activities of the firm; long-range profit planning that is well executed; and a commitment to on-going cost reduction.

Gagne and Discenza (1995: 21) propose that target costing would appear to benefit those companies which:

- Find themselves in assembly-orientated industries - rather than repetitive-process industries manufacturing uniform products.
- Concentrate on diversifying their products.
- Make use of factory automation technology, which includes computer-aided design, manufacturing systems which are flexible, office automation, and computer-aided manufacturing.
- Have shorter life cycles where payback for factory automation must be accomplished within eight years.
- Develop systems for reducing costs during the planning, design and development stages of the life cycle of a product.
- Implement management methods such as just-in-time, value engineering, and total quality control.

## **2.5 PRINCIPLES OF TARGET COSTING**

Swenson, Ansari, Bell and Kim (2003: 13) noted in their study that the best practice companies were relatively consistent in the manner in which target costing was applied. In this respect, the best practice companies employed a cross-functional organisational structure, listened to the “voice of the customer,” focussed on cost reduction during the new product development stage, and were effective at removing costs throughout the supply chain. They concluded that target costing has been extremely effective in controlling costs and enhancing profit.

Ansari et al (1997: 11) describe target costing as a systematic process of cost management and profit planning. The six key principles of target costing are:

### **2.5.1 Price-led costing**

Target costs are calculated by subtracting the required profit margin from the competitive market price, which is summarised in the following equation:

$$C = P - \pi$$

Where C = target cost

P = competitive market price

$\pi$  = target profit

Ansari et al (1997: 11) point out that the situation in the marketplace controls price, while the financial requirements of a firm and its industry determine the target profit. For example, if the competitive market price for a product is R100, and a company requires a 15 percent profit margin to remain financially viable in its industry, then the target cost for this product is R85 (R100 – R15).

Price led costing have the following sub principles:

- Product and profit plans are determined by market prices. These plans are analysed frequently to ensure that resources are only provided for products that generate consistent and reliable profit margins.
- Active competitive intelligence and analysis drives the target costing process. Meeting or pre-empting competitive threats relies on an understanding of market prices.

### **2.5.2 Focus on customers**

Ansari et al (1997: 12) state that since target costing is market driven, the views of customers are of utmost importance and should therefore be taken into account throughout the entire process. Understanding the needs of customers and what competitors are currently doing or might do to meet those needs is essential. Quality, cost and time requirements of customers are thus incorporated in product and process decisions and guide cost analysis. Engineering development activities are driven by a focus on customers and are shaped by the demands of the market.

Ansari (1997: 12) point out that the attainment of a target cost is not achieved by sacrificing the features needed by customers, reducing the performance or reliability of a product, or by delaying the introduction of the product in the market. Further enhancements to the product's features and functions only occur in the following instances:

- Customer expectations are met.
- There is a willingness of customers to pay for them.
- Market share or sales volume is increased.

### **2.5.3 Focus on design**

Ansari et al (1997: 12) indicate that since target costing systems spend more time at the design stage, it eliminates costly and time consuming changes needed later, resulting in time to market being effectively reduced. This is in contrast to traditional cost reduction methods which focus on economies of scale, learning curves, waste reduction, and yield improvement to manage costs. The implications of this design orientation are encompassed in the following:

- Costs are managed by target costing systems before they are incurred rather than afterward. The target costing process focuses on design since that is when the majority of costs are committed, as illustrated in Figure 2.1. Cooper and Slagmulder (1999: 15) state that some authorities estimate as much as 90% to 95% of a product's costs are fixed once a product is designed i.e. the costs cannot be avoided without redesigning the product. Ansari et al (1997: 13) further indicate that by looking at the impact of design on all costs, from R&D to disposition, allows for cost reduction over the entire life cycle of a product.
- Engineers are challenged to focus on the cost impact of product, technology, and process designs by the target costing process. Before being incorporated into the design all engineering decisions are filtered through a relative customer value impact assessment.
- All participating functions of the firm are encouraged by the target costing system to examine designs, in order to ensure that product or engineering changes are made prior to the product entering into production. Few engineering changes are required by world-class practitioners of target costing, after the commencement of production. However, companies not using target costing typically make a significant number of design changes after the start of production.

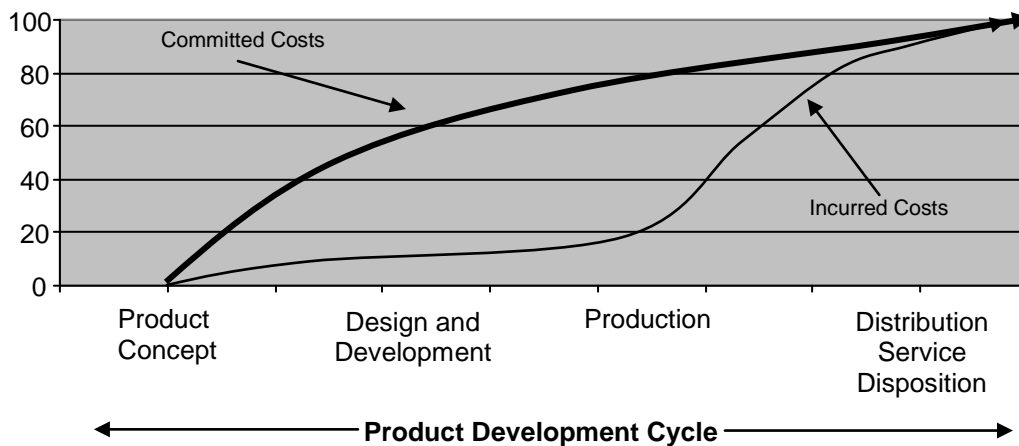


- Simultaneous engineering of products and processes are encouraged by target costing systems as opposed to sequential engineering. This enables problems to be solved earlier in the process thereby reducing development time and cost.

Boer and Ettl (1999: 49) point out that the impact of design decisions may only reflect on the financial statements two years after the decisions are made. One aspect of product design – complexity – can result in the following downstream costs which impact negatively on profits:

- Labour and rework costs increase.
- Inventory levels increase as more parts are required.
- Quality is under pressure as complex parts are difficult to assemble.
- Additional time is required to train customers.
- Complex products break more frequently and are difficult to repair.

**Figure 2.1: Comparison of committed and incurred costs**



(Source: Ansari et al 1997: 13)

#### **2.5.4 Cross-functional involvement**

Target costing uses cross-functional product and process teams representing design and manufacturing engineering, production, sales and marketing,

purchasing, cost accounting, service and support. Outside participants, including suppliers, customers, dealers, distributors, service providers, and recyclers are included in these cross-functional teams. The teams are responsible for the entire product from initial concept through final production (Ansari et al 1997: 14).

Cooper (1996b: 36) noted that at Nissan the accounting department is only involved at the end of the target costing process, with their role being to ensure that the products entering production do meet their target costs. The remainder of the target costing process is the responsibility of marketing, production, product engineering, and other functional expert areas.

CIMA (2005: 6) mentions the multi-disciplinary involvement and roles played by the different functions in Toyota Australia's target costing system, which were identified in a study by the International Federation of Accountants' (IFAC) Financial and Management Accounting Committee as follows:

- Finance - a co-ordinating role, managing the assignment of cost targets, reporting and monitoring performance, promoting target achievement and highlighting deviations.
- Sales planning and distribution – driving the formulation of the overall target cost.
- Purchasing – looking for cost savings through the analysis of parts and components and working with suppliers to improve costs and to redesign parts.
- Engineering – using techniques such as value engineering to identify cost savings whilst maintaining the functionality of the product.
- Manufacturing – looking for cost savings through improvements in the manufacturing processes.

Ansari et al (1997: 14) indicate that by including downstream functions as part

of product development assists in avoiding problems that might occur later. Through cross-functional participation, design reviews and engineering changes are reduced, which cuts the time to market. Cost reductions and quality increases are closely related to time to market, as the functional team is responsible for the entire product.

### **2.5.5 Value-chain involvement**

Ansari et al (1997: 15) state that all members of the value chain, such as suppliers, dealers, distributors, and service providers, are involved in the target costing process. Developing a co-operative relationship with all members of the “extended enterprise” maximises cost reduction efforts throughout the value chain. Long-term and mutually beneficial relationships with suppliers and other members of the value chain form the basis of a target costing system.

Cooper and Slagmulder (1999: 16) refer to a chained target costing process where competitive pressure is transmitted by the firm at the top of the supply chain to other firms within the chain and each firm in the supply chain acts in a manner that benefits the others. For interactions to be interactive adversarial relationships needs to be replaced by interdependent, cooperative relationships. This leads to supplier networks emerging in which all firms in the network operate in a mutually supportive manner even though the firms may be in direct competition with each other.

Swenson et al (2003: 14) concluded from his study that, in addition to internal operations, the best practice companies rely on cost saving opportunities from its supply chain to meet cost targets. Since approximately 75% of the value of the products manufactured at Daimler-Chrysler and Continental Teves comprise of purchased raw materials and components, the participation of their suppliers are critical in ensuring that target-costing goals are achieved. Their supply

chains are considered to be part of an “extended enterprise” where they share design information, cost information, and inter-company teams meet to establish cost reduction goals.

### **2.5.6 A life-cycle orientation**

According to Collier and Agyei-Ampomah (2007: 44) management accounting has traditionally focussed on costs incurred after the product has been designed and developed, i.e. when the product is in production. The result is that substantial costs involved in the product design phase may not be taken into account in costing the product, rather these costs may have been capitalised or treated as an expense in prior years. In addition, the costs of discontinuance are rarely included as part of the product cost when the product is discontinued. Life-cycle costing overcomes the above shortcomings by including all costs over its entire life cycle, from inception to abandonment. This determines whether adequate profits are being generated to cover all life-cycle costs.

Ansari et al (1997: 15) confirm that life-cycle costs, which include the purchase price, operating costs, maintenance, and distribution costs are brought into account under target costs. The goal is to minimise the life cycle costs for both the customer and the producer.

- The customer requires the minimisation of product ownership costs, resulting from the lowering of operating, using, repairing and disposing of the product costs.
- The producer requires the minimisation of development, production, marketing, distribution, support, service, and disposition costs.

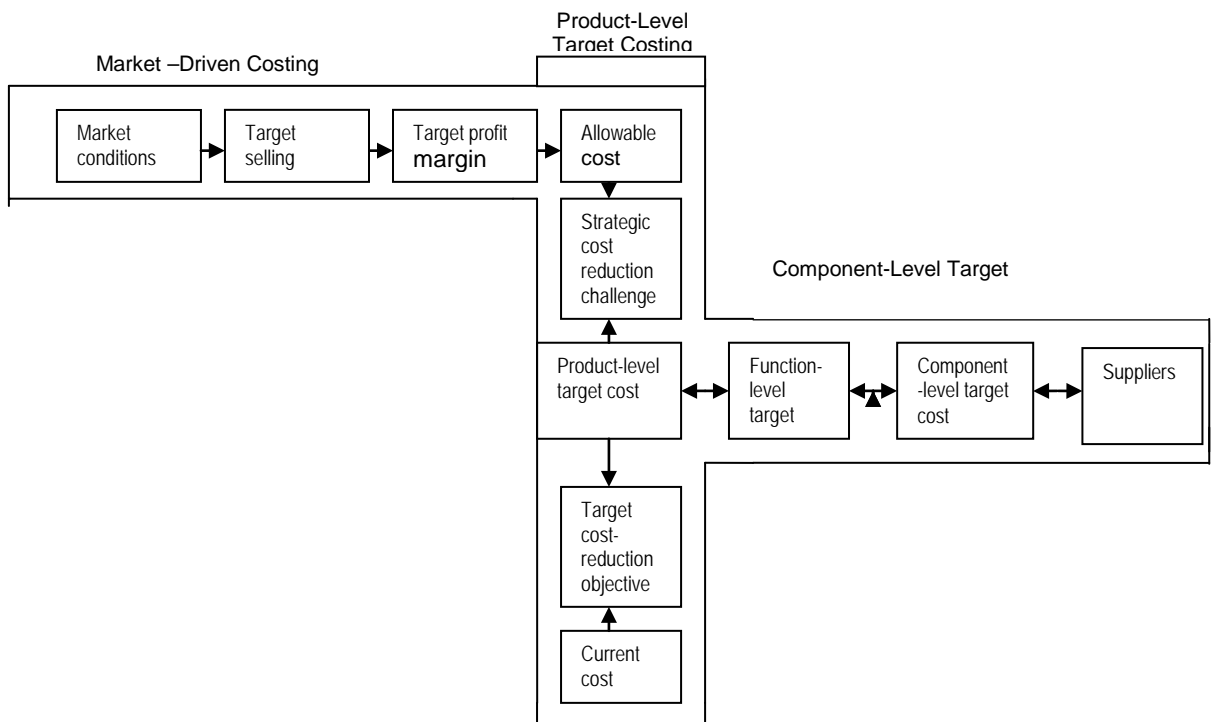
## **2.6 THE TARGET COSTING PROCESS**

The target costing process differs from one firm to another and from one author to another. For example, Cooper and Slagmulder (1997: 10) and Ansari et al

(1997: 20) indicate different numbers of phases and sections for the target costing process. These variations have no significance to the purpose of this research. In this study, the process proposed by Cooper and Slagmulder (1997: 11), which is depicted in Figure 2.2, will be followed. The process consists of the following three sections:

- Market-driven costing
- Product-level target costing
- Component-level target costing

**Figure 2.2: The target costing process**



(Source: Cooper and Slagmulder 1997: 11)

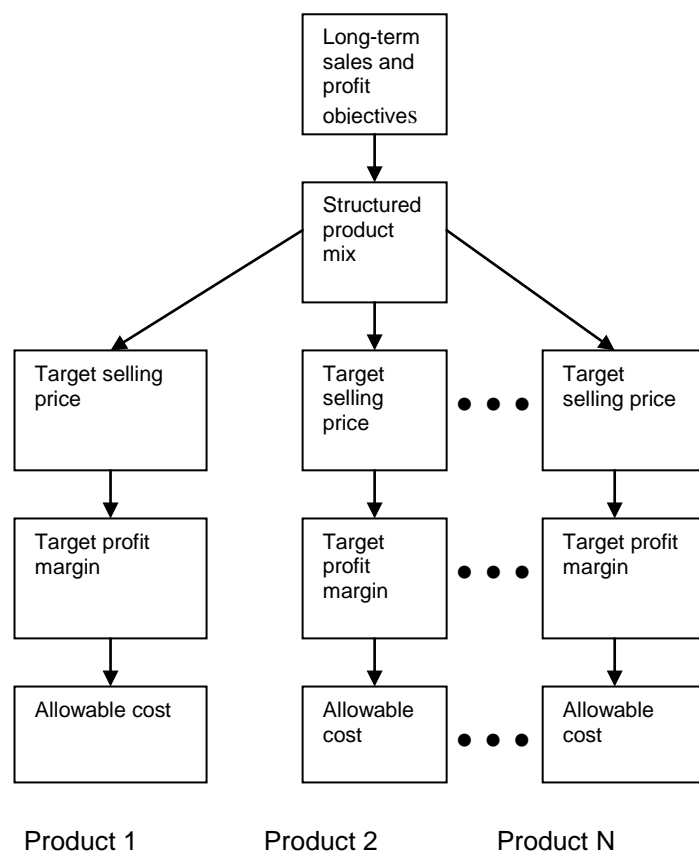
Market-driven costing is the first step in the process during which stage the allowable cost of each product is identified. The allowable cost is the cost at which a product must be manufactured in order to earn its target profit margin at

its expected target-selling price. Product-level target costing is the second step in the process during which stage the product-level target cost is identified. This is the cost, which is set to be achievable on the basis that product designers expend considerable effort and creativity. Component-level target costing is the final step in which component-level costs are identified. It is expected that the firm's suppliers find ways to deliver components at their target costs, while making adequate profit (Cooper & Slagmulder 1997: 10).

### 2.6.1 Market-driven costing

According to Cooper and Slagmulder (1997: 87) market-driven costing can be broken down into five steps, which is illustrated in Figure 2.3 below.

**Figure 2.3: Market-driven costing**



(Source: Cooper and Slagmulder 1997: 89)

### **2.6.1.1 Set long-term sales and profit objectives**

Cooper and Slagmulder (1997: 89) indicate that target costing starts with the long-term sales and profit objectives of the firm. It needs to ensure that each product, over its life, contributes its planned share of profits to the long-term objectives of the company. Detailed analyses of customer and competitor trends are performed in order to establish a long-term product plan in support of objectives set by management.

According to Ansari et al (1997: 21) the goals that an organisation must achieve in order to satisfy market demands and remain profitable are defined by competitive strategy. This competitive strategy integrates market trends, customer needs, technology advances, and quality requirements into a product so as to meet customer's expectations on price, quality and time.

### **2.6.1.2 Structure the product lines to achieve maximum profitability**

Cooper and Slagmulder (1997: 92) advise that product lines must be properly structured in order to ensure that they satisfy as many customers as possible. Also having too many products can confuse customers and thus structuring the product line is typically based on a thorough analysis of customer preferences.

### **2.6.1.3 Set the product's selling price**

Target selling prices are determined within the context of the long-term sales and profit objectives of the firm. Market share, profitability objectives, and image of the firm are factors that must be taken into account when setting the target selling price (Cooper & Slagmulder 1997: 99).

According to Cooper and Slagmulder (1997: 95) the concept of perceived value forms the basis of the price-setting process. A company can only expect customers to pay more for a product than its previous product if the perceived value of the new product is higher. However, the availability of competitive products and their perceived value have a dampening effect on price increases associated with incremental perceived value.

Swenson et al (2003: 14) cite the example of one of Boeing's customers who requested heated floors. Prior to target costing, The Boeing Company was inclined to comply with customer requests without considering the cost implications. However, now pricing aeroplane options separately, the customer reconsidered its request when the price of the heated floors came in at more than \$ 1 million.

Cooper and Slagmulder (1997: 95) observe that many firms follow an incremental approach to setting selling prices. For example, the selling price of a new vehicle model is considered to be the combination of the selling price of the existing model plus any additional value as a result of improved functionality. Competitors will normally react to a new product entering the market by re-pricing their products, increasing their levels of advertising, or introducing a new model at a lower price.

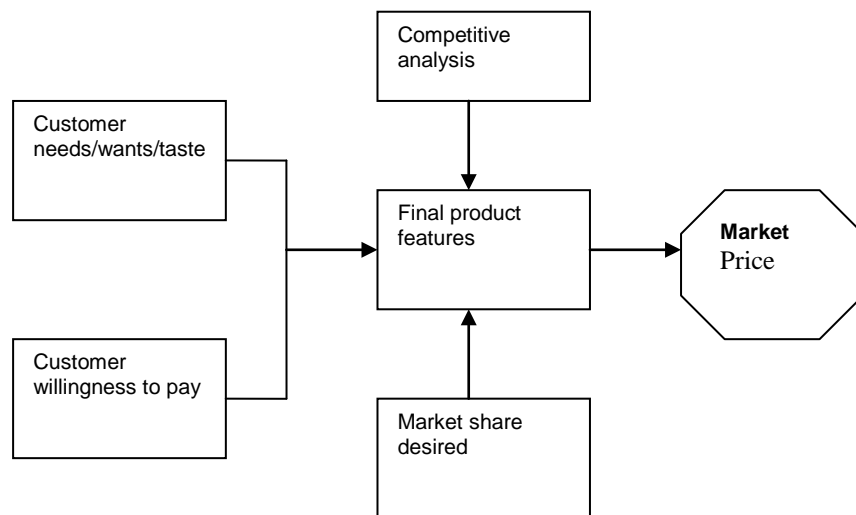
Similarly Crow (2002) is of the view that market factors such as market share, business market penetration strategy, competition and competitive price response, targeted market niche, and elasticity of demand form the basis on which a target price is established. Ansari et al (1997: 32) found that Japanese companies use four key determinants in setting a product's price:



- Customer needs/wants/tastes related to physical features and aesthetic functions in a product.
- Acceptable price is the price that customers are willing to pay for the desired functions and features of the product.
- Competitor analysis of product features, aesthetic functions, and prices offered by the competition.
- Market share goal for the product.

These key determinants are depicted in Figure 2.4 below.

