



THE ADOPTION OF TARGET COSTING AS A CONTEMPORARY MANAGEMENT ACCOUNTING TECHNIQUE IN A PUBLIC HIGHER EDUCATION INSTITUTION: A CASE STUDY OF DURBAN UNIVERSITY OF TECHNOLOGY.

Submitted in the fulfilment of the academic requirements of the degree of Master of Accounting (Cost and Management Accounting) in the Faculty of Accounting and Informatics.

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DECLARATION

I, Thango Thobelani Sabelo, declare that this dissertation is a representation of my own work in conception and execution. This work has not been submitted in any form for another degree at any university or institution of higher learning. All information cited from published or unpublished works has been acknowledged.

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ABSTRACT

There is a growing need for public higher education institutions (HEIs) to opt for all cost management tools following the government's shortfalls in the budget allocation for public HEIs. The focus should be on the suitable pricing methods that will consider the students' perception of the value of education and give fees that are reasonable and accepted by students, while ensuring that the institution meets target returns. The biggest concern is that fees are based on the cost-based pricing model. Cost-based pricing always results in higher prices, where the accurate costs are unknown, despite the strategy used to implement it. Furthermore, fees are based on historic cost models, not on a continuously reworked costing model. Following cuts in the budget allocation to HEIs, the institutions have increased fees rapidly to remain sustainable. A fee calculated on uncertain historic costs while government support falls results in a rapid increase in fees.

Target costing can assist in cutting down on unnecessary costs and ensure acceptable fees for students. Target costing is a known cost management tool that assists in ensuring costs management and keeping fees low. Despite the cuts in government spending on HEIs, adoption of target costing will result in reasonable costs to keep the fees low. Considering the limited empirical studies conducted on the adoption of target costing in South African public HEIs, study's main aim is to investigate the factors that influence the adoption of target costing in public HEIs, using the Durban University of Technology (DUT) as the case study. Therefore, this study will massively contribute to research pool on the adoption of target costing in HEIs.

The study used the quantitative research method with a sample of 52 Heads of Departments and 15 finance staff. The research instrument employed was a questionnaire, which was dominated by close-ended questions. The study was guided by the positivist philosophy where data analysis was done using the Statistical Package for Social Science (SPSS version 27 ®), in which descriptive and inferential statistical analysis were undertaken.

The results have shown that DUT is using the full cost-plus method to account for fees. The costs are allocated using the traditional absorption method. The results showed

that target costing had not been fully used but exists in selected areas of the university. Findings further reveal that costs to fees are subject to historic judgement, implying that costs to fees are not reworked annually. While the fees increase, many respondents perceive the current pricing methods to be the best for the university and that the cost-plus pricing method is most appropriate to ensure it's the university's sustainability.

Findings revealed that the variables which influenced the adoption of target costing at the DUT included: size of DUT, management style and staff inclusion, information system and technological advancement, vertical differentiation and centralisation, formal support to accounting for adoption of target costing, resource adequacy, intensity of competition, and government regulations. The respondents have disagreed that sufficiency in the expertise of target costing has an influence in the partial adoption of target costing at the DUT. The students' perception on the value of education is also not the reason that the concept of target costing exists in some parts of the DUT.

Overall, the results help to understand the current pricing method used at DUT. It has further brought a clear indication of the factors that influence the adoption of target costing and whether the elements of target costing exist at the university.

LIST OF ACRONYMS

ABC	Activity-Based Costing
CHE	Council of Higher Education
CIMA	Chartered Institute of Management Accounting
DHET	Department of Higher Education and Training
DIT	Durban Institute of Technology
DUT	Durban University of Technology
FRC	Faculty Research Committee
HEIs	Higher Education Institutions
HODs	Head of Departments
MAS	Management Accounting System
NFF	National Funding Framework
NSFAS	National Students Financial Aid Scheme
PPRS	Pharmaceutical Pricing Regulations Scheme
PTE	Private Training Establishment

SAPSE	South African Post-School Education
SPSS	Statistical Package for Social Sciences
UK	United Kingdom
USA	United States of America
VbP	Value-based Pricing
VE	Value Engineering

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

In the year 2015, there was a proposed fee increase of 11% in higher education institutions (HEIs) in South Africa that resulted in massive student protests against the post-apartheid government at various public universities in South Africa (Mavunga 2019: 81). Similar cases were reported in countries such as the United Kingdom (UK) in 2010, where the government introduced public sector cuts and increased tuition fees nearly three times. As a result, students in the UK embarked on several protests (Olcese and Saunders 2014: 250). According to Amir, Auzair, Maelah and Ahmad (2016: 930), these cases result from a lack of funding from the government for HEIs. For them to maintain the high-quality education HEIs increase the fees to cover the shortfalls in government funding.

Over the years, universities have repeatedly increased their fees due to insufficient funding from the government and failure of the National Students Financial Aid Scheme (NSFAS) to assist students financially (Wangenge-Ouma, 2012: 835). Wilkins, Shams, and Huisman (2012: 126) disclose that it has become common for governments in countries with large public higher education systems not to be able to raise sufficient finances from taxes, which leads to strains on the funding of education and the introduction of tuition fees. Nonetheless, as Wilkins *et al.* (2012:126) add that it has then become a global issue to find appropriate measures to finance HEIs.

Also, because of the global recession, the Libyan government could not raise adequate funding to fund education in public HEIs (UNIGOV 2014:5). Similarly, governments in Australia, Germany, Netherlands and the UK have thus failed to raise enough funds for higher education (Calitz and Fourie 2016: 149). For other countries like the United States of America (USA), Japan and Korea, the alternative means used to keep the standard of education high amid these challenges was to shift the fees burden to

students. This means that institutions are sustained through the income received from tuition fees (Wilkins *et al.* 2012:126; Amir, Auzair, Maelah, and Ahmad 2016: 930).

As tuition fees are becoming the predominant source of funding, HEIs should find the best pricing strategy for determining fees. This is to assist institutions in continuing offering quality education. HEIs are pressured to maintain their costs and expected returns on the pricing of their goods and services (Deshpande 2018:79). Remarkably, for HEIs to keep standards high amid these funding problems, the pricing of tuition fees has kept on escalating (Calitz and Fourie 2016: 153). Entities providing education services realise that the cost must be managed for the maintenance of education. If the costs are allocated correctly, this will ensure that the institution charges a fair fee to its students. Target costing is considered a strategic pricing method for managing costs (Bendlin 2017:403-404).

Target costing was developed for manufacturing businesses. It originated in the Japanese manufacturing industry in the early 1970's for the diversified products and with a shorter life cycle (Chartered Institute of Management Accounting (CIMA) 2005: 04). This finding is supported by Kocakülâh and Austill (2006: 61) who state that target costing was initiated in Japan by the manufacturing industry to maximise their cost management and product development. Cannella (2011: 1) explains the importance of having target costing as a pre-emptive method of pricing, as opposed to the traditional method of accounting for costs. The traditional method means that the costs determine the price. The traditional method has dominated for many decades and still dominates in the market, but it has failed in planning, development, and managing a product's cost (Kocakülâh and Austill 2006: 61). Meanwhile, target costing provides an alternative of starting from the market price to determine service costs (Bendlin 2017: 405). Amongst other things promoted by target, costing is total quality control (Cannella 2011: 2).

1.2 RATIONALE OF THE STUDY

The reduction in the availability of public funds has pressured budget management for public HEIs. This has resulted in the redirection of cost allocations and diversion of the income stream of public HEIs to a full fee-paying stream (Naidoo and Wu 2011: 2).

Public HEIs have been experiencing a significant decline in public funds allocated to fund their services. This was because of the recent global economic crisis, resulting in a sharp decline of public funding towards HEIs. For that reason, the discussions on internally generated revenue and full fee 'cost to students' have increased (Naidoo & Wu 2011: 02 and Onuoha 2013: 09). To keep up with the balanced financial planning on revenue and costs towards sustainability, the universities opt for alternative funding to raise funds, other than relying of government funding (Onuoha 2013: 09). This has raised the importance for the universities to apply possible cost management tools to try to cut down their cost. Target costing needs to be adopted as a cost management tool known for cutting down costs (Al-Awawdeh and Al-Sharairi 2012: 124).

The adoption of target costing has been researched more in manufacturing industries. There has been minimal research contribution made on this management accounting tool in HEIs, both public and private. That is an indication that researchers have not given the cost management technique enough attention to be useful in HEIs.

A study that was conducted by Bendlin (2017: 403) to investigate the use of target costing at a university, provided evidence that target costing can significantly reduce operating costs. This was tested by accounting for general and administrative expenses with target costing to evaluate for outcome. It also reflects that universities that implement cost goal specificity (target costs) will have more cost savings and increase financial performance (Bendlin 2017: 407).

Target costing includes wide-ranging cost planning, cost management and a process to cut down costs, which is motivated by service planning choices. Its ultimate focus is to create a well-established cost cutting through extensive cost planning. Target costing is important to prepare management to plan for future costs and implications. This establishes the state of readiness on cost cutting by management at the cost planning stage (Jayeola and Onou 2014: 222). Target costing will help HEIs to minimise costs that are not usefull. It offers an opportunity for alternative pricing beyond looking only at competition. It considers the customer value and importance of cutting down on avoidable costs. Competition-driven pricing ignores the value of the quality of education the students benefit from (Amir *et al.* 2016: 930). Overall, this research's focus is on the adoption of target costing to minimise the costs in HEIs, to keep the

fees low. This gives management knowledge of an alternative method to cut down on costs.

This study investigates the factors influencing the adoption of target costing as a contemporary management accounting technique in the South African public HEIs. This research is recommended to shed light on a contemporary cost management technique that can be used at DUT. As there are also public funding issues in South African public HEIs, DUT may need to put in more effort when it comes to cutting down on costs. This will assist the university to keep its sustainability high and to improve its financial performance.

1.3 STATEMENT OF THE PROBLEM

According to Maela, Amir, Auzairand and Ahmad (2012: 267), there is a challenge for universities to provide high-quality education services while keeping operating costs low. Rising competition in HEIs has resulted in the adoption and common use of the competitor-based pricing method for tuition. As discussed above, in most parts of the world, when government has failed to fund HEIs, universities have resorted to sourcing income from levying tuition fees (Ho and Wang 2011: 67). This has resulted in an intense focus by public HEIs on the competitive pricing methods. The competitor-based pricing method results in the adoption of higher prices, that are set to match the competitors' prices (Ho and Wang 2011: 67-68). Regardless of the procedure adopted to implement the competitor-based pricing method, it results in relatively higher pricing in comparison to pricing that does not depend on competitive forces (Mago and Pate. 2009: 343). The study by Deck and Wilson (2003: 210) provides that this pricing method relies on what the competitors offer and immediately executes that price without focusing on the customers' ability or willingness. Consequently, this pricing method may be perceived to be unfair, as it may not match the expected benefit gained by customers from the use of the service (Amir *et al.* 2016: 930).

South Africa is one of the many countries where there has been the increase of fees in the HEIs. The increase has been significantly higher than inflation over the past seven years, from 2009 to 2015 (Wangenge-Ouma 2012: 835). This has been a result of the failure of government to fund public HEIs, with this governmental assistance

being the highest contribution to the revenue of HEIs (Wangenge-Ouma 2012: 835-838). As the public HEIs in South Africa highly depend on government funding, while this funding has declined, the HEIs have been compelled to find other streams of income to enable them to achieve their goal of sustainability and high educational standards. Consequently, HEIs in South Africa have increased their tuition fees as their main source of income (Amir *et al.* 2016: 930). Following the fee increase, students across the country in public HEIs embarked on massive student protests to demand free higher education (Calitz and Fourie 2016: 15 and Wangenge-Ouma 2012: 832). Similarly, in the UK, the introduction of the so-called “cost-sharing” and increase of fees have brought fear that students from disadvantaged backgrounds will be excluded from studying at HEIs. This has resulted in students embarking on massive protests these increases (Dearden, Fitzsimons and Wyness. 2011: 4).

It has been identified in the study by Madwe, Stainbank and Green (2020: 01) that HEIs are resistant in using a costing instrument that is factual and detailed costing for their course costs. Nonetheless, there is a need to assess the complexity of pricing in the public sector, including higher education (Gandhi 2015: 40). Pricing must consider the customer's value rather than pricing based on the competition only (Codini, Saccani and Sicco 2012: 539). The competitive advantage is accelerated by having market advantage on cost, quality and environment. This means offering low-cost service while increasing customer value and satisfaction and minimising negative environmental externalities (Ghafeer, Rahman and Mazahrih 2014: 255). CIMA (2005: 1) and CIMA (2016) shows that target costing is an effective strategy to reduce costs in a company. CIMA (2005: 02) further adds that the strategy is very helpful in ensuring the understanding on costs of a product or service the supplier is offering.

According to Bendlin (2017: 403), the use of target costing by a university can help in reducing the costs for each course. In the study conducted by Chandrarin, Omar, Yuniawan and Lisetyati (2019: 23) target costing was found to have yield positive performance results on manufacturing companies that have implemented it. Over the years results from studies (Chandrarin *et al.* 2019: 35) have proved that successful implementation of target costing including in manufacturing companies in Indonesia, has yielded positive performance results. A study found that several companies have successfully implemented target costing to determine the costs and sales prices. The

findings of the study show that a target costing performance report is more influenced by strong dynamic capabilities and lower dysfunctional behaviour (Chandrarin *et al.* 2019: 35 and 43). Notably, it has been identified by Kocakülâh and Austill (2006: 62) that there is a possibility that service companies can also use target costing.

The above discussion explains the fact that the financial health of HEIs is determined by the tuition fees charged. Each institution establishes its own pricing method that is based on what will be useful for its sustainability. The accuracy in determining the pricing strategy is of utmost importance when it comes to establishing the correct pricing method. This study will investigate the level of understanding of target costing. Furthermore, the study will determine the extent to which target costing is implemented as the pricing method at DUT. This study will also explore the factors that influence the adoption of target costing by DUT to determine the tuition fee. This study is important based on the assumption that the pricing strategies used by the institution may be a factor that has caused instability in public HEIs.

1.4 RESEARCH AIMS AND OBJECTIVES

1.4.1 The aim of this study

The study aims to investigate the factors influencing the adoption of target costing as a contemporary management accounting technique in public HEIs, using the DUT as a case study

1.4.2 The research objectives

To achieve the above aim, the following study objectives are set to:

- ✓ Determine the level of understanding of target costing at DUT.
- ✓ Investigate the extent to which target costing is adopted at DUT.
- ✓ Determine the factors influencing the adoption of target costing at DUT
- ✓ Examine the relationship between the biographic data and factors influencing target costing.

1.4.3 Research questions

The following research questions follow from the objectives:

- ✓ What is the level of understanding of target costing at DUT?
- ✓ What is the extent to which target costing is adopted at DUT?
- ✓ What factors may influence the adoption of target costing at DUT?

1.4.4 Hypotheses

For this study, three different hypotheses were generated from the literature to achieve research objective 4: *to examine the relationship between the biographic data and factors influencing target costing*. These hypotheses are stated below.

Hypotheses one(H₁) - There is a significant relationship between biographic data and the factors influencing the implementation of target costing.

Hypotheses two(H₂) - There is a significant relationship between biographic data and the factors influencing the delay in the adoption of target costing.

Hypotheses three(H₃) - There is no significant relationship between biographic data and the factors that resulted in the rejection of target costing.

1.5 RESEARCH DESIGN

This study employed the quantitative approach, where questionnaires had close-ended questions and included a few open-ended questions. For numerical strength of this study, open-ended questions were also used to solidify the results that the close-ended questions could not uncover. The research paradigm was the positivist philosophy, as the study is quantitative in nature. The quantitative method of analysis carefully considers validity and reliability (Dawson 2009: 114).

This research was designed using the research onion methodology process developed by Saunders, Lewis and Thornhill (2012: 160). The methods and techniques to collect data was presented based on approaches of the research onion (Saunders *et al.* 2012:

126). The methodology works as a complete framework to guide this research to ensure that all the fundamentals of this research are covered to get appropriate results.

The target population was one hundred and thirty-six (136) staff comprising fifty-two (52) Academic Heads of Departments (HODs) from all the academic departments and eighty-four (84) finance staff at DUT. These employees played a pivotal role in assisting the researcher in understanding the cost system used in pricing.

Because of time constraints and resources, the research was conducted as a case study to study a small population. It would not be possible, based on available resources, to cover all HEIs. The population for this study was limited to DUT staff members involved in working with fees. The reason for this is that it ensured the relevance of the responses relating to this research. The total population of 136 was then purposively sampled to 52 academic HODs from all the academic departments and 15 finance staff members who are directly involved in working with fees at DUT. This is because these people possess knowledge on the cost allocation, budgets and decision-making for their departments. To use the purposive method and to sample by means of non-probability would assist the researcher to obtain data from the most relevant source and make it possible to achieve the research objectives (Kumar 2019: 381). Therefore, the selected group assists in providing more reliable data and the research questions addressed to these participants make it possible to achieve the research objectives. Data was analysed using Statistical Package for Social Science, (SPSS Version 27 ®). The data derived was first analysed using descriptive statistics followed by a correlation strategy and regression analysis to find relationships between variables identified.

1.6 ETHICAL CONSIDERATIONS

This research was conducted after undergoing the institutional ethics processes. The collection of data was started after consent was obtained from the DUT Faculty Research Committee (FRC). This application was made to the FRC committee who also deals with such authorisation. The respondents in this study were informed that participation was voluntary. The participants were also informed of their right to pull out of participating in the study, should they feel uncomfortable with responding to

questions. The participation was also kept anonymous and analysis was conducted on aggregated data.

1.7 OVERVIEW OF CHAPTERS

This thesis has five chapters which are outlined below:

1.7.1 Chapter 1: Introduction

Chapter one introduces the entire research study. The chapter covers the background to the study, rationale, the statement of the problem, research aim and objectives, study significance, theoretical framework and the methodology used for this research. It is a short description of what to expect from the study in its entirety.

1.7.2 Chapter 2: Literature review

Chapter two reviews the literature on general prices and specifically target costing as the pricing of interest in this research. This chapter provides a theoretical overview on the implementation of target costing. The chapter further contextualises target costing to HEIs.

1.7.3 Chapter 3: Research methodology

Chapter three discusses the method that was used for this research. The chapter focuses on what work was covered to achieve the research objectives of this study. This chapter presents the research design, explaining how the entire research study is designed. The section also covers the target population, data collection procedure, explanation of the covering letter, the response rate, data analysis and interpretation and the construct of validity and reliability of the study.

1.7.4 Chapter 4: Presentation and discussion of results

Chapter 4 presents and interprets the results of the study.

1.7.5 Chapter 5: Conclusion and recommendations

Chapter five presents the conclusion, recommendation and the suggestion for future research on the adoption of target costing. The chapter concludes with a discussion on the limitations of the study.

1.8 CONCLUSION

The first chapter provides the background to the entire study. The section provides the rationale of the study, from the background, problem statement, research aims and objectives, significance of the study, theoretical framework, to the research methodology. This section briefly describes the scope of the research. The section further explains the methodological process applied in this research. The last part of the chapter was an overview of the chapters which gives insight into the entire thesis.

The next chapter will review the literature of previous similar research. The chapter looks at different pricing methods, then the study sets out literature on target costing and its adoption. Lastly the chapter then contextualises the adoption of target costing at HEIs.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter looked at the background of the study, statement of a problem, aim and the objectives of this study. This chapter presents a review of literature related to the objectives of this study. The chapter commences by reviewing the pricing strategies and methods adopted by various entities. It further discusses target costing alone and its efficiency on industries that have started using this management accounting technique. Thereafter a discussion on the factors that could limit the adoption and driving factors behind the adoption are presented, followed by a discussion on target costing in the context of HEIs. The contextual discussion of HEIs provides the background to the HEIs in South Africa, including the background mergers of the universities. The merger of two technikons (ML Sultan and Natal Technikon) in KwaZulu-Natal is discussed separately, as this is a pathway to the discussions about Durban Institute of Technology (DIT) which transitioned to DUT. The last part discusses the adoption of target costing in HEIs and lastly, specifically in the universities.

2.2 EXPLANATION OF PRICING STRATEGIES

Faith and Agwu (2014: 88) define pricing as the amount that the customer pays or the value at which the exchange for a good is paid by the customer for a good or service. Pricing strategy is defined as the method that is used to launch an appropriate price that will best suit the product. The pricing strategies are useful in ensuring that the selected pricing method will maximise the profits and shareholders' value. While maximising the above-mentioned, pricing takes into consideration the consumers and the market demand for the product being offered (Decker 2020: 1). The price is what the customer pays for the product. Factors contributing to the pricing decision include customers, competition, costs and suppliers. At some point the decision to price is influenced by the market, as when price adoption is determined by market dominating price (Marimuthu, du Toit, Jodwana, Mungal, du Plesis and Panicker 2015: 398).