**Figure 2.4: Setting prices in target costing**



(Source: Ansari et al 1997: 33)

#### 2.6.1.4 Establish the target profit margin

Cooper and Slagmulder (1997: 100) state that target profit margins are established with the objective of ensuring that the company's long-term profit plan is achieved. Ansari et al (1997: 36) further regard the setting of target

profits as a function of bringing together (macro) business level plans with (micro) product level plans.

According to Cooper and Slagmulder (1997: 100) there are two ways in which a company can set target profit margins. In the first method, the actual profit margin of the predecessor product is adjusted for changes in market conditions. In the second method, the company starts with the target profit margin of the entire profit line and depending on the realities of the market place; either raises or lowers the target profit margin for individual projects.

Further Cooper and Slagmulder (1997: 104) point out that the company must ensure that all costs and savings are accounted for when determining the profit margin, in order that the expected profitability of the product across its life is sufficient. Instances, which necessitate the company having to adjust the target profit margin, would be if a product launch or discontinuance requires high investments or if the selling prices or costs of a product are expected to change significantly during its life. Failure to effect these adjustments may result in the company either launching products that earn inadequate returns or not launching products that earn adequate returns over their lives.

Ansari et al (1997: 38) point out that financial rates of return required by a company normally determine the target profit rate. Reference is made to the Japanese industry in which it is common practice to use a weighting scheme that combines information about a company with industry information when setting a required return on sales (ROS). Another financial indicator commonly used is the return on assets (ROA), which is a product of asset turnover and profit margin.

Lee (1994: 68) is of the view that the determination of the desired profit should be based on the company's desired return on sales (ROS), rather than return on investment (ROI). The reasoning is based on the following reasons:

- Manufacturers require a variety of products in low volumes to survive in today's fast changing market. It is virtually impossible to calculate the profitability of those products in ROI.
- Long-term strategies focus on the profitability of portfolios of related products and the role each product plays for the product group. In this instance, ROS provides a better measure.

#### **2.6.1.5 Compute the allowable cost**

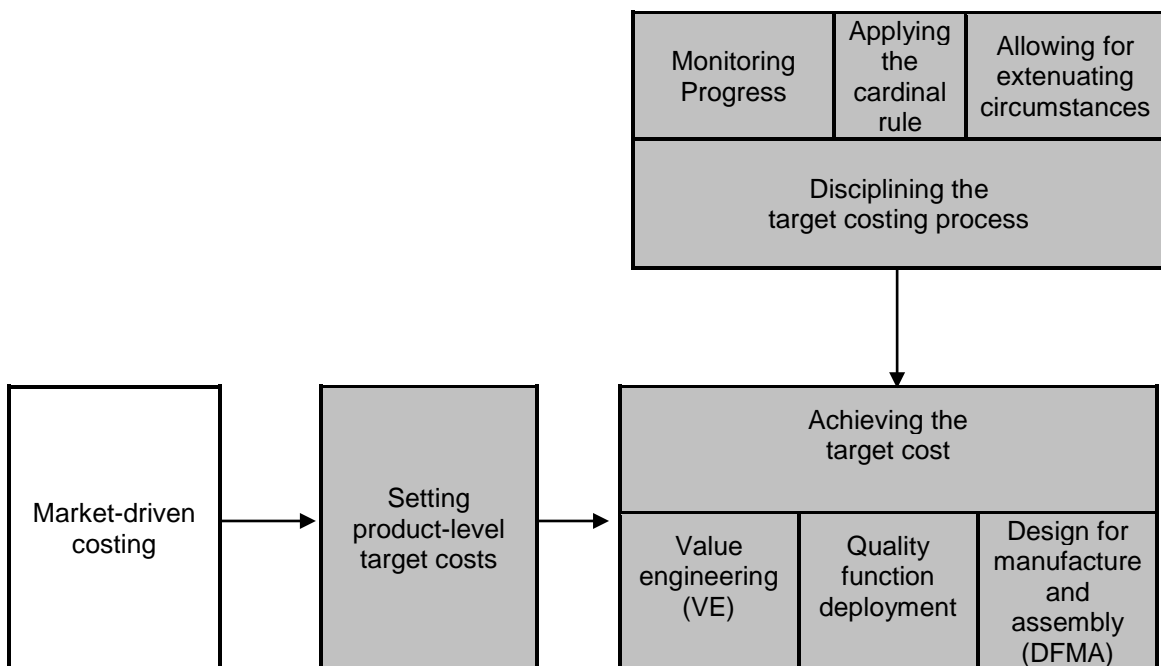
Cooper and Slagmulder (1997: 104) point out that the allowable cost can be calculated by subtracting the target profit margin from the target selling price i.e.  $\text{Allowable cost} = \text{target selling price} - \text{target profit margin}$ . The allowable cost reflects the relative competitive position of the company as it is based on its realistic, long-term profit objectives. As a result the allowable cost is not a benchmark against which the company compares itself with its competitors. In order to use allowable cost as a benchmark in this manner, target profit margins taking into account the most efficient competitor, would have to be set.

Further, Cooper and Slagmulder (1997: 106) note that the cost-reduction capabilities of the company's product designers or suppliers are not taken into account in the allowable cost calculation. Consequently the allowable cost is often unachievable. In the event of a product's allowable cost being unachievable, a higher target cost needs to be established by the company in the product-level target costing process.

## 2.6.2 Product-level target costing

According to Cooper and Slagmulder (1997: 107) the second part of the target costing process involves product designers finding ways of developing products that satisfy customers at the allowable cost. As product designers may not always achieve this, the product-level target costing process increases the product's allowable cost to a target cost that the company can reasonably expect to achieve, considering its capabilities and suppliers. The product-level target costing process is illustrated in Figure 2.5 below.

**Figure 2.5: Product-level target costing**



(Source: Cooper and Slagmulder 1997: 109)

### **2.6.2.1 Set product-level target cost**

Cooper and Slagmulder (1997: 108) point out that subtracting the allowable cost from the current product cost derives the cost-reduction objective i.e.  $\text{Cost-reduction objective} = \text{current cost} - \text{allowable cost}$ . Since the allowable cost calculation is based on external factors and does not take into account the company's design and production capabilities, the risk exists that the allowable cost will not be achievable.

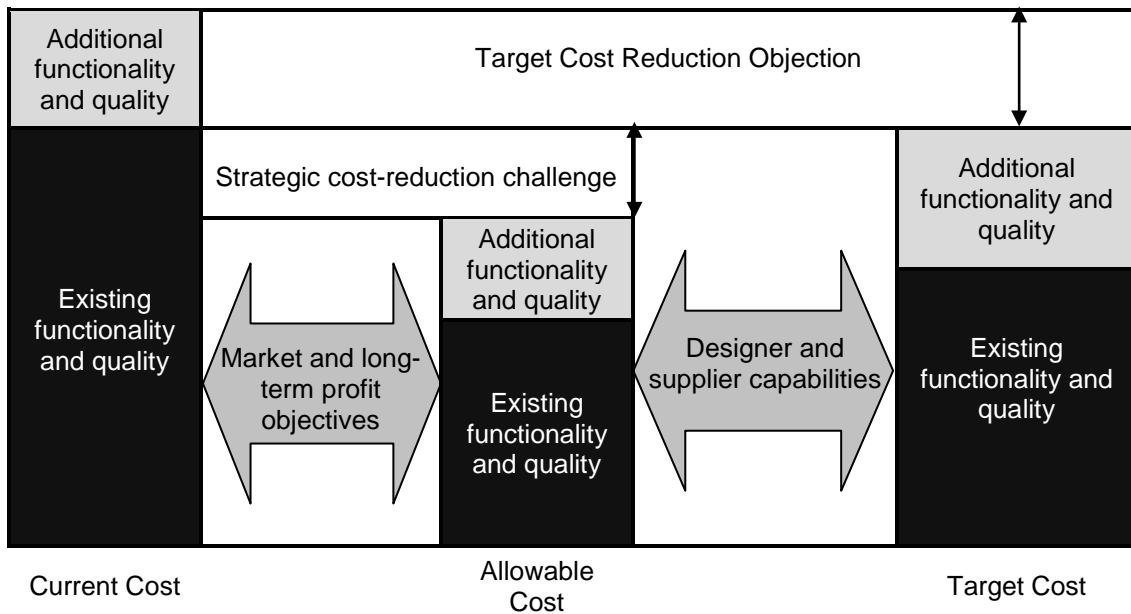
Therefore the company has to break the cost-reduction objective into achievable and unachievable sections. It is the ability of product designers and suppliers to remove costs from a proposed product that forms the basis of the achievable or target cost-reduction objective. By subtracting the new product's target cost objective from its current cost provides the product-level cost i.e.  $\text{product-level target cost} = \text{current cost} - \text{target cost-reduction objective}$

Cooper and Slagmulder (1997: 110) state that the unachievable part of the cost-reduction objective is referred to the strategic cost-reduction challenge, which is the difference between the allowable cost and the target cost i.e.  $\text{strategic cost-reduction challenge} = \text{product-level target cost} - \text{allowable cost}$ . Not only does this cost-reduction challenge indicate the profit shortfall that will result due to designers being unable to meet the allowable cost, but also signals that the firm is not as efficient as competitors.

The size of the strategic cost-reduction challenge must be carefully managed and should reflect the actual inability of the firm to match competitors' efficiency. Should the target cost-reduction objective be set too high, not only will the workforce be subjected to excessive cost-reduction pressure, risking burnout, but the discipline of target costing is lost as target costs are regularly exceeded.

Alternatively, setting the target cost-reduction objective too low will result in a firm losing competitiveness, as new products will have excessively high target costs (Cooper & Slagmulder 1997: 111).

**Figure 2.6: Costs in a target costing process**



(Source: Cooper and Slagmulder 1997: 112)

Ansari et al (1997: 60) propose that unattainable costs can be addressed in the following ways:

- Determine whether kaizen or continuous improvement will ensure that targets are met.
- Retain the target costs and reduce the features offered, if the features being reduced have no adverse impact on the market price.
- Postpone launching the product until such time as target costs have been achieved, if time to market is not critical and the delay will not harm profits.

- Increase the target cost, when strategically motivated.
- Abandon the product as a last resort.

#### **2.6.2.2 Discipline the product-level target costing process**

It follows that the process of designing the product to its target cost can only commence once the company has established the target cost objective. The design engineers' progress toward achieving this objective must be continuously monitored by the chief engineer to enable the company to take corrective action as early as possible. "The target cost must never be exceeded" is the cardinal rule of target costing and is key to maintaining discipline throughout the design process (Cooper & Slagmulder 1997: 119-122).

Cooper and Slagmulder (1997: 122) indicate that there are three ways in which the cardinal rule is enforced. Firstly, where increased costs are the result of design improvements, alternative offsetting savings must be found elsewhere in the design. Secondly, products whose costs exceed the target must not be launched. Lastly, to ensure that the target cost is achieved, the transition to manufacturing must be carefully managed.

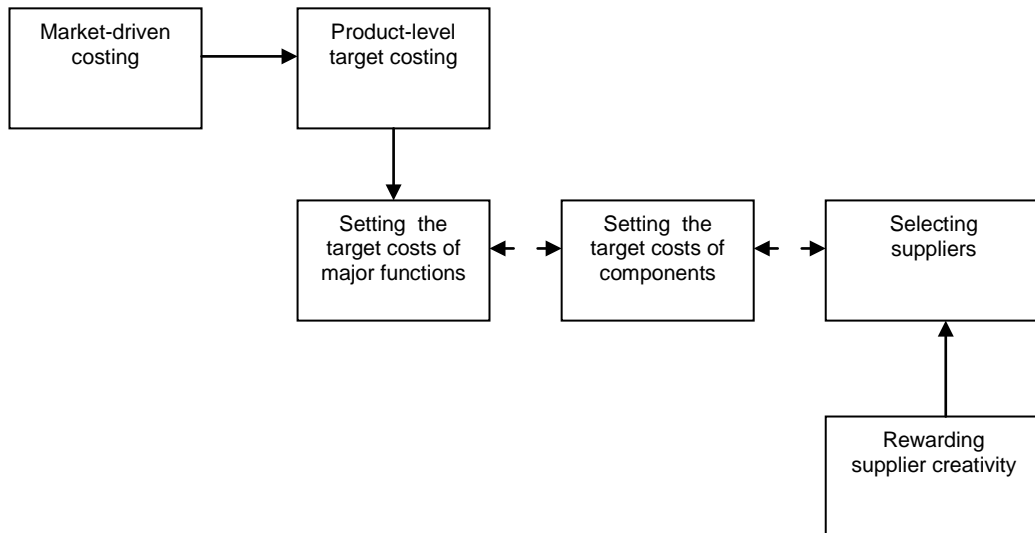
#### **2.6.2.3 Achieve the target cost**

Once the target cost-reduction objective has been established, a company needs to find ways to achieve it. The techniques that assist product designers to reduce product costs will be discussed in some detail under paragraph 2.10.

#### **2.6.3 Component-level target costing**

Target costs for a product's components are developed once the target cost for the product has been established. Cooper and Slagmulder (1997: 139) identify four steps in component level costing, which are illustrated in Figure 2.7.

**Figure 2.7: Component-level target costing**



(Source: Cooper and Slagmulder 1997: 141)

### 2.6.3.1 Decompose target costs of major functions

The identification of major functions enables the design process to be broken up into multiple tasks. Dedicated design teams comprising of representatives from product design, engineering, purchasing, production engineering, manufacturing, and logistics are responsible for the design of each major function. However, the chief engineer or product manager, who determines the distinctive theme and functionality of the new product has overall responsibility for coordinating the design of a new product, (Cooper & Slagmulder 1997: 142).

Cooper and Slagmulder (1997: 144) point out that through an extended negotiation process with the design teams, the chief engineer is responsible for setting the target cost of each major function. Target costs are usually based on historical cost-reduction rates, for example a rate of 5 percent per year may be used to reduce the cost of a major function. Swenson et al (2003: 15) note that



DaimlerChrysler requests its suppliers to achieve a 5% annual cost reduction which is based on the supplier's total annual sales to DaimlerChrysler. Supplier suggestions that result in lower costs for DaimlerChrysler are also included in the cost reduction goal.

Not all companies use historical cost-reduction rates; some use market analysis to assist in setting target costs of new products. Market-based approaches are especially beneficial in instances where new forms of functionality are being introduced. Customers are requested to indicate how much they are willing to pay for a particular function and together with other factors such as technical, safety and legal considerations, lead to adjustments being made to the prorated target costs (Cooper & Slagmulder 1997: 145).

Cooper and Slagmulder (1997: 146) point out that the chief engineer may modify the target costs derived from either historical or market analysis in certain instances. Firstly, the chief engineer will negotiate higher rates of cost reduction with the head of the design teams of the major functions if the sum of all the historical rates does not result in the desired cost-reduction objective. Secondly, the chief engineer will modify the target costs where the relative importance of a major function changes from one generation to another. Thirdly, the historical cost-reduction rate ceases to be meaningful when the technology on which a major function is dependent, changes.

After establishing the target costs of the major functions, the company needs to decompose them to the appropriate group component and parts level, in order to achieve the objective of setting a purchase price for every externally acquired component (Cooper & Slagmulder 1997: 149).

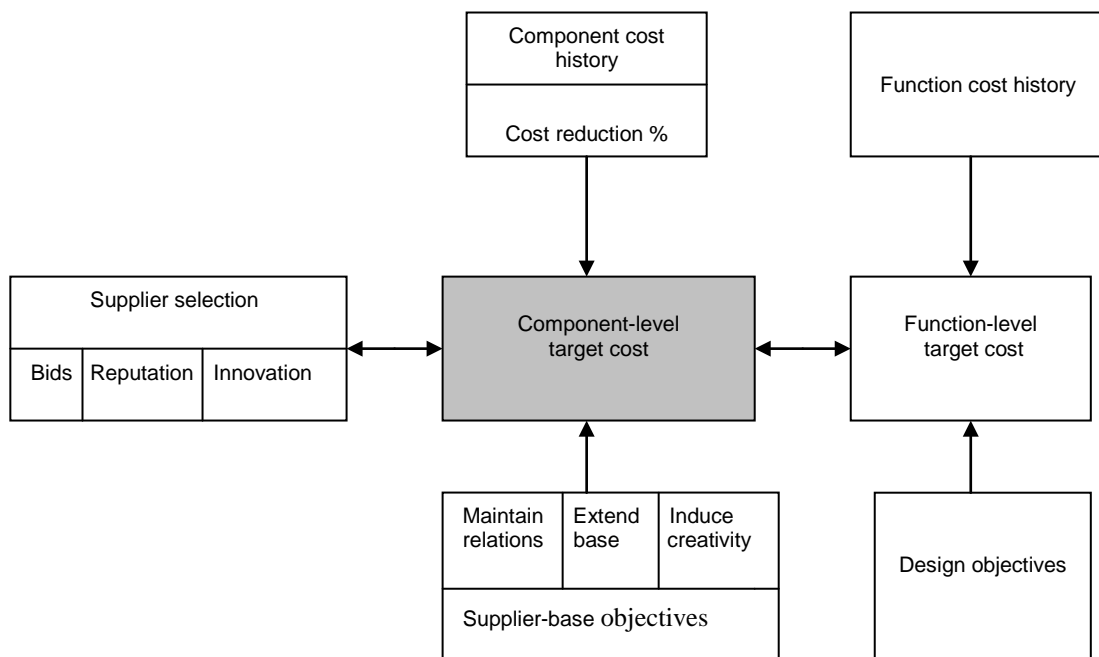
### **2.6.3.2 Set target costs of components**

Cooper and Slagmulder (1997: 150) point out that the component-level target

costing process comprises of three main blocks as is illustrated in Figure 2.8. The component cost history is the starting point for estimating the new component-level target costs. Secondly, the firm's supplier-base objectives are applied to the selection of suppliers in general. Lastly, the selection of the supplier for a given component is dealt with.

Cooper and Slagmulder (1997: 151) indicate that the target cost of the major function is decomposed to the component level by the major function design teams. For example, at Toyota the specifics of parts, materials and machining processes are left to the discretion of each design division, who is responsible for achieving its respective cost-reduction goals. In certain instances the chief engineer will specify cost-reduction targets for specific parts to the related divisions. Part-specific targets and divisional targets are set at the same time.

**Figure 2.8: Setting the target costs of components**



(Source: Cooper and Slagmulder 1997: 151)

Ansari et al (1997: 61) point out that it is possible for a product to meet its overall target cost if the components below the allowable cost offset those above the allowable costs. Since target costs can be achieved the firm should proceed with the product. However, in order to ensure that internal performance evaluation and discipline is enforced, it is proposed the following approaches be followed:

- Transfer savings from other components and products to meet the shortfall. Whilst this approach encourages teamwork and ensures a successful product, it may undermine cost discipline, as people will rely on these subsidies.
- Transfer savings but attach a stigma to the subsidies, which requires problem solving teams be assigned to understand and solve the problem for future products.
- Savings are not transferred between components. This may be perceived as too rigid and may lead to lower employee morale.

### **2.6.3.3 Manage suppliers**

The two primary aspects of supplier management in the component-level target costing process involve the selection of suppliers and rewarding supplier creativity.

#### **2.6.3.3.1 Select suppliers**

Cooper and Slagmulder (1997: 161) point out that the process starts with both internal and external suppliers providing estimates of their selling prices. These quoted prices are compared with the target costs of the components. If the quoted prices are acceptable, the company accepts the quote, otherwise further negotiations are undertaken until an agreement is reached.

Only under very special circumstances and only for a short period may a company relax the target costs of components. The purpose of relaxing the target costs in this instance would be to enable the supplier to make a reasonable return, while finding ways to reduce costs to the target levels (Cooper & Slagmulder 1997: 162).

Helms et al (2005: 53) point out that regardless of whether target costing is used, supply chain partners are selected before product development. Costs of the supplier are rarely the deciding factor, rather factors such as reliability, cooperation, ability to produce quality parts, number of engineers and design experts employed, and reputation for service and dependability within the industry are considered to be the relevant factors. These factors need to be carefully examined, as the suppliers will form part of every decision in the development of the new product. A qualifying or certification program is often used to assist in selecting the right supplier. Suppliers who qualify are rewarded with a long-term contract with the manufacturer.

Helms et al (2005: 52) state that trust and cooperation are critical when using target costing within the supply chain. The inability to monitor or control the expected outcome can be a risk when in-house functions are transferred or outsourced to partners. To manage this risk one of the manufacturer's employees are placed within the supplier's plant to monitor and assist with the activities of the supplier.