According to Steenhuis, Waterlander and De Mul (2011: 2 220), pricing strategies are the driving factor in a purchasing decision. Sammut-Bonnici and Channon (2015: 01) add that there are many significant factors that must be considered, as they influence the pricing strategy chosen. Therefore, there are many complications associated with the implementation of pricing the product. Steenhuis, *et al.* (2011: 2 221) further disclose the importance of identifying a promising pricing strategy concerning its potential effect on efficiency, possibility to implement and acceptability among adopters. The fact that the pricing strategy lies within the hands of the company managers discloses its importance (Faith and Agwu 2014: 91).

Pricing strategy is essential for an organisation to guide its strategic planning and meet its objectives. An organisation should establish the correct price for attaining the maximum profits. Therefore, there are many complications associated with pricing and pricing strategies (Guerreiro, Cornachione and Kassai 2012: 1). Guerreiro *et al.* (2012: 2) suggest that an organisation must implement an appropriate management accounting system to assist management in deciding on pricing. According to Guilding, Drury and Tayles (2005: 1), the price is the function of the market forces, meaning the market price drives both quantity demand and quantity supply. The importance of pricing has led to it becoming a part of managerial decision-making. This is because the profitability of an organisation is reliant on the pricing. Despite its importance in an organisation, it has not drawn enough attention from academic researchers (Toni, Milan, Saciloto and Larentis 2017: 121).

2.3 AN OVERVIEW OF PRICING CATEGORIES: REVIEW ON THE DIFFERENT METHODS OF PRICING.

Pricing methods are categorised as cost-based method, competitor-based method and value-based pricing (Amir *et al.* 2016: 931, Liozu & Hinterhuber 2012: 28 and Toni *et al.* 2017: 121). Liozu and Hinterhuber (2012: 28) add that the latter is considered as the superior approach, as per recommendation of pricing practitioners and marketing scholars. Under these categories the pricing method is decided on by which procedures and steps are followed to establish the best strategy that will be used to price a product or service (Amir *et al.* 2016: 931-932).

Organisations can employ any of these, amongst many temporary pricing strategies including price skimming, predatory pricing and pricing discrimination. Price skimming means firstly introducing a product at a higher price. Predatory pricing refers to charging a very low price, even below cost, to jeopardise the competitors and to have competitive advantage. Lastly, price discrimination means charging different prices for the same product to different customers (Maelah *et al.* 2012 :269).

Table 2.1 below gives the methods which may be chosen in the long-life operation of a business. These methods are further divided into categories accordingly, with an explanation of each category.

Table 2.1 The pricing methods and categories

CATEGORIES	METHODS AND EXPLANATIONS
<p>1. Cost-based Pricing Method</p>	<ul style="list-style-type: none"> ✓ Full cost-plus method - The price is determined through adding the price based on the costs of a product or service. ✓ Target-return method - Pricing is determined at a point where the firm yields its targeted returns. ✓ Break-even Analysis - Price is set where the company makes neither profit nor loss (revenue equal to costs). ✓ Contribution analysis - A deviation from break-even analysis where only the direct costs of a product or service are taken into consideration. ✓ Marginal pricing - The price covers additional costs and is set below the total and variable costs.

<p>2.Competition-based Pricing Method</p>	<ul style="list-style-type: none"> ✓ Price set to match or according to competitor pricing. ✓ Price set above competitor's price. ✓ Price set below competitor's price. ✓ Pricing according to the market-dominating price. Normally the price leader sets this price and it is adopted by the other companies in a market.
<p>3. Value-based Pricing Method</p>	<ul style="list-style-type: none"> ✓ Perceived value pricing - Pricing is based on the customer's perception and thoughts on the value of the product. ✓ Value-based pricing method- The price is kept low to maintain offering a quality service to customers. ✓ Pricing according to customer needs - The price is set such that it meets the expectations and need of the customers.

Source: Avlonitis and Indounas 2005: 49, Amir *et al.* 2016: 932.

2.3.1 Cost-based Pricing Method

Cost-based pricing method uses the available accounting data to work out the potential price of the product. This method, amongst others, includes the following pricing: cost-plus pricing, target-return and break-even pricing. The availability of accounting data makes it easy for accountants to work the price. Meanwhile, this data cannot explore some important information like demand response of the customers towards the price (Hinterhuber and Liozu 2012: 4). When employing this method Guerreiro *et al.* (2012: 4) assert that the costs are the first to be determined to account for the price. All the costs are added together to mark the cost up to make the selling price. Cost-based pricing model focuses on the price based on costs and dominantly the traditional method is used to account for costs rather than activity-based costing (ABC) (Guerreiro *et al.* 2012: 4). Most importantly, for competitive advantage the firms with similar cost structures can predict the prices of their competitors. The nature of cost-based pricing is that it can create price stability in the market. Despite all other things, cost remains

the most important variable to consider when making a pricing decision (Drury 2018: 240).

Cost-based approach is the most used pricing method, especially in the USA. This was evidenced in a study conducted amongst 13 different sectors which included 323 servicing companies with 63% using the cost-based pricing approach (Avlonitis and Indounas 2005: 49). However, Amaral and Guerreiro (2019: 1 851) argue that despite a lot of studies saying that cost-based approaches are the commonly used, it does not mean they are the most essential pricing approaches. Similarly, Gruca and Noble (2003: 1) argues that despite their common use, they are not the most accurate pricing methods.

For years the cost-based model has dominated the market but should be avoided as it does not focus on customer behaviour. This pricing method alludes that the customer is responsible for paying all costs of the product or service. If this method is applied in the construction company, the owner bears all the costs, including the unforeseen costs, together with risks of cost overruns (Surahyo 2018: 48).

Further to the above discussion, this pricing method ignores the demand, but only focuses on the price, quantity and cost of the product resulting in higher prices. This means the price can be high while the market is weak and that the price can be low in a strong market (Gruca and Noble 2003: 2). Gruca and Noble (2003: 4) further points out that critical market information is ignored by this pricing method. Most companies that focus on this pricing method have little or no knowledge about the market. The distorted costs may be used to account for the price in cost-based pricings. The overheads may be absorbed based on labour hours and could have a huge and significant impact on the overheads cost figure (Vollmers, Antonelli, D'Alessio and Rossi 2016: 738). Guilding *et al.* (2005: 2) add that the cost-plus method is quite challenging for small businesses as they have little influence over the price where a price leader determines the market price.

2.3.2 Competitor-based pricing method

According to Hinterhuber and Liozu (2012: 4), the competitor-based pricing model, its approach is justified as that, the price is the important criteria for customer purchase.

It requires that the bid be low enough to encourage more customers and reasonably high to score profits. In this approach, it is necessary to assess the competitor's price, however the success of the firm depends on its knowledge of costs (Vollmers *et al.* 2016: 735). It cannot be disputed that the analysis on how the competitors perform is the fundamental factor of an organisation. Two well-known Chinese researchers, Bao Changhuo and Xie Xinzhou, wrote in their monograph *Competitor Analysis*: "In a sense, competitor analysis is the core and soul of competitor intelligence, and a sharpened weapon for enterprises to fight in fierce market competition" (Zheng 2011: 315). The decision on this pricing method is decided based on its relevance when compared to competitors. It is well applied when the medium-sized corporates compete with the large corporates or in an instance where the product has little differentiation (Sammut-Bonnici and Channon 2015: 1).

Most importantly, on the conditions of this pricing method, the strength of the information about competitors is more relevant for strategic decision-making and achievements. This means that understanding the accounting systems of competitors is imperative to be able to confront all challenges and for decision-making purposes (Egbunike and Odum 2014: 129). Therefore, it is important that the information about competitors is correct. Consequently, the process of the adoption of competitor-based pricing will be correct. This will give confidence to key stakeholders that the firm will be able to maximise the profits (Guo 2020:1).

Prior studies have established that market conditions for this pricing method can establish the price wars caused by the intense focus on competitive pricing. In the USA, between 2005 and 2009 this pricing model created the basis for price wars in the automobile industry. Similarly, the dynamics of these price wars took place in the USA airline industry (Hinterhuber and Liozu 2012: 4). Likewise, in the study by Toni *et al.* (2017: 123), it was revealed that this pricing method ignores the demand and is likely to cause price wars for the same reason that there is a high focus on competitive pricing.

The shortfall in this pricing method is that an organisation works the price based on competitors while being unaware of their cost structure and profit information. The clear reason is that the competitor may be working on a small margin of cost, where they

had an efficient production capacity. This, therefore, poses the risk of accumulating losses because of an unscientific way of reaching out to the pricing of a product or service (Toni *et al.* 2017: 123). Despite customer perception on the value of the product, the competitor's price has an influence over their buying decision. The inability of the company to tamper with market prices can reduce their control over the customers, which will affect cost efficiency and profitability (Toni *et al.* 2017: 121).

2.3.3 Value-based pricing method (VbP)

Toni *et al.* (2017: 121) define values as a benefit on the use of the product, matching or having greater superiority, when compared to its cost. The fundamental element of the VbP (Hinterhuber and Liozu 2012: 4) is that it focuses on the perception of customers towards the value of the product on its pricing decision. The study by Liozu and Hinterhuber (2012: 34-35) found that firms that use VbP strengthen their internal capability through market research, pricing research and development of proprietor tools. In the USA, VbP has been proposed to value legal drugs (medicine) in the industries, and this pricing is in its early stages of implementation. Contrary to this, in European countries, there is not much done to bring about the experimentation or broader discussions of this pricing in major countries in the continent (Flume, Bardou, Capri, Sola-Morales, Cunningham, Levin and Touchot 2016: 01).

The pricing method has not been brought into a broader discussion; therefore, its use is very limited in European countries such as Germany, France, Italy, France, Spain, England and Sweden (Flume *et al.* 2016: 5). Several studies were undertaken in different countries relating to value-based pricing, most of which focused on health studies, medicine, drugs and the pharmaceutical sector. This includes a study conducted in China by Hu, Zhang, He, Du, Xu, Xie, Peng and Wang (2015: 13), Jiang, Ni and Wu (2019: 1), Jönsson, Hampson, Michaels and Towse (2019: 427) and in Europe by Flume *et al.* (2016: 01) and Garattini, Curto, and Freemantle (2016: 423).

Garattini *et al.* (2016: 425) asserts that this pricing method aims to set a price based on the perceived value of the product by the customers. This means that the cost of the product in a basket should be the value that the customer is willing to pay for the benefit of the consumption of the product. It was in 2007 that the Office of Fair Trading in the UK started to advocate for this VbP so that they could move away from the

Pharmaceutical Price Regulation Scheme (PPRS). The government of that time wanted to get rid of PPRS IN 2014 and move to VbP. After all the effort to move to VbP, the succeeding government in the UK showed no political interest in the VbP (Garattini *et al.* 2016: 425).

2.4 TARGET COSTING METHOD

In implementing target costing pricing, an organisation sets its costs using the comparative information of its competitors. This means that an organisation must gather information on market prices and then remove their profit to get their targeted costs. Normally, when the product under development does not meet the targeted costs, it is not commercialised (Helms, Etkin and Baxter 2005: 49). According to Sharafoddin (2016: 123), it is one of the useful management accounting tools used to comprehensively manage prime costs in product development. Sharafoddin (2016: 124) further adds that target costing primarily focuses on cost management intensely to reduce the cost of a product in its life cycle and maximise profits.

Target costing is a term originating from Japanese, a concept originating from the term Genka Kikaku, which means “costs planning”. Hence prior studies have reflected target costing as the cost management tool for cost planning and cost projections (Lima, da Silveira, da Silva and Ching 2016: 14). This pricing system provides the firms with a plan to handle the potential profits. It incorporates strategic variables to plan how to satisfy consumers, gain market share, produce profits and manage coordinate costs at the same time (Hibbets, Albright and Funk 2003: 66), but most importantly, several organisations still consider target costing as a cost management tool. Its goal is to manage the costs and access the additional profits (Piercy, Cravens and Lane 2010 :39).

Target costing is mostly adopted by firms that operate in an uncertain external environment (Gopalakrishna, Libby, Samuels and Swenson 2015: 2). According to Kocakülâh and Austill (2006: 62), some industries are finding that target costing does not fit because their pricing is being driven by costs. However, Yazdifar and Askarany (2012: 382) disclose that target costing is relevant and useful in both the manufacturing

and service sectors, despite the significant difference in its implementation between these two sectors.

Unlike the traditional method where the existing costs of the products are used to determine the sales price, target costing commences with managing the sales prices. This means that in the traditional method, if the price is not accepted in a market, it must be reworked through efficiency opportunities and cost reduction. Target costing then brings an alternative of reverse working from the sales price and profit to determine the targeted costs (Pajrok 2014: 154). Pajrok (2014: 155) adds that target costing determines the cost of production and simultaneously manages the costs; moreover, it is market-orientated and encourages cost-competition. Drury (2012: 261) and Helms et al. (2005: 49) argue that target costing works in reverse as compared to the cost-plus method, starting from the targeted sales price. Employing target costing for new product development requires that the customer be satisfied with no higher than the targeted costs (Gopalakrishna *et al.* 2015: 2).

Table 2.2 Difference between target costing and traditional approach

Target costing	Traditional approach
Repetitive action is required (to narrow the gap between the current costs and desired costs).	It is quicker and does not require repeating (which is especially important for closing the gap between the current and target costing).
It has a strong market orientation, such that the implementation required an extended time commitment.	It does not have strong market orientation and the adoption does not require extended time horizon.
The use of the concept of target costing is not limited to accounting. The information required for adoption spreads across the company.	The term is only limited to accounting. The use of information is not required from other departments of the company.

<p>An organisation should be conscious of its own costs. Transactions and share of the cost information is necessary.</p>	<p>The total costs of each product should be assessed.</p>
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Source: Briciu and Căpuşneanu 2013: 1 038.

2.5 THE EFFICIENCY OF TARGET COSTING

Target costing is a management accounting technique used to enable the end-result to yield a profit with strategical administrations based on the planned layout to ensure those future profits (Cooper and Slugmulder 1999: 23). The pricing can be calculated “by estimating the anticipated selling price of a proposed product and by subtracting desired profit margins” (Cooper and Slugmulder 1999: 23). This is the management accounting tool used to manage the cost of the product in its life cycle. This pricing includes accounting for customer value and willingness to pay the price (Marimuthu *et al.* 2015: 403-408). Canella (2011: 1) agrees that this tool is beneficial by meeting the expectation of the customer and being profitable at the same time.

Target costing is proactive in ensuring that a firm can manage the cost for the rest of the product life cycle. Therefore, the firm selects activities that have low cost and neglect the non-profit yielding costs. Therefore, the employment of target costing improves efficiency through the culture of built relationship amongst the departments, and levels of management are enhanced. The employees are aware of the required role to play and are more empowered with more participation (Yazdifar and Askarany 2012: 383). Target costing has the capacity to meet both the customer needs and manage the costs. The initial objective is to satisfy the cost management and include the customers in the entire product life cycle from the design stage. Target costing can manage the cost at the beginning of the life cycle, and target costs are determined before the product is designed (Jalae 2012: 12).

Because of its usefulness, target costing has spread wide to over 80% of adoption in the 90s in Japanese manufacturing industries. On the contrary, in the US, only 65 companies in the year 2000 were using target costing. Burrows (2012: 128) states that this pricing method is relatively new and is not well applied by most companies in the

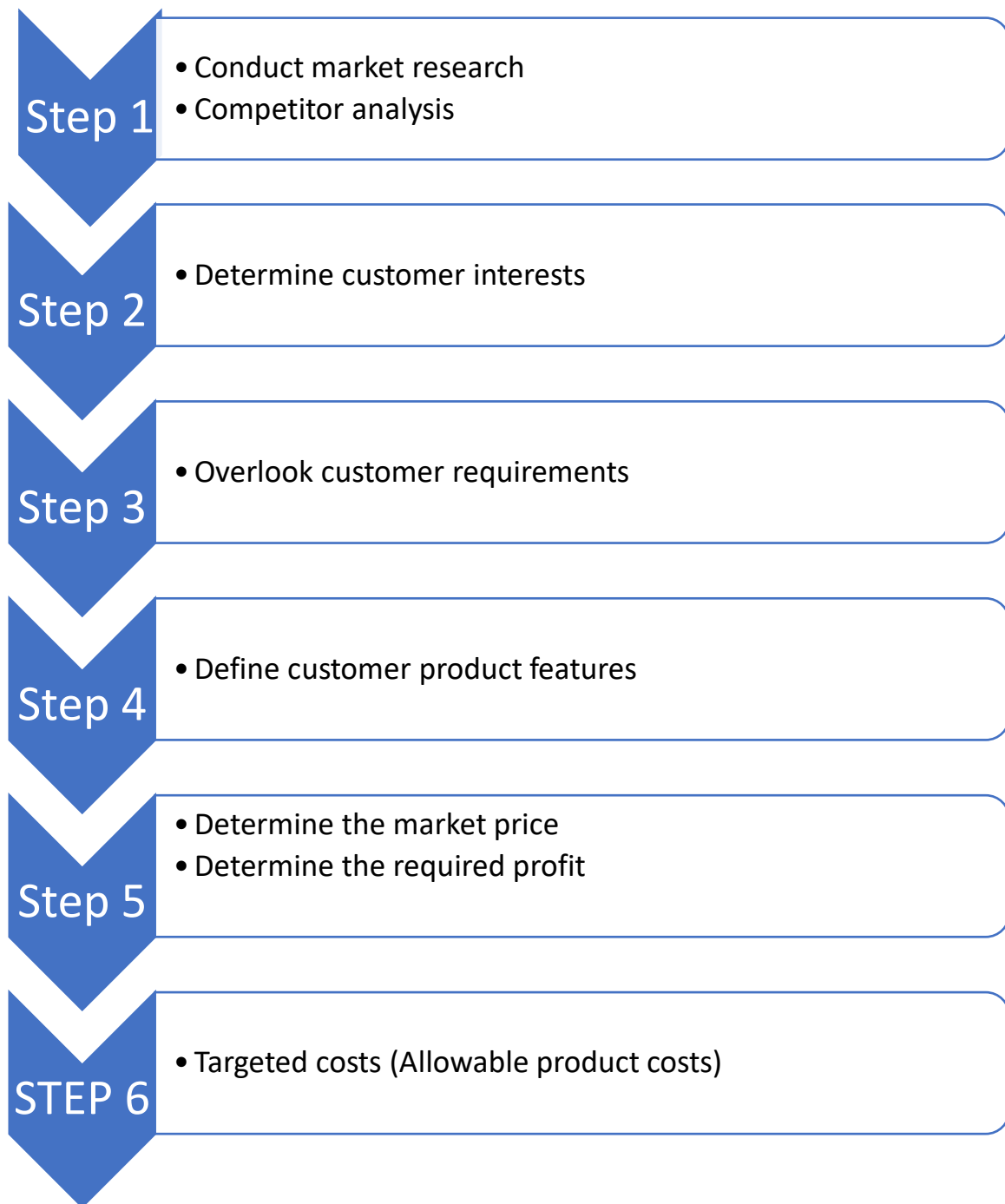
US and Europe. However, the study by Kocakülâh and Austill (2006: 62) discloses that most of the firms in the US do use the strategy to rescue them when they are experiencing problems. Even though the studies show that target costing is only relevant in manufacturing industries and not in service industries, services can also apply the strategy (Yazdifar and Askarany 2012: 383; Kocakülâh and Austill 2006: 62).

Despite the low adoption rate in other countries which could be caused by the lack of awareness and/or knowledge of target costing and how to implement it, there are many substantive advantages (El-Dalahmeh 2018: 390). Strategically, target costing contributes to determining the firm's future profits through cost management and early determination of profits. This means it promotes the control of costs and alerts management to the costs of the product. Lastly, in this approach, there is a collective commitment of the staff to work toward reducing the costs of the product (El-Dalahmeh 2018: 393).

2.6 THE PROCESS OF ADOPTING TARGET COSTING

The following steps show the process of the establishment phase of target costing.

Figure 2.1 Target costing adoption process



Source: Cooper and Slagmulder (1999 :150 and 168) and Paschia (2016: 25)

2.7 THE CHARACTERISTICS OF TARGET COSTING

For decades, the consensus on the discussion of the key characteristics of target costing has not been established. The study by Ax, Greve and Nilsson (2008: 93) identifies the following characteristics as those emerging in target costing.

1. Identifying the desired product

This is the initial start of everything, where the customer needs in the market are identified. The information that is established here is very important as it is this that is used throughout the target costing process. There is extensive market research being conducted in this phase to gather the information. This market research includes market assessments, surveys on the customers, focus groups, product sample testing and conducting of interviews with key customers.

2. Establishment of a target price

The market information is gathered through market research, and the target price is then established. There are more elements that must be considered when making this decision. These factors include the firm's strategic objectives on sales and profitability, the firm's position on products materials, customer perceptions on the value of the product, product development life cycle, targeted share in a market, expected sales capacity for the product, the market price for similar products, the ability of the product to offer customer requirements and expectations and how it differs from those of the competitors and the characteristics of the potential customers.