#### **2.6.3.3.2 Reward supplier creativity**

In order to reward innovation and to signal where additional cost reduction should take place, many companies use incentive plans to motivate their suppliers. These incentive plans reward the supplier with all or part of the order

for a given component. Cooper and Slagmulder (1997: 159) cite the incentive plan at Nissan as an example of how suppliers are rewarded for cost-reduction ideas. Under its incentive plan, Nissan awards the qualifying supplier a significant percentage of the contract, in terms of which a component is supplied for a specified time, for example 50 percent for twelve months.

Cooper and Slagmulder (1997: 159) note that it is not always the lowest-cost or highest-value supplier that wins the bid. To ensure suppliers remain efficient and innovative, companies need to actively manage their suppliers. By way of example, Isuzu awards suppliers which have a good reputation with at least part of the order, even though their products do not have the highest value. Isuzu awards these partial contracts in order to maintain relationships with these suppliers.

## **2.7 BARRIERS TO ADOPTION**

The senior manager of finance for decision support initiatives at Boeing, Keith Hallin, is of the opinion that there are three barriers to the adoption of target costing. Firstly, whilst there is an abundance of information in Japanese literature, there is little English-language instruction. Secondly there is a cultural barrier as “people tend to build fences around their responsibilities because that’s what they believe they are measured on.” Thirdly there is an organisational barrier as “employees are organised according to functions in most companies.” Both the cultural and organisational barriers do not lend themselves to the implementation of such a team-orientated strategy (Banham 2000: 130).

Helms et al (2005: 51), identify the following barriers:

- **Lack of understanding**

In a culture that has previously embraced a cost-plus approach to pricing, it is difficult to implement target costing. This is due to the cost-plus approach often being quicker and does not involve an iterative, inclusive approach to reducing the gap between current costs and target costs. Whilst the term is seen to be restricted to that of the accounting domain, accountants have not been involved in implementing production changes, despite having access to the cost data.

- **Team and cross-functional barriers**

Although the logic of target costing is easy to understand, the prevailing cost-plus approach continues to be used by a number of industries. This is usually the result of a lack of understanding of costs throughout the supply chain and the absence of tightly linked, communicating supply chain partners.

- **Irrelevance or fear of the effects**

Many managers regard target costing as just another buzz word or accounting term with little relevance to manufacturing or marketing. They fail to recognise that the concept of target costing is identical to the lean concept implemented in manufacturing, since these terms are attempting to achieve a similar goal of reducing non-value added, irrelevant activities that fail to contribute to a product's value.

Often the smaller partners with less power within the chain will feel that they are being tasked with too much of the cost reduction pressure during the cost setting negotiations. Further employees may fear of losing their jobs and purposely work against the target costing process.

- **Production detail**

The design process must be broken down into its lowest level components. This requires the involvement of manufacturing, design engineering, product engineering and marketing. Therefore, whilst the concept of target costing is simple and straight-forward, the execution is extremely difficult. Ansari et al (1997: 7) state that, while Japanese companies have successfully applied target costing as a strategic tool for nearly two decades, it is relatively new and generally not well applied. The reasons for this are:

- Many companies mistake some elements of target costing systems, such as affordable design criteria, design to cost, or design for manufacturability, for target costing. They fail to appreciate the breadth of target costing as a process for integrating strategic planning with profit and cost planning.
- Target costing is a relatively new and largely undocumented technique in the English-language literature. The writing that exists fails to convey the strategic significance of target costing as a competitive weapon for today's global marketplace.
- The basic ideas of target costing are so simple and so intuitive that there is a tendency to underestimate their power or scope. Many companies often view target costing as another cost estimation or reduction method like budgeting, regression analysis, or learning curve applications.
- Target costing requires cross-functional teams to take ownership and responsibility for costs. This key attribute typically is not part of today's engineering and marketing culture. Most engineers and salespeople regard cost management to be a finance function. Finance, for its part, must provide cost data that can support the type of analysis that target cost systems require.

## **2.8 BENEFITS OF TARGET COSTING**

CIMA (2005: 2,5) regard the use of target costing to plan or project the costs of products before they are introduced, and to ensure that low-margin products which generate insufficient returns are not introduced, as the primary reason for the adoption of target costing. Other benefits identified include the following:

- Highlights other problems in areas such as purchasing.
- Improves the understanding of the costs of products and services, enabling issues to be identified early in the process where action can be taken before costs are locked in.
- Focuses on the final users of the service or product.
- Is multidisciplinary and involves staff from all areas in the cost analysis, in which responsibility for managing costs is encouraged.
- Provides a framework which focuses on the wider supply chain, in effect a whole systems approach is encouraged.
- Analyses the impact that new services have on existing services in service organisations.
- Ensures satisfactory financial performance by developing specific and real targets.

Further Ansari et al (1997: 12) point out that by focussing on the design stage, target costing eliminates costly and time-consuming changes required later, effectively reducing the time to market. Also by considering the full life-cycle cost of the product, target costing minimises total costs for both the producer and the customer (Ansari et al 1997: 15)

## **2.9 DRAWBACKS OF TARGET COSTING**

According to Ansari et al (1997: 169-170) the following potential problems have been identified by Kato, Boer and Chow:



- Longer development times – an overemphasis on design results in a longer product development cycle and a longer time to market.
- Employee burnout – pressure to attain demanding targets can result in employee burnout and frustration.
- Market confusion – attending to customer requirements can cause additional features to be added on resulting in the rapid increase in product models, which may lead to market confusion.
- Organisational conflict – one department may feel that they are shouldering too much of responsibility, which leads to internal conflict.

Davila and Wouters (2004: 15) further state that the advantages of target costing become liabilities in high-technology industries, by pointing out the following potential limitations:

- Target costing focuses attention on cost drivers and away from revenue drivers.
- Target costing is too time consuming.
- Target costing is too linear and bureaucratic.
- Target costing is too detailed.

## **2.10 COST REDUCTION TECHNIQUES MENTIONED IN TARGET COSTING LITERATURE**

Critical to the success of target costing is having the right tools. Value engineering is considered the most critical as it is at the heart of cost planning and cost reduction. This technique, together with other techniques most commonly mentioned in literature will be covered in this study.

### **2.10.1 Value Engineering**

According to Lee (1994: 69) value engineering (VE) is the fundamental mechanism that Japanese manufacturers use to achieve target cost. VE is a

mechanism used to enhance the value of products and services, which is measured by the relationship between the functions performed by products and services and the costs incurred. The VE process entails describing the functions of each product, part, and service, and quantifying the components of those functions.

Gagne and Discenza (1993: 70) explain that the starting point of VE is to examine the functions of materials and purchased parts in order to reduce the cost and/or improve the performance of the product. The VE team typically ask the following questions:

- “What is the function of the part or material?”
- “Can it be simplified?”
- “Is it necessary?”
- “Are all the features necessary?”
- “Can a standard part that will serve the function be found?”

Gagne and Discenza (1993: 70) point out that cost tables are important tools of VE. Cost tables offer a comprehensive and multi-dimensional identification of the major variables that drive costs. The cost tables provide information of the impact on product costs of using different production resources, manufacturing techniques, functions and designs.

Since changing a part’s design can be expensive due to new tooling requirements, Swenson et al (2003: 13) regard value engineering/analysis to be an important initiative in ensuring that the benefits of the new design exceed the tooling cost.

### **2.10.2 Functional Analysis**

Gagne and Discenza (1993: 70) explain that this method provides cost information for each product function and allows for the cost reduction implications of several alternatives to be considered. Critical to the success of functional analysis are cost tables with detailed information. For example current product functions can be modified, reduced, expanded, or combined in order to generate higher profit margins through cost reduction and/or increased value to the customer.

### **2.10.3 Standard Costing**

Gagne and Discenza (1993: 70) state that standard costing is limited and caution that this method can lead to undesirable results. For example, a cheaper, lower quality part may be purchased in order to minimise the purchase price variance. However this may lead to the company experiencing higher overall costs in the form of rework or warranty problems as a result of the lower quality of the product.

Standard costing highlights situations where actual results differ from expected results, which are based on the firm's current manufacturing process standards. As a result standard costing has failed to initiate improvements in the process as it is based on current technology.

### **2.10.4 Quality Function Deployment (QFD)**

Booth (1995: 42) points out that in practice, the target cost is rarely achieved on the first attempt; hence an iterative process is required. The quality function deployment (QFD), which is a mechanism to pass and sort information, plays a key role in this iteration process. The ability to compress diverse information

into a small space in a way that is easily understood is the major advantage of this method.

A statement of customer requirements together with the values the customer expects and actually receives appears on the vertical sides of the matrix. The internal characteristics of the product are listed at the top of the matrix, while at the bottom there is a measurement of the characteristics, comparing the product to competitor's products. This enables designers to compare their product with that of competitors, its performance with customer's expectations, and relate its internal operation to its functional performance (Booth 1995: 42).

Booth (1995: 42) notes that trade-offs between cost and specification can be made once the relation between the internal and external characteristics is understood. For example, a specification may be altered to allow a cost reduction in a less critical aspect of the product, or in an area where customer's expectations are being exceeded. Alternatively, in order to increase price or volumes, the specification might be able to be improved at low cost.

#### **2.10.5 Activity-based Costing**

Booth (1995: 43) considers the latest developments in activity-based costing (ABC) to have an important role in the implementation of target costing. A product will not only incur direct costs, but will also incur costs from support functions. Activity-based costing allows for these costs to be built into the target-setting process. Usually the major cost-drivers of the support structure, e.g. number of part numbers and the number of suppliers are identified and costs are allocated to them.

Booth (1995: 43) notes that in Japan, the costs play an important role in supporting business strategies by encouraging or discouraging certain

behaviour. For example, if the corporate objective is to decrease the number of parts in the product designs, the 'cost per part' would be increased in order to discourage the inclusion of large quantities of parts; motivational and not accounting grounds, form the basis of setting the 'cost'.

Booth (1995: 43) observes that the limited amount of cost-driver information available at the design stage makes it difficult to use ABC. To overcome this hurdle, known cost drivers at the design stage are identified and then with the use of multiple regression the link between the values of the cost-drivers for a particular product and its subsequent profitability is determined. After allowances are made for volume changes, a 'profit predictor' is presented to product designers, who can design products, which minimise total cost, and not simply direct costs.

#### **2.10.6 Design for Manufacturing Assembly (DFMA)**

Swenson et al (2003: 13) point out that design for manufacturing assembly (DFMA) is utilised throughout the product design stage, essentially prior to the first pilot vehicle being built. DFMA evaluates the effectiveness of the design with regard to assembly operations. The aim is to minimise the number of components and to simplify the assembly processes. The result is that fewer errors are made and the reliability and serviceability of the product improves.

#### **2.10.7 Paper Kaizen**

Swenson et al (2003: 13) point out that the term paper kaizen promotes the concept of continuous improvement. This involves workstation setups, assembly steps, and process flows being simulated and optimised on paper before expenses are incurred. In order to be most effective, this approach

should take place immediately after a new part is designed but before the manufacturing process begins.

#### **2.10.8 Benchmarking**

Albright and Lam (2006: 161) refer to the technique of benchmarking as a means of improving performance. Benchmarking involves comparing the activities and work processes of key areas with those of outstanding organisations in order to identify ways to improve performance. Increased productivity, competitiveness, and quality, as well as reduced production costs are some of the benefits associated with this process. An example of benchmarking being used as part of the target costing process is that of Daimler-Benz during the 1990s when developing its new sports utility vehicle. This process involved Daimler-Benz purchasing and tearing down competitors' vehicles in order to understand their costs and manufacturing processes.

#### **2.10.9 Cost Tables**

Blocher, Chen, Cokins and Lin (2005: 383) explain that cost tables comprise of computer-based databases, which include comprehensive information on the firm's cost drivers. The size of the product, the materials used in its manufacture, and the numbers of features are examples of cost drivers. Firms that manufacture different size parts from the same design make use of cost tables to show the difference in the cost of parts of different sizes and different types of materials.

#### **2.10.10 Group Technology**

Blocher et al (2005: 384) point out that group technology is a method of identifying similarities in the parts of products manufactured in order that the

same part can be used in two or more products, thereby reducing costs. Large manufacturers of diverse product lines, such as firms in the automotive industry, benefit from using this method. Whilst group technology reduces manufacturing costs, it may result in increased service and warranty costs if a defective part is used in multiple different models. To address this risk and ensure lower manufacturing and service/warranty costs, the group technology method can be combined with total quality management.

## **2.11 CONCLUSION**

This chapter explored the intellectual and practical foundations of target costing systems. The intellectual foundations and principles of target costing were compared with those that underlie traditional cost management systems. By adopting an open systems approach it is evident that target costing is ideally suited for today's highly competitive environment.

The target costing process was discussed and the implementation barriers, benefits and drawbacks associated with this technique were highlighted. Lastly the supporting tools and techniques needed to ensure the effectiveness of the process were discussed.

**CHAPTER 3**  
**IMPLEMENTING TARGET COSTING AS A STRATEGIC**  
**MANAGEMENT TOOL**

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**CHAPTER 3****IMPLEMENTING TARGET COSTING AS A STRATEGIC MANAGEMENT  
TOOL****3.1 INTRODUCTION**

The term strategy is derived from the Greek word *stratēgos*, meaning the “art of the general”, which is formed from *stratos*, meaning “army” and *ago* meaning, “to lead”. The original use in a military context referred to the overall plan for how the generals intended to fight and win a war. The term is now used in a variety of disciplines to denote the methodology or tool that is used to systematically pursue and achieve objectives (El-Kadi 2008). The Encarta Dictionary defines strategy as a carefully devised plan of action to achieve a goal, or the art of developing or carrying out such a plan.

According to Blocher et al (2005: 17) a firm succeeds by implementing a strategy, that is, “a set of policies, procedures, and approaches to business that produce long-term success.” Similarly Thompson and Strickland (2004: 48) consider business strategy to be about the way in which management’s strategic vision for the company is made a reality. In essence this represents an action plan for strengthening the company’s long-term business position and building a sustainable competition advantage.

According to Blocher et al (2005: 18) firms use cost management to support their strategic goals. The focus of cost management has shifted away from a stewardship role i.e. product costing and financial accounting, to a management-facilitating role which includes developing cost and other information to support the management of the firm and achievement of its

strategic goals. Further Blocher et al (2005: 19) indicate that, without strategic information, a firm is likely to deviate from its competitive path by making strategically wrong manufacturing and marketing decisions in choosing the wrong products or wrong customers.

According to Hibbets, Albright and Funk (2003) a firm's strategic vision is implemented through various tools, techniques, and corporate policies. One such tool that is being adopted by firms is the cost management system of Target Costing. Similarly, Amara (1998: 1) considers target costing to be a strategic planning tool which views products and their sub-assemblies in a holistic manner and further identifies cost reduction and product improvement opportunities.

Ansari et al (1997: 21) state that target costing is intimately linked to an organisation's competitive strategy, since target costing provides the means for achieving the firm's goals of satisfying market demands at an acceptable level of profitability. A target costing system is effective in managing a company's future profits by integrating strategic variables to simultaneously plan how to satisfy customers, capture market share, generate profits, and control costs.

Ozer and Savas (2000) state that there have been two major revolutions in the production environment during the 20<sup>th</sup> century, namely that of mass production and that of lean production. Porter's generic competition strategies are as a result of mass production, while confrontational competition strategies are as a result of lean production. Whilst recognising that Porter's generic competition theory has assisted research in developing the notion of the intensity and shift in modern competition, it is clear that this theory does not provide a full

understanding on how the modern competitive trend can be addressed. Rather its theory is seen as suiting more that of mass production ideology than the lean production era.

For the purposes of this study, Porter's generic competition strategy and the confrontational theory will be explored with the view of determining the role target costing plays as a strategic management tool in these theories.

### **3.2 PORTER'S GENERIC COMPETITION STRATEGY**

Three generic strategies that a firm may use to gain competitive advantage are defined by Porter (Generic Competitive Strategies). The strategies are overall cost leadership, differentiation and focus on a particular market niche. These strategies are termed generic as they are applicable to various situations and contexts. These generic strategies assist in providing direction for firms in designing incentive systems, control procedures, and organisational arrangements.

#### **3.2.1 Overall cost leadership**

In the overall cost leadership strategy, policies aimed at becoming and remaining the lowest-cost producer in the industry are developed by firms. Cost controlling strategies include efficient-scale facilities, tight control of costs and overheads, avoidance of marginal customer accounts, minimisation of operating expenses, reduction of input costs, tight control of labour costs, and lower distribution costs. Therefore by getting its costs of production or distribution lower than those of its competitors, the low-cost leader gains competitive advantage (Generic Competitive Strategies).

There are however potential problems with this strategy. The following are considered drawbacks of this strategy:

- Price wars may drive profits to very low levels.
- State-of-the-art equipment needs to be maintained.
- Required changes in production or marketing are overlooked as the firm is concentrating on maintaining low costs, for example research and development costs or marketing research costs.

Hibbets et al (2003) state that cost leaders cannot ignore quality, but rather concentrate on producing products at the lowest possible cost for an acceptable level of quality and functionality. Since cost leaders are already focussed on reducing costs they may be more likely to implement target costing.

### **3.2.2 Differentiation strategy**

In the second generic strategy, that of differentiating the product or service, a firm needs to ensure that its product or service is perceived as unique in the industry. The product must be perceived by customers as having desirable features not commonly found in competitor's products. In order for this strategy to be successful, customers need to be relatively price-insensitive, as they must be willing to pay more for the marginal cost of the differentiating feature. Even though customers are willing to pay more for the product with the differentiating feature, the differentiation strategy does not allow a firm to ignore costs (Generic Competitive Strategies).

Customer brand loyalty and reduced price elasticity may result from following a differentiation strategy. This strategy may also lead to higher profit margins being generated and thus reduce the need to be a producer of low-cost products. The profit margin is increased as long as the firm is able to increase

the selling price by more than the marginal cost of the additional features. The incremental costs of the differentiating features need to be monitored in order to ensure that the difference is reflected in the price (Generic Competitive Strategies).

This strategy has challenges, which firms need to be aware of, namely:

- Customers may sacrifice features for cost savings.
- Perceived differences between products may be reduced when product features are copied by competitors. Therefore a firm may need to incur marketing research or research & development costs in order to ensure that the added product feature is not easily copied by a competitor.
- Changing consumer tastes, in that a feature which a customer likes this year may not be desired next year.

Hibbets et al (2003) agree that product differentiation cannot ignore cost, but does not attempt to compete on the basis of cost or price. Rather, the quality or functionality of the product forms the basis on which product differentiation competes. Differentiators may tend to adopt target costing since differentiators tend to operate from a “customer perspective” from which position they are able to determine the needs and requirements of their customer market. A competitive advantage and increased customer loyalty is achieved by providing the features or quality a customer desires.

Hibbets et al (2003) further state that increasing competitive pressures and declining profits have forced differentiators to place greater emphasis on cost reduction. However, it is proposed that target costing enables firms to focus on customers and provide the same quality and functionality, but at lower costs.

### **3.2.3 Focus strategy**

The final generic strategy developed by Porter, that of focusing, involves a firm concentrating on a particular customer, product line, geographical area or niche market. This strategy is based on the assumption that a firm is better equipped to serve a limited segment, than competitors who serve a wider range of customers. By following the focus strategy, a firm concentrates on meeting the specialised needs of its customers (Generic Competitive Strategies).

Potential difficulties associated with a focus strategy including the following:

- Narrowing of differences between the limited market and the entire industry.
- Targeted market segment needs to be large enough in order to provide an acceptable return so that the firm can survive.
- Submarkets within the target market may be found by competitors.

### **3.3 PORTER'S FIVE-FORCES MODEL**

A company needs to evaluate the competitive nature of the market or segment before entering the market or segment (Strategic Planning Tools). Porter's Five Forces Model suggests that the five forces described below, collectively determine the intensity of competition in an industry and further assist in determining the effect of each force on the success of the firm.

### **3.3.1 The intensity of rivalry among competing sellers**

The rivalry among existing firms is usually regarded as the most powerful of the five competitive forces. Since business organisations in most industries are mutually dependent, a competitive move by one firm is likely to have a marked impact on its competitors. For example, competitors may retaliate or use counter-efforts such as the lowering of prices, quality enhancement, adding features, providing services, extending warranties, and increased advertising (Strategic Planning Tools).