3. Determining the required profit

The target profit is derived for the long-term or strategic objectives of the firm. Also, the normal profit levels for similar products can also be used to determine the target profit for the product under consideration.

4. Determine target costs

The required profit subtracted from the market price results in target costs. These are the costs that can be accepted for the product. Therefore, it is necessary to keep to these costs to ensure that the required profit is achieved.

5. Break-down the target costs

The next step is to break-down the costs. This is the process of assigning costs to internal cost elements and to the suppliers to get consolidated costs.

6. Close the costs gap

The initial costs and target costs are compared to close the gaps in costs.

7. Continuous improvements

The firm must ensure that it sticks to its targeted costs; it must never exceed targeted costs. The firm will only introduce the product in a market once the target costs are met. If the firm fails to stick to this, it means target costing has lost its efficiency.

2.8 THE LIMITATIONS OF TARGET COSTING

In the study by Lima *et al.* (2016: 20) the following limitations of target costing are outlined, supported with some explanation.

The first limitation is based on arguments that target costing has an extensive focus on the cost drivers and ignores the revenue drivers. The revenue drivers may include random market changes such as technology and customer needs and wants. Consequently, the important market information for revenue-related business success is ignored (Lima *et al.* 2016: 20).

The second limitation is that it requires a lot of time. This is especially the case when an organisation's good financial performance relies on technology and time-to-market. This means that the teams responsible for product development cannot focus on alternative searches and estimate their effects on the final product but rather have no choice but to choose the one that reduces the costs (Lima *et al.* 2016: 20).

The third limitation is that target costing may be too linear with a large amount of bureaucracy. This means that bureaucracy is more employed to work out the needs of customers and value engineering to get the results of the target costing. Therefore, bureaucracy results in a lot of formal administration and tends to ignore flexible, necessary factors which need to be considered to get the best cost minimising alternative (Lima *et al.* 2016: 20).

The last limitation is the level of detail in target costing. An explanation of the complexity of other cost models like ABC and Life cycle costing is necessary to give all the production process details. These cost models reflect the immediate production process rather than looking at a potential product's development decision (Lima *et al.* 2016: 20).

In addition, to supplement the above information, the study looks at the discussion by Yazdifar and Askarani (2012: 384), giving another perspective on the limitations of target costing. The implementation of target costing requires a large amount of cost data. Also, there is a challenge with putting some of the collected information into quantities. Furthermore, there is a need for strong cooperation at all levels of management, and this requires more meetings. Lastly, for the firm to meet allowable costs, the quality of the product will be compromised, and a poor-quality product will be produced (Yazdifar and Askarani 2012: 384).

2.9 UNDERSTANDING OF TARGET COSTING

2.9.1 Staff understanding of the concept of target costing

With respect to the opinion of specialists globally, the concept of “Genka Kikaku” is an overall strategic method to minimise costs. This is the process of reducing costs from the entire product life cycle. World pricing specialists assert that it is very important to have a clear understanding of the whole target costing process and costs, including development costs, planning costs and other costs related to phases (Briciu and Căpuşneanu 2013: 1 037). According to Briciu and Căpuşneanu (2013: 1 037), the decision-makers lack an understanding of the concept of target costing itself. The study by Helms *et al.* (2005:51) also reflects that one of the challenges in the adoption of

target costing is that corporates lack the understanding of the process of the adoption of target costing.

In the study conducted by Gopalakrishnan *et al.* (2015: 6), the authors assessed the nature of understanding target costing and found that there are some target costing elements that are understood by firms. On the contrary, Sharafoddin (2016: 126) found that in Iran there is a lack of proper channels and a fundamental understanding of the processes to be used to meet up with the implementation of target costing. This means that the elements necessary for target costing to be implemented are not understood. This is because staff lack multiple skills needed to tackle target costing. Amongst things mentioned is the lack of the understanding of value engineering (VE) and ABC, which minimises the chances of clearly understanding target costing.

One of the studies conducted in Jordan by El-Dalahmeh (2018: 400) found that companies are aware of the concept of target costing and its usefulness. This study found that they know the concept, principles and the importance of the implementation of target costing to manage their costs (El-Dalahmeh 2018: 404). The study by Dekker and Smidt (2003: 297) argues that it is likely that industries, without being familiar with the term target costing, employ approaches identical to target costing. This means that there are a lot of industries that have adopted this system without knowing; due to this they do not understand the concept of target costing (Dekker and Smidt 2003: 299).

Further to the above, there is a lack of understanding on how to adopt target costing and VE. This has been the case in Jordan. It is added that there is a dearth of research and publication on the benefits of target costing and VE. Moreover, the implementation requires more administration than the expected returns (El-Dalahmeh 2018: 404).

2.9.2 Level of understanding

For this section, this study will adopt the 4-level strategy developed by Yazdifar and Askarany (2012: 384). This 4-level strategy was used by Yazdifar and Askarany (2012: 384) to determine the level of adoption of target costing, and each level is based on the depth of the concept of target costing. This study assumes that at each costing is implemented according to a 4-level strategy. It is the same level at which the firm or pricing staff understands the concept of target costing. In this study, the strategy will

be adopted and used to measure the level of understanding of target costing. Therefore, these 4-levels will be redirected to the ideal level of understanding to determine the level at which staff understand the term target costing rather than its implementation.

The first level refers to the organisation having only identified target costing as the difference between the expected price and the required profit. The first step is to analyse the market price as expected by customers based on the perception of the quality of the product. This is followed by the managerial strategy, based on the goals of the business to determine the required profit. Lastly, the market price is subtracted from the required profit (Yazdifar and Askarany 2012: 384; Tang 2015: 36).

The second level refers to the strategy of cutting costs in the stage of production. The cost targeted for each activity and the functions must be identified. Included are the costs of activities relating to design or supply, subassembly and cost objects (Yazdifar and Askarany 2012: 384).

The third level is the examination of all cost reducing strategies at the stage of planning and prior to production. There is a high amount of information required to assess the reduction of costs to meet targeted costs. The costs information should be adequately available to the designers to assess the impact of each design and enable a change in the design type. Companies normally use cost tables to describe and compare the impacts of various manufacturing styles, roles, and services (materials) on product cost (Yazdifar and Askarany 2012: 384-385).

The fourth level is the adoption of VE to incorporate customer requirements. VE means that the firm understands the most important features of production to minimise costs. In this sense, all the unnecessary functions are removed or substituted. Therefore, all the necessary steps to put target costing into reality are completely adopted (Yazdifar and Askarany 2012: 384-385; Tang 2015: 36).

2.10 THEORETICAL FRAMEWORK: FACTORS INFLUENCING THE ADOPTION OF TARGET COSTING

In this study, the theoretical framework is grounded on the contingency theory. This theory was developed in the 1970s to explain different types of management accounting practices that were used at that time. Contingency theory grew to contingency theory of organisational structure, where its independent variables have developed the emerging management accounting theory. These emerging (management accounting) theories are used to explain the design and the use of Management Accounting Systems (MAS) (Otley 2016: 2; Otley 1980: 83-84).

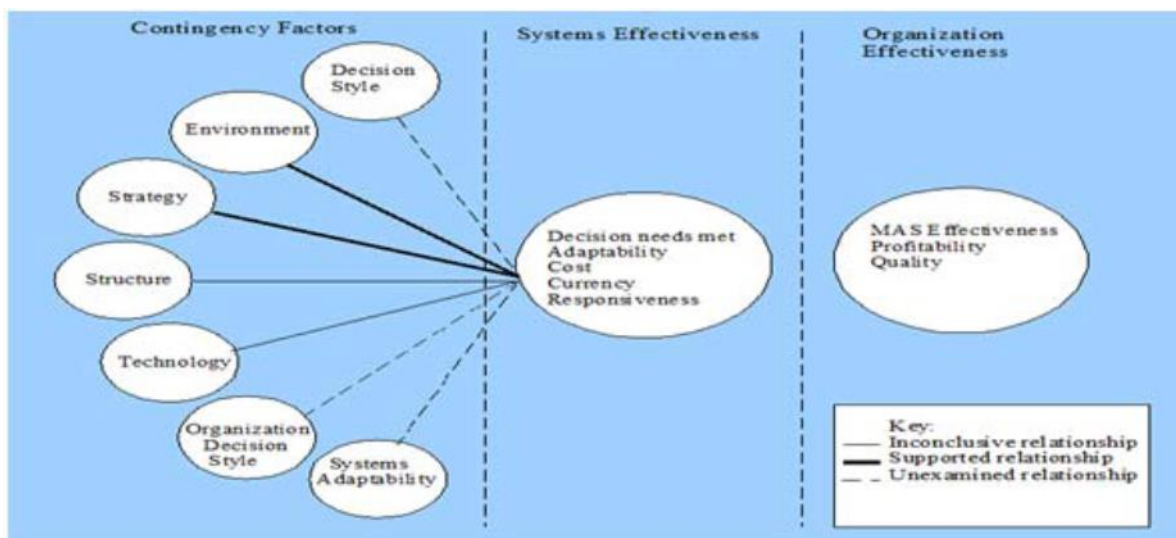
According to Otley (2016: 2), contingency theory means that there is no MAS which is universally appropriate for every organisation. Technological and environmental factors are among other contextual factors that causes the MAS not being able to fit into all industries (Ismail, Zainuddin and Sapiei 2010: 22). These contextual factors were reclassified by Haldma and Lääts (2002: 384), Haron (2016: 1-2), Formana and Hunt (2005: 134), and Forman and Lancioni (2002: 32) into internal and external factors. It was argued that each designed MAS is effective based on its ability to adapt to the changes in the internal and external factors of each organisation. The contextual factors herein can be summarised as external environment, technology, structure, culture and strategies (Ismael *et al.* 2010: 22-23). Islam and Hu (2012: 5159) add that the organisational design of the MAS must be in line with the characteristic of an organisation for it to survive and be effective. Harney (2016: 72) describes contingency theory as an approach that says the one-size-fits-all is inappropriate and suggests that for it to be effective, Human Resource Management must understand the aspect of the external environment and the organisation.

The adoption of target costing as a MAS is influenced by contingent factors. Contingency theory basically suggests that the use of target costing for each organisation will be based on the environment (external factors) and strategy (internal factors). The underlying assumption of contingency theory is that external factors and internal factors are unique for each organisation (Macy and Arunachalam 1995: 65).

The discussion below reflects the framework which describes the internal and external factors influencing the adoption of target costing by HEIs (Rasit and Ismail 2017: 7 084). The technological and competitive changes have made major contributions to challenges that the business environment encounters. This creates the necessity for an organisation to adopt new cost management accounting techniques, particularly. This asserts that the change in competition, technological advancement and business strategy result in an adoption of target costing. In the study by Rasit and Ismail (2017: 7 084) it was found that the competitive intensity, technological advancement, management style of leadership, government regulations, size of an organisation and business strategy have an influence on target costing adoption.

Before the discussion of these internal factors, the research starts by demonstrating the contingency in the form of a diagram, labelled as Figure 2.2 below, showing the summary of the contingency theory model. In the figure, the factors influencing the adoption of target costing are noted. This is because target costing cannot be universal to all industries; there are a variety of factors that may influence the use of target costing in HEIs.

Figure 2.2 The contingency theory



Source: Macy and Arunachalam (1995: 74)

2.11 INTERNAL FACTORS

2.11.1 The business strategy

The business strategy is simply a broader explanation of two strategies: differentiation strategy and cost leadership. Focus on either of the strategies does not mean that the other one is ignored. Although product differentiation approach focuses on competing using the quality, sustainability and functionality of the product, it does not ignore the costs. Likewise, cost leadership focuses on offering a product at a very low cost while ensuring the quality of the product is at a reasonable level (Hibbets *et al.* 2003: 68).

Hammami, Al-Omiri, Bouraoui and Anam (2019: 218) found that corporates that use a differentiation approach were more likely to adopt target costing than those that used a cost leadership strategy. Likewise, in the survey by Hibbets *et al.* (2003: 71) of 12 firms, nine of which were in the USA and three in Germany, to investigate the business strategy adopted by target costing implementers, results showed that eight of these firms were using the differentiation approach. In contrast, the findings by Rasit and Ismail (2017: 1 707) reflect the weak positive relationship between the differential approach and target costing. This is an indication of a low adoption rate of target costing compared to the differentiation strategy. However, findings also reflect that cost leadership increased the chances of the adoption of target costing.

The study by Hibbets *et al.* (2003: 65) assesses the business strategy of companies that have been established as target costing implementers. The study provides that the strategy of the firm is the driving force behind the implementation of target costing in the changing business environment. The strategic vision of the organisation is put into motion through different instruments, techniques and company practices. The cost control method of target costing is one such instrument that is being implemented by companies across the globe (Hibbets *et al.* 2003: 65).

The strategy that the firm employs can change the relationship between the competitive environment and its decision to adopt target costing. This means that both competitive environment and the decision to adopt target costing is dependent on a firm's strategy (Hibbets *et al.* 2003: 65). Also, it was found that in a highly competitive environment the simultaneous use of both strategies is very important. This is because

the firm needs to use all these fundamentals to ensure that they keep low costs and high quality and functionality of a product (Rattray, Lord and Shanahan 2007: 70).

2.11.2 Size of the business

In a study by Joshi (2001: 91) it is outlined that the size of a firm is one of the most important variables when designing certain components of the management accounting system. Hamood, Omar and Sulaiman (2013 :51) disclose that in most of the studies, the size of an organisation is measured using the number of employees and has been found to have varying effect or no effect on the adoption of target costing. According to the DUT Annual Report (2019: 13), DUT had a record of 611 permanent staff members, which excluded part-time contracted staff. Joshi (2001: 91) adds that in large sized corporates, the usage of traditional and new management accounting techniques is very high. Drury (2012: 234) discloses that studies have indicated that there is a correlation between an organisation's size and the implementation of contemporary accounting practices such as target costing. This means an organisation needs to assess its production capacity before the implementation of a suitable tool.

In response to the growing size of firms that were merged in Nigeria, the study found that target costing has been considered as a relevant management technique to minimise the cost of the product (Imeokparia 2014: 51). Similarly, from Ax *et al.* (2008: 97), it was found that there has been evidence that the size of the firm has a huge effect on the adoption of advanced cost and management tools, including target costing. Also, a study by Hammami *et al.* (2019: 218) found that large corporates with large production capacity adopt target costing more than small firms. This is supported by Gonçalves, Gaio and Silva (2018: 379), where most of the authors agreed that that the adoption of target costing is mainly used by large corporates rather than small firms. This is because large firms have sufficient resources to finance the design of the new system for the adoption of the new management accounting technique (Joshi 2001: 91). Contrary to the above findings, Rattray *et al.* (2007: 76) found that there is no significant relationship between the size of the firm and the adoption of target costing.

2.11.3 Management style of leadership and staff inclusion

Piercy *et al.* (2010 :39) assert that in the past the decision on pricing used to be limited to junior marketing and finance management or people working closely with customers (salesperson) who made negotiations. This means the decision was shared amongst centre and operating units, finance, sales, manufacturing and marketing. Tang (2015 :41) discusses that amongst things which affect the adoption of target costing is the support of top management for the adoption of this price. On the contrary, Piercy *et al.* (2010:39) generally discuss that top management had given less attention and focus on pricing decisions. To put target costing into use, all staff and departments must participate in the process. Therefore, the conditions of the firm must be of the utmost best, meaning management should be of a high quality, that there is a flat organisational structure, a more advanced information system and leadership with a high quality of leadership skill (Weiyi and Luming 2009 :537). Hamood *et al.* (2013: 47) add that target costing's best practice relies heavily on operational skills that integrate organisational functions with cross-functional staff.

Briciu and Căpuşneanu (2013: 468) brings the similar argument that the adoption of target costing is important since it involves staff from all departments when analysing the costs and inspires cost management. There is clear need for a proximity of relationship between staff involved. Target costing implementation is collapsed by malfunctioning teamwork among participating stakeholders (Sarokolaei and Rahimipoor 2013: 20). This is supported in a study by Cunha Callado, Cunha Callado, and Truta do Bomfim (2020: 129) that target costing as a lively process requires the involvement of staff from different sectors of the firm, such as management, production, marketing, engineering, cost accounting and the sales section.

2.11.4 Information system and technological advancement

Target costing looks at all potential cost saving ideas while developing a new product. Research is focused on product planning, research and development and the manufacturing phases of information system development. The research process for target costing requires a robust information system, technological advancement and cross-functional participation from the design level, where up to 80 to 95 percent of the costs of a product are committed (Helms *et al.* 2005: 50). To better understand their

identity, core competencies and how they add value, target costing requires corporations to have clear analysis and understanding of their technology and organisation (Helms *et al.* 2005: 50).

An enhanced technological innovation spreads over to ease the amount of work required to create quality and cost savings, technique for costing of a product becomes relevant when the technological innovation works simultaneously with target costing to manage costs of the product (Okpala 2016: 19). The findings by Gonçalves *et al.* (2018: 381) also show that the adoption of target costing is intensified as technology gets more advanced, giving the positive relationship between the adoption of target costing and technological advancement. Sarokolaei and Rahimipour (2013: 20) argue that less technological innovation will make it hard to put the cost management accounting system into practice. In contrast, the study by Rasit and Ismael (2017: 7 807) found that there is an insignificant relationship between the adoption of target costing and technological advancement. The accomplishment of target costing requires an efficient information system that is distinguished by the speed at which data and information on all facets of the organisation are transferred. The system should be highly advanced, open to all cost reduction personnel and capable of exchanging all relevant information between collaborative functional teams (Al-Awawdeh and Al-Sharairi 2012: 6).

2.11.5 Vertical differentiation and centralisation

Vertical differentiation refers to the position of decision-making obligations within the organisational structure. This refers to either centralisation or decentralisation. The focus of vertical differentiation is on the degree to which sub-unit managers act as quasi-entrepreneurs, while integration is defined as the degree to which sub-units act in ways consistent with organisational objectives (Abusalama 2008: 122). It must be noted that the most important factors for the successful implementation of target costing are management support, linkage of profit planning and cross-functional teams. There is a positive relationship between these variables and the three main elements, namely efficiency, marketability and cost reduction (Al-Qady & El-Helbawy 2016: 41; and Hamood *et al.* 2013: 52).

This is the horizontal integration of roles, typically consisting of cross-functional teams working together to achieve the target cost, and this is another significant feature of target costing practice. Furthermore, it may involve collaboration, referred to as inter-organisational cost control, with members representing buyers and suppliers. As a comprehensive cost control approach, the cross-functional team offers expertise and skills for the achievement of the target cost (Dekker and Smidt 2003: 296).

2.11.6 Formal accounting support for target costing

The full implementation of target costing requires support from all departments to form multidisciplinary teams. Normally, as a rule, in these teams accounting department is seen as not being as important as engineering department. The accounting department also requires adequate support since the adoption of target costing requires their intensive involvement in these teams. This is because the whole process makes these teams responsible for accelerating the integrity of the product from conception to finished product (Mendes and Machado 2012: 794).

In the study conducted by Rattray *et al.* (2007: 77), in the measurement of the extent of involvement of the accounting department in target costing adoption, findings reflected the mean frequency involvement of 3.42 measuring from 1 to 5 (1 being not at all and 5 very much involved). This shows firms give the very least support or focus to the accounting department. The accounting department offers the lowest involvement in the adoption of target costing (Dekker and Smidt 2003: 296). Most experts even recommend the adoption of the target costing method in organisations that still use far less advanced accounting information management systems, as it is learning support that includes accounting information on planning, control, production, budgets, forecasts and performance standards (Briciu and Căpuşneanu 2013: 463).

2.11.7 Resource adequacy for implementation of target costing

Academics have suggested that organisations need adequate internal resources to implement and execute target costing effectively. The availability of resources refers to the time and effort of accountants, professional staff, top management, operating personnel, finance, tools and material, software, and external consultants (Nassar, Al-Khadash, Sangster and Mah'd 2013: 18 and Kudanga 2018: 42).

Large corporates are said to have enough resources to adopt management accounting techniques including target costing. They find it useful to invest their resources in these techniques as they may be useful for their operations (Hamood *et al.* 2013: 51). According to Smith, Abdullah and Razak (2008: 200), the cost management innovations in large corporations are more readily embraced. As they have more complex and varied facilities, larger organisations may also be expected to have more creative advanced costing systems.

The flow of resources remains important in the initiation of the cost management programme of target costing. The study alludes that the management of resources is relevant for management decision on the plan to manage costs to accomplish target costing. Therefore, the capacity of resources must be measured to identify the capacity that would be used and to manage the unused capacity (Al-Qady and El-Helbawy 2016: 43). The results reflect that, as target costing's primary objective is to manage the costs, then the focus must be oriented to materials pools (Al-Qady and El-Helbawy 2016: 52).

2.12 PERSONAL FACTORS

2.12.1 Staff Skills, education and expertise

Pricing practitioners are not always aware of how prices can fit their organisations. Therefore, staff must be taught the relevance of pricing if there is a need to adopt that pricing method (Reen, Hellström, Wikström and Perminova-Harikoski 2017: 94). Therefore, the discussion here is on the adequacy of information and knowledge by staff on target costing.

In South Africa, target costing has not been fully used by industries because of its fragmented nature (Motuba, Noggala, Monyane and Emuze 2016: 1-3). This is a result of a lack of basic knowledge and education on how to put the pricing system into practice (Motuba *et al.* 2016: 8). The decision makers are not yet equipped in terms of the use of target costing. Quantity surveyors have the perception that target costing would be hard to implement because of the inadequacy of their knowledge of on its practice (Motuba *et al.* 2016: 1-3). This is the result of the inadequacy of research and analysis by decision makers, as they tend to use target costing as just a trial to see

what an outcome may be. Hence if they lack the expertise on these pricings and have insufficient cost data, it will result in improper use (Weiyi and Luming 2009: 537; El-Dalahmeh 2018: 404).

Briciu and Căpuşneanu (2013: 460) argues that according to specialists, target costing is a very easy system to use because of continuous communication between the supply chain partners. Moreover, to overcome the challenge of outsourced functions the placement of the employees on a supplier's plant will help the organisation's employees to oversee and assist with the supplier's activity. The employees of an organisation will easily learn and understand the whole process, including gaining better understanding of the costs. The easy flow of information will result in a simple adoption of target costing by the management (Briciu and Căpuşneanu 2013: 460).

2.12.2 Scepticism on job security and personal risks

Target costing initially serves as a cost management tool. For entities to gain their competitive advantage, they have redirected their focus onto reducing their costs (Matarneh and El-dalabeeh 2016: 301). Whether it is labour costs or other production-related costs, if costs are irrelevant and not adding any value, they are removed from the product costs (Briciu and Căpuşneanu 2013: 462). The technique poses a real threat to employees as they fear job losses during the cutting down of costs when putting the technique into practice (Briciu and Căpuşneanu 2013: 461).

When putting target costing in place, management will need to discharge any suspected or real fears of employment loss or position loss due to the target costing plan to meet the cost obligation. The job security fear could create challenges or cause employees to act against the achievement of the target costing plan, as employees would want to ensure that their jobs are safe (Alwadan, Alsinglawi and Alhawatmeh 2018: 6). To overcome the threat of job losses, it is important to introduce appropriate education and training for staff involved in the adoption of target costing. Having staff mainly involved in the implementation of target costing can result in the successful implementation and will safeguard jobs from threat of job losses (Briciu and Căpuşneanu 2013: 463).

2.12.3 Lack of organisational goal clarity

All entities are said to be organisations whose distinguishing characteristics are the accomplishment of a particular aim or purpose. Each company's aim is to increase the overall wealth of the shareholders and, more importantly, to ensure the company's output is sustainable at the same time (Keay 2008: 664). Target costing is the method developed to establish and encourage the achievement of cost levels, typically, but not exclusively, expressed as a commodity cost that will contribute effectively to the achievement of financial efficiency of an entity (Hamood *et al.* 2013: 48). In that process, target costing is set as a tool which is goal-driven to reduce the product costs through the continuous estimation of production costs as well as analysis of results from design decision (Mendes and Machado 2012: 794).

The study conducted by Rattray *et al.* (2007: 74) also assessed the importance of adopting target costing. The study presented the result that target costing is very important in meeting all the firm's goals. The technique satisfies the fundamental elements of an entity, which are cost reductions, customer satisfaction, quality and the timeliness of a new product (Dekker and Smidt 2003: 296).

Furthermore, there is a view that in large corporates staff have more expertise and for that reason they have clarity on the management innovations to reach the goals of an entity (Hamood *et al.* 2013: 51). The primary objectives must be clear, such that the management only makes considerations of the technique that is consistent with the strategic target (Hamood *et al.* 2013: 52). Therefore, staff must always have clear understanding of the firm's objectives. Staff are the ones who present the company's best ideas to achieve quality improvement. This is because they are physically closer to the jobs and see, mostly, the kind of defects that arise and their key causes. This means that staff must have access to useful information. Most importantly, staff need to be motivated to meet the target costs and make target costing an activity that generates profit for an entity (Mendes and Machado 2012: 795).

2.12.4 Active worker autonomy, responsibility

The adoption of target costing requires cooperation amongst workers in the firm to achieve the goal set to manage the costs. It is important to create shared information

amongst workers and create a co-worker relationship (Mendes and Machado 2012: 795). The flexibility of relevant information amongst co-workers internalises the know-how faster and leads to clear understanding of costs. The training and instructing of co-workers for this initiative can result in a lack of knowledge amongst them and create barriers for the adoption of target costing (Mendes and Machado 2012: 795).

2.13 EXTERNAL FACTORS

2.13.1 Intensity of competition

A study by Reen *et al.* (2017: 91) asserts that the target costing pricing decision, like other pricing decisions, will consider the internal costs and competitors. The management in an organisation has motives and intentions to be competitive in a market. This means that an organisation should be able to provide superior value to customers in a market. In an intense competitive environment, low-cost service providers have carried out their strategies successfully (Hibbets *et al.* 2003: 65-66).

According to Drury (2012: 233), target costing is useful in an environment where there is strong competition in a market. For this reason, target costing at its first stage of development makes comparative value of the product with respect to the competitive products and the bid of competitive services (Hamood *et al.* 2013: 48). Ax *et al.* (2008: 94) disclose that the intensity of competition is found to have positive relationship with the adoption and use of target costing. Similar perspective was found in a study conducted by Hammami *et al.* (2019: 218) that the intensity of competition has a direct and positive influence on the adoption of target costing. Likewise, in a study by Rasit and Ismael (2017: 7 807) the findings provided evidence that there is significant low positive relationship between target costing and intensity of competition. This means that as the intensity of competition increases the level of adoption of target costing by firms increases.

Okpala (2016: 20) asserts that despite the employment of advertising and critical branding, to be competitive in a market, a firm needs to employ target costing as a technique of containing critical success factors of competition. It must also be noted, as outlined by Sarokolaei and Rahimpour (2013: 19), that target costing can be hard to implement in instances where the competitor prices are not known. In an intensely

competitive market, the adoption of target costing is necessary to bring about low-cost products which meet customer requirements (Ratray *et al.* 2007: 70).

A study conducted by Alwadan *et al.* (2018: 1) revealed the implementation of target costing has become a reality in Jordan. This was the measure put in place to respond to the intensity of the competition amongst industries. An initiative to keep costs minimal can assist an industry in ensuring an advantage in market competition (Alwadan *et al.* 2018: 1). Likewise, it is difficult to adopt target costing in industries in Iran because of the uncompetitive markets (Sharafoddin 2016: 126).

Several studies have presented evidence of the relationship between the intensity of competition and the adoption of cost management systems. In the examination of this relationship, studies suggest that there is a positive relationship between the adoption of target costing and the intensity of competition (Khandwalla 1972: 281; Ax *et al.* 2008: 94).

2.13.2 Customers' perceptions on value

Ingenbleek, Frambach and Verhallen. (2010: 1 032) argue that price makers establish the price based on the customers' perceptions on the value of the product, and correct pricing by management is necessary. The study conducted by Ingenbleek *et al.* (2010: 1032) comprising of staff from 144 firms who are involved in pricing decisions reflected that customer perception of the value of products is prioritised.

A different argument from Reen *et al.* (2017: 91) is that pricing decision tends to ignore customer perception on the benefits of the consumption of the product or service. As outlined by Drury (2012: 233), target costing technique requires intense market research to enable a clear understanding of customer perceptions on the value of a product or service. In a study by Sarokolaei and Rahimipoor (2013: 19) it was found that it becomes hard to measure customer satisfaction as it may differ from one customer to the next and may not be common to everyone.

2.13.3 Government regulations

The government can impose policies for market price controls, including setting of minimum and maximum prices. The price control measures put in place by government

must be accepted by all firms operating in a market selling the same product (Mohr 2015: 90). According to Harrington (1984: 577), government regulations have dictatorship over the market rate. Government regulation includes an intervention on price controls. This attracted the economist interested in reasons behind the government's price regulations on other markets (Joskow 1974: 196-197).

2.14 THE EXTENT TO WHICH TARGET COSTING HAS BEEN IMPLEMENTED

This section of the study is not covered in many other existing studies. A lot of studies focus on either adoption or non-adoption of target costing. There is a gap that still need to be bridged to assess the extent or the level to which target costing is implemented. Nonetheless, there are few studies conducted looking at an extent of adoption, and they don't address an extent of adoption in other sector like education sector. A study by Yazdifar and Askarany (2012: 382) which was conducted in manufacturing firms in the UK, New Zealand and Australia looked at this matter. Tang (2015: 84) also conducted a study that looked at the extent to which target costing was adopted in the New Zealand Private Training Establishment (PTE).

Yazdifar and Askarany (2012: 387) found, including trial bases, the significantly low adoption rate of 23.4% in Australia, UK and New Zealand adding to the adoption rate of 18.3% from 2007. These statistics included the industries which have adopted target costing completely and those that have introduced it on a trial basis. The findings of this study present the following results in these countries from both manufacturing and servicing businesses. The companies across all three countries that have not considered or discussed the implementation of target costing is represented by 57% of the total feedback; 5.8% have taken a decision not to introduce target costing and 13.8% are still making some considerations to introduce target costing. Lastly, more than 5.7% have introduced it on a trial basis while the rest (17.7%) have fully implemented and accepted target costing (Yazdifar and Askarany 2012: 388).

The study by Tang (2015: 89) found that the PTEs in New Zealand have adopted target costing at a rate of 33.3%. This study found that more than half of the PTEs have

adopted target costing at a basic level. It concludes that in PTEs in New Zealand, there is still room for improvement when it comes to target costing (Tang 2015: 89)

According to Dekker and Smidt (2003: 294), target costing implementation has been associated with firms in Japan. This study investigated firms on the Amsterdam Stock Exchange to gauge whether the firms have adopted target costing and to what extent they have adopted it. These firms are assessed based on the techniques that they use to record whether they have adopted techniques which contain the elements of target costing (Dekker and Smidt 2003: 294). Likewise, in the study by Kocsoy, Gurdal and Karabayir (2008: 199) it was found that when it came to the extent to which target costing was adopted, the definition was used rather than asking directly if the companies adopted target costing. The respondent managers were asked through the definition to assess not only that target costing is adopted but also if the elements of target costing existed (Kocsoy *et al.* 2008: 199).

This section segregated and discussed in detail factors influencing the adoption of target costing as internal and external factors. It further developed the review on the extent to which target costing was adopted in other sectors in different countries. The next section is important as it gives an overview of what other authors have found in their studies. The discussion gives the findings from studies conducted in different countries or regions regarding the implementation and the level of adoption of target costing.

2.15 EMPIRICAL REVIEW

There are many studies that have been conducted worldwide on the adoption of target costing in different industries. However, there very little research has been done on the adoption of target costing in HEIs to also assess the suitability of this method on HEIs. The research has been more focused on the manufacturing industries. Other studies make use of scales to determine the adoption of target costing (Tang 2015: 33). The study conducted by Al-Awawdeh and Al-Sharairi (2012: 128) uses target cost dimensions to assess the level of implementation of target costing. It was also found that in the study conducted by Tang (2015:1), the level of implementation of target costing in PTEs in New Zealand is examined. Below the discussions provide a reviewal

of other studies that have been undertaken on the adoption of target costing and which have been conducted in other parts of the world, including the African region.

Tani, Okano, Shimizu, Iwabuchi, Fukuda and Cooray (1994: 68) distributed questionnaires to all manufacturing industries listed on the Tokyo Stock Exchange, in total there were 703, to uncover the range of the adoption of target costing. The response rate was 26.65%, making it 180 firms. The results showed that there is high adoption of target costing in assembly industries, particularly machinery, transportation equipment and electrical and electronics (Tani *et al.* 1994: 68).

Chenhall and Langfield-Smith (1998: 2) administered a survey to 140 manufacturing firms in Australia. These firms were selected from the Business Weekly Review of the biggest corporates in Australia. The study aimed at assessing the adoption of management accounting practices and respondents were required to indicate if they have adopted target costing. The results of this study indicated the lowest adoption rate of target costing (Chenhall and Langfield-Smith (1998: 2).

Similarly, Wijawardena and Zoysa (1999: 51) surveyed only manufacturing firms. A questionnaire was distributed to 1000 large manufacturing companies in Australia and Japan - 217 firms in Japan and 231 in Australia. The survey indicated that Australia focused more on management accounting tools for planning and controlling costs and financial statements, which under the survey are budgets, historic accounting statements and standard costing. Contrary to this, the Japanese emphasis is on the use of target costing, which focuses on cost reduction from planning to development of the product (Wijawardena and Zoysa 1999: 54).

A study has been conducted in India examining the adoption of accounting practices in 60 large and medium sized manufacturing firms. The survey was done through the distribution of a questionnaire. Josh (2001: 97) made comparatives of the results found in this study with the results of the study that was conducted in Australia by Chenhall and Langfield-Smith (1998: 4). Out of the 246 questionnaires distributed by Josh (2001: 94), 64 responses were returned and 60 were usable responses. The adoption rate was low in both India and Australia, at 35% and 38% respectively. This study further surveyed the benefits of the use of target costing in the firms. This study found the

benefits to be high, which is the opposite of the findings in Australia which reflected low benefits (Josh 2001: 100).

In the study conducted by Dekker and Smidt (2003: 297) to investigate the use of target costing in Dutch firms, a survey was sent to all the listed manufacturing and non-manufacturing firms on the Amsterdam Stock Exchange. This only excluded the listed financial insurance and trading firms, and a total of 175 questionnaires were distributed (Dekker and Smidt 2003: 297). The response rate was 24.6% (43 responses), of which 32 were manufacturing and 11 were non-manufacturing firms. Nineteen of the respondents (59.4%) from the manufacturing firms claimed to have adopted practices similar to target costing (Dekker and Smidt 2003: 299).

The implementation of target costing practices was investigated by Rattray *et al.* (2007 :73) in firms in New Zealand. The findings of the study suggest that target costing was implemented and applied to existing products by 38.71% of manufacturing firms. The findings were that the firms that responded not to have adopted target costing found it not being beneficial to the future, not suitable for the firm and that there was a use of alternative measures like cost plus pricing, a standard costing system or costing being done elsewhere (Rattray *et al.* 2007 :73).

A study by Ax *et al.* (2008: 98) was conducted in Sweden, with a survey being distributed to Swedish engineering firms. From a total of 664 firms, 250 firms were randomly selected representing the rate of 37.7% of the total population of independent companies (excluding the group companies). The usable responses were received from 57 firms, representing 22.8%. Out of the total of 57 responses the results showed that only 14 firms (24.6%) had adopted target costing and 43 of the totals of 57 have been regarded as non-adopters of target costing (Ax *et al.* 2008: 98).

A survey from the study conducted by Yazdifar and Askarany (2012: 388) comprised of 376 firms, both manufacturing and servicing firms, which represented 65% of the total number of respondents. The results indicated that there is an equal amount of preference on the adoption of target costing between manufacturing and service firms. This was the amongst first studies that used quantitative data amongst the studies that have been conducted on the possibility of this adoption in servicing firms. The results indicated that there is no significant difference in the spread of target costing between

manufacturing and servicing firms (Yazdifar and Askarany 2012: 388). Moreover, the study found that only 17.3% of companies surveyed have accepted and adopted target costing.

From a study by Atieh (2014:78), that was conducted in Jordan to assess the adoption of target costing in the manufacturing industry, results indicated there is very low adoption of target costing in Jordanian manufacturing industries. Out of the 60 respondents, only 27.9% have adopted target costing. There is also an indication that 6.6% of the companies have concluded on their decision to introduce target costing (Atieh 2014:78).

A study by Omar, Sulaiman, Hui, Rahman and Hamood (2015: 204) found that this variable can have an influence on the successful adoption of target costing. The measurement of the company size is based on the number of employees in the company. This study was focused on large corporates in Thailand, Japan and Malaysia. The study indicates the significant variations in the propensity of corporations towards target costing implementation (Omar *et al.* 2015: 204). This study also asserts that the implementation of target costing requires the cross function of different staff from various departments to be involved in the implementation of target costing (Omar *et al.* 2015: 203).

A study by Tang (2015: 85) was conducted in New Zealand to examine the adoption of target costing in PTEs. The survey was undertaken at 513 PTEs and a total of 114 responses were received. The response rate of 52.6% was low for PTEs, measured based on the number of employees. The study found that at only 38 out of 114 PTEs, which amounted to 33.3%, there was the adoption of target costing. In this study it was found that the adoption of target costing is slightly higher in the PTEs with more than 100 employees.

A study was conducted in South Africa by Motuba *et al.* (2016: 329) in the construction sector in Buffalo City, Bloemfontein to investigate the perception of practicing quantity surveyors of the adoption of target costing in this sector. The study found that the quantity surveyors have the perception that target costing would be difficult to implement because of the inadequacy of extensive knowledge and skills for its adoption. In Mangaung Municipality it was found that 60% of the respondents were

fully aware of the concept of target costing and 20% were not. The last 20% had only heard of the concept of target costing but were not aware of the full implementation of it. Meanwhile in the Buffalo City Municipality, 20% of the respondents were aware and the remaining 80% were not aware of target costing (Motuba *et al.* 2016: 332).

Rasit and Ismael (2017: 7 806) conducted a survey in the Electronic and Electrical (E&E) industry in Malaysia which falls under the manufacturing sector. In 2014 there was a total of 535 E&E firms located in Klang Valley; 400 were sampled and the usable responses were from 57 (14,25%) firms. The results have presented a moderate adoption of target costing, giving the mean of 2.5.

A study was conducted in the food industry in Jordan by El-Dalahmeh (2018: 404) regarding the extent of the implementation of target costing and VE. The results of the study found that there is an existence of the components of the target cost strategy as well as the knowledge of the Jordanian food sector shareholding firms of their costs to increase profitability. For the reduction of cost the Jordanian food industry used VE. The findings also showed that there were some issues suppressing the application of target costing and VE to Jordanian food industry shareholding firms (El- Dalahmeh 2018: 404).

The study by Cunha Callado *et al.* (2020: 134) provides the positive relationship between the small micro enterprises and the principles that are related to target costing such as aiming at meeting customer needs, making assumptions of the allowable costs for the product before its production and market-based pricing. Other principles include involving all the staff in the reduction of costs, cost management and engaging in activities to minimise the costs simultaneously with initiative on continuous improvement.

This section has discussed the empirical findings of the other researchers globally. The next section contextualises the study of target costing relating to HEIs. While other studies have focused on the adoption of target costing in different sectors, particularly manufacturing, there has been a low focus on how target costing can be discussed in the context of the education sector.

2.16 CONTEXTUALISING TARGET COSTING IN THE HIGHER EDUCATION INSTITUTIONS (HEIs) IN SOUTH AFRICA

2.17 The background to HEIs in South Africa

At the beginning of the 21st century, the HEIs in South Africa (SA) experienced serious financial crisis. Subsequently, there is lack of creative planning, non-innovative strategic fiscal policies (both at institutional and national level), ambitious expectations for enrolment and the absence of successful institutional collaboration which are now destroying the future of several HEIs in SA (Hay and Fourie 2002: 115). To survive, institutions are cutting costs and reducing the expense by reducing the number of faculty members, redeployment of workers and a moratorium on overtime pay, attendance at meetings, new appointments and ventures with new financial management (Hay and Fourie 2002: 115).

In the form of the 1996 National Education Policy Act, the post-1994 education policy discussions paved the way for a de-racialised single unified education system to respond to challenges in HEIs. This was accompanied by an SA higher education policy that outlined intentions to provide a job market with high-level skills, produce economic and social awareness and grow prominent people (Abrahams 2015: 2). These legislative interferences resulted in the reduction of 36 HEIs centred historically racially (differentiated) to 11 'traditional' universities offering predominantly research-oriented degree programmes, 6 'comprehensive' universities providing a combination of academic and career-oriented courses and six technology universities, formally known as technikons, offering certificates, diplomas or Btech degrees and bringing students into a profession more explicitly (Abrahams 2015: 2; Du Pré 2010: 2).

Historically, because of mergers and incorporations, the emerging modern environment for public higher education produced 23 institutions. As pointed out in Tables 2.3, 2.4 and 2.5 below, there are 6 universities of technology, including Mangosuthu University of Technology, out of 11 universities, of which 3 emerged from a merger. Mangosuthu University of Technology was supposed to merge with the DUT; but this did not happen for several reasons. The remaining consist of 6 extensive

universities as well as the two Mpumalanga and Northern Cape Institutes (Chetty 2010: 68).