According to Hibbets et al (2003) firms need to look for ways to decrease costs and streamline operations in the face of strong competitive pressures. Since the biggest opportunity for cost reduction occurs prior to the product reaching the production stage, firms need to reduce costs earlier in the product's life-cycle, before costs are committed. Based on this reasoning, it is to be expected that firms are likely to adopt target costing where they are in industries influenced by strong competitive pressures.

### **3.3.2 The threat of potential new entrants**

The threat of new entrants refers to the ease or difficulty with which new companies are able to enter an industry. The competitive environment changes when a new company enters an industry, since there is new capacity, more competition for market share, and additional new resources. Entry barriers and exit barriers affect the entrance of new companies into a marketplace. A company is less inclined to enter a market if the entry barriers (capital requirements, economies of scale, product differentiation, switching costs, product differentiation, switching costs, access to distribution channels, cost of marketing and advertising) are high. The same principle holds true for exit barriers (Strategic Planning Tools).



### **3.3.3 The threat of substitutes**

The threat of substitutes results in an artificial ceiling being placed on the prices companies can charge within an industry. Competitive pressures arising from substitute products usually increase as the relative price of substitute products reduces and the switching costs of consumers decrease (Strategic Planning Tools).

### **3.3.4 The power of key suppliers**

As powerful suppliers raise prices, reduce services, or reduce the quality of goods or services, the competition is likely to become more intense. This is especially relevant in industries where there are many suppliers, limited substitute raw materials, or increased switching costs (Strategic Planning Tools).

### **3.3.5 The power of key buyers**

The concentration and number of consumers, the differentiation of products, the potential switching costs, and the potential of buyers to integrate backwards influences the bargaining power of buyers. Powerful buyers are able to bargain for lower prices, better product distribution, higher-quality products, as well as other factors, which lead to increased competition among companies (Strategic Planning Tools).

## **3.4 CONFRONTATIONAL THEORY**

Cooper and Slagmulder (1997: 30) point out that the majority of existing literature is based on the assumption that firms can develop sustainable, product-related competitive advantages and avoid competition by adopting the

the generic strategies of cost leadership and product differentiation. However, the generic strategy of confrontation is based on the contrary assumption that competition is unavoidable.

According to Creese (2001) a confrontational environment is characterised by being highly competitive where companies are unable to achieve sustainable competitive advantages of product differentiation through quality differences, functionality differences or cost leadership. This occurs as a result of products with similar high quality, high functionality and low cost being produced by all competitors.

### **3.4.1 The Survival Triplet**

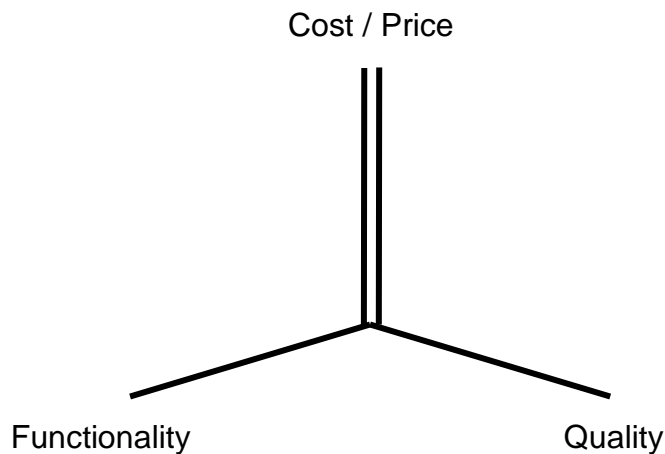
Cooper and Slagmulder (1997: 31) point out that the three product characteristics, which are known as the survival triplet, play a critical role in the success of firms that adopt confrontational strategy. The survival triplet consists of an internal form, which reflects the producer's perspective, and an external form reflecting the customer's perspective. Internally, for a producer the three characteristics are the product's cost, quality, and functionality. Externally, for a customer the characteristics are selling price, perceived quality, and perceived functionality. Hence, as illustrated in Figure 3.1 the survival triplet is made up of cost/price, quality, and functionality components.

The components of the survival triplet are described as follows:

- Price is defined as the amount, which the product is sold for in the marketplace.

- Cost is the value of the resources consumed in order to get the product to the customer. This includes all investment costs, production costs, and marketing and selling costs.
- Quality is defined as the performance of the product to specifications. This definition allows that quality and functionality be seen as two different product characteristics.
- Functionality is defined by the product specifications.

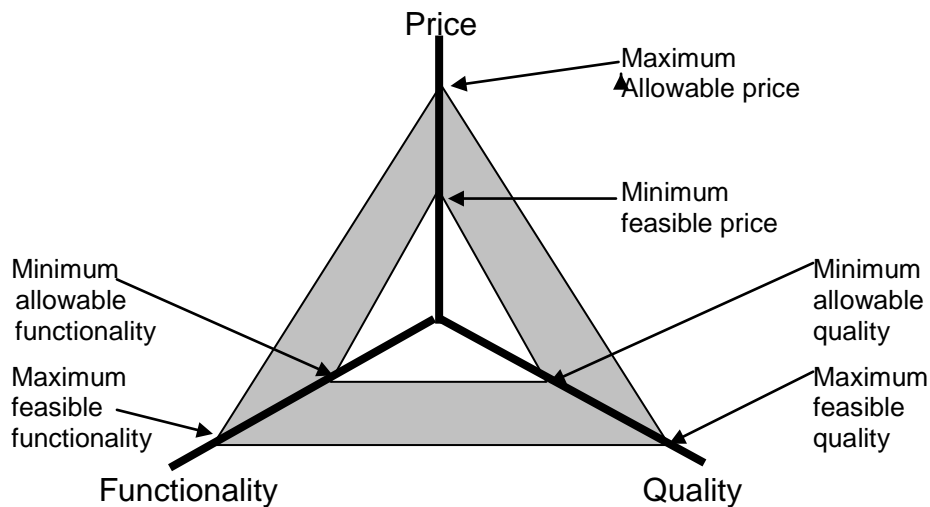
**Figure 3.1: The Survival Triplet**



(Source: Cooper and Slagmulder 1997: 31)

Cooper and Slagmulder (1997: 32) point out that firms sell products, which have different values, related to the characteristics of the survival triplet. The only products that stand a chance of being successful are those with values acceptable to the customer. Consequently, for each product, it is useful to define a survival zone, which is identified by the gaps between the feasible and allowable values of the three dimensions of the survival triplet as shown below in Figure 3.2 below.

**Figure 3.2: The survival zone for a product**



(Source: Cooper and Slagmulder 1997: 34)

Cooper and Slagmulder (1997: 33) explain that the minimum allowable level for quality and functionality is the lowest value of each characteristic, which the customer is willing to accept regardless of the values of the other two characteristics. For example, few customers are willing to buy a product below a certain level of functionality, no matter how low the price or how high the quality of the product.

The maximum feasible levels for quality and functionality are the highest values that can be achieved by the firm without incurring significant penalties in the other characteristics. For example, quality problems related to products will occur above a certain functionality level and higher prices will be demanded to make adequate profits. Further, few customers will be willing to purchase products with low quality and high prices. Therefore, the maximum feasible value represents the highest value the characteristic can have with respect to the other two characteristics.

Since its maximum allowable level is determined by the customers and minimum feasible level is determined by the firm, the price characteristic is different from the other characteristics of the survival triplet. Irrespective of the values of the other two characteristics, the maximum allowable price is the highest price that customers are willing to pay. The minimal feasible price is the lowest price accepted by the firm at the allowable levels of quality and functionality. Customers consider price to be the critical characteristic, while firms regard cost as the most important factor. Therefore by connecting the maximum and minimum values of the characteristics the survival zone of a product can be identified as is illustrated in Table 3.2.

### **3.4.2 Managing the survival characteristics**

Cooper and Slagmulder (1997: 36) point out that adopters of a confrontation strategy should be experts at developing low-cost, high quality products that have functionality demanded by the customers. Cost, quality and functionality expertise should be utilised to form a strategy in developing products with the right quality and functionality at the right price. The confrontational strategy approach requires the integration of cost, quality and functionality management systems. The integration of these systems has enabled many Japanese firms to respond rapidly to changes in economic conditions and match the innovative products of competitors.

Cooper and Slagmulder (1997: 37) explain the features of the cost, quality and functionality management systems in a confrontational environment as follows:

- **Managing the product functionality**

In order to compete using product functionality, a firm can use the following methods:

- Accelerate the rate at which increased functionality is introduced.
- Change the way products are differentiated.
- Change the functionality nature of the product.
  
- **Managing product quality**

Quality is managed via the total quality management (TQM) program. TQM programs have been very successful in many Japanese firms, resulting in the maximum achievable levels for the quality characteristic being increased to such an extent that any additional improvements are unlikely to be considered of any value to the customer. Consequently, in most products the survival zone of the quality characteristic is extremely small.

- **Managing the product cost**

Firms reduce costs in three primary ways:

- Manage the cost of future products.
- Manage the cost of existing products.
- Harness the entrepreneurial spirit of the workforce.

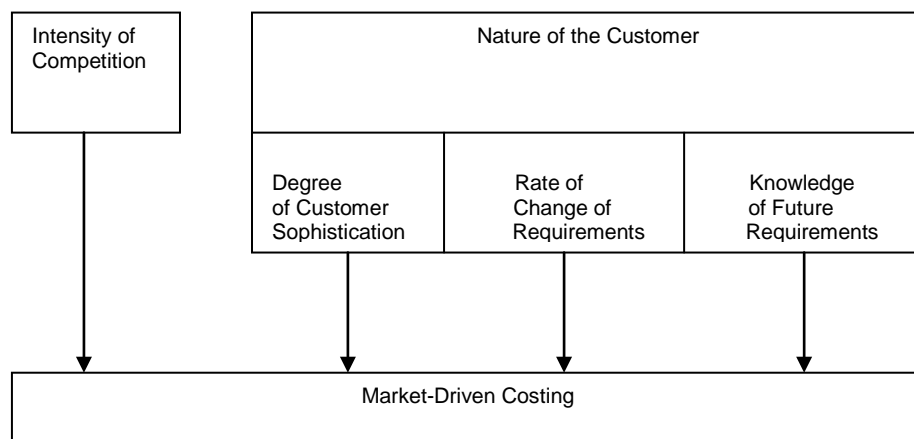
Factors, which determine the amount of energy a firm spends on each of the above cost reduction methods include:

- The competitive environment in which the firm competes.
- The maturity of the product's technology.
- The length of the product's life-cycle.

### 3.4.3 Market driven target costing

Cooper and Slagmulder (1997: 167) indicate that the factors that influence market-driven costing are the intensity of competition and the nature of the customer, which is illustrated in Figure 3.3. These factors assist in determining the nature and extent of the information collected about customers and competitors in the market analysis process. Further they also assist in determining the difficulty of ensuring that products are launched inside their survival zones and consequently the extent of the benefits that will be derived from target costing.

**Figure 3.3: Factors influencing market-driven costing**



(Source: Cooper and Slagmulder 1997: 25)

#### 3.4.3.1 Intensity of competition

According to Cooper and Slagmulder (1995: 168) evenly matched firms adopt a confrontational strategy when sustainable competitive advantages cannot be

developed over each other. Confrontational markets are characterised by the following realities being present:

- Profit margins are low.
- Customer loyalty is low.
- First mover advantages are small.
- Dramatic failure of products launched outside their survival zones.

Under the above conditions, the benefits of target costing are high. When launching a new product, a firm cannot afford to make too many mistakes due to the low profit margins and customer loyalty. Target costing increases the probability that new products are inside their survival zones when being launched by transmitting the competitive pressure faced by the firm to its product designers and suppliers. Typically, failure to launch products in survival zones results in rapid and significant loss of market share because of the narrow survival zones, which have resulted from equivalent competitors targeting the same customers.

Cooper and Slagmulder (1997: 169) point out that it is difficult for firms to recoup their investment in product development due to competitors' ability to rapidly bring "me-too products" to the market. The rapid copying by firms results in product life-cycles being shortened and firms no longer having the ability to achieve first-mover advantages, which in turn, leads to lower profits. The firm is forced to amortise its development costs over fewer units which are generating lower profits. Significant pressure is thus placed on the firm to minimise product failures as the ability of the successful products to offset failures is reduced. Cooper and Slagmulder (1997: 169) therefore conjecture that the value of target costing increases with intensity of competition.



In contrast, nonconfrontational strategies such as cost leadership and differentiation can be successful in environments where the intensity of competition is lower. The potential benefits of target costing will be lower in such environments due to the higher profits and increased customer loyalty allowed for by these strategies (Cooper & Slagmulder 1997: 169).

### **3.4.3.2 Nature of the customer**

According to Cooper and Slagmulder (1997: 170) the following three characteristics influence the use of target costing:

- Degree of customer sophistication.
- Rate at which customer requirements change.
- Degree of understanding of future product requirements.

These three characteristics assist in determining the benefits that can be potentially derived from target costing since they deal with the shape, rate of change of location, and ease of predicting the location of survival zones.

#### **3.4.3.2.1 Degree of customer sophistication**

Customer's expertise at detecting differences between price, quality and functionality of competitive products determines the degree of customer sophistication. Sophisticated customers are characterised as being highly knowledgeable regarding available product offerings, they have the ability to detect minor differences, and further do not hesitate to switch between manufacturers.

Consequently, the survival zones of products become narrower as customers become more sophisticated. The risk of narrow survival zones, is that products

will be launched outside of these zones and will consequently fail. To address this risk and increase the probability that products are launched inside these narrow survival zones, firms rely heavily on consumer analysis to determine the location of survival zones when launching the product (Cooper & Slagmulder 1997: 170).

The primary characteristic of the survival triplet used to differentiate products in the automobile industry is functionality. Firms compete by keeping the price and quality essentially unchanged while continuously increasing the functionality of their products. As a result, customers have come to expect a steady rise in product functionality and have clear expectations for their future purchases (Cooper & Slagmulder 1997: 171).

Cooper and Slagmulder (1997: 172) state that in environments with highly sophisticated customers, target costing is especially valuable in ensuring that products are designed to closely meet customer requirements since survival zones are narrow. The discipline of target costing ensures that engineers do not add extra functionality to the products which cost more than the value the customer places on them. These design “improvements” cost too much and result in profits that are below expectations. However, profits are already low in confrontational environments and there is little room for error, rendering the discipline imposed by target costing on the product designers critical to a firm’s survival.

Cooper and Slagmulder (1997: 172) are therefore of the opinion that target costing systems will be especially valuable in environments with sophisticated customers. In contrast, target costing will not be as beneficial in environments where consumers are less sophisticated, in which circumstance target costing will be more internally focused.

#### **3.4.3.2.2 Rate of change in customer requirements**

The rate at which customer requirements changes, is another factor influencing the use of target costing as this defines how quickly the survival zones move over time. It becomes more difficult for a firm to predict where a new product's survival zone will be when it is launched and to ensure it will fall inside the zone when survival zones are moving rapidly (Cooper & Slagmulder 1997: 172).

Swenson et al (2003: 14) points out that prior to target costing, Boeing aeroplanes had hundreds of costly customer specific product features, of which the majority of features were not transferable from one customer to the next. To improve the situation, Boeing now attempts to minimise unique customer requirements and incorporate changes that provide value to a large customer base.

Cooper and Slagmulder (1997: 172) point out that customer expectations change relatively quickly in the automobile industry, and therefore a firm such as Nissan samples consumer preferences on a regular basis during the product design process. In this respect, Cooper and Slagmulder (1997: 172) established that the market is sampled when the product is first conceptualised, just before entering the production design stage, and then just before it enters the production stage. The main purpose of conducting market revisits is to capture changes in the position of survival zones since the last survey. This allows for the product's design to be modified in order to increase its probability of success.

Consequently, target costing is more beneficial in environments where consumer preferences are changing rapidly. Under such conditions a firm is more at risk to launch products that are outside their survival zones. Considerable effort in predicting future customer requirements is needed from

firms having such customers. In contrast, less effort is required to locate the position of a product's survival zone when customer requirements are stable, and therefore target costing will be less beneficial. In these instances, the target costing systems are more internally focused.

#### **3.4.3.2.3 Degree of understanding of future product requirements**

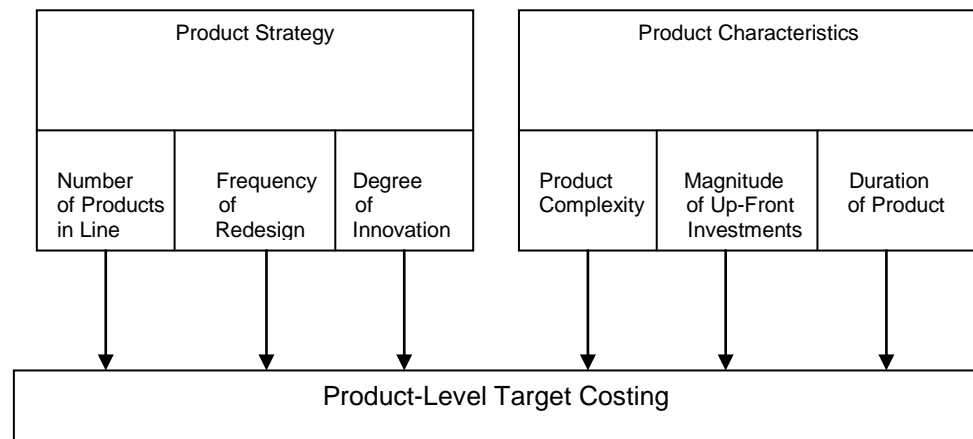
How much customer analysis is done in the target costing process is determined by the degree of consumers understanding of their future requirements of a product. As the degree of understanding increases, it becomes more beneficial to rely upon known customer preferences to determine the location of the survival zones. Alternatively, firms paying too much attention to consumers who have little knowledge of their future product requirements, risk launching products that fail because they are outside the survival zone (Cooper & Slagmulder 1997: 173).

By way of example, Cooper and Slagmulder (1997: 173) point out that customers in the earth-moving business have a high degree of awareness of their future requirements. A firm such as Komatsu may therefore rely on its customers to inform them where to improve on design and by how much. In such an environment, target costing may be beneficial as the customer is very specific. However in the electronics industry consumers have less understanding of their future requirements. Since customers are unable to accurately specify the location of future survival zones, product failures are more likely in this type of industry. Target costing is therefore less beneficial in environments where there is difficulty in predicting the future locations of the survival zones.

### 3.4.4 Product level target costing

According to Cooper and Slagmulder (1997: 174) the firm's product strategy and characteristics of the product help shape the product-level target costing section of the target costing process as is illustrated in Figure 3.4. These two factors assist in determining the nature and extent of the information collected about the historical cost trends and customer requirements.

**Figure 3.4: Factors influencing product-level target costing**



(Source: Cooper and Slagmulder 1997: 175)

#### 3.4.4.1 Product strategy

Cooper and Slagmulder (1997: 174) suggest that product strategy plays a primary role in determining the amount of effort required on product-level target costing and the manner in which the effort is to be expended. The number of products in the line, the frequency of redesign, and the degree of innovation in each generation of products is established by the product strategy.

#### **3.4.4.1.1 Number of products in the line**

Cooper and Slagmulder (1997: 174) caution that firms need to carefully manage the number of products in the line. Customers have different requirements and can be satisfied by developing products that are differentiated either vertically or horizontally.

Vertically differentiated products differ by the degree of functionality they provide to customers and their selling price. The higher the price of the product, the higher the functionality (and perhaps quality) of the product. Horizontally differentiated products deliver a different bundle of quality and functionality whilst selling at the same price.

By developing optional features, relatively small variations in functionality and price are often achieved, for example, a Corolla with or without a passenger airbag. In contrast, the introduction of different product models, for example a Corolla versus a Camry, will achieve major variations in functionality.

Cooper and Slagmulder (1997: 175) state that the greater the number of different products the firm supports, the higher the overall level of customer satisfaction. Further, as the number of products in the line increases, so does the effort expended on target costing, since new product launches occur more frequently. Cooper and Slagmulder (1997: 175) are of the opinion that this observation is intuitively reasonable as target costing operates predominantly at the individual product level, hence the benefits must derive at that level.