2.18 MERGED SOUTH AFRICAN HIGHER EDUCATION INSTITUTIONS

Table 2.3 The merger of universities

Merged Institutions	New Institutions Formed
University of Durban Westville + University of Natal	University of KwaZulu-Natal (UKZN)
University of North + Medical University of South Africa	University of Limpopo
Potchefstroom University of Christian HE + University of North-West + Vista University (staff and students of Sebokeng)	Northwest University
University of Pretoria + Vista University Mamelodi Branch Only	University of Pretoria

Source: Chetty (2010: 69)

2.18.1 Merged universities of technology

Table 2.4 The merger of technikons

Merged Technikons	New Institutions Formed
Cape Technikon + Peninsula Technikon	Cape Peninsula University of Technology (CPUT)
Natal Technikon + ML Sultan Technikon	Durban University of Technology (DUT)
Technikon Pretoria + Technikon Northern Gauteng + Technikon North-West	Tshwane University of Technology (TUT)

Source: Chetty (2010: 69)

2.18.2 Merged Comprehensives

Table 2.5 The merger of comprehensives

Merged Comprehensives	New Institutions Formed
Rand Afrikaans University + Technikon Witwatersrand + Vista University (East Rand and Soweto)	University of Johannesburg (UJ)
University of Port Elizabeth + Port Elizabeth Technikon + Vista University (Port Elizabeth)	Nelson Mandela Metropolitan University (NMMU)
University of South Africa + Technikon South Africa + Vista University Distance Education Centre	University of South Africa (UNISA)
University of Transkei + Border Technikon + Eastern Cape Technikon	Walter Sisulu University

Source: Chetty (2010: 69)

Mergers have historically been aligned with the amalgamation or integration of the private sector. The mergers in the publicly funded higher education sector in South Africa were fundamental, to advance the creation of a single organised institutions. The higher education system was fundamental to the post-1994 restructuring of the system of education (Naidoo and Baloyi 2016: 20). Currently, according to Maluleka, Nkwe and Ngoepe (2018: 31), SA has 26 public universities which offer tertiary education.

Because of the main aim of this research, the discussions below are about the merger of Natal Technikon and ML Sultan Technikon which has produced the DUT. These discussions give a historic overview of each of these institutions. Further discussions are based on each of these institutions prior to their agreement to the voluntary merger. The importance of the discussions below is to give more clarity on the state of each of these institutions and to reveal the reason behind the merger of these institutions.

2.19 THE HISTORIC MERGER OF NATAL TECHNIKON AND ML SULTAN TECHNIKON

During the latter 19th century, the emergence of railways and the discovery of gold and diamonds created a demand for craftsmen. Supporting these sectors and resources and offering professional workers resulted in the creation of technical and vocational schools and universities (Du Pré 2010: 2). The development and growth of traditional universities dominated most of the early 20th century, several of which came into being far from technical schools. In 1948, the advent of apartheid changed the educational landscape, as desired by the Nationalist government to structure schools and colleges in line with their philosophy of race (Du Pre 2010: 2).

During the ideological and political climate of apartheid, Malukmohammed Lappa (shortened as ML) Sultan Technikon and Technikon Natal were formed. These two institutions provided basically the same educational services, being analogous to each other (Chetty 2010: 89). The historic review by Jansen (2003: 37) of the financial status of Natal Technikon and ML Sultan Technikon claimed that the white institution fell into deficit of about R30 million coming into the merger. As the ML Sultan was in a stronger financial position, the institution positioned itself as the leader in the new institution. The Vice Chancellor of the Durban Institution of Technology was from ML Sultan (Jansen 2003: 37).

2.19.1 Natal Technikon

Technikon Natal was established in 1907 and is one of the oldest tertiary institutions in the province of KwaZulu-Natal. It originated as a technical institution. The Duke of Connaught, His Royal Highness, opened the building in 1910, with the site being a donation from the Durban Corporation (Chetty 2010: 90). It was founded by a physicist, Dr Samuel George Campbell, devoted to advancing and developing the white ruling class in the Natal province by initiating a HEI. It is one of the oldest HEIs in the province of KwaZulu-Natal (South Africa) (Daweti 2015: 46).

The institution changed its name to the Technical College of Durban within a short period of time. The College was realised as an Institution of Higher Learning under Law No 5 in 1922. Since the University Departments of Commerce and Engineering

were permitted to grow within the college through agreement with the then Natal University College, the college was called Natal Technical College (Chetty 2010: 90).

Although Technikon Natal offered numerous study options for students, the institution emphasised community involvement and analysis. In student numbers, the institution expanded to a point where the Berea campus was developed due to a growing student population. Natal Technikon later built two more campuses, such as Indumiso and Riverside. The three campuses offered a range of study programme offerings (Daweti 2015: 46; Chetty 2010: 89).

2.19.2 ML Sultan Technikon

The ML Sultan Technikon was among the oldest of the previously underprivileged technikons, and its past stretches over 70 years. ML Sultan Technikon is viewed as a traditionally marginalised technikon and had its roots in the colonial history of KwaZulu-Natal province in South Africa. As a result of apartheid, it remained a solely Indian institution due to imposed racial divisions during that era (Chetty 2010: 91; Daweti 2015: 47). The institution required more funding for its complete establishment. In 1927, shortly after drafting the Cape Town Agreement, the funding was secured by advocate Albert Christopher. The Cape Town Agreement put pressure on the Indians to have formal education, and they were threatened to pay penalty if they did not have formal education qualifications in South Africa. ML Sultan Technikon College made several name changes, such as the Indian Technical Institute, Advanced Technical College, to a Technikon in the 1970s. To convenience its students, the college also had branches in Tongaat and Umkomaas (Daweti 2015: 47).

In 1969, the institution then became the College of Advanced Technical Education, proceeding the Indian Advanced Technical Education Act. Therefore, the focus was stronger on advancing technical subjects after matric. Likewise, at the Technikon Natal in 1979 the status of the college was changed to being a technikon, which contributed more to the independency of the institution. Then in 1984 the institution fully became a tertiary institution with nine schools, which five years later were restructured to four faculties (Engineering and Built Environment, Arts, Commerce and Science) (Chetty 2010: 91). The ML Sultan and Natal Technikon were close to each other in proximity. Eighty percent of academic activities took place on Durban campuses. ML Sultan had

a campus in Brickfield Road four kilometres away, while Technikon Natal had other campuses in Pietermaritzburg, 80 kilometres away (Chetty 2010: 93).

2.19.3 The transformation of the Durban Institute of Technology to form Durban University of Technology

The voluntary merger between ML Sultan Technikon and Natal Technikon resulted in the formation of the Durban Institute of Technology (DIT) in 2002 (Jansen 2003: 37) white-off the deficit by Natal Technikon and formation of multi-campus facilities. Subsequently, it then became the Durban University of Technology (DUT) in 2006 (Daweti 2015: 43). DUT is among the 6 former technikons that merged to form university of technologies (Chetty 2010: 69).

2.19.4 The Durban University of Technology (DUT)

DUT enrolled approximately 33 000 students in the year 2020 and was regarded as the first-choice institution in the province of KwaZulu-Natal (DUT Study Opportunity 2021: 2).

DUT is regarded as one of the leaders in the education sector in KwaZulu-Natal with branches in Durban and Pietermaritzburg. DUT has adopted the knowledge framework and aims to “prepare new generations with the skills, cultural and scientific literacy, flexibility and capacity for critical inquiry and moral choice necessary to make their own contribution to society” (DUT Strategic Plan 2013: 8). DUT contributes to developing essential, participative national and global citizens who reinforce this evolving democracy while ensuring that they are still successful as individuals in an increasingly globalised, increasingly interconnected world (DUT Strategic Plan 2015: 2).

DUT as a university conducts high level teaching and learning and contributes to the growth of a versatile, deep job market that meets the needs of a dynamic economy. Staff at DUT conduct research and thus add to the development of new knowledge (Du Pré 2009: 2). The DUT Executive should focus on quality infrastructure and service, with intense focus on environmental and competitive challenges (Lourens 2016: 343).

2.20 THE CHANGES AT THE DUT

2.20.1 The academic changes

Changes in HEIs in most countries have had varying effects on the education system in recent years. As a result, there is need to ensure transparency, efficacy, and management capacity and pay attention to monetarist economic policies that encourage education transformation. Hence, they need to ensure this by delivering high quality education, producing highly qualified graduates, marketing their offered services and by bringing benefits to the economy (Amir *et al.* 2012: 34). Likewise, as SA was being transformed, including the demand for education itself to evolve while contributing to the changing the society, it has resulted in academics facing multiple changes (Singh 2011: 1 190). Amid those transformation processes there had to be extensive research projects in HEIs (Singh 2011: 1 190-1 191). As the Department of Higher Education and Technology announced that the minimum requirements for university academic staff was a master's degree, the DUT Vice-Chancellor, Du Pré (2009: 23) asserted that lecturers and academic researchers should hold a master's degree as a minimum qualification.

Following the merger, the DUT emphasised the research output to increase subsidies. This has put more pressure on the academic staff; they had to adapt to the transformation and adopt new teaching skills focused on research (Singh 2011: 1 191). Adopting a research culture was challenging since before the universities focused only on teaching without engaging in research (Ngibe 2015: 24).

2.20.2 The review on financial and revenue implications in the DUT.

In DUT costs are incurred at a different centre of accountability in the university's financial system. This means that the costs are allocated based on the responsibility centre rather than the activities in an institution. As the existing accounting system accrues and tracks the consumption of services at the level of each responsibility centre, the costs are explicitly tracked to the corresponding responsible cost centres. The responsibility centres could be a faculty, research support, academic support and institutes (Amir *et al.* 2012: 38-39). DUT used this system to account for costs of services.

Historically, the government subsidised HEIs using the South African Post-School Education (SAPSE) formula. The formula was used in the years 1987 to 2003, usually based on fulltime equivalent enrolment. The SAPSE formula was criticised for bringing inequalities since it regarded all institutions of higher learning as equal. A new model was developed to replace SAPSE to create efficiency and equity in the measurements. Prior to a new model, DUT also received a subsidy based on the number of its students (Kudanga 2018: 61).

To transform HEIs the New Funding Framework (NFF) was then developed to administrate the transformation. The NFF was published in the government gazette on the 9th of December 2003, under the Higher Education Act (Kudanga 2015: 61; Council on Higher Education 2007: 30). The NFF is goal-oriented and performance-related, enabling government grants to be allocated to organisations in accordance with national objectives and priorities and institutional plans accepted (Council on Higher Education (CHE) 2007: 31).

The DUT has now developed a strategy on how to increase its output on research to maximise funding from Department of Higher Education and Training (DHET). Lately, the DHET funds are allocated to the universities based on a government formula which is more focused on the output on students' throughput and research output. This has put more pressure on the universities to increase their weight in research outputs (Ngibe 2015: 15). HEIs are measured by the weighted research output; the government subsidy to HEIs is weighted according to their research output (Singh 2011: 1 192). Adversely, this had a very negative impact on the universities of technology as there was lack of attention to postgraduate qualifications and published research in the previously merged technikon colleges and institutions of technology. There is a lack of supervision of postgraduate students, making the funding detrimental to universities of technology as they do not have strong research capacity or research output (Singh 2011: 1 191). Singh (2011: 1 192) further adds that the universities of technology are more likely to further underperform because of the small funding they receive, as they are not well capacitated on research output.

The institutions had to bridge the financial gap in ensuring that they accelerate their performance. It was found in the study by Singh (2011: 1 194) that DUT started

promoting third-stream income. Consequently, A Centre for Transfer, Innovation and Partnerships encouraged students and staff to participate in the market and generate revenue through patents, artifacts, and innovations. Further to this, the Centre for Postgraduate Development and Support established an incentive scheme to provide funding for postgraduate students to produce research output and generate revenue for DUT (Singh 2011:1 194). Furthermore, it is now common for universities to have changes driven by market changes and pressure (Lourens 2016: 32).

2.21 THE ADOPTION OF TARGET COSTING IN UNIVERSITIES

Generally, HEIs are private, and others are public, or government funded. Amid economic recessions, the public universities were the most affected (Siraj, Ahmad and Ismail 2016: 3). For HEIs to perform better than others required adequate funding to enable them adequate funding to provide quality education and research (Ahmad, Farley and Naidoo 2012: 114). Despite financial challenges, the public universities are undergoing a period of major change in their effort to provide the country with high quality teaching and learning, and research. HEIs should build an intimate connection between their objectives and accountability to improve standards (Ahmad *et al.* 2012: 114-115). This has made cost management crucial in HEIs for their competitive advantage (Siraj *et al.* 2016: 2). The target costing system is known for its management of costs. It is regarded as the most significant management accounting technique for cost management (Sharafoddin 2016: 124). This will enable students to benefit from the reduced fees (Ahmad *et al.* 2012: 114-115).

The study by Al-Awawdeh and Al-Shararairi (2012:124) shows that a Jordanian private university has adopted target costing as its pricing method to significantly reduce costs and gain a competitive advantage. According to Bendlin (2017:404), accuracy in the allocation of costs in the university results in the pricing being fair for students and expenses being controlled to enable quality education, which requires target costing. The technological adoption of target costing gives competitive advantage, and it also reduces the costs of the university (Ibusuki and Kaminski 2007: 459).

The adoption of target costing by the university enables it to manage the costs for each course. The university administration then assists in analysing the results of target

costing to ensure that costs are managed (Bendlin 2017: 403). According to Paschia (2016: 25), the plan has been laid for how Romanian universities should implement target costing to minimise the cost of study programmes and have a good market position.

Paschia (2016: 25) discloses that, with respect to universities, target costs are also determined by removing the target profit from market price. Paschia (2016: 25) further adds that if the targeted costs are not met, the university has no choice other than to re-work the cost.

2.22 THE RELEVANCE OF COST MANAGEMENT IN THE HEIS

Servicing sector, like HEIs are also facing intense competition in their industry. The high amount of rivalry in HEIs has made it vital to consider their approach to pricing. For HEIs to be competitive enough, low fees are crucial. There is a need to make alternative means to manage and reduce the costs in the HEIs due to the inefficiency of traditional costing (Aladwan *et al.* 2018: 1). Meanwhile, the HEIs are realising rapid transformation, however lately they have been experiencing serious financial problems. There has also been a continuous increase in the service costs by the HEIs. The source of financing has also been redirected from only the government to financing through students.

It is not only in SA that the adoption of cost management tools could be relevant; in European countries there has been an increased focus on reducing costs in HEIs for them to reach strategic goals. The European government have created measures for cost management in all HEIs to enhance their competitive advantage and effectively allocate funding (Sobanska and Kalinowski 2013:84). The charging of tuition fees is necessary for the financial health of the HEIs and the country's economic benefits. For this reason, in the UK there has been an opportunity to further encourage international students to enrol at universities to increase financing. From the economic perspective, the fees charged by universities in the UK contribute nearly £7.2 billion to a total of an annual £11 billion generated by the higher education sector (Lomer, Papatsiba, and Naidoo 2018: 134).

2.23 CONCLUSION OF THE CONTEXTUALISED TARGET COSTING IN HEIS IN SOUTH AFRICA

The HEIs in SA in the beginning of the 21st century experienced serious financial problems which tampered with the future of the HEIs in the country. The strategy was then to cut down on a lot of administrative costs and create mergers of the HEIs which reduced the number from 36 to form 23 HEIs. While experiencing those financial constraints, the HEIs had the challenge to accelerate the quality of education. Cost management became relevant in the HEIs, to position them in better financial health and to remain competitive. Target costing is known for its effectiveness in managing costs and enabling a competitive advantage.

DUT is one of those institutions that was merged for similar reasons, of creating itself financial stability. Amid the merger process, the allocation of the government's funding was constantly changing to create equity and address the imbalances. This resulted in DUT participating intensely in research output to capacitate itself for a better subsidy from the government. DUT is one of the universities affected by the changes in the income stream from the government. DUT then engaged in third-stream income to raise the finances to enhance research output.

2.24 CONCLUSION OF CHAPTER 2

The first section of this chapter aimed to introduce pricing methods and discuss in detail the importance of having the correct strategy in place. This section discussed the importance of considering the underlying factors before choosing the pricing method. The study then focused on target costing, to cover the literature that will help in meeting the objectives of this research. It looked at many studies which suggest that the adoption of target costing is more common in Japan where it originates from. The opposite is true in countries in Europe and the US, which have not shown interest in adopting target costing (Yazdifar and Askarany 2012: 383). More focus was on factors influencing the adoption of target costing. Lastly, the research contextualised the adoption of target costing in HEIs.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

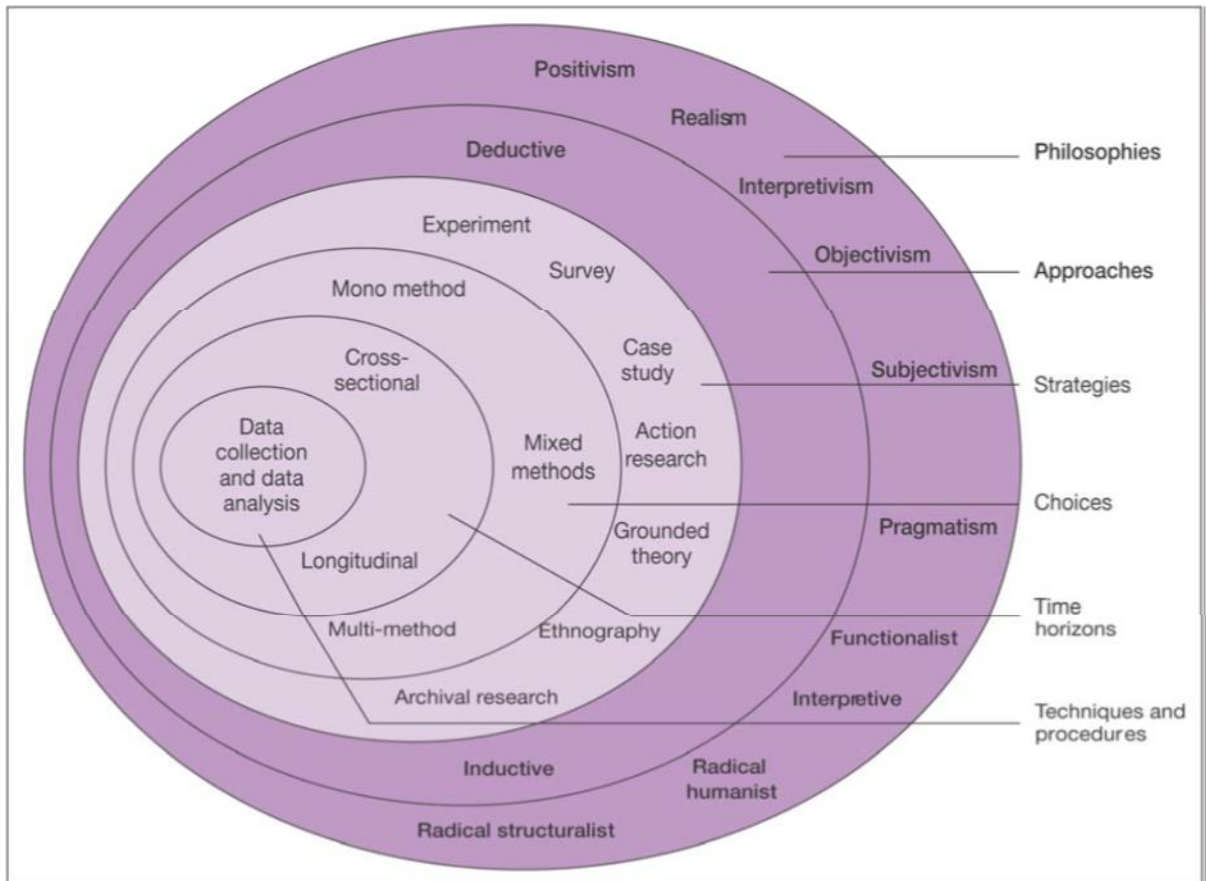
The previous chapter reviewed the literature relating to target costing. The review commenced with different pricing methods, the limitations and effectiveness of target costing. The factors influencing the adoption of target costing were intensively discussed with the review of the history of DUT. This chapter discusses the methods used to achieve the aim and objectives of this study. This chapter focuses on the research design, research methods, the targeted population with its sampled size and the research instruments that will be useful for collecting data.

3.2 RESEARCH DESIGN

Research design is the plan, structure and the strategy that the researcher will use to get answers to research questions (Kumar 2019: 208). A study may either be qualitative or quantitative or mixed research design. The qualitative method is not statistical, and the researcher's process of analysis is personal hence subjective. The quantitative method of analysis carefully considers validity and reliability (Dawson 2009:114). This study employed the quantitative method approach, with very few open-ended questions in questionnaires. This approach was useful in achieving the objectives of this research because this research relies on participants' views and opinions on the adoption of target costing to determine students' programme fees at DUT.

The researcher followed the process developed by Saunders *et al.* (2012: 160) referred to as the research onion. To respond to the research questions, the researcher needs to have appropriate techniques and methods to collect data. Responding to research questions and to address the research problem will achieve the research aim. The methods and techniques to collect data are presented in the research onion (Saunders *et al.* 2012: 126). The research process to be followed in accordance with the research onion is explained below. The methodological process starts from research philosophy, research approach, followed by research strategy and finally research methods.