#### **3.4.4.1.2 Frequency of redesign**

Cooper and Slagmulder (1997: 176) state that firms have been forced to become experts at developing and launching products at a rapid rate due to

intense competition. However, this ability has its disadvantages. As the duration of the manufacturing phase is short, the time available to generate an adequate return on the up-front investment is limited and it thus leads to a lower sales volume of each product. In order to remain profitable, the firm needs to launch a high percentage of profitable products. Secondly, due to the short product life cycles, there is inadequate time to correct any errors. An unprofitable product will often remain unprofitable until it is withdrawn. Therefore, it is critical to design new products that are profitable.

Cooper and Slagmulder (1997: 176) are of the opinion that the higher the rate of new product introduction, the greater the benefits derived from target costing. Therefore, it is expected of such firms to have well developed target costing systems that subject the product design process of all new products to systematic cost reduction pressures. In contrast, it is possible that formal target costing systems will not be required by firms that rarely introduce new products. Rather these firms will probably apply target costing principles on an ad hoc basis as required.

#### **3.4.4.1.3 Degree of innovation**

Cooper and Slagmulder (1997: 177) state that the degree of innovation in each new product generation assists in determining how much historical cost information can be used to estimate future costs. As the degree of innovation increases, so do product development costs. Information on past products also becomes less valuable. This is especially evident in revolutionary products that rely upon completely new technologies, in which case historical cost information about earlier products will have little value. Similarly, significant innovations in product design can invalidate customer, competition, and supplier information. In contrast, the past is often highly predictive of the future and value engineering techniques such as functional analysis, which depends upon the

use of the same technology, can be applied to products that are similar to the ones they are replacing.

Cooper and Slagmulder (1997: 177) observe that it is difficult to apply target costing to revolutionary products. Firstly, it is difficult establishing the target selling prices as the value of the new product to the customer is difficult to estimate. Secondly, historical cost data is not available since the firm has never applied the technology in its products. Lastly, a greater number of new suppliers are typically involved.

Cooper and Slagmulder (1997: 177) are of the view that the target costing system is less valuable when new models are introduced which do not rely upon existing designs, but rather more on intuition as opposed to hard facts. For example, Toyota derived fewer benefits from target costing with the introduction of the Lexus, because of the high degree of innovation in the new vehicle.

#### **3.4.4.2 Characteristics of product**

Cooper and Slagmulder (1997: 178) cite three characteristics of the product which influence the benefits derived from target costing and the way it is practiced, namely product complexity, the magnitude of up-front investments, and the duration of the product development process.

The complexity of the product determines the difficulty in managing the product design process. The magnitude of up-front investments is influenced by research and development costs, production start up costs, and product launching expenditure. The duration of the product development process refers to the time it takes for the product to progress from the conception stage to being released for production.



#### **3.4.4.2.1 Product complexity**

According to Cooper and Slagmulder (1997: 178) product complexity is influenced by factors such as the number of components in the product, the number of production steps, the difficulty of manufacturing the components it contains, and the range of technologies required to produce the product. Two main reasons are cited for the benefits of target costing increasing as the complexity of the product grows. Firstly, the extent to which costs can be influenced in the product design stage versus the manufacturing stage increases. Secondly, ensuring that component-level target costs tally with the product-level target cost becomes more challenging since the product design process is more complex.

Cooper and Slagmulder (1997: 179) point out that, as product complexity increases, so does the cost of applying target costing at the component level increase. To reduce the impact of product complexity, the target costing process can be simplified by performing detailed target costing on selected representative variations, as opposed to all variations. Consequently, Cooper and Slagmulder (1997: 179) are of the opinion that target costing becomes more beneficial as product complexity increases.

#### **3.4.4.2.2 Magnitude of up-front investments**

The number of products a firm is prepared to launch will reduce as the size of the up-front investment increases, since the firm will be more risk averse. Consequently, where products have high up-front investments, firms are more likely to develop a small range of products, aimed at satisfying a specific market segment (Cooper & Slagmulder 1997: 179).

Cooper and Slagmulder (1997: 180) state that target costing will be more beneficial for firms that have products with high up-front investments because every product has to have the maximum probability of being successful. Where products have high up-front investments and short manufacturing lives, it is critical that any products launched have adequate profit levels and sales volumes. Careful product selection is critical, and target costing plays an important role in ensuring adequate product profitability. In contrast, the benefits of target are lower when up-front investments are small.

Further, Cooper and Slagmulder (1997: 180) point out that life-cycle analysis for high up-front investment products are important. It follows that life-cycle target costing is more common in such firms as opposed to those firms producing products with low up-front costs. The target profit margins need to reflect the level of the investment, as the profits earned by the product must be sufficient to pay back the investment in product development.

#### **3.4.4.2.3 Duration of product development**

The length of time to develop a new product also determines the benefits derived from a target costing system. As the duration of the design process increases, so does the probability that the market conditions that were used to validate the design of the new product, have changed. Therefore, the target costing system needs to contain several stages at which market conditions are reviewed for products with long development cycles such as automobiles. In contrast, fewer reviews are required for products with short development cycles. Thus, the target costing system becomes more complex as the product design cycle increases in length (Cooper & Slagmulder 1997: 180).

Cooper and Slagmulder (1997: 180) point out that automobiles have a relatively long product development cycle of six years. Multiple reviews of market

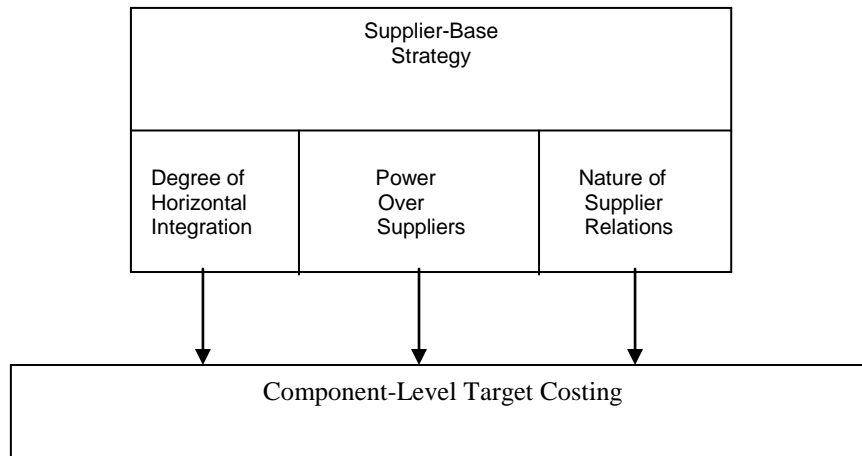
conditions and decisions about continuing the project are required during this long period. Cooper and Slagmulder (1997: 180) refer to the multiple reviews which are conducted at Nissan and Toyota as examples. Reviews, at these firms, occur at the beginning and end of the conceptual design stage and during the product design stage. Further, a final adjustment to the new model specifications is done just prior to entering production, in order to make sure that target costs will be achieved. Just prior to launching the product, the firms make the decision on which features will be treated as optional versus standard. This multiple review process ensures that, where possible, the target cost will be achieved and that the new model satisfies the customer.

Cooper and Slagmulder (1997: 181) are of the opinion that target costing is more beneficial in longer product development cycles because the long time between design and launch increases the risk that unsuccessful products will be launched. Further Cooper and Slagmulder (1997: 181) are of the view that more formal target costing systems, with multiple decision points reflecting a disciplined product development process, result from longer product development cycles. Lastly, Cooper and Slagmulder (1997: 181) observed that most, if not all, of the additional time required by the target costing process can be performed in parallel since the target costing process is integrated into the market analysis and product development processes.

#### **3.4.5 Component level target costing**

According to Cooper and Slagmulder (1997: 181) the firm's supplier-base strategy influences the component-level target costing section of the process. This strategy assists in determining the benefits from component level target costing as it shapes the amount of information the firm has about the costs and design capabilities of its suppliers. The factors influencing this section of the process are illustrated in Figure 3.5.

**Figure 3.5: Factors influencing component-level target costing**



(Source: Cooper and Slagmulder 1997: 28)

### **3.4.5.1 Supplier-base strategy**

Cooper and Slagmulder (1997: 181) list three characteristics which influence the benefits of component level target costing namely, the degree of horizontal integration, the power over suppliers and the nature of supplier relations.

#### **3.4.5.1.1 Degree of horizontal integration**

According to Cooper and Slagmulder (1997: 181) the degree of horizontal integration refers to the total cost of externally sourced products as a percentage i.e. firms that purchase a large part of inputs from external sources are referred to as being horizontally integrated. As a result of the higher reliance that firms place on external suppliers, the importance of supplier management, and therefore component-level target costing increases.

Cooper and Slagmulder (1997: 182) point out that two factors increase the potential benefits of component-level target costing. Firstly, when a high percentage of the product's components are externally sourced the potential for

greater savings exists, as target costing can be applied to all the externally acquired components and in so doing, pressure can be put on suppliers to reduce their costs. In contrast, it is often difficult to place effective pressure on the other divisions to reduce their costs in vertically integrated firms. Secondly, greater returns are possible from focussing on supplier creativity, since suppliers are responsible for a larger part of the design in addition to providing a higher percentage of the firm's products.

According to Swenson et al (2003: 15) Continental Teves makes use of a cost-modelling tool to determine the target costs for the components it outsources. In the event of a supplier being unable to achieve its target costs, Continental will analyse the supplier's manufacturing processes, tolerances and material in order to verify the assumptions in its cost-modelling tool. If after negotiations the supplier's costs are still too high, Continental may consider bids from other suppliers.

#### **3.4.5.1.2 Power over major suppliers**

According to Cooper and Slagmulder (1997: 183) the amount of energy a firm expends on determining the purchase price of components will depend on the relative power of the buyer-supplier relationship. In cases where buyer power is high, buyers will normally expend considerable energy in developing component-level target costs (i.e. purchase prices) for purchased components. On the other hand, firms with low production volumes and little buyer power will use less energy to develop target costs for purchased components. In the latter instance, suppliers will not accept the target cost of components as their selling prices for their products unless adequate returns are provided.

Therefore, Cooper and Slagmulder (1997: 183) reach the conclusion that the more power the firm has over its suppliers, the greater the benefits target

costing provides as it enables the firm to put cost pressure on the suppliers to reduce prices. Alternatively, the benefits of target costing are reduced when a firm has little power over its suppliers. Newman and McKeller (1995: 15) are of the view that only if the supplier is dependant on the customer will it be possible to implement the target costing technique. The likelihood of success is small if the supplier is in the position to choose its customers.

#### **3.4.5.1.3 Nature of supplier relations**

Cooper and Slagmulder (1997: 183) suggest that the use of target costing at the component level becomes more beneficial as supplier relations become more cooperative. This cooperation provides the firms with the ability to combine design creativity and other means to collectively reduce cost. Component-level target costing applies considerable cost pressure on suppliers in cooperative relationships. However, this pressure is eased somewhat by product designers assisting suppliers to achieve their cost reduction objectives.

Schmelze et al (1996: 30) are of the opinion that target costing fosters improved relationships between manufacturers and their suppliers. This was observed at ITT Automotive, one of the world's largest suppliers of auto parts, where key suppliers are an integral part of the target costing team. In cases where a supplier is experiencing difficulty in meeting the target cost, ITT Automotive requests a detailed analysis of the supplier's cost in order to assist the supplier reduce costs. The detailed analysis enables ITT Automotive to suggest some "value analysis" that will assist the supplier in reducing its costs.

However, in contrast, Cooper and Slagmulder (1997: 184) point out that in adversarial supplier relations, selling prices can be forced on the firm's suppliers by component-level target costing. However, in this instance there is no mechanism to take advantage of any synergy between the designers of the two

firms. Newman and McKeller (1995: 14) note that the U.S buyer-supplier is different to that existing in Japan. Because of the long-term nature of the relationship in Japan, suppliers are more likely to accept pressures from buyers.

### **3.5 CONCLUSION**

This chapter discusses the role that target costing plays in the strategies a firm may choose to adopt and also looks at the various forces that might impact on strategy. Whilst Porter's generic competition strategies have served the industry well in a mass production environment, the view is that in the modern era of lean manufacturing, competition cannot be avoided which leads to the Confrontational Theory. It is evident that the firm's strategy and the competitive environment are linked to the use of target costing. Therefore target costing can be regarded as a key strategic cost management tool that is used to reduce costs and assist management in making strategic decisions.

**CHAPTER 4****RESEARCH DESIGN AND METHODOLOGY**

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**CHAPTER 4****RESEARCH DESIGN AND METHODOLOGY****4.1 INTRODUCTION**

This chapter presents an overview of research methods in general and outlines the specific methodology that was followed for this research study. Further the questionnaire design, selection of the sample, administration of the questionnaire, as well as an explanation of actual response rate are covered in this chapter.

**4.2 RESEARCH DESIGN****4.2.1 The concept of research**

Herbert (1990: 1) defines research as “a process of seeking, by means of methodical enquiry, to solve problems and to add to one’s own body of knowledge and that of others by the discovery of significant facts and insights.” Similarly Leedy and Ormrod (2005: 2) describe research as a “systematic process of collecting, analysing, and interpreting information (data) in order to increase our understanding of the phenomenon about which we are interested or concerned.”

Leedy and Ormrod (2005: 2) point out that the following characteristics are typical of research:

- Research starts with a question or problem.
- Research needs a clear goal.

- Research needs a specific plan before commencing.
- Research normally divides the principal problem into smaller sub problems.
- Research is directed by the research problem, question, or hypothesis.
- Research accepts certain vital assumptions.
- Research requires the collection and interpretation of data in order to resolve the problem that initiated the research.
- Research follows a cycle comprising of logical, developmental steps.

#### **4.2.2 The concept of research design**

According to Zikmund (1994: 43) a research design is essentially a master plan in which the methods and procedures for collecting and analysing required information is specified. In order to ensure that the collected information solves the research problem, the objectives of the research are included in the design. Further, when planning the research design, the design technique, the sampling methodology, and the cost of the research must be determined. Herbert (1990: 18) sums up the main criteria of a research design in the following questions:

- Does the design generate answers to the research question?
- Does it adequately test the hypotheses if it is a hypothesis-testing study?

#### **4.2.3 Research design techniques**

According to Zikmund (1994: 43) there are four basic research design techniques that can be used in generating data:

- Surveys
- Experiments
- Secondary data
- Observation

Factors that determine which design technique will be used include the objectives of the study, the available data sources, the urgency of the decision, and the cost of obtaining the data.

### **4.3 RESEARCH APPROACH**

According to Johnson and Christensen (2008: 33) three major research approaches appear on a research continuum, with qualitative research on the left, quantitative research on the right, and mixed research in the centre on the continuum. The characteristics are briefly discussed below, together with a detailed comparison between quantitative and qualitative approaches in Table 4.1.

#### **4.3.1 Quantitative approach**

Johnson and Christensen (2008: 33) refer to quantitative research as “research that relies primarily on the collection of quantitative (i.e. numerical) data.” Leedy and Ormrod (2005: 94) point out that quantitative research aims to answer questions concerning the relationships between measured variables by explaining, predicting, and controlling phenomena. Further Leedy and Ormrod (2005: 97) state that data is summarised according to means, medians, correlations and statistics.

According to Paton (1990: 14) the advantage of quantitative research is that it allows for a large sample of respondents to be measured against a limited set of questions. This facilitates the comparison and statistical aggregation of the data collected. The result is a broad, generalised set of findings in a concise form.

### **4.3.2 Qualitative approach**

Johnson and Christensen (2008: 34) refer to qualitative research as “research that relies primarily on the collection of qualitative (i.e. nonnumerical data such as words and pictures) data.”

According to Paton (1990: 10) there are three data collection methods used by qualitative research, namely in-depth, open-ended interviews; direct observation and written documents. The data collected from interviews comprise of direct quotations about the experiences, opinions, feelings, and knowledge of the people being interviewed. The data obtained from observation include detailed descriptions of people’s activities, behaviours, actions, interpersonal interactions and organisational processes. Through document analysis, data in the form of excerpts, quotations, publications, reports, personal diaries and open-ended written responses to questionnaires and surveys can be obtained.

### **4.3.3 Mixed Research**

Johnson and Christensen (2008: 34) refer to mixed research as “research that involves the mixing of quantitative and qualitative methods or other paradigm characteristics.” Establishing the appropriate mixture depends on the research questions and the situational and practical issues facing the researcher. Further Johnson and Christensen (2008: 35) state that mixed researchers consider both quantitative and qualitative views to have positive value. The use of only quantitative research or only qualitative research is seen to be “limiting and incomplete for many research questions.”

Similarly Paton (1990: 14) is of the view that since quantitative and qualitative have different strengths and weaknesses they provide alternative, and not

mutually exclusive, strategies for research. The same study can gather both quantitative and qualitative data.

Further, Johnson and Christensen (2008: 51) point out that by following a mixed research approach, the quality of the research improves and the researcher is less likely to make an error due to the different strengths and weaknesses of the research methods.

**Table 4.1: The distinguishing characteristics between quantitative and qualitative approaches**

<b>Question</b>	<b>Quantitative</b>	<b>Qualitative</b>
What is the purpose of the research?	To explain and predict To confirm and validate To test theory	To describe and explain To explore and interpret To build theory
What is the nature of the research process?	Focussed Known variables Established guidelines Static design Context-free Detached view	Holistic Unknown variables Flexible guidelines Emergent design Context-bound Personal view
What are the methods of data collection?	Representative, large sample Standardised instruments	Informative, small sample  Observations, interviews
What is the form of reasoning used in analysis?	Deductive analysis	Inductive analysis
How are the findings communicated?	Numbers Statistics, aggregated data Formal voice, scientific style	Words Narratives, individual quote Personal voice, literary style

(Source: Leedy and Ormrod 2005: 96)

#### **4.4 APPROPRIATE RESEARCH METHOD**

In order to gain a deeper understanding and fully answer the questions raised at the beginning of this study, the author has chosen to use both a quantitative and qualitative approach. Including the different types of questions, has allowed for both qualitative and quantitative approaches to be followed in analysing this research study. Johnson and Christensen (2008: 176) points out that, essentially open-ended questions provide qualitative data, while close-ended questions provide primarily quantitative data.

#### **4.5 QUESTIONNAIRE DESIGN**

The nature of the topic researched in this study dictated the use of a questionnaire survey as the primary research tool. Questionnaire surveys are highly structured data collection techniques in which respondents are asked the same set of questions.

The questionnaire in this study was developed from the theoretical analysis of the literature study in Chapter 2 and Chapter 3. The questionnaire is divided into two sections. Section A is made up of biographical questions in which respondents were asked to indicate their job titles, experience and qualifications. Section B comprises of questions which were designed to research both general and specific aspects of target costing.

In Table 4.2 Herbert (1990: 55) depicts the advantages and disadvantages of using questionnaires as a data collection instrument.

**Table 4.2: Method: Questionnaires**

Range of types	Advantages	Disadvantages/biases	Safeguards
Close-ended (range of possible answers specified with the question)	Can be given to large numbers of people simultaneously and who may be widely distributed geographically	Respondent may not be able to reply because the questions do not use the concepts, the constructs or the vocabulary that mean something to him	Preliminary study to determine relevance of questions and vocabulary
Semi-open ended (pre-specified answers, with encouragement for open comments, or some questions open-ended)	Standardised wording and order of questions means responses can be compared	May be filled in under widely different (non-standard) conditions	
	Anonymity for respondents	May be low percentage returned	
	Can be filled in in respondent's own time	No way of checking whether respondent has understood questions in way intended	Back translation – ask sample people to go through their own questionnaire explaining their answers
	Relatively speedy way of collecting data	Biasing responses by choice of questions and range of pre-specified answers	
Open-ended (each question represents a topic and the respondent is asked to comment freely on it)	Respondent can answer from his own point of view, selecting what is relevant to him	Mass of data difficult to analyse Difficult to compare with other respondents	
		Researcher bias most likely at data analysis stage Respondents may be put off by open format which provides few clues to the answers	Analysis done independently by several different individuals who then develop a common framework

(Source: Herbert 1990: 55)

As a means of gathering the required information, the following types of questions were used in the questionnaire:

- Dichotomous questions. With this question type, the respondents are offered a choice between two options only, for example “Yes” or “No”.

- Semi-open questions. These questions provide prespecified answers, but allow for open comments in order to get clarification or probe a person's reasoning.
- Open-ended questions. These questions allow the respondents to answer in their own words and freely express themselves. This enables respondents to shed more light on their answers and provide more detailed explanations.
- Scaled-response questions. The purpose of this question format is to collect data on the attitudes and perceptions of the respondents. The five point Likert-scale, ranging from strongly agree to strongly disagree, was used to determine respondents' level of agreement on a given subject. It purposefully included a middle point reflecting the neutral response as it was felt that this will erase researcher bias if it was left out. In analysing the responses, mode and median were computed to determine the highs and lows of the result or frequencies of responses.

#### **4.6 SELECTION OF THE SAMPLE**

As indicated in Chapter 1 (subsection 1.6) the research study will be restricted to the motor vehicle manufacturers in South Africa. In this regard the population will comprise of the following seven manufactures:

- Audi / Volkswagen, Uitenhage, Eastern Cape
- BMW, Pretoria, Gauteng
- Daimler Chrysler, East London, Eastern Cape
- Ford, Pretoria, Gauteng
- General Motors, Port Elizabeth, Eastern Cape
- Nissan, Rosslyn, Gauteng
- Toyota, Durban, KwaZulu-Natal



#### **4.7 ADMINISTERING THE QUESTIONNAIRE**

The seven motor vehicle manufacturers were approached telephonically and via e-mail in order to establish the responsible person to whom the questionnaire should be directed. Once the details of the responsible persons had been established, the questionnaire together with a covering letter and confidentiality agreement was e-mailed through to these identified executives on 1 October 2009. The covering letter provided the respondents with the purpose, background and potential benefits of the research project. Further, respondents were requested to return the completed questionnaire by 15 October 2009. Confidentiality of the information was assured, for which the confidentiality agreement was included.

#### **4.8 RESPONSE RATE FOR THIS STUDY**

The questionnaire was sent to the identified executives of each of the motor vehicle manufacturers in South Africa. Initially the response rate was relatively slow. By the deadline/return date only three completed questionnaires had been received. On forwarding a follow-up e-mail immediately after the deadline, two respondents indicated they were waiting for authorisation to complete the questionnaire. A further respondent was abroad on business. Subsequent e-mails and telephone calls resulted in three of the outstanding questionnaires being received. One respondent indicated that whilst he was keen to complete the questionnaire, the group's global policy of divulging information did not allow him to answer the questionnaire.

Six of the seven motor manufacturers completed the questionnaire, which represents an 85,7% response rate. Whilst this is a relatively high response rate it should be borne in mind that the population (seven manufacturers) is small and ideally a 100% response rate would be conclusive regarding the industry.

However, in terms of the NAAMSA Passenger Vehicle Report as at September 2009, the market share of the six respondents make up 94,7% of the total market share of the sample. Consequently the researcher is of the view that the results obtained from the study do present a fair reflection of the industry.

#### **4.9 CONCLUSION**

This chapter outlined the purpose of research in general and briefly described the difference between quantitative and qualitative research. A mixed research approach, which is a combination of quantitative and qualitative methods, was found to be the most suitable research strategy for this project. The discussion on the design of questionnaires was of assistance in the finalisation of the questionnaire used in this study. The next chapter addresses the empirical findings of the study.

**CHAPTER 5****EMPIRICAL STUDY AND PRESENTATION OF RESULTS**

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**CHAPTER 5****EMPIRICAL STUDY AND PRESENTATION OF RESULTS****5.1 INTRODUCTION**

In this chapter, the biographical details of the respondents and the findings of the respective study objectives are presented. To address the research objectives stated in Chapter 1 (section 1.2), a survey was conducted to determine the role target costing is fulfilling as a strategic cost management technique within the South African motor vehicle manufacturing industry. The empirical findings of the study, which are presented with the aid of tables and figures, are based on summaries of the questionnaire responses.

**5.2 BIOGRAPHICAL DETAILS OF RESPONDENTS**

Section A of the questionnaire contained five questions aimed at obtaining certain biographic information about the respondents (such as job title, the total years of business experience and in the financial function, the academic and professional qualifications and the number of years of post matric studies undertaken).

**5.2.1 Job titles**

Respondents hold the following job titles:

- Management Accountant
- Manager: Internal Control
- Senior Manager: Manufacturing Controlling

- Purchasing Manager
- Group Finance Controller & Treasurer
- General Manager: Finance

The above list reflects a wide variety of job titles. A total of 83,3% of the respondents are linked to the financial function. The remaining respondent (16,7%) is employed in the purchasing division of his organisation.

### **5.2.2 Total years of business experience and business experience in the financial function**

Figure 5.1 shows the distribution of respondents according to the years of business experience. A high percentage of respondents (83,3%) have business experience of more than 10 years.

**Figure 5.1: Distribution of respondents according to total years of business experience**

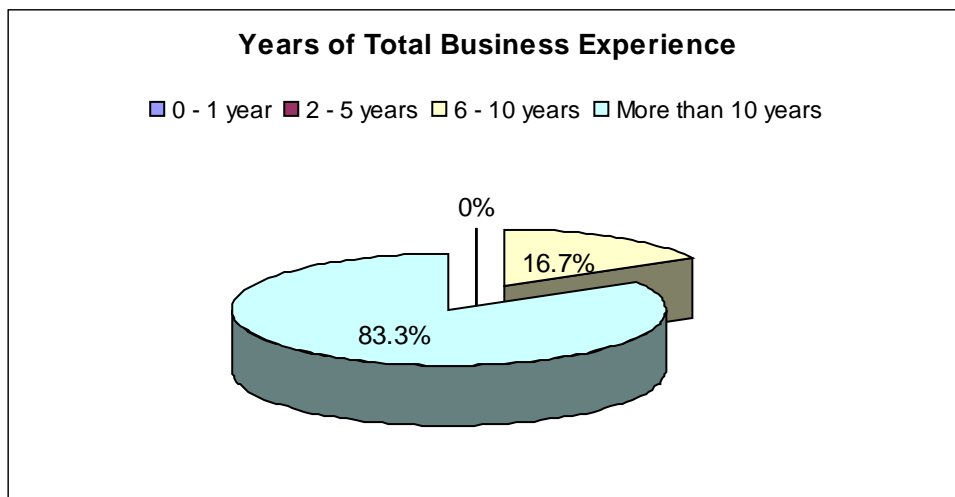
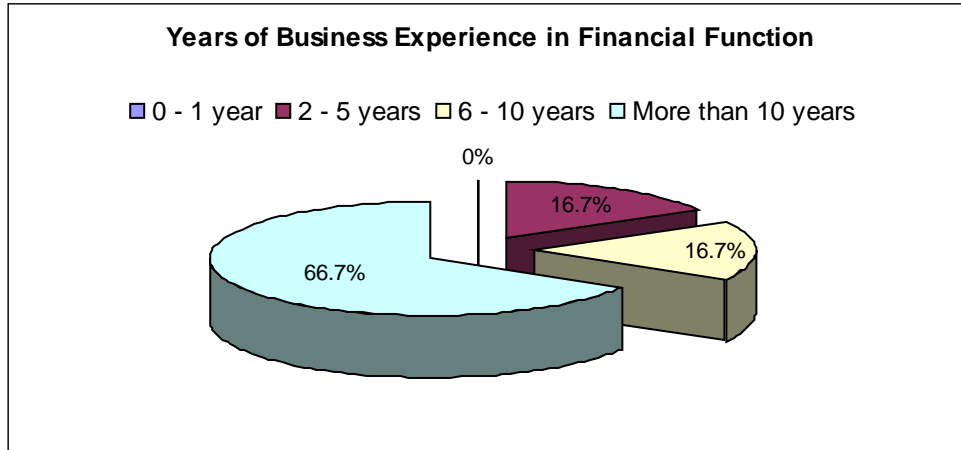


Figure 5.2 shows the distribution of respondents according to the years of experience in the financial function. Of those respondents, 66,7% has more than 10 years experience in the financial function.

**Figure 5.2: Total years of business experience in the financial function**



### 5.2.3 Academic and/or professional qualifications

Figure 5.3 shows the distribution of respondents according to first academic qualifications. The majority of respondents (66,7%) hold qualifications in the financial field, while the remaining respondents have engineering diplomas.

**Figure 5.3: Distribution of respondents according to first academic qualifications**

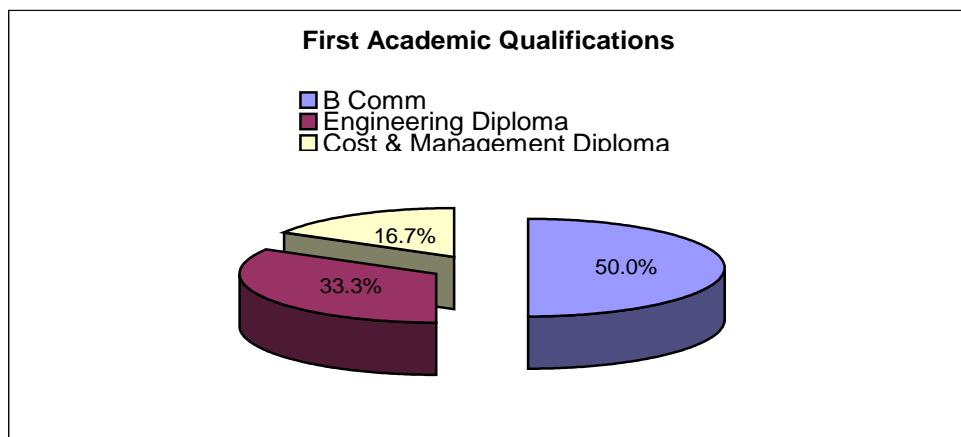


Figure 5.4 shows the distribution according to second and further academic qualifications. The majority of respondents (66,7%) furthered their studies and achieved a second qualification. One respondent obtained a financial qualification in addition to his first qualification in the engineering field.

**Figure 5.4: Distribution of respondents according to second and further academic qualifications**

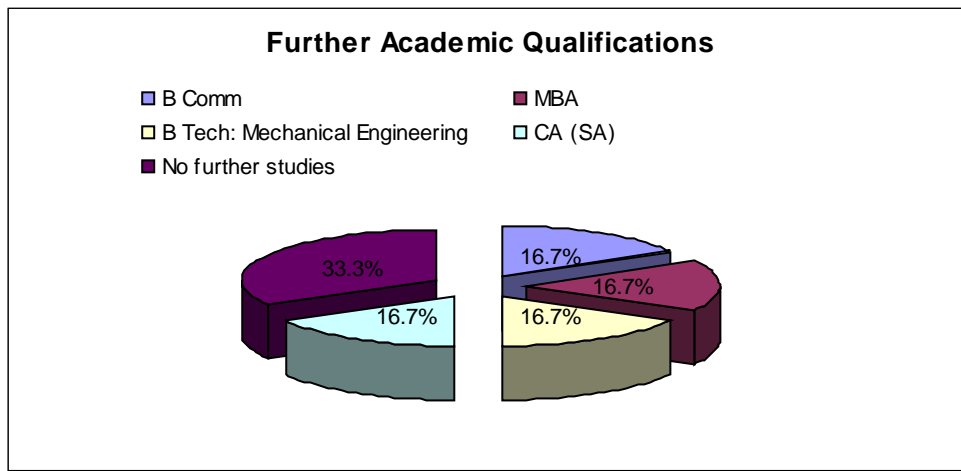
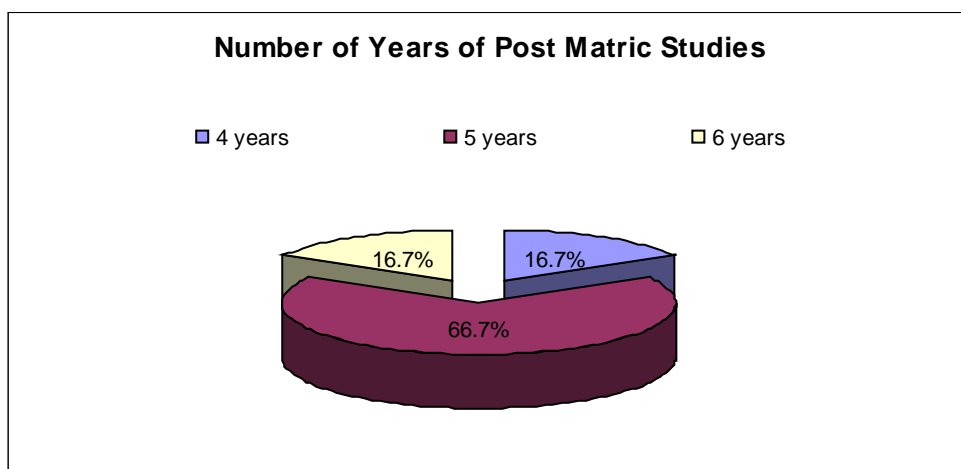


Figure 5.5 shows the distribution of respondents according to the number of post matric studies undertaken.

**Figure 5.5: Distribution of respondents according to the number of years of post matric studies**



### **5.3 ACHIEVEMENT OF THE RESPECTIVE STUDY OBJECTIVES**

The study's main and sub-objectives are again stated in this section, together with the specific questions that were posed to the respondents in order to get their responses as they relate to this strategic cost management tool. This is followed by a discussion of the empirical findings for each objective.

#### **5.3.1 Primary objective: Investigate whether local motor manufacturers use target costing as a strategic cost management tool**

To address this objective, the following questions were included in the questionnaire:

- Q2.1 Does your company use the method described (in the definition) or something similar?
- Q2.2 If yes, how long has your company been using the technique?
- Q2.3 Does your company refer to this technique by any other names? If yes, please indicate name(s)
- Q2.4 What are the differences between your technique and target costing?

The responses to these questions are discussed below.

#### **Q2.1. Does your company use the method described (in the definition) or something similar?**

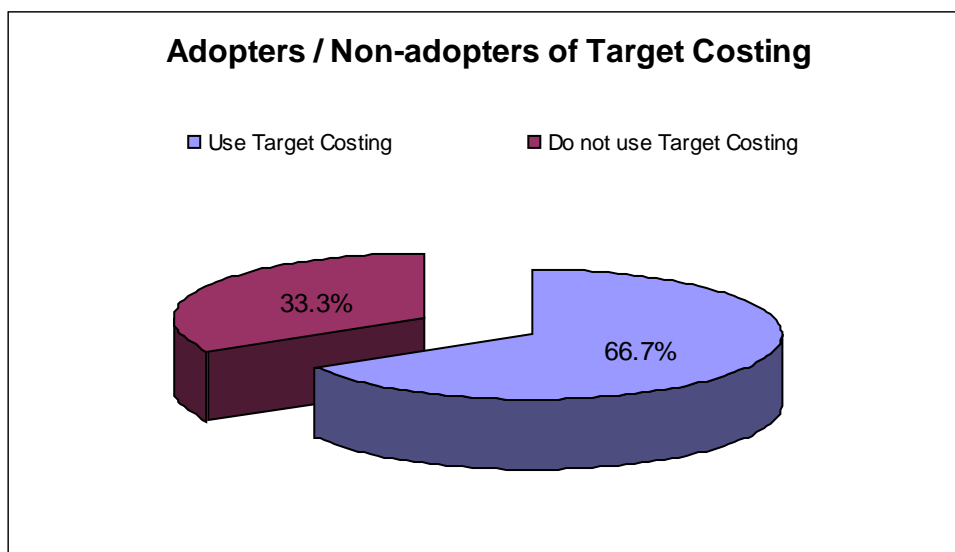
A broad definition reflecting a reverse costing mechanism, in which the attainable selling price and necessary profit margin are used to determine the allowable cost price of a product, was provided in the questionnaire. It was deemed necessary to provide this definition as a guide since manufacturers



might use this technique without knowing the theoretical term. Further the manner in which manufacturers apply the technique in practice may deviate from that described in literature.

Figure 5.6 shows the distribution of respondents who use target costing as a strategic cost management tool. Of the six respondents, two claim to use the target costing technique as described in the questionnaire. A further two respondents indicated that systems closely linked to target costing were being used. Two respondents indicated that target costing was not being used. For the purposes of easy analysis, target costing adopters will refer to manufacturers who use target costing as defined in the questionnaire and to those who claim to use similar techniques.

**Figure 5.6: Distribution of respondents using target costing as a strategic cost management technique**



As shown in Figure 5.6 above, the majority of manufacturers (66,7%) use target costing. To a large extent, ownership of the firms plays a key role in the adoption and intensity of this technique. One adopter of this technique pointed out that “as a subsidiary of a German car manufacturer the majority of the

products are defined and owned by the mother company. Local functions support accordingly.” Similarly another adopter indicated that “since vehicles are designed in Germany, and we have limited cost saving opportunities.” As six of the seven OEMs in South Africa are wholly foreign-owned multinationals and one is majority foreign-owned, it can be assumed that the limitations would apply to a greater or lesser extent throughout the industry.

**Q2.2. If yes, how long has your company been using the technique?  
something similar?**

All adopters indicated that target costing has been in use for more than 10 years.

**Q2.3. Does your company refer to this technique by any other names? If  
yes, please indicate name(s)**

In response to Question 2.3, which explored whether the target costing technique is known by any other names in their companies, the respondents provided no other names.

One respondent indicated, “the term target costing is often not used, but various other terms are used.” This respondent omitted to elaborate on the “various other terms”, other than to state, “we use Group defined benchmarks.” The lack of knowledge of the theoretical term was confirmed by the response of another respondent who stated, “I am not familiar with the term “Target Costing” although my Company does use the same principle as Target Costing.” This lack of theoretical knowledge is not unexpected due to the dearth of information available in traditional management accounting textbooks and other literature resources.

**Q2.4. What are the differences between your technique and target costing?**

The respondents provided valuable insight into how target costing was applied in their organisations. One respondent indicated “target costing is used for various business cases in the feasibility of a future product as part of a company’s product portfolio. The ideal market-based selling price will be established, based on market forces etc and optimal level of profitability will be determined. The balancing figure will be the target level of cost that the company is to achieve in order to achieve the required level of profitability. The company is then tasked to achieve that calculated level of profitability. The methodology therefore appears to be the same.”

Similarly another respondent explained, “targets are firstly derived from a required NPV (net present value) for the entire lifecycle of the product. Target NPV = Target price – Target costs.” Other adopters made mention of key elements of target costing, including setting prices to what customers are prepared to pay for the product, benchmarking against competition, and targets based on financial measures such as Return on Investment(ROI) and Economic Value Added (EVA).

An understanding into the systems of non-adopters was also gained. One non-adopter explained, “target costing allows cost to be at a certain level (price less profit). Profit margin remains fixed. In our case, we always strive to reduce cost as much as possible to maximise profits, regardless of what the selling price less profit equation is. Selling price is determined by our market equation, which is based on target competitor prices. Our minimum objective is to at least break even, but we strive to get costs as low as possible to maximise profit. We don’t have a target profit margin.” Another non-adopter indicated that their technique

is done through equivalent part number benchmarking, followed by target prices being calculated through Cost Index of Manufacture (CIM).

### **5.3.2 Sub-objective 1: Determine the goals that companies try to achieve with this technique**

The goal of this sub-objective was to determine the goals of local motor manufacturers that have adopted the target costing technique. To determine this, the following questions were included in the questionnaire:

- Q2.5 What goals do you wish to achieve through the use of target costing?
- Q2.6 Prior to implementing target costing, did you consider any alternatives? If yes, please specify such alternatives.

Feedback from the respondents is discussed below.

#### **Q2.5 What goals do you wish to achieve through the use of target costing?**

Respondents indicated they were striving to achieve the following goals with the implementation of target costing:

- Improve profitability
- Improve cost competitiveness
- Establish feasibility early on in a project (screening process)
- Determine product design and production set up

Respondents further emphasised that target costing is an ongoing process, which is geared to improve profitability and competitiveness especially against group companies. It was pointed out that “most if not all local manufacturers”

continuously look for ways to improve the local content of manufactured vehicles. By achieving a high local content percentage, cost competitiveness relative to overseas competition will increase, since the logistics costs for South African manufacturers are significant. One respondent indicated that his company, as a cost savings measure, had set a target of 70% local parts content.

**Q2.6. Prior to implementing target costing, did you consider any alternatives? If yes, please specify such alternatives.**

The respondents specified no alternative techniques. One respondent stated, “we have always used target costing in the early stages of product project evaluation.”