Figure 3.1 The research onion



Source: Saunders *et al.* (2012: 160)

In the section below the discussion broadens the explanation of the research onion relating it to this study as the method of conducting this research.

3.2.1 Research Philosophy

The philosophy adopted must be influenced through consideration of what is practically happening (Saunders *et al.* 2012: 128). However, the main influence is the researcher's view on what is a suitable development of knowledge and useable research process. These philosophical assumptions enable a researcher to clearly understand how to undertake research (Saunders *et al.* 2012: 128). The research paradigm refers to the broader view of philosophical knowledge and the world to establish an informed research process (Kudanga 2018: 69). The examples of the research paradigm are provided in the research onion by Saunders *et al.* (2012: 128) as positivism, realism, interpretivism, subjectivism, objectivism, radical structuralist, radical humanist, functionalist and pragmatism. The commonly used research

philosophies are positivism, interpretivism and pragmatism and are discussed below (Swain 2017: 205).

3.2.1.1 Positivism

There are two basic and mutually exclusive research paradigms on the essence and origins of understanding, namely positivism and interpretivism (Antwi and Hamza 2015: 222). Science is regarded as the foundation of the theory of positivism. This means that the positivism theory is focused on quantifiable evidence that can be analysed statistically (Sekaran and Bougie 2016: 28). The aim of positivism, according to Swain (2017: 57), is to pursue generalisable hypotheses or interpretations that are created on natural science laws. Positivism often includes the creation of a hypothesis that is evaluated during the research process using known theory.

According to Swain (2017: 57), the researcher is independent of the research, and there are no implications for human interest in positivist science. Positivism claims that truth is scientifically given and measurable using properties that are independent of the researcher's instruments at the ontological level (the essence of reality), meaning knowledge is empirical and quantifiable (Swain 2017: 57). Therefore, a positivist researcher employs a deductive approach to create ideas from which certain hypotheses emerge and are examined. Experiments are then used to construct theory, which contributes to the development of natural laws (Myers, Well, and Lorch 2013: 38). This philosophy uses existing theory to create theories to come up with a research strategy to collect data. These theories can be examined and proven, in full or in part, or debunked, resulting in the creation of a hypothesis that can then be tested with further research. This does not, however, imply that in positivism, you must begin with an existing theory (Saunders *et al.* 2012: 134).

The nature of this study allows this study to make judgement using the components of a positivist analyst. Therefore, the elements of a positivist analyst are applied to this study.

3.2.1.2 Interpretivism

Interpretivism is 'associated with the philosophical position of idealism, that rejects the objectivist view that meaning resides within the world independently of consciousness'

(Collins and Hussey 2003: 143 cited in Kudanga 2018: 71). According to the interpretive paradigm, truth is made up of people's subjective perceptions of the outside world; as a result, they can follow an intersubjective epistemology and the ontological assumption that reality is constructed socially (Myers *et al.* 2013: 39). The philosophical assumptions used in the interpretivism paradigm are those used by the qualitative researcher when they conduct their studies (Creswell and Poth 2018: 58).

Interpretivism advocates for the researcher to be conscious of the variations amongst humans in their position as social actors. There is, therefore, a difference between research conducted on humans and objects. People as social actors, therefore, have their own way in which they make an interpretation or interpret their social roles, the same way they interpret people's social roles based on their set of meanings (Saunders *et al.* 2012: 137).

This branch of interpretivism has roots in two philosophical traditions: phenomenology and symbolic interactionism. Phenomenology is the study of how people make sense of the world around them. We view the behaviour of people with whom we engage while in symbolic interactionism as part of a continuous mechanism of understanding the social world surrounding us (Saunders *et al.* 2012: 137). Interpretivism is a broad group of different paradigms that argue that meaning is created and that there is no universal truth. Interpretivism argues that the reality is best understood by the connectedness of participants in their natural settings and through crucial qualitative and inductive approach logic. This means that meanings are subjective when they are formed or created by individuals rather than coming from a pre-existing and reliable source. (Swain 2017: 38; Saunders *et al.* 2012: 137). Kudanga (2018: 71) clarifies that interpretive analysis illuminates the researcher's view and experiences. The interpretivist method relies on a naturalistic data collection method such as interviews and observations.

Based on the above explanation, the interpretivist philosophy will not fit in this study as the instrument for this study only includes very few open-ended questions producing subjective views. Therefore, the interpretivist theory is irrelevant.

3.2.1.3 Pragmatism

Pragmatism is the combination of both the positivism and interpretivism paradigm in one research study based on the nature of research questions (Creswell and Poth 2018: 64). According to Saunders *et al.* (2012: 130), pragmatism paradigm asserts that there are different ways in which research can be undertaken. This means that there is no single point of view. The pragmatist can work with possibly different philosophies in each research study. In this approach, the concepts are only applicable when they support an action (Saunders *et al.* 2012: 130).

The research questions are the most important determinants of pragmatism. Therefore, if the research question does not provide any unambiguity on one of the philosophies, this falls to the pragmatist's view that different philosophies can be used perfectly in one research study (Saunders *et al.* 2012: 130).

This research study will not adopt the pragmatism paradigm based on the nature of this study method. This study uses a quantitative method, with very few open-ended questions for data collection, and its approach is not flexible. The elements of the research instrument a very little space for subjective views of the participants on top of quantitative judgement. Also, after having all research objectives being met in quantitative analysis.

3.2.2 Research approach

These are two broad reasonings with significant variations in research approach and philosophies, namely the inductive and deductive approaches. The deductive approach is the fixed approach to collecting data based on the quantitative method, whilst the inductive is flexible and commonly associated with the qualitative method (Swain 2017: 38). The deductive approach is typically opposite to the inductive approach. Until the data is collected, or results are analysed, the researcher begins with theory and hypotheses. It is a hypothesis-testing method that begins with an existing theory or generalisation and attempts to determine, through experimentation, whether it corresponds with instances. Therefore, the deductive method is used most closely with the positive research theory discussed above (Hair, Page and Brunsveld 2019: 306). The inductive approach is the method of reasoning that entails finding

correlations in the data set to draw conclusions and construct hypotheses. The researchers who use an inductive approach are working on building their hypotheses or a logical structure from the evidence they gather. The theory built on inductive theory is referred to as grounded theory (Hair *et al.* 2019: 306).

One of the main distinctions between the deductive and inductive theories is how current literature and philosophy are used to direct the study. The deductive method is intended to evaluate a hypothesis. Thus, before data is gathered, literature is used to identify questions, themes and interrelationships. On the other hand, the inductive method draws up a hypothesis as science advances. Deductive reasoning is more focused, whereas inductive reasoning, by its very nature, is more open-minded and exploratory, particularly at the beginning of the process (Swain 2017: 38).

Based on the discussion above, the deductive approach was suitable for this study. The questionnaire was distributed to investigate the factors that influence the adoption of target costing. This questionnaire was targeted to HODs, 52 in total, and finance staff, 84 in total. The sampling resulted in 52 HODs being investigated and 15 finance staff members who are directly involved in the programme tuition fees.

3.2.3 Research strategy

There is a variety of research strategies each researcher may use in collecting research evidence, including case studies, surveys, action research, experiments, participative enquiry, ethnography, archival research, grounded theory, cross-sectional studies and longitudinal studies (Welch 2000: 197 and Kolb 2012: 83). A case study was employed as the research strategy in this study. This research strategy approach entails a thorough, in-depth data collection incorporating various sources of information over a period to investigate a constrained system by time, context and/or location, or a single or several cases (Schell 1992: 02).

The case study provides in-depth information and knowledge of the different applications of the independent variable on the dependent variable by employing an explanatory method. It aids in determining the nature of the problem, how it arose, why it occurred and how it may be resolved (Schell 1992: 04). A case study provides for a very flexible and open-ended data collection approach. The case study's research requires a well-defined, formalised methodology using multiple sources of evidence or

reviewing multiple cases (Schell 1992: 04). In most instances, case studies use at least two sources of data.

To investigate the level of adoption of target costing, the researcher used a case study on a public HEI, namely DUT. The study lays out the factors that influence the adoption of target costing. This study looks at each of these variables' influence on the adoption of target costing. The variables presented to look at each dependent factor are the size of the firm, organisational strategy, management style of leadership, staff inclusion, information system and technological advancement, vertical differentiation and centralisation, formal accounting support, resource adequacy, staff skill, expertise and education, job security, organisational goal, worker autonomy, competition, customer perceptions and government regulations.

The variables discussed above are used to determine the adoption or non-adoption of target costing. Each helps in providing a base to look at all factors influencing the adoption of target costing as discussed in the literature. The study investigates the elements that have been suggested by the literature to have an impact on target costing acceptance and implementation. The case study provides in-depth information and a knowledge of the different implications of the independent variable on the dependent variable through the explanatory method.

The above section has outlined the strategy that the research uses to investigate the factors affecting the adoption of target costing, using the above-mentioned variables. The case study in the form of an explanatory strategy is used to investigate all the factors influencing the adoption of target costing. The next section looks at the methods used to undertake the research.

3.2.4 Research methods

3.2.4.1 Quantitative method

Quantitative data is when data is presented in its raw form before it is processed and further analysed to give meaning to many people. This method presents a quantitative form of technique for analysis such as graphs, statistics and charts that help in exploring, presenting, describing and examining the relationships and trends within

data (Saunders *et al.* 2012: 472). This research study adopts a quantitative method of collection and analysis.

A deductive methodology is often correlated with quantitative analysis. The most common form of analysis is statistical, which entails examining the outcomes of a theoretical application. Instead of developing a theoretical framework as a possible outcome, the research will use an established hypothesis to explain the results. Since the researchers are most likely using a hypothesis that has been used by many other scholars, findings will also be correlated to existing science (Wilson 2014).

This study uses a quantitative method due to the nature of the instrument used for data collection. This study employs the quantitative method and it also contains few open-ended questions. To collect, analyse and integrate data from the questionnaires in this study, the approach was based on quantitative judgement. All the research objectives were met from the close-ended questions and using quantitative analysis.

3.2.4.2 Qualitative method

The data collected for informed analysis serves as the foundation for inductive reasoning and hypothesis growth. The overarching aim of qualitative research analysis is to develop hypotheses to explain circumstances and phenomena. Qualitative research can generate, expand on and even validate theory, but the focus is typically on theory generation and elaboration. All qualitative analysis is grounded in the context that it is based on information collected regarding the background or subject under investigation (Hair *et al.* 2019: 306).

The focus of the data analysis in qualitative data is on recognising, investigating, comparing and interpreting patterns and themes. The process of data collection and analysis in quantitative data analysis follows a set of steps that are usually followed in order. The opposite to this is a qualitative analysis which is an iterative method in which evidence is reconsidered as new questions and associations arise or as a general understanding of the study situation arises. Indeed, in qualitative studies, data collection and interpretation are often conducted concurrently with analysis prompting subsequent data collection, which prompts additional analysis (Hair *et al.* 2019: 312).

This research did not use the qualitative research method. The study only had a few open-ended questions that were used for data that could not be covered in the close-ended questions. The open-ended questions did not require objectivity in the analysis. The open-ended questions used in this study were used to give an in-depth knowledge of the topic and to make the data richer. Importantly, the analysis was, however concluded as not being qualitative.

3.2.4.3 Mixed method

The quantitative information presented in a “hard evidence” format lends itself to mathematical analyses and systematic measures of reliability and validity. Qualitative data offers a more in-depth interpretation of research findings and allows the researcher to examine inconsistencies or subgroups within the data. Many researchers cross-examine their research findings using both qualitative and quantitative approaches. The mixed-method approach is used for the purpose of providing more reliable and sufficient interpretation of social conditions than would be, if only quantitative or qualitative approaches were used (Hesse-Biber 2010: 6). This study is only quantitative and is not mixed on the basis that there is no qualitative approach required for the analysis of this study.

Table 3.1 The difference between quantitative and qualitative methods

Components	Quantitative	Qualitative
Underpinning philosophy	Rationalism: The knowledge human beings acquire is because of their capacity to reason.	Empiricism: The knowledge humans acquire is from the sensory experience.
Approach to enquiry	Structured/rigid/predetermined methodology.	Unstructured/Flexible/open methodology.
Main purpose of investigation	To quantify the degree of variation in a phenomenon, circumstance, or problem, for example.	To define variation in a condition, circumstance or problem, etc.
Measurement of variables	The focus is on the measurement and classification of variables.	The focus is on descriptive variables.
Sample size	Focus on larger sample size.	Focus on fewer samples.

Focus of enquiry	Focuses on a smaller area of inquiry but collects more detail from a larger number of respondents.	Covers a wide range of topics when obtaining the necessary information from a smaller number of respondents.
Dominant research value	Reliability and objectivity (Value-free).	Authentic but does not claim to be value free.
Dominant research topic	Explains the prevalence, incidence, scope and nature of issues, opinions and attitudes; discovers patterns and develops theories.	Explores experiences, meanings, perceptions and emotions.
Analysis of data	Variables are subjected to frequency, distribution, cross-tabulation or other mathematical procedures.	Subject's responses, narratives, or observational evidence to theme recognition and description.
Communication of findings	Analytical organisation, drawing inferences and hypotheses and measuring the extent and strength of a relationship.	The structure is more abstract and narrative in nature.

Source: Kumar (2019: 55)

3.3 POPULATION AND SAMPLING

3.3.1 Population

The population of the study refers to sources from whom the data will be collected. These are the sources that will be responding to research questions (Kumar 2019:138). The researcher must initially understand the relevant group that is related to solving the problem, which is meant to achieve the objectives of the study. Target population is the group from which the study intends to draw conclusions. This is ideally the population to whom the research would like to generalise its results (Kumar 2019: 139).

Target population in this study included 52 academic HODs and 84 finance staff members at DUT. This targeted population played a significant role in contributing to this study. Both HODs and finance staff assisted the researcher with very critical information regarding the adoption of target costing at DUT. They gave the researcher

an opportunity to critically assess each of the variables identified as factors that influence the adoption of target costing at the HEIs. The reason for focusing on HODs and finance staff is because of their role played in pricing, budgeting and costing at the HEIs.

3.3.2 Sample and sampling method

Sampling is the process of selecting a few from a large, targeted population who will be used to give predictions for the unknown data for the whole sampling population. Sampling techniques provide a variety of strategies for reducing the amount of data required by collecting data from a subset of the population rather than the complete population (Kumar 2019: 363).

There are two kinds of sampling methods, random sampling and non-random sampling (Taherdoost 2016: 20). Random sampling is a technique in which each element has an equal probability of being chosen. Simple random sampling, systematic sampling, stratified random and cluster sampling are the most often used random sampling methods (Taherdoost 2016: 21). Non-random sampling implies that, in certain cases, certain individuals of the population may have no probability of being included in such a sample at all. Non-random sampling includes convenience sampling, consecutive sampling, judgemental sampling or purposive sampling, purposive sampling and snowball sampling (Taherdoost 2016: 22). Hence, the study adopted the non-random sampling method. Purposive sampling is used to select the subjects that are relevant for data collection. Purposive sampling was deemed acceptable for selecting all textual units that contribute to answering the provided research questions, addressing the study's objectives and ensuring the collection of correct or trustworthy data. Purposive sampling is an approach in which certain situations, people or occurrences are purposefully chosen to offer crucial information that cannot be gained through other options (Taherdoost 2016: 23). The researcher included individuals in the sample because they are thought to be worthy of inclusion to respond to the research questions as they have background on DUT programme fee pricing.

Purposive sampling strategy is more appropriate in this case since it involves the selection of subjects that possess the necessary capability and knowledge to answer the research questions at hand (Sekaran and Bougie 2016: 269). This means the

subjects were carefully selected by the researcher due to their special knowledge of the issue under investigation. This sampling helps in meeting all the objectives and responding to the research questions. The selected subjects to form part of this sampling are 52 HODs and 15 finance staff members that are directly involved in the academic programme's tuition fees and decision-making.

The sampling population of HODs are responsible for budgeting, cost allocations and decision-making in their departments, and for that purpose they were selected to give insight into duties in determining the level of tuition fees. Department of Finance staff members are involved in decision-making, are most experienced in control mechanisms and could make an important contribution to the research. Therefore, finance staff were purposively sampled to only those who are involved in the programme's tuition fees and decision-making to get more accurate and reliable responses.

To justify the choice of the selection of this sampling approach is that it would broaden the knowledge base regarding this study through the opinions of the first-hand informants based on their knowledge and experience. The questionnaire is structured such that it examines the information from people who are hands-on in the process of fees, budgets and cost allocations. This would require people who understand what they are working with. To better understand the factors that influence the adoption or non-adoption of target costing to determine the programme tuition fees requires informants who are working with fees.

3.4 DATA COLLECTION

Data collection is the systematic gathering and measurement of information on certain variables to answer the research question. It allows the study to respond to the research questions in a persuasive and credible manner (Swain 2017: 141). There are two sources of data collection techniques, namely primary and secondary data (Kumar 2019: 271). Primary data is data acquired specifically for the study topic at hand collected from the main sources. New data is added to the existing store of social knowledge with each gathering of primary data. Secondary data refers to the material generated by other researchers that is available for reuse (Hox and Boeije 2005: 593).

The common primary data is collected using questionnaires, in-depth interviews, experiments, observation and focus groups (Hox and Boeije 2005: 593). Examples of secondary data are administrative data, census data and government surveys. Also, the interpretation of data given in literature in the form of journals, records, newspapers and other publications is also referred to as secondary data.

3.4.1 Research instrument

The term "research instruments" refers to different equipment or procedures used to collect data from respondents. To acquire accurate data, research tools such as surveys, questionnaire, interviews, observations, focus group discussions, and experiments are employed (Sekeran and Bougie 2016: 223).

This study only uses a questionnaire as the research instrument for data collection. Below is the discussion of what the questionnaire is and how this instrument was used to collect data. The details of the instrument and structure of the questionnaire is also unpacked, and the questionnaire content is discussed below.

3.4.2 Questionnaire as a method of data collection

A questionnaire is a written list of questions to which a respondent must respond. Respondents in a questionnaire read the questions, understand what is expected and then write down their responses. The only difference between an interview schedule and a questionnaire is that in the first, the interviewer poses the questions (and if necessary, outlines them) and tracks the respondents' responses in an interview, while in the latter, the respondents record their own responses (Kumar 2019: 285). Questionnaires can be defined in different ways, such as when people answer questions by recording their answers. There are also generic views of the definition of a questionnaire, as, in some instances, responses to questions can be given telephonically or face-to-face (Saunders *et al.* 2012: 416).

As there is no personal interaction between the researcher and the respondents, a questionnaire ensures anonymity. When sensitive questions are asked, this measurement instrument improves the chances of collecting reliable data. The main benefit of questionnaires is that they can cover a vast group of people from a diverse geographic region. Respondents have time to think about their responses or double-

check details before answer answering and administration costs are kept low (Swain 2017: 141).

In this research, a questionnaire was used as the research instrument administered through Question-Pro online survey system. The distribution of the questionnaire started in March 2021 and ended in June 2021. This choice of distribution was based on the ease of distribution amid the crisis of Covid-19 and to reach as many respondents as possible. The questionnaire link was sent via email, accompanied by the consent form, letter of information and ethical clearance.

The statements in the questionnaire were used to collect enough data to respond to research problems and to achieve research objectives. This instrument was divided into different sections to avoid complications that could create confusion for respondents. The sections are structured in terms of demographics and each section deals specifically with each of the research questions at hand.

3.4.3 Layout of the questionnaire

The first section was on demographics, with six (6) questions from which respondents were expected to select one option that fit each respondent that was participating in the survey. The section covered gender, age group, qualifications they possess, category at which each qualification can be classified, level of experience in HEIs and their designation.

Section B of the questionnaire was focused on the extent to which target costing is understood by the staff at DUT. The levels were categorised from no knowledge up to the major expertise. To give more support in assessing the level of understanding, this research has adopted the 4-Level strategy that was developed by Yazdifar and Askarany (2012: 384). The 4-Level strategy was used to measure the level of adoption, and in this research, it was used to measure the understanding of the concept of target costing. The questionnaire has levelled the understanding of target costing according to the depth of the definition at each level. From levels 1 to 4, the researcher presented the definition from the basic to the most complex application of target costing.

In Section B, the respondents were expected to indicate the amount of knowledge they have of the concept of target costing. Further, they were expected to indicate the level

at which they best understood target costing. These levels were also useful in assisting in the next section, where the researcher assessed the extent to which target costing had been implemented at DUT. The knowledge of this pricing method can lay the foundation for which the adoption is viable. Therefore, the researcher needed to know if this concept was known to the staff expected to adopt this pricing method.

Following the level at which target costing was understood, Section C investigated the extent to which target costing had been implemented. The questionnaire presented it in different angles, from looking at non-adoption and development to full adoption. The questionnaire requires the respondent to indicate if this pricing method had been adopted (fully or partially), was still being considered, had been rejected after consideration and/or had never been considered to be a suitable pricing system.