**5.3.3 Sub-objective 2: Assess how target costing is applied within the organisation**

The aim of this sub-objective was to assess how target costing has been applied within the organization by the firms who have adopted this technique. To achieve this objective, respondents were asked the following six questions in the questionnaire:

- Q2.7 Which areas/departments are involved in the target costing process?
- Q2.8 Are there any other areas/departments in your organisation that are involved in the target costing process?
- Q2.9 How do the activities for implementing target costing take place in your company?
- Q2.10 Please indicate other approaches (not listed in 2.9) that your company uses to implement target costing.

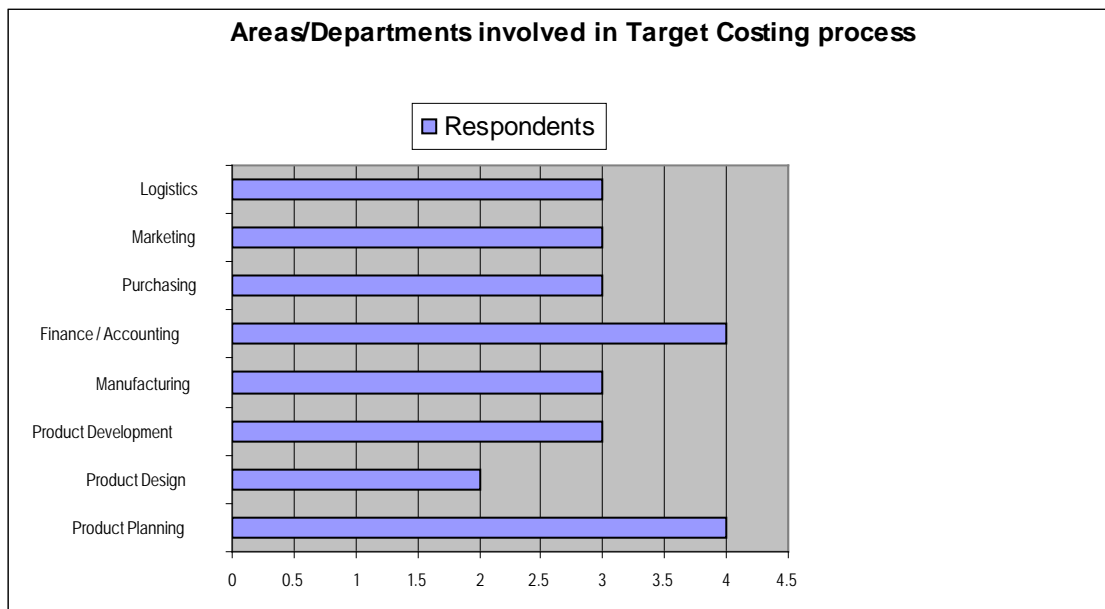
- Q2.11 What area/department is the driver/owner of the target costing process?
- Q2.12 To what extent are suppliers involved in the target costing process?

The responses to the questions follow.

### Q2.7. Which areas/departments are involved in the target costing process?

In order to assess which departments are involved in the target costing process, respondents were requested to indicate from a list of departments provided, which departments in their organisations were involved in the target costing process. Figure 5.7 shows the areas/departments that are involved in the target costing process.

**Figure 5.7: Distribution of respondents according to the areas/departments involved in the target costing process**



As depicted in Figure 5.7, all respondents indicated that their finance and product planning departments are involved in the target costing process. Three respondents indicated that logistics, marketing, purchasing, manufacturing, and product development departments are involved in the process. The product design department has low involvement in the process since the foreign holding companies control vehicle design. Local manufacturers are for the most part limited to making cosmetic changes and eliminating non-essential parts, which are non-safety critical items.

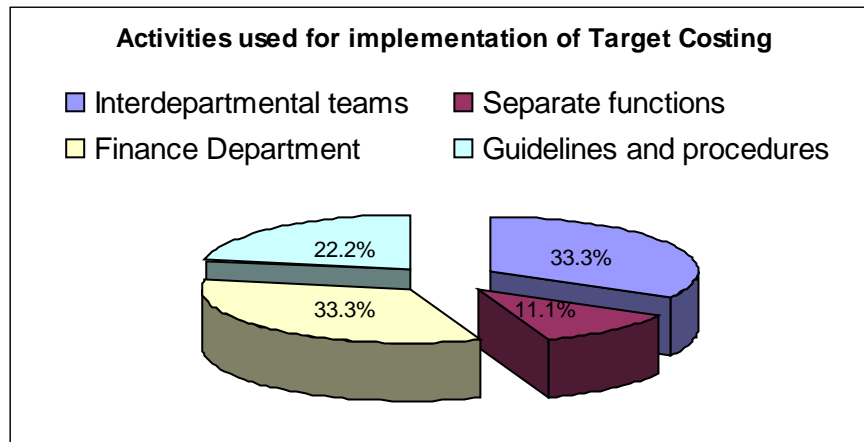
**Q2.8. Are there any other areas/departments in your organisation that are involved in the target costing process?**

In order to ensure completeness of involved areas/departments, respondents were requested to indicate whether there are additional areas/departments not included in Figure 5.7. Two additional departments/teams were put forward by the respondents, namely that of cost planning (internal department to plan supplier parts) and a benchmarking team (internal department to analyse competitor's products).

**Q2.9. How do the activities for implementing target costing take place in your company?**

Figure 5.8 shows the activities, which are used for the implementation of target costing. The intention of the question was for respondents to indicate which activity was used in their firms to implement this technique. Some respondents indicated multiple activities. This response can be interpreted that these firms do not have a standard approach in implementing target costing, which approach possibly differs on the basis of the situation or project the firm is involved in.

**Figure 5.8: Distribution of respondents according to the activities used for the implementation of target costing**



As depicted in Figure 5.8, interdepartmental teams and the finance department are mostly used for the implementation of target costing.

**Q2.10. Please indicate other approaches (not listed in Q2.9) that your company uses to implement target costing**

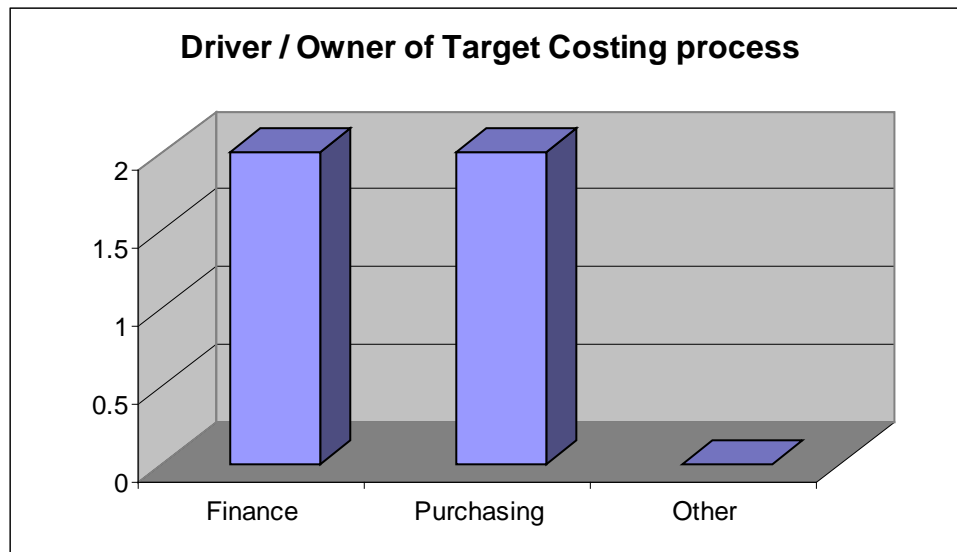
This question explores the implementation activities further by requesting respondents to indicate additional activities not included in Figure 5.8. One respondent indicated that a steering committee at group level drives the process, with a strong focus on cost reduction before the vehicle is produced or during the infancy stage of new projects.

**Q2.11 Which area/department is the driver/owner of the target costing process?**

As depicted in Figure 5.9 respondents indicated that the finance and purchasing departments were the drivers/owners of the target costing process in their organisations.



**Figure 5.9: Owner/driver of the target costing process**

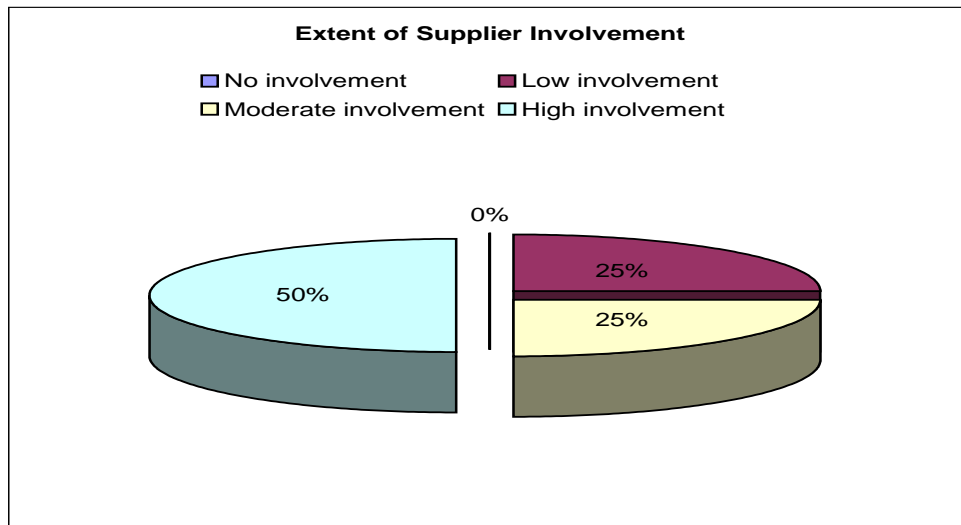


**Q2.12. To what extent are suppliers involved in the target costing process?**

Figure 5.10 shows the extent of supplier involvement in the target costing process. All respondents involve their suppliers to a greater or lesser extent in the process. Fifty percent of respondents indicated high supplier involvement, while the remaining respondents each indicated moderate involvement (25%) and low involvement (25%). A good working relationship, involving a high degree of mutual co-operation, trust and teamwork, is likely to be found in organisations with high supplier involvement. Alternatively low supplier involvement is indicative of the situation where manufacturers simply demand cost reductions from suppliers without assisting them to achieve the desired level of savings.

The researcher suspects that the manufacturers with high supplier involvement are taking better advantage of the target costing technique than those manufactures with low supplier involvement. However, proving this assumption is not within the scope of this study, nor is the reasons why some manufacturers choose not to have high supplier involvement in their target costing process.

**Figure 5.10: Distribution of respondents according to the level of supplier involvement in the target costing process**



**5.3.4 Sub-objective 3: To establish how effective target costing is as a strategic cost management tool in the South African motor manufacturing industry**

The goal of this sub-objective was to establish how effective target costing is as a strategic cost management tool in the South African motor manufacturing industry. To achieve this, the respondents were requested to complete the following questions:

- Q2.13 Indicate level of agreement with list of perceived key benefits of target costing
- Q2.14 Which three benefits listed (in 2.13) do you perceive as most beneficial to you?

**Q2.13. Indicate level of agreement with list of perceived key benefits of target costing**

To determine the effectiveness of this technique as a strategic cost management tool from the perspective of the South African motor

manufacturing industry, the respondents were asked to indicate their level of agreement on the perceived benefits identified from the literature review. Further, the respondents were asked to list the three most beneficial benefits for them.

Table 5.1 reflects the responses given by the respondents for question Q2.13 as well as the means and medians obtained for each individual response. The arrangement of the responses given in the table is based on the most positive to the least positive responses received from the respondents.

**Table 5.1: Summary of responses (expressed in %) in respect of the benefits of target costing**

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Median
1	Prevents the launching of low-margin products that do not generate appropriate returns				50,0	50,0	4,50	4,50
2	Focuses on getting costs out of the product during planning and design				50,0	50,0	4,50	4,50
3	Is market driven				50,0	50,0	4,50	4,50
4	Outperforms the conventional cost-plus approach by providing a specified cost reduction target				50,0	50,0	4,50	4,50
5	Reduces cost over the entire life cycle of a product				75,0	25,0	4,25	4,00
6	Forces companies to formulate their product-development goals very precisely				75,0	25,0	4,25	4,00
7	Is an effective tool to reduce direct and overhead costs			25,0	50,0	25,0	4,00	4,00
8	Focuses the design team on the customer and real opportunities in the market			25,0	50,0	25,0	4,00	4,00
9	Improves the efficiency of indirect activities			25,0	75,0		3,75	4,00
10	Provides rationalism of existing products			50,0	25,0	25,0	3,75	3,50

An analysis of the responses indicates that target costing is considered highly beneficial by the firms who have adapted the target costing technique. This support is evident in the high means and medians achieved against each response as indicated in the last two columns of Table 5.1. Both the means and

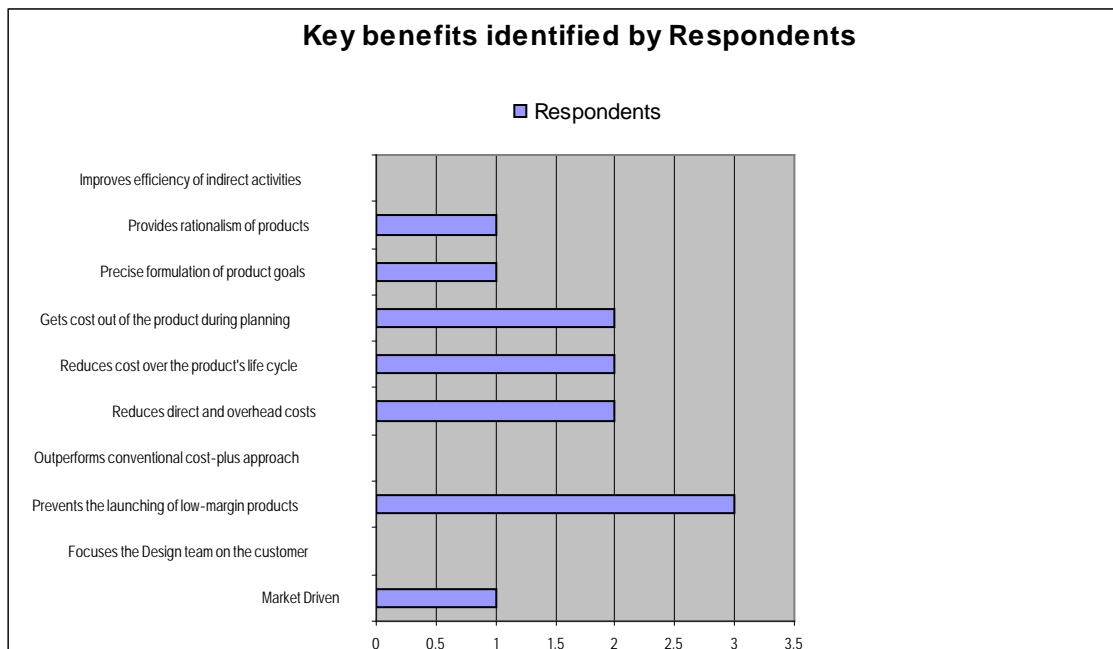
medians achieved on the top 8 items covered a range of between 4,00 and 4,50.

Support for the first six items in Table 5.1 in particular was very strong. These items scored an agreement response rate of 100%, with 58,3% of the respondents agreeing and 41,7% strongly agreeing that these items were key benefits of target costing. The agreement response rate on the balance of the items scored an average of 68,7%.

**Q2.14. Which three benefits listed (in Q2.13) do you perceive as being the most beneficial to you?**

Figure 5.11 illustrates the responses that the respondents gave to Question 2.14. In this question the respondents were requested to indicate the three benefits most beneficial to them in their firms.

**Figure 5.11: Key benefits of target costing identified by respondents**



An analysis of the responses indicates that the respondents consider the prevention of launching low-margin unprofitable products the most beneficial. This item also scored the highest in Table 5.1. Getting costs out of the product during the planning and design stage, reducing costs over the product's life cycle and reducing direct and overhead costs received the next most positive response in terms of benefits experienced by the respondents.

#### **5.3.5 Sub-objective 4: Ascertain the reasons for the non-adoption of target costing**

The goal of this sub-objective was to highlight the reasons for the non-adoption of this technique. The following questions were posed to respondents in order to obtain the reasons:

- Q2.15. What do you consider to be the drawbacks of target costing?
- Q2.16. Do you regard this technique to have any other drawbacks?

#### **Q2.15 What do you consider to be the drawbacks of target costing?**

Table 5.2 reflects the responses given by the respondents for the factors listed under Question 2.15, as well as the means and medians obtained for each individual response. The arrangement of the responses given in the table is based on the most positive to the least positive responses received from the respondents.

**Table 5.2 Drawbacks of the target costing technique**

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Median
1	Excessive pressure on employees		20,00	20,00	60,00		3,40	4,00
2	Organisational conflict e.g. between designers and marketers		40,00		40,00	20,00	3,40	4,00
3	Excessive demands on suppliers		40,00	20,00	20,00	20,00	3,20	3,00
4	Market confusion by the large number of different products		60,00	20,00	20,00		2,60	2,00
5	Longer development cycles	20,00	40,00	20,00	20,00		2,50	2,00
6	Method is complex		80,00	20,00			2,20	2,00
7	Too costly to collect information (time & money)		80,00	20,00			2,20	2,00

An analysis of the responses indicates that excessive pressure on employees and organisational conflict are the two items, which respondents consider to be the main drawbacks of the target costing technique. These items scored a 60% agreement rate, with a mean of 3,40 and a median of 4,00 being achieved. Excessive demands on suppliers scored moderately, achieving an agreement rate of 40% with a mean of 3,20 and a median of 3,00.

The remainder of the items (items 4 to 7 in Table 5.2) scored low, achieving an average agreement rate of only 10%. This would suggest that respondents do not consider these items to be significant drawbacks of target costing.

#### **Q2.16 Do you regard this technique to have any other drawbacks?**

To provide respondents with an opportunity to indicate other drawbacks not listed in Table 5.2, Question 2.16 requests respondents to indicate other drawbacks. One respondent was of the opinion that the “bigger picture” needs to be taken into account when cost targets are set for subsidiaries at a group level. A simplistic approach to cost setting is usually inappropriate for

subsidiaries in different countries due to different cultures, different political situations, different economic drivers and different exchange rates.

A non-adopter further indicated that “profit margin is fixed and once this target cost is achieved, there is no pressure/objective to reduce costs further and to maximise profits.”

### **5.3.6 Sub-objective 5: Determine the role target costing plays in the strategy of the firms**

The goal of this sub-objective was to determine the role target costing plays in the strategies of the South African motor vehicle manufacturers. To address this objective, the following questions were included in the questionnaire:

- Q2.17. In the event of cost targets not being achieved, how is the situation addressed?
- Q2.18. Does your company deliver products to the market if target costs cannot be achieved?
- Q2.19. How has target costing affected the decision making in your company? Please give examples.
- Q2.20. Indicate level of agreement on a list of factors that play an important role when positioning products in the market.
- Q2.21. Are there any factors (not listed in 2.20), which you regard as important when positioning products in a market?
- Q2.22. Do you expect your company to use target costing more or less in future? Which area(s) is likely to be affected, and why?

The responses to the questions follow.

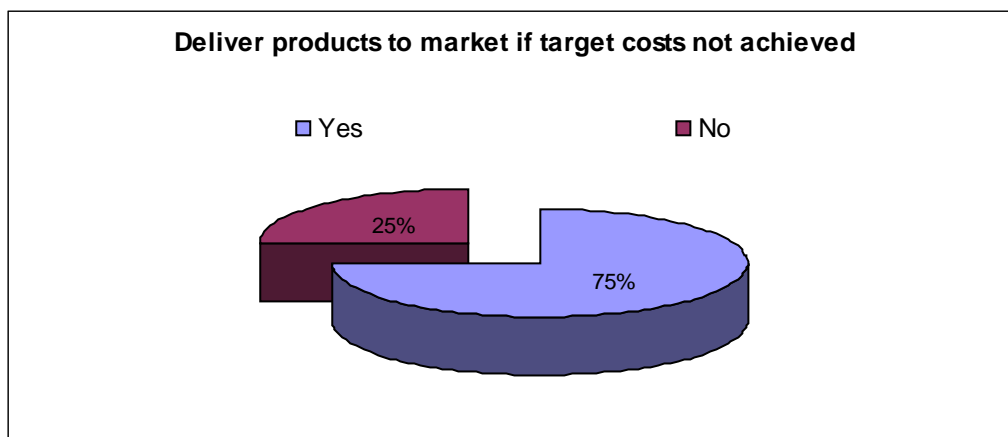
**Q2.17 In the event of cost targets not being achieved, how is the situation addressed?**

Question 2.17 asked respondents to indicate how the situation is addressed in the event of cost targets not being achieved. One respondent indicated that if the holding company in Germany designs a product, which is not feasible for the South African market, the product will not be launched locally. Another respondent indicated that the project is stopped and product redesign is started. Further alternative production locations, volume and marketing scenarios are explored. One respondent mentioned that as a last resort, board members get involved in the discussions.