Then lastly, Section D of the questionnaire investigated the factors that influenced outcomes in Section C. The questions in this section are grouped based on responses provided in the previous section (Section C). There are questions that specifically deal with factors influencing the adoption, such as partial adoption, rejection after considerations and non-adoption, and each of these extents of adoption of target costing (as covered in Section C) was followed by a separate set of questions in Section D noting which extent of adoption, from Section C, triggers the relevant factors in Section D. This section further adds a few open-ended questions to cover the questions that could not be covered by close-ended questions. The open-ended questions assist in supporting and strengthening the results of data collected from the close-ended questions.

Section D was very important as it covered each variable described in the literature as being among possible factors to influence the adoption of target costing. This section was purposefully set out to respond to the significant part of this research, which was the aim of this study. It was then identified whether each of these variables influenced the adoption of target costing through respondents' responses. Some of the variables and significant elements which could not be covered in the close-ended questions were then covered using the open-ended questions in this section.

The questionnaire covered all the research questions which were derived from the research objectives. The research objectives were structured to respond to the research problem.

3.4.4 Pre-testing

Pre-testing is a small-scale or preliminary study that is conducted to assess the feasibility, time, cost and adverse events to establish a proper sample group before a full-scale research study is done. Pre-testing a research instrument includes a thorough evaluation of the respondents' knowledge of each question and its significance (Kumar 2019: 305). Pre-testing is used to uncover the possible mistakes in the measuring technique and of the independent variable(s), as well as confusing and ambiguously phrased items. It aids in determining if a thorough inquiry is warranted. Researchers can also find mistakes in the wording by pre-testing the measurement devices before collecting data. An instrument that is not pre-tested can result in insufficient responses or multiple errors and unreliable data. This means that pre-testing is essential for testing validity in the research survey that is distributed to the participants.

Before the distribution of the questionnaire to the sampled population of this study, it was administered to academic staff in the Faculty of Accounting and Informatics. The pre-testing also included other academic staff from the faculty like the research committee and research ethics committee staff. This process aimed to assist in ensuring that the question statements possessed no ambiguity and that they were clear statements. This pre-testing was to ensure the reliability and validity of the research survey before it was distributed to the purposively targeted population. All the corrections (through comments) that were made were carefully considered, and necessary alterations were made.

3.5 PROCEDURE FOR DATA COLLECTION OR DISTRIBUTION OF QUESTIONNAIRES

Prior to the distribution of the questionnaire, pre-testing was administered to the academic activists to eliminate the possible ambiguities in the questionnaire and for corrections, if any, to be made. Following the pre-testing, the questionnaire was then

distributed to the sampled population, which included the HODs and finance staff at DUT. The data collection commenced in March 2021 and ended in June 2021. The questionnaire was distributed using Question-Pro, an online software for survey administration. A link for the questionnaire generated by Question-Pro was then emailed to all the target respondents. The use of hard copies was forfeited to continue observing the Covid-19 protocols.

Amid delays in the response rates, the participants who were accessible were approached by the researcher in their respective departments. The participants were assisted in opening the link and were given a simplified explanation on how to respond to the questionnaire. The approach to visiting respondents in their respective departments yielded a much better response than constantly sending out emails as a reminder. During that time, the reminders were continuously sent as another way of corresponding with the participants. These approaches were the most probable way of reaching out to respondents during this time to maintain social distancing and avoid physical integration or handing over of hard copy documents.

3.6 COVERING LETTER

The questionnaire included a covering letter explaining the study's objectives, as well as an ethical clearance letter. The covering letter provided the respondents with a summary of the study objectives, as well as details about the researcher. The respondents were guaranteed of their anonymity, confidentiality and rights of protection in the accompanying letter. The ethical clearance letter, which was attached to the questionnaire, gave respondents clarity of their right to participate or not to participate in this research. The letter assisted the researcher to be able to distribute the questionnaire freely among the staff at DUT and access to targeted staff in the institutions.

3.7 LETTER OF INFORMED CONSENT

To ensure that the respondents responded and participated in the study willingly, a letter of informed consent accompanied the questionnaire. As the researcher was using Question-Pro to collect data, a letter of informed consent was at the beginning of the questionnaire. The respondents would proceed to the questionnaire after they

had read and understood that following the letter, they would agree to participate in a study. Due to that, the link for Question-pro was sent via email, it was attached in the email to ensure that the respondents read the letter of informed consent before tackling the questionnaire. This was for the purpose of respecting the rights of the respondents and to ensure that all ethical requirements of research were adhered to. A sample of the letter of informed consent is attached to this study as Appendix C. The respondents were not required to disclose their information in that letter to observe their anonymity.

The letter of informed consent provided clarity to respondents that participating in the study was voluntary and that their details such as their name, address, Identity number and other personal information would not be required to keep their anonymity. The respondents were also informed of the outcomes of the study.

3.8 THE RESPONSE RATE

The target population comprised HODs and finance staff. The population was sampled at 52 HODs and 15 finance staff, making it a sample of 67. The Question-Pro produced a result of 50 responses. Out of the 50 responses, 43 were completed, and seven incomplete questionnaires were discarded. The response rate was 64.18% of the completed responses.

The table below reflects the targeted responses and the achieved responses. From these responses, there were incomplete surveys that were discarded.

Table 3.2 The response rate

	Targeted responses	Achieved responses	Completed sample	Discarded samples	Achieved response rate
HODs	52	36	31	5	59.61%
Finance staff	15	14	12	2	80%
OVERALL	67	50	43	7	64.18%

Table 3.2 above represents the response rate from the HODs and staff from the finance department. The response rate of 64.18% is a good representation of the entire

population that was presented in the achieved responses. The conclusion for this population can be drawn from this response rate.

3.9 DATA ANALYSIS AND INTERPRETATION

The analysis and interpretation of data are very important to make data meaningful. The data collection method in this study was quantitative, gathering primary data; therefore, the analysis was numerical in nature. The data analysis was interpreted and presented in a tabular format to make it user friendly and easy to read and interpret. Raw data was firstly collected and coded in an Excel spreadsheet. Data was assessed for any unanswered questions and it was discovered that no data was missing. Questions that were not responded to were only the questions which were skipped through instruction in the research survey since some of questions were not relevant to all the respondents (Saunders *et al.* 2012: 474). This data was analysed using SPSS (Version 27®).

The researcher can use either categorical or numerical data analysis. Categorical data analysis is an analysis that can only be classified into a set of categories and its data values cannot be measured numerically. It can be further broken down to be descriptive and nominal. In this type of analysis, data cannot be measured numerically, but it can calculate the number of occurrences of each category of a variable. However, numerical data means that data values are measured numerically and in quantities. Data is presented numerically, and the difference or intervals between two data values can be measured. This means that, based on the interval scale, data can be added together and subtracted from each other (Saunders *et al.* 2012: 475).

In this research, the data was analysed based on categorical analysis and a specifically applied descriptive statistic. In nature, this study did not present any intervals that could be measured; therefore, it cannot qualify as numerical analysis. From Section A (demographics), the questions were presented in different categories such as age, gender, qualification, designation and work experience and data were also presented as such. Likewise, Sections B and C categorised data in terms of the level of understanding and extent of adoption, respectively. Lastly, the data set provided for Section D (factors influencing the adoption of target costing) required participants to

respond to choose amongst the variables that match the response chosen in section C.

All variables from all sections were calculated on the descriptive statistic. There were respondents that agreed and disagreed with different variables. From levels of agreement to disagreement and the occurrence of these levels for each variable, the researcher was able to determine the respondents who agreed and disagreed with a variable. The means and standard deviation for each variable was developed from the data set from agreed to disagreed. Basically, the researcher took data variables and performed a descriptive statistic. The minimum values, maximum values, mean and standard deviation are based on the respondents' choices of whether they agreed or disagreed with a variable. This study used a 5-point Likert scale for that measurement.

3.9.1 Data preparation

Data preparation is the critical part of data analysis. This involves reviewing or entering in the data, double-checking the data for accuracy, capturing the data into the computer, converting the data and designing and documenting a database structure that incorporates multiple measurements. In practice, data cleaning and preparation account for about 80% of the overall data engineering work (Zhang, Zhang and Yang 2003: 375). Zhang *et al.* (2003: 357) further add that data preparation is the process of evaluating raw data to produce high-quality data. It includes data collection, data integration, data conversion, data cleaning and data diagnosing.

For this research study, data collection used a questionnaire, which was the most suitable instrument of collection to meet the objectives of this research. The questionnaire was made easy for the respondents to respond to, for them to provide reliable data. The necessary components were applied in this research, including raw data evaluation, data conversion, data cleaning and data denoising.

3.9.2 Data processing

Data processing is the process of cleaning the raw data through editing and resolving all the incompleteness and inconsistencies. This means that raw data gives a profound state for analysis (Kumar 2019: 461). In this study, the data, since it was collected using an e-questionnaire system, was transferred directly to an Excel spreadsheet and

SPSS spreadsheet for comparison. After comparison, data was entirely analysed from SPSS (Version 27®).

3.9.3 Statistical presentation and analysis of the data

In this subsection, the discussion is based on how data from close-ended and open-ended questions was analysed.

3.9.3.1 Quantitative analysis

For the analysis, which was purely quantitative, the researcher used the SPSS (Version 27®) to analyse all the descriptive and inferential statistics. This was also useful to test the relationship among the variables, frequencies and reliability in the data analysis. Basically, all the data that was collected was firstly coded on the Excel spreadsheet and then analysed using SPSS (Version 27®).

Bhattacharjee (2012: 119) defines descriptive data analysis as a process of numerically defining, integrating and displaying relevant concepts and correlations amongst various concepts. Meanwhile, Bhattacharjee (2012: 129) defines inferences data analysis as the statistical method that is used to obtain the inferences/conclusion regarding the relationship between the variables (Bhattacharjee 2012: 129). In this study descriptive analysis was used for demographics which were in Section A, level of understanding for target costing, which was in Section B and the extent to which target costing is adopted, which was in Section C of the questionnaire. Data was computed using Microsoft Excel. This data was then presented in a tabular format, presenting data in percentages and frequencies.

For Section D of the questionnaire, this research applied both descriptive and inferential statistical analysis to test the developed variables. The researcher further related the findings of this study to the findings of other researchers to improve the quality of the statistical findings.

For this study, it was not necessary to have robust techniques of parametric testing under inference analysis due to the ordinal nature of the dataset. This was further limited by the fact that the study focused on independent yet identical respondents which were finance staff specifically involved with fees and HODs at DUT. There was

no significant response by these two groups of staff members when responding to the questionnaire which would compromise the analysis and findings of this study. Additionally, it is important to mention that using parametric testing would have required that the data be altered significantly.

As inferential analysis would have either a parametric or non-parametric testing, non-parametric analysis is used as there is no need for robust tools. The use of inference analysis and non-parametric testing with proper presentation of the data collected gives an overview of factors influencing the adoption of target costing. These analyses are covered in Section D of the questionnaire attached in the appendix B.

The analysis also performed a Chi-square test, which performs a statistical test and compares the observed results which are expected. The main purpose is to assess any inconsistencies between the observed and expected outcomes in data collected because of differences amongst the variables. This study developed various variables. It is for that reason that a Chi-square test was regarded as a good way to test the relationship between the variables.

The relationship amongst variables was tested, and the outcome is represented by numbers from a negative one (-1) to a positive one (1). The relationship is positive when variables react in the same direction or respond the same toward changes and is different when there is an inverse relationship toward the reaction of the variables (Bhattacharjee 2012:132). In this study's data, the researcher assessed the correlation between the socio-demographics and factors influencing the adoption of target costing.

In an instance where the hypotheses are developed, there is null and alternative hypotheses. They may seem to be different hypotheses, but they represent the same hypotheses, as the testing is done in one direction. The interest is in testing the alternative rather than null hypotheses (Bhattacharjee 2012: 124). In all Chi-square tests conducted where $p < 0.05$, it means that there is a statistically significant relationship between the variables. For all the p-values that are presented as $p > 0.05$, there is no statistically significant relationship between the variables.

The reliability of the questionnaire was tested using the Cronbach Alpha statistic. The Cronbach Alpha is used when the number of substances tested exceeds two (Suter

2012: 257). In this research, the questionnaire required the respondents to select a response amongst five options, designed in a Likert scale. The Cronbach Alpha test estimates internal consistency and reliability by describing the correlation of substances under the test and inclusive in the test. Then there is an internal inconsistency when all the tested substances are correlated.

Throughout the process of data analysis, the research aim, objectives and questions were considered. The analysis for all quantitative analysis was presented in tabular formats to make it easy to read and easy to understand.

3.9.3.2 Open-ended question analysis

This study is not qualitative in its nature. For the purpose of strengthening this research instrument, it was necessary to have very little open-ended questions. These questions were added to support the findings in the close-ended questions and to boost the validity of the findings. The questions included in the open-ended questions could not be included for positivist judgement.

Qualitative analysis is a process of setting material interpretations of broader discussions to a simplified visible world. Broader discussions accumulate from field notes, presentations, interviews, photographs, memos and recordings (Creswell and Poth 2018: 35). In this study, much deeper interpretive qualities of qualitative research were not significant. The open-ended questions were presented to support data collected by quantitative means. All the research objectives were covered from the analysis of the close-ended questions. For validity and to support findings from close-ended questions, a few open-ended questions were used

3.10 CONSTRUCT OF VALIDITY AND RELIABILITY

In this section the focus is primarily on the validity and reliability of the research instrument before analysing the findings of this study. Reliability and validity are very significant in every research undertaken. According to Muijs (2004: 66), validity refers to the degree to which the process used for measuring is free from both systematic and random errors; it reveals how effectively data measured what it is designed to measure, meaning validity refers to how near the test gets to measure the variable of

interest in the research (Muijs 2004: 69). From the reliability perspective, reliability means how consistent a test is when it is conducted in a different period and by different users. According to Leedy and Ormrod (2015: 29), measurement is done to ascertain whether the study will produce the same results if the same test is conducted again. Reliability can also be described as the extent to which the test process has no random errors and the extent to which the results can be generalised to various circumstances of a test. Importantly, reliability means the measurement is stable. In the process where the reliability replenishes, this is where mistakes and errors take over.

In this study, validity was ensured by keeping the questions in line with the literature review and being consistent from the research objectives. The research questions, literature review and questionnaire, were consistently developed from the same source of this research study's objectives. This means that there is consistency in the entire research. The questions were developed based on the generally accepted factors influencing target costing. The questionnaire was pre-tested to ensure that there was no ambiguity in the research statements.

In this research, reliability was ensured by using different approaches to collect data of the same nature. While the research study makes use of quantitative research, the research includes open-ended questions to support the data collected from close-ended designed questions. This was to give adequate support to available data where respondents could not give their opinion. This study made use of a questionnaire for data collection. This meant that the data collected was primary data, where first informants were the providers of information. The questionnaire was structured separately so it would not confuse and inflict respondents. Data was also collected from different sources from the current university set-up.

As described by Kumar (2019: 342), the reliability and validity test of an instrument is basically the influence at which the research contributed to the research available, statistically significant data, and whether the data presented has a meaningful inference. Thus, the conclusion is that both reliability and validity are covered in this research.

3.10.1 Validity

The research instrument's validity was maintained by making sure that the questionnaire was relevant to the objectives of the study. During the coding of data, there is a clear indication that on all used completed surveys, no fields were left blank except for those at the instruction of the questions, at which questions in a certain section correspond with specific questions in the following sections, to ensure that findings were more accurate.

3.10.2 Reliability

According to Suter (2012: 257), reliability means the degree at which a test measuring the instrument will consistently produce the very same results or score when the instrument is used under similar circumstances two times or more. The technique becomes reliable if it consistently produces the same results upon repetition.

The reliability is computed by taking different components in the same construct. Based on the rule of thumb, the reliability value of 0.70 and above on the Cronbach's Alpha scale was considered as acceptable (George and Mallery 2019: 54). Table 3.5 below shows the Cronbach score that was measured for all the constructs in the research instrument above had values above the recommended value, which suggests that there was a good reliability.

Table 3.3 The Cronbach Alpha score

Constructs	Number of items	Cronbach Alpha score
Implemented target costing in selected areas	13	0.826
Piloting target costing/currently under consideration	14	0.805
No consideration of target costing to date	18	0.866

3.11 DELIMITATION OF THE SCOPE OF THE STUDY

This study was conducted in one university, which is DUT. The study was conducted with staff from the Finance Department and other academic departments. This was because of resource constraints. Other public HEIs were not included in this study. The geographic area of this research study was the Durban and Midlands campuses of DUT. The reason for selection of these staff members was because of their involvement in fees, budget allocations and decision-making. It would not have been fruitful to investigate all the staff members merely because there are staff and to ignore their scope of employment.

3.12 ETHICAL CONSIDERATIONS

The term ethics, basically refers to the morals and principles of guiding conducts. The university's code of ethical behaviour is likely to demand that any human-participant research be reviewed and authorised, especially if the subjects are young or fragile (Saunders *et al.* 2012: 52). The study proposal was examined and approved by the research ethics committee as part of the approval process.

This research has ensured that the identity of the respondents is kept anonymous, and the respondents are made aware that their participation is voluntary. The research was not conducted in any way other than that prescribed in the application for approval to conduct the study. Data will be stored in the library and will be destroyed after five years. Proper procedures have been followed to obtain an ethical clearance and the letter of approval is attached as Appendix D (Saunders *et al.* 2012: 52).

3.13 CONCLUSION OF CHAPTER 3

This chapter covered the methodology that the researcher used to conduct this research. The study adopted the research onion which provided a guideline for the common research paradigm, approach, strategy, methods and collection procedure. It also covered the targeted population and the instrument and method of collecting data. This study adopted a positivist research philosophy because all the research objectives would be covered under this philosophy. The choice of the philosophy was driven by the research objectives; therefore, the study adopted the deductive approach.

This research collected data using a questionnaire which was designed as a 5-point Likert scale. The instrument was dominated by close-ended questions which covered all the research objectives, and a few open-ended questions which were used to support the findings of this research. Data was analysed using the quantitative approach, using SPSS (Version 27®). Reliability, validity, limitations and ethical considerations were also addressed in this study.

CHAPTER 4

PRESENTATION AND DISCUSSION OF RESULTS

4.1 INTRODUCTION

The last chapter covered the methodology that was used in this study. It described the process of data collection using questionnaire as a collection instrument. After the successful collection and analysis of data, the results are presented in this chapter which discusses the results and findings of this research study. This discussion is broken down according to the study objectives to ensure that all research objectives are met and the research questions have been responded to.

The main aim of this study was to investigate the factors influencing the adoption of target costing in the HEI as a cost management tool. This was covered through various research objectives as a foundation to have rich data for this study. The research objectives were used to develop the research question. Therefore, these research questions made it possible to meet the research objectives and the main aim of this study. The objectives made it possible to firstly identify the understanding of the concept of target costing at DUT. The results then established the extent to which target costing has been adopted at DUT. The discussion, based on the results, provides feedback on the factors that have an influence on the adoption of target costing. This discussion is presented in the same sequence as the questionnaire (Appendix B).

The discussion of the results is broken up as follows:

- ✓ Demographic data
- ✓ The level of understanding of target costing (Research objective 1)
- ✓ The extent of adoption of target costing (Research objective 2)
- ✓ Factors influencing the adoption of target costing (Research objective 3)
- ✓ The relationship between the biographic data and factors influencing target costing (Research objective 4).

4.2 DEMOGRAPHIC DATA

This section provides the demographic information of respondents. The background information covered is gender, age group, highest qualification, the highest qualification category, relevant experience at the HEI and respondents' designation. Table 4.1 below presents the demographics of respondents in respect of their gender. The results show that males are the highest contributors to the study at 55.8%, followed by females at 44.2%. To support this, it means more males were willing to provide information than females.

Table 4.1 The respondents' gender analysis

		Frequency	Percentage (%)
Gender	Male	24	55.8
	Female	19	44.2
	Total	43	100.0

Table 4.2 shows details of the respondents in terms of their age group. The highest contributing age group in this study was 50-59 years at a total of 19 (44.2%). Based on the age group category that was provided in the questionnaire, only four (9.3%) respondents fell in the age category of younger than 40 years and 16 (37.2%) respondents were between the ages of 40 and 49 years. The lowest responding age group was the 60 years and above, and 26 to 39 years at a total of four (9.3%) responses. These responses are an indication that more people employed at DUT are above the age of 50 years.

Table 4.2 The respondents' age group analysis

		Number	Valid Percentage (%)
Age group	26-39 years	4	9.3
	40-49 years	16	37.2
	50-59 years	19	44.2
	60 years and above	4	9.3
	Total	43	100.0

Table 4.3 below shows the highest qualification held by the respondents ranked according to their response rate. The highest contributing respondents in this study are

PhD holders at a frequency of 24 (55.8%). Following them are 10 respondents who are master's degree holders at a rate of 23.3%. The respondents who were doing a bachelor's degree totalled 3, contributing to 7%. Likewise, in the national diploma category there are only 3 respondents, at 7.0%. There are only 2 respondents (4.7%) who were holders of a national senior certificate. The postgraduate and honours degree holders are the least contributing respondents with only 1 respondent (2.3%).