**Q2.18 Does your company deliver products to the market if target costs cannot be achieved?**

In order to understand the impact of target costing on the firm's strategy, Question 2.18 asks respondents to indicate whether products are delivered to the market if target costs cannot be achieved. Further, respondents providing a positive response are requested to provide reasons. As can be seen in Figure 5.12 the majority of respondents (75%) continue to deliver products to the market despite target costs not being achieved.

**Figure 5.12: Distribution of respondents who deliver products to the market despite target costs not being achieved**





For strategic reasons firms deliver products to the market despite target costs not being achieved. One respondent explained the reasoning on the following basis, “it is possible that the project may carry some strategic benefits (market share, market representation, etc) then the project may be approved for strategic reasons, even if margins are sub optimal.”

Similarly another respondent pointed out that, “if one of the goals of the companys is the increase of market share, one or two models with negative contribution could be launched to achieve the market share target.” Further this respondent explains that the overall profitability of the company is weighed up against the market share target, during which time some models could be subsidising others in the short term. However, the important proviso is that “the contribution margin of the overall total model range needs to be positive.” Another respondent agreed and stated that the “only exception could be that overall/life-cycle product is still viable and gives positive net present value.”

**Q2.19 How has target costing affected the decision making in your company? Please give examples.**

Question 2.19 explores how target costing has affected decision-making in the firms. The respondents listed the following as examples of how target costing has affected their decision-making:

- Overall production strategy of the company has been affected in terms of what product to produce
- Model introductions have been delayed
- Projects have been stopped
- Market/volumes modified
- Alternative locations for production
- Alternative supplier sourcing

- Product design modified

**Q2.20 Indicate level of agreement on a list of factors that play an important role when positioning products in the market**

The goal of this sub-objective was to ascertain the conditions or circumstances under which target costing is likely to be used by local vehicle manufacturers. To determine this, respondents were requested to rate their agreement with the list of factors in Question 2.20 that are considered to play an important role when positioning products in the market. Table 5.4 illustrates the responses that adopters gave to Question 2.20 in the questionnaire.

**Table 5.3: Factors playing an important role when positioning products in the market**

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Median
a	Selling price of product					100,0	5,00	5,00
b	Providing quality products					100,0	5,00	5,00
c	Required profit margin				25,0	75,0	4,75	5,00
d	Costs of manufacturing				50,0	50,0	4,50	4,50
e	Providing differentiated products				50,0	50,0	4,50	4,50

An analysis of the responses indicates that all the factors listed in Table 5.4 are considered by target costing adopters to play an important role when positioning products in the market. This is evident in the high means and medians achieved against each response as indicated in the last two columns of Table 5.4. Both the means and medians achieved on the 5 factors listed in the table covered a range of between 4,50 and 5,00. All items scored an agreement response rate

of 100%, with 75,0% of the respondents strongly agreeing and 25,0% agreeing that these factors were important when positioning products in the market.

**Q2.21 Are there factors (not listed in Q2.20), which you regard as important when positioning products in a market?**

Respondents were asked in Question 2.21 to provide additional factors not included in Table 5.3. The following is a list of ten additional factors identified from the responses given:

- Competitor products
- Competitor prices
- Size of market segment
- Potential for growth in market segment
- White space in the market
- Customer feedback (CSI)
- Market survey
- Dealer Network
- Market conditions
- Industry conditions

**Q2.22 Do you expect your company to use target costing more or less in future? Which area(s) is likely to be affected, and why?**

In response to Question 2.22 in which respondents were asked to indicate whether their company would use target costing more or less in the future, all responded positively that target costing will continue to play an important role in the management of costs by either being used more or at the same rate. One respondent indicated, “we will continue to use target costing and the focus will be even greater. Competition, especially from India and China will force the

South African companies to become more cost competitive.” Another respondent indicated that target costing would be used more in the future, with the purchasing department receiving more focus. Other respondents indicated that they would continue to use target costing at the same rate. One respondent indicated, “it [target costing] has proven to be a strong tool”, while another respondent indicated that they will continue to use the technique for “product analysis purposes.”

#### **5.4 CONCLUSION**

This chapter presented the results of the empirical study. The results were presented in descriptive terms together with graphic and tabular forms. The main conclusions to emerge from this chapter are:

- Completed questionnaires were received from six of the seven motor manufacturers in South Africa.
- The majority of the respondents (83,3%) have more than 10 years of total business experience. The significance of this fact is that experienced practitioners completed the questionnaire.
- All respondents have achieved a tertiary qualification.
- Target costing is used by 66,7% of the respondents as a strategic cost management tool.
- All target costing adopters have implemented target costing for more than 10 years, which is indicative of a well established and successfully implemented system.
- By implementing target costing, adopters strive to improve cost competitiveness, profitability, feasibility studies are enhanced, and further assists in determining product design and production set-up.
- The finance and purchasing departments are regarded as the drivers/owners of the target costing process.

- Target costing is considered highly beneficial by the firms who have adopted this technique, with the prevention of launching low-margin unprofitable products being regarded as the key benefit.
- Extreme pressure on employees, organisational conflict, and the lack of incentive to reduce costs further after target costs have been achieved are considered drawbacks of target costing.
- Target costing plays a key role in the strategy and decision-making of the firms that have adopted target costing.
- Target costing is regarded as a valuable tool and adopters will continue to use this technique, in some instances with greater focus, in order to improve cost competitiveness in line with increased competition from abroad.

Chapter 6 will follow on from this and will provide a summary, recommendations and a conclusion. This chapter will link all the concepts discussed in this research and will provide an answer to the main problem and sub-problems that were posed in Chapter 1.

**CHAPTER 6****SUMMARY AND CONCLUSIONS**

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**CHAPTER 6****SUMMARY AND CONCLUSIONS****6.1 INTRODUCTION**

As stated in Chapter 1, the goals of becoming and remaining internationally competitive in terms of price and quality are of utmost importance for the survival of the South African motor manufacturing industry. Manufacturers face the difficulty of having to match the lower prices of global competitors and still offer the highest quality products customers demand

Reducing a firm's production costs may be the only source of increased earnings where selling price and profit margin are fixed by competitive pressures and management policies. Many companies have been forced to reduce their costs in order to survive the intense competition and pressure from customers to reduce prices (Schmelze, Geier & Buttross 1996: 26).

Against the knowledge of the importance of target costing as a strategic cost management tool, the main purpose of this research has been to establish whether target costing is being used as a strategic cost management technique within the South African motor manufacturing industry. In support of this, the study focussed on achieving the following sub-objectives: the goals which companies try to achieve with this technique; the manner in which target costing is applied within the organisation; the effectiveness of this tool; the reasons for non-adoption; as well as role target costing plays in the strategy of the firms.

The objectives of the study were achieved by performing an in-depth study on target costing as presented in literature. A review of related research in a South African context revealed that limited research on the specific topic has been

done. A gap was identified in the literature, which highlighted the benefits this technique offers to firms that face increasing cost reduction pressure. This initiated the topic for this study.

The empirical survey entailed self-administered questionnaires being directed to all motor manufacturers in South Africa. The significant empirical findings that emerged from the study will be summarised in this chapter. After this, areas for possible future research are considered.

## **6.2 SIGNIFICANT FINDINGS IN RESPECT OF THE RESEARCH OBJECTIVES**

The findings of the empirical surveys and the interpretation thereof cannot supply answers on all aspects relating to the target costing technique. However, it is the belief that the findings of this study do provide valuable insight and understanding about the role that target costing is fulfilling within the South African motor manufacturing industry.

### **6.2.1 Findings: Research objective 1**

The findings can conclude from the research conducted that the majority of South African motor manufacturers do make use of target costing. Of the six respondents who participated in the survey, four indicated that target costing was being used. All adopters of target costing have used this technique for more than ten years. Some respondents admitted to not being familiar with the term, "target costing", but indicated that a similar technique was being used.

The unfamiliarity of the target costing term can be attributed to the lack of literature on the topic outside of Japan.



### **6.2.2 Findings: Research objective 2**

Respondents indicated that improved profitability, cost competitiveness, feasibility analysis, and optimising product design and production set-up are the goals that firms strive to achieve with the use of target costing. Improving the local content of manufactured vehicles was identified as a key strategy in increasing cost competitiveness relative to overseas competition.

### **6.2.3 Findings: Research objective 3**

The finance and product planning departments were identified as the departments most involved in the target costing process. The product design department has low involvement in the process since the foreign holding companies control vehicle design. The majority of respondents indicated that target costing is implemented through the finance department. The finance and purchasing departments are regarded as the drivers of this process.

### **6.2.4 Findings: Research objective 4**

Target costing is considered highly beneficial by the firms who have adopted the target costing technique. The prevention of low-margin unprofitable products being launched was considered the most beneficial factor of the technique.

### **6.2.5 Findings: Research objective 5**

Respondents consider excessive pressure on employees and organisational conflict to be the main drawbacks of the target costing technique. A non-adopter indicated that once the target cost is achieved, there is no incentive to reduce costs further and maximise profit since the profit margin is fixed.

### **6.2.6 Findings: Research objective 6**

Target costing plays a significant role in the strategy and decision-making of firms. The decision of firms to deliver products to the market despite target costs not being achieved is based on strategic reasons. Strategy in terms of what product to produce, timing of model introductions, termination of projects, modification of production volumes, sourcing alternative production locations and suppliers, and modification of product design has been impacted as a result of target costing. Respondents agreed strongly with the list of factors regarded as important when positioning products in a market, and further provided additional factors mostly typical of a confrontational strategy. As competition becomes fiercer, especially from India and China, local manufacturers will be forced to become more cost competitive and in this respect target costing will play a critical role.

### **6.3 AREAS FOR FUTURE RESEARCH**

The following areas may be further researched:

An empirical study can be performed on firms across various manufacturing industries to determine whether target costing is more suitable in some manufacturing industries than others. This will automatically increase the sample size, which will serve to highlight and strengthen the significance of the current research objectives.

Secondly, research can be undertaken in service industries to ascertain whether target costing can be applied in a non-manufacturing environment. This research will enable a comparison to be made between manufacturing industries and service industries.

Lastly, a study on how the relationship between a manufacturer and a supplier impacts on the effectiveness of target costing can be undertaken. This research will highlight the responsibilities and expectations of both the parties and may provide valuable insight on how target costing can be implemented more effectively within an extended enterprise.

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**Nelson Mandela  
Metropolitan  
University**

*f o r t o m o r r o w*

• PO Box 77000 • Nelson Mandela Metropolitan University  
• Port Elizabeth • 6031 • South Africa • [www.nmmu.ac.za](http://www.nmmu.ac.za)

**Second Avenue Campus  
Faculty of Business and Economic Sciences**  
Tel . +27 (0)41 5043833 Fax. +27 (0)41 5049833  
[pieter.pelle@nmmu.ac.za](mailto:pieter.pelle@nmmu.ac.za)

**30 September 2009**

**Dear Sir / Madam**

**YOUR OPINIONS: THE USE OF TARGET COSTING BY YOUR COMPANY**

**1. Purpose of the project**

The purpose of this project is to learn more about the use of target costing by firms within the South African motor manufacturing industry.

**2. Background**

The South African motor manufacturing industry has undergone tremendous changes since the implementation of the Motor Industry Development Programme in 1995. As a result of the availability of more affordable imported vehicles on the South African motor market, manufacturers have had to face increased competitiveness with regard to quality and price.

Therefore, in order to survive in this highly competitive environment, costs need to be strategically managed through the implementing of cost management techniques. In literature target costing is considered one of the most important cost management tools, yet very little research has been done to investigate the application and effectiveness of this technique within the South African motor manufacturing industry.

**3. Your involvement**

I would appreciate it if you could complete the enclosed questionnaire. It has been prepared in such a manner that it will require not more than 30 minutes to complete. If it would be more convenient, I would be happy to record your responses in a telephone discussion.

**4. Confidentiality**

All information will be treated as confidential and it will be impossible to identify any individual or specific company on the basis of the results included in the final report. I would be prepared to sign a confidentiality agreement if this is required.

**5. Value factor**

Whilst we are well aware that you may be inundated with similar requests, your co-operation will be greatly appreciated, as it will determine the success of this project. By providing valuable feedback you will assist in serving the interests of sound education in Management Accounting and at the same time the service to the entire business community will be enhanced.

**6. Deadline – return date**

Please return the completed questionnaire before 16 October 2009. If you need to speak to me, my details appear below.

Yours faithfully

**MICHAEL SLATER**  
Tel no: (041) 9944228

Cell no: 074 885 6298

E-mail: [MichaelRichardMounsey.Slater@nmmu.ac.za](mailto:MichaelRichardMounsey.Slater@nmmu.ac.za)

## **CONFIDENTIALITY AGREEMENT**

**Insert name of OEM (Pty) Limited**

(Registration No. \_\_\_\_\_)

("the OEM")

Represented by \_\_\_\_\_

and

**Michael Slater**

(Identity Number: \_\_\_\_\_)

("The RESEARCHER")

### **1. INTRODUCTION**

- 1.1 The RESEARCHER requires the OEM to complete a questionnaire relating to target costing ("the PROJECT").
- 1.2 To enable the OEM to do so, the RESEARCHER may have access to confidential information of the OEM (the "CONFIDENTIAL INFORMATION").
- 1.3 The OEM wishes to preserve the confidentiality of the CONFIDENTIAL INFORMATION.

### **2. PRESERVATION OF CONFIDENTIAL INFORMATION**

- 2.1 It is recorded that the RESEARCHER will have access to the CONFIDENTIAL INFORMATION.
- 2.2 The RESEARCHER agrees that the CONFIDENTIAL INFORMATION is the property of the OEM and shall maintain the CONFIDENTIAL INFORMATION as secret and confidential and not disclose such information to any third party or disclose the identity of the OEM, or copy or change the CONFIDENTIAL INFORMATION except for the purpose of completing the PROJECT.
- 2.3 The RESEARCHER undertakes to make all necessary and appropriate efforts to safeguard the CONFIDENTIAL INFORMATION from disclosure to any third party.
- 2.4 In the event of the RESEARCHER becoming aware of or suspecting that the CONFIDENTIAL INFORMATION has come to the knowledge of any third party, or that the CONFIDENTIAL INFORMATION has been dealt with other than in terms of this Agreement, the RESEARCHER shall advise the OEM immediately.

### **3. USE OF INFORMATION**

It is recorded that the RESEACHER has been granted access to the CONFIDENTIAL INFORMATION for the sole purpose of the PROJECT and if required, will make a copy of the PROJECT available to the OEM, on completion.

4. **DURATION**

The RESEARCHER undertakes to continue to hold the CONFIDENTIAL INFORMATION in strict confidence indefinitely, commencing from the date of this Agreement.

**SIGNED BY THE PARTIES AT THE PLACES AND ON THE DATES SET OUT BELOW.**

PLACE \_\_\_\_\_  
Obo the OEM  
Who warrants his authority

DATE \_\_\_\_\_

WITNESS \_\_\_\_\_  
(Full name in BLOCK LETTERS)

PLACE \_\_\_\_\_  
The RESEARCHER

DATE \_\_\_\_\_

WITNESS \_\_\_\_\_  
(Full name in BLOCK LETTERS)

STRICTLY CONFIDENTIAL  
QUESTIONNAIRE

SURVEY ON THE USE OF TARGET COSTING IN THE SOUTH  
AFRICAN MOTOR INDUSTRY

Research Leader: M Slater



<b>SECTION A</b>
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BIOGRAPHICAL DETAILS

1.1	What is your job title?			
1.2	How many years of total business experience do you have?			
	0 – 1 year	Between 2 – 5 years	Between 6 – 10 years	More than 10 years, please specify
1.3	How many years of business experience, specifically in the financial function, do you have?			
	0 – 1 year	Between 2 – 5 years	Between 6 – 10 years	More than 10 years, please specify
1.4	What are your academic and/or professional qualifications?			
	FIRST ACADEMIC QUALIFICATION(S)			
	SECOND AND FURTHER ACADEMIC QUALIFICATION(S)			
	PROFESSIONAL QUALIFICATION(S)			
1.5	Please state total number of years of post matric studies undertaken?			
	Years			

**SECTION B**

INFORMATION ON THE TARGET COSTING PROCESS

2.1	Target costing is a cost management technique whereby the maximum allowable cost price of a product is calculated by subtracting a required profit margin from the expected selling price of the product.  Does your company use the method described above or something similar?	
	YES	NO
2.2	If yes, how long has your company been using this technique?	
	< 1 year	1 – 5 years
	6 – 10 years	> 10 years

2.3 Does your company refer to this technique by any other names? If yes, please indicate name(s)

.....  
.....  
.....

2.4 What are the differences between your technique and target costing?

.....  
.....  
.....

2.5 What goals do you wish to achieve through the use of target costing?

.....  
.....  
.....

2.6 Prior to implementing target costing, did you consider any alternatives? If yes, please specify such alternatives.

.....  
.....  
.....

2.7 Which areas/departments are involved in the target costing process?

		Yes	No
a	Product Planning		
b	Product Design		
c	Product Development		
d	Manufacturing		
e	Finance/Accounting		
f	Purchasing		
g	Marketing		
h	Logistics		

2.8 Are there any other areas/departments in your organisation that are involved in the target costing process?

.....  
 .....  
 .....

2.9 How do the activities for implementing target costing take place in your company?

		Yes	No
a	Through interdepartmental teams		
b	Through separate functions		
c	Through the Finance department		
d	Through guidelines and procedures		

2.10 Please indicate other approaches (not listed above) that your company uses to implement target costing

.....  
 .....  
 .....

2.11 Which area/department is the driver/owner of the target costing process?

.....  
 .....  
 .....

2.12	To what extent are suppliers involved in the target costing process?	
	No involvement	Low involvement
	Moderate involvement	High involvement

2.13 The following are perceived as key benefits of target costing:

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a	Is market driven					
b	Focuses the design team on the customer and real opportunities in the market					
c	Prevents the launching of low-margin products that do not generate appropriate returns					
d	Outperforms the conventional cost-plus approach by providing a specified cost reduction target					
e	Is an effective tool to reduce direct and overhead costs					
f	Reduces cost over the entire life cycle of a product					
g	Focuses on getting costs out of the product during planning and design					
h	Forces companies to specify their product-development goals very precisely					
i	Provides rationalisation of existing products					
j	Improves the efficiency of indirect activities					

2.14 Which three benefits listed above (a - j) do you perceive as being most beneficial to you?

.....

.....

.....

.....

.....

2.15 What do you consider to be the drawbacks of target costing?

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a	Longer development cycles					
b	Excessive pressure on employees					
c	Organisational conflict e.g. between designers and marketers.					
d	Excessive demands on suppliers					
e	Market confusion by the large number of different products					
f	Method is complex					
g	Too costly to collect information (time & money)					

2.16 Do you regard this technique to have any other drawbacks?

.....  
 .....  
 .....  
 .....

2.17 In the event of cost targets not being achieved, how is the situation addressed?

.....  
 .....  
 .....  
 .....

2.18 Does your company deliver products to the market if target costs cannot be achieved?

YES	NO
-----	----

If yes, please indicate reasons

.....  
 .....  
 .....

2.19 How has target costing affected decision making in your company?  
Please give examples.

.....  
 .....  
 .....

2.20 The following factors play an important role when positioning products in the market

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a	Selling price of product					
b	Costs of manufacturing					
c	Required profit margin					
d	Providing quality products					
e	Providing differentiated products					

2.21 Are there other factors (not listed above), which you regard as important when positioning products in a market?

.....  
 .....  
 .....

2.22 Do you expect your company to use target costing more or less in future? Which area(s) is likely to be affected, and why?

.....  
 .....  
 .....

2.23 Are you satisfied with the results achieved to date with the use of target costing as a strategic cost management technique?

.....  
 .....  
 .....

2.24 Other comments

.....  
 .....  
 .....

**Thank you for your time and input. It is appreciated.**