Table 4.3 The respondents' qualification category

		Frequency	Valid Percentage (%)
Highest qualification	National Senior Certificate	2	4.7
	National Diploma	3	7.0
	Bachelor's degree	3	7.0
	Honour's degree/ Postgraduate	1	2.3
	Master's degree	10	23.3
	PhD/Doctoral degree	24	55.8
	Total	43	100.0

Table 4.4 below shows the categories of the respondents' highest qualifications ranked according to their contributing rate to this study. The highest contributing respondents were from Accounting and Informatics with 17 respondents (40.5%). Health Science had seven responses, contributing 16.7% of total responses. Management Sciences had six respondents (14.3%), Applied Science and Faculty of Engineering and Built Environment had five respondents each (each contributing 11.9%), and Art and Design had the lowest response rate with two respondents, at 4.8%.

Table 4.4 Qualification category

		Frequency	Valid Percentage (%)
Qualification category	Accounting and Informatics	17	40.5
	Applied Science	5	11.9
	Art and Design	2	4.8
	Engineering and the Built Environment	5	11.9
	Health Sciences	7	16.7

	Management Science	6	14.3
	Total	43	100.0

Table 4.5 shows the relevant experience of the respondents at the institution of higher education. Respondents with 21 years' experience were 12, denoting the highest experience. There were 11 respondents with 16 years to 20 years of experience. Respondents with 11 to 15 years' experience numbered 10, seven respondents had six to 10 years and only three respondents had 0 to 5 years of experience.

Table 4.5 Respondents' relevant experience

		Frequency	Valid Percentage (%)
Experience in years	0- 5 years	3	7.0
	6-10 years	7	16.3
	11-15 years	10	23.3
	16-20 years	11	25.6
	21 years and above	12	27.9
	Total	43	100.0

The last table, Table 4.6 shows the employment designation of each respondent, based on the target population of this study. The designation was confined to HODs and Finance Department staff. The highest contributing respondents are the HODs (31 responses at 72.1%), followed by the finance staff (12 respondents at 27.9%).

Table 4.6 Respondents' designation

Respondents' designation	Frequency	Response rate (%)
Head of Department	31	72.1
Finance staff	12	27.9
Total	43	100

4.2.1 Conclusion to background information

The above presentation provided an overview of the people who participated in this study. We identified that a lot of respondents were males. Most respondents were the

HODs at DUT, with Accounting and Informatics as the highest contributing department. Most of the respondents have 21 years of experience and more in HEIs. Most respondents were very familiar with how the institution operates. This is identified by the experience respondents are in possession of.

4.3 OBJECTIVE 1: DETERMINING THE LEVEL OF UNDERSTANDING OF TARGET COSTING

This section aimed at determining the level of understanding of target costing. In this section, the respondents' familiarity with target costing as well as the level of their understanding was assessed. This section started by assessing the level of understanding by looking at the familiarity of target costing. This familiarity was ranked from no knowledge, basic knowledge, good knowledge, excellent knowledge to expert knowledge. The research then further looked at the level of understanding of target costing. This level of understanding ranked from level 1 to level 4. This level of understanding ranks upwards, according to the depth of knowledge/understanding of the concept of target costing.

4.3.1 Respondents' familiarity with concept of target costing

When asked to indicate the level of their familiarity with the concept of target costing, 32.6% of the respondents indicated 'no knowledge', 25.6% indicated 'good knowledge', 23.3% indicated 'basic knowledge' and 18.6% indicated 'excellent knowledge'.

Many of the respondents (32.5%) had no knowledge of the concept of target costing. These are the people who were not likely to be able to respond to some questions following this one. Each respondent that indicated that they had no knowledge of target costing were instructed to skip the questions relating to their level of understanding as they have no understanding.

To at least understand the position of DUT regarding the adoption of target costing, a very simplified definition was put in place as guidance for the respondents. This is because some of them may have been applying target costing without being aware. Therefore, they had to respond as to whether they have come across an application of

such a concept in their scope of work while doing cost allocation, department budgets and fees costing. Therefore, respondents would be able to see whether, based on the definition, this method had been used.

The lowest number of responses were from respondents who possessed excellent knowledge of target costing at 18.6%. This means that the stronger or deeper concept of target costing has not been well understood across many parts of the institution. Meanwhile, there are respondents who have basic and good knowledge of target costing, presented in the data as 23.3% and 25.6% respectively. It is important to note that despite either basic, good or excellent knowledge, people who have knowledge of this concept merged to give an overall perspective and together surpass the number of people who have no knowledge of the concept at all.

Table 4.7 then indicated that, from an overall perspective, most respondents (67.5%) had some level of understanding of the concept of target costing (from basic to excellent).

Table 4.7 Respondents' familiarity with the concept of target costing

		Frequency	Valid Percentage (%)
Level of Familiarity	No Knowledge	14	32.6
	Basic Knowledge	10	23.3
	Good Knowledge	11	25.6
	Excellent Knowledge	8	18.6
	Total	43	100.0

The findings of this study are the same as those from a study by El-Dalahmeh (2018: 400) which was conducted in Jordan; asserting that respondents do have knowledge of the concept of target costing. El- Dalahmeh (2018: 400) discloses that companies are aware of this concept and the importance of its implementation to manage costs. A slightly different finding by Dekker and Smidt (2003: 297) is that there are possibilities that companies are not familiar with this concept while applying it. Dekker and Smidt (2003: 297) further add that the companies may not be aware that they are using target costing, as they do not understand the concept. But importantly, the underlying principles exist and the problem is only the lack of knowledge.

4.3.2 Level of understanding of target costing

Here we are looking at the level at which target costing is adopted. The levels are grouped into four levels using Yazdifar and Askarany's (2012: 384) 4-level strategy. Each level is defined based on the depth of definition of target costing; level 1 being the basic concept for application, up to level 4, being the concept that is a more advanced or complex application of target costing. This strategy was used by Yazdifar and Askarany (2012: 384) to assess the level of adoption of target costing in terms of the 4-level strategy. However, in this study, the 4-level strategy is used to determine the level of understanding rather than level of adoption. Respondents were given choices to select from level 1 to 4, based on their understanding of the concept of target costing as defined in the 4-level strategy.

Table 4.8 below shows what level respondents understand target costing, from level 1 being the basic level, to level four being the advanced level. In the 4-Level strategy, level 1 means the basic definition of the concept of target costing where the definition simply means that the expected returns are removed from the market price to get the targeted costs. The second level is made up of level 1 plus having additional knowledge on how to cut down on costs. Level 3 is made up of level 1 and 2 as well as having an ability to examine the cost-cutting strategy during the stage of planning and prior production. Then the final level is a combination of all three levels, plus knowing how VE can be used to meet the customers' needs.

Among those (n=29) who indicated they are familiar with the concept of target costing; it was worth noting the level of their understanding of target costing. This is shown in Table 4.8 were 41.4% indicated to have a level 1 understanding, which asserts that target costing can be understood and be identified as the difference between the expected profit and required returns. It was found that 31% had level 2 understanding, which means the respondents are equipped with the strategies for cutting down the unnecessary cost. Furthermore, the findings suggest that 20.7% had level 3 understanding, which suggests that the respondents can examine the cost-cutting strategy during the stage of planning and prior to production. Lastly, the results reflect that 6.9% (a total of 29 respondents) had a level 4 understanding which indicates that these respondents know how VE can be used to meet customers' needs.

The results show that most of the respondents have a level 1 understanding of target costing and fewer respondents have a level 4 understanding of target costing.

Table 4.8 The different level of respondents' understanding of target costing

		Frequency	Valid Percentage (%)
Level	Level 1: Target costing is understood and can be identified as a difference between the expected profit and required return.	12	41.4
	Level 2: Understands and is equipped with the strategies relevant for cutting down the unnecessary costs.	6	20.7
	Level 3: Can examine the cost-cutting strategy during the stage of planning and prior production.	9	31.0
	Level 4: Know how value engineering can be put to use to meet the customers' needs.	2	6.9
	Total	29	100.0

4.3.3 Understanding of target costing

This section was developed based on two commonly used definitions of target costing to assess if the respondents really understood the concept of target costing. The last question statement to respondents also assessed whether the DUT staff know the fundamental elements of target costing.

This section, therefore, examines the understanding of target costing. Pearson Chi-Square was computed to test the scoring patterns per question if they were different amongst the respondents. It is also important to disclose that not all the 42 respondents responded to the questions (See Table 4.9 below).

The results show that amongst the majority (77.1%) of the respondents, there was a significant agreement that target costing is used to manage the cost of the product

throughout its life cycle, with results indicated as ((M=4.14±0.845), p<0.005). Even though the level of agreement among the majority (77.2%) was high among the respondents, regarding whether target costing is understood for its effectiveness in the management of costs, no significant differences were observed, with the yielded results given as ((M=4.06±0.725), P>0.05).

Contrary to the above, there was a significant disagreement among the respondents that the fundamental elements of target costing are known by DUT staff, with the indication of the results yielded as ((M=2.43±1.008), p<0.004).

The result among the respondents shows that the respondents agree with the questions that were used to examine their understanding of target costing. It is important to disclose that these are definitions that are commonly used to define target costing. These definitions were stated as a positive statement, based on their accuracy of definition. This means the staff at DUT do not know the fundamental elements of target costing.

Table 4.9 Respondents' understanding of target costing

	Understanding of target costing (n=35)					Mean	Standard Deviation	P-value
	SD	D	N	A	SA			
Target costing is used to manage the costs of the product throughout its life cycle.	0%	2.9%	20%	37.1%	40%	4.14	0.845	0.006***
Target costing is understood for its effectiveness in management of costs.	0%	0%	22.9%	48.6%	28.6%	4.06	0.725	0.147*
The fundamental elements of target costing are known by staff at the DUT.	20%	31.4%	37.1%	8.6%	2.9%	2.43	1.008	0.005***
A Likert scale of 1 = strongly disagree (SD), 2 = disagree (D), 3 = neutral (N), 4 = agree (A), 5 = strongly agree (SA).								
*Level of significance P>5% (2-tailed)								

**Level of significance P<5% (2-tailed)

4.3.4 Summary of objective 1

This section focused on the understanding of target costing. It further measured the level at which target costing is understood at the DUT. Many of the respondents had level 1 out of 4 understanding of target costing. It was first identified that many of the respondents had no knowledge of target costing. This asserts that target costing is not well understood amongst the staff participating in this study.

4.4 OBJECTIVE 2: THE EXTENT TO WHICH TARGET COSTING IS ADOPTED

In this section the extent to which target costing is adopted at DUT is examined. Table 4.10 below shows the results of the level at which target costing is adopted at DUT.

The results show that 40.6% of the respondents indicated that target costing is implemented in selected areas at DUT. It is important to clarify that this does not mean DUT has fully implemented target costing, but rather selected areas of DUT apply this approach. This means that based on the definition of target costing, the elements of target costing exist in some parts of DUT. This is a clear indication that it has not yet been fully implemented as an acceptable pricing strategy for the entire institution. Following that are the 31.3% respondents who indicated that target costing is under consideration. Target costing must be assessed as fit to be used as a pricing method. A total of 21.9% of the respondents indicated that no consideration has been made for target costing. This means that there has been no willingness to change from the current pricing system and move to target costing. A total of 6.3% of the respondents indicated that target costing has been implemented as a pilot project. This means it is under test of feasibility.

Table 4.10 The extent to which target costing is adopted at DUT

	Frequency	Valid Percentage (%)
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Extent	Implemented target costing in selected areas	13	40.6
	Implemented target costing as a pilot project	2	6.3
	Currently under consideration	10	31.3
	No consideration of target costing to date	7	21.9
	Total	32	100.0

According to Dekker and Smidt (2003: 297), there are a lot of companies that have adopted target costing principles yet are not aware that it is target costing.

Looking at the findings of the study that was conducted by Yazdifar and Askarany (2012) in firms in the UK, New Zealand and Australia, no more than half of the firms had adopted target costing in those countries. This study found that only 23.5% of the firms that were under study had implemented target costing on a trial basis (Yazdifar and Askarany 2012: 288).

This research found that there has not been an intensive introduction of target costing at DUT. The findings in this study show that DUT has not made much effort to implement target costing. The results above show that target costing is not yet fully implemented, however it has been implemented in some parts of the institution.

4.4.1 Summary of Objective 2

This section looked at the extent to which target costing has been adopted at DUT. The respondents had to choose to what extent target costing has been implemented at DUT. Many responded that target costing had not been considered to date. The next section looked at the factors that influence any of the selected answers above. For the respondent who opted for implementation in selected areas, the question statements were designed specifically for that extent of adoption. Likewise, those who elected target costing as being under consideration and/or rejection had separate statements designed specifically for that response.

4.5 OBJECTIVE 3: FACTORS INFLUENCING THE ADOPTION OF TARGET COSTING

Following the discussion above on the extent to which target costing has been implemented at DUT, the study looked at the factors that influence the adoption of target costing. These factors are based on the selected answers above. The statements were created based on each of the extents listed in objective 2. This means that for each chosen extent, question statements match the extent of adoption. For implementation in selected areas, the respondents were given an opportunity to respond to questions that were created specifically for respondents who chose that extent of adoption. For the respondents who chose the response of adoption of target costing in selected areas and pilot for testing, questions were separately created as factors that influence that extent of adoption. Similarly, the respondents who opted for the response that there was no consideration of target costing, the section for factors influencing target costing not being considered were covered in a separate question statement from other extents.

The way in which the statements were presented matched the relations toward adoption of target costing. This means that the negative statements were used for variables that described the non-adoption of target costing. This was to avoid the trend that respondents end up not reading statements. Therefore, if target costing had not been implemented or where there was delay in implementation, statements were presented to find the reasons for it not being adopted. Using positive statements for rejection of adoption would not provide meaningful results. It was therefore necessary to make statements that matches the relationship with the extent of adoption. Meaning, as rejection of target costing is negative, the statements for variables had to be negative.

Presented next is the analysis of factors that influenced the adoption of target costing. The research presented data in terms of respondents who agreed and disagreed that those factors have an influence on the adoption of target costing or not.

4.5.1 Factors influencing the Implementation of target costing

Table 4.11 below has highlighted the factors that have resulted in the adoption of target costing. The mean values are used to assess the respondents who agreed with the factors listed below as factors that influence the adoption of target costing. The mean value measurement for the following statements was greater than 3: 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 11th and 13th statements. This means that the respondents agreed that the 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 11th and 13th statements were the factors that influence the implementation of target costing. The 11th statement had the highest support level from the respondents which indicates that the institution has an interest in gaining the market advantage. This result has yielded the ($M=4.31\pm 0.855$). On the contrary, the mean values for the 10th and 12th statements were lower than 3.0. This suggests that the respondents disagreed with two statements more than they agreed with them.

It can be seen from the results that there are many statements which respondents have agreed with. These are statements that the respondents have considered to be the ones that have an influence in DUT adopting target costing. Despite them having a different level of agreement, they have agreed with more statements than they have disagreed with. It is important to note that the statements in this section of questions were not dependent on each other for each to be agreed with. Each respondent was able to choose according to how they deemed each statement as contributing to the factors influencing the adoption of target costing. All statements had equal chances of being chosen, either as agreed or disagreed with.

As an overall view, the Chi-square values indicated that there was a statistically significant difference in the level of agreement with the 4th ($p < 0.003$), 5th and 6th statements ($P = 0.024$). No significant difference was found in the respondents' level of agreement or disagreement with the 1st, 2nd, 3rd, 7th, 8th, 9th, 10th, 11th, 12th, and 13th statements ($P > 0.05$).

Table 4.11 has shown the factors that influence the implementation of target costing at DUT.

Table 4.11 Factors influencing the implementation of target costing

	Implementation of target costing (n=13)					Mean	Standard Deviation	P-value
	SD	D	N	A	SA			
1.The size of DUT fits the use of target costing.	7.7%	7.7%	7.7%	46.2%	30.8%	3.85	1.214	0.086
2.Target costing is relevant in the merged institutions.	7.7%	15.4%	15.4%	30.8%	30.8%	3.62	1.325	0.587
3.Enough support for implementation from the top management.	0%	15.4%	38.5%	30.8%	15.4%	3.46	0.967	0.557
4.Possibility that all staff across all departments can be included.	0%	0%	15.4%	76.9%	7.7%	3.92	0.494	0.004**
5.Efficiency in the current information system for data management.	7.7%	15.4%	15.4%	61.5%	0%	3.31	1.032	0.024**
6.Clear organisational structure creating collaborations and cross-functional teams.	7.7%	0%	15.4%	61.5%	15.4%	3.77	1.013	0.024**
7.Sufficient formal support to accounting or finance department.	7.7%	15.4%	15.4%	30.8%	30.8%	3.62	1.325	0.597
8.The institution has the ability to assign the resources.	7.7%	0%	15.4%	46.2%	30.8%	3.92	1.115	0.209
9.There is adequacy of resources to adopt target costing.	7.7%	15.4%	15.4%	38.5%	23.1%	3.54	1.266	0.472
10.Sufficiency in the expertise of target costing.	15.4%	46.2%	15.4%	7.7%	15.4%	2.62	1.325	0.211
11.The institution has interests in gaining competitive advantage in a market.	0%	7.7%	0%	46.2%	46.2%	4.31	0.855	0.146

12.Easy to understand the perception of students on the quality of education.	15.4%	30.8%	15.4%	30.8%	7.7%	2.85	1.281	0.597
13.The limited restriction by government rules and regulations on pricing.	16.7%	16.7%	8.3%	50%	8.3%	3.17	1.337	0.127
A Likert scale of 1 = strongly disagree (SD), 2 = disagree (D), 3 = neutral (N), 4 = agree (A), 5 = strongly agree (SA).								
*Level of significance P>5% (2-tailed)								
**Level of significance P<5% (2-tailed)								

To give a short empirical overview in comparison to findings in this study, the findings provide that many of the variables influence the adoption of target costing.

4.5.1.1 Size of the firm

The results have agreed with the literature presented by Drury (2012: 234) that there is a correlation between the adoption of target costing and the size of the firm. Here it was found that more than 46.2% and 30.8% have agreed and strongly agreed respectively that the size of DUT has an influence on the adoption of target costing. Similarly, from Ax *et al.* (2008: 97) it was found that comprehensive management accounting tools like target costing are more relevant to large sized businesses.

Likewise, in the businesses that are merged and have grown to big sizes, it has been found that target costing is relevant to minimise the costs (Imeokparia 2014: 51). The study was conducted in Nigeria and has proven positive results that to manage the costs of a merged institution, target costing is relevant. The HEIs are not immune to those findings, as can be seen in the results above, that target costing is relevant in the merged institutions. Responses from this data collected at DUT, as a historically merged institution, are that target costing is relevant.

All the above findings were supported by multiple authors who have disclosed that target costing can be implemented in large sized businesses rather than small businesses. Authors such as Hammami *et al.* (2019: 218), Gonçalves *et al.* (2018:

379) and Joshi (2001: 91) have agreed that this is because there are adequate resources for large corporates to adopt target costing.

4.5.1.2 Management style of leadership and staff inclusion

It is important to note that the study by Briciu and Căpuşneanu (2013: 468) has revealed that it is important to include staff from other departments to adopt target costing. Meaning, the relationship amongst staff plays a significant role in ensuring that target costing is implemented. Decision-making for this management tool requires proper teamwork to be able to implement this cost management tool and make it effective across all the departments in an entity (Sarokolaei and Rahimipoor 2013: 20). This has paved the way for the importance of including staff across all the departments to be able to implement target costing.

Many respondents have agreed that inclusion of staff across all departments has an influence on the adoption of target costing. A total of 76.9% and 7.7% of respondents agreed and strongly agreed respectively that the possibility of having all staff involved in the process of the adoption of target costing has a great impact. Therefore, the findings agreed that cross-functional teams and collaborations and the possibility of including staff across the entity are factors influencing the adoption of target costing.

4.5.1.3 Information system and technological advancement

Overall, target costing looks at the potential to minimise costs. The entity is interested in an information system that is very robust to match that. Likewise, amid the process of cutting down the costs, there is clear indication of the importance of having an advanced and well understood system (Helms *et al.* 2005: 50). In this study, it was also assessed whether information system technological advancement can have an influence in the adoption of target costing. The results present that 61.5% of respondents have agreed that an advanced information system for information management is relevant to the adoption of target costing. The findings agree with Helms *et al.* (2005: 50) that for target costing to be adopted, there is a necessity to have a robust information system.

4.5.1.4 Sufficient formal support to accounting or finance department

In other research, it was revealed that target costing requires more effort from the engineering department than from the accounting department (Mendes and Machado 2012: 794). Dekker and Smidt (2003: 296) disclosed that there is very little involvement from the accounting department in the process of the adoption of target costing. On the contrary, there is also an opinion that accounting teams are very important when it comes to giving good reliable value to the product. This is because the integrity of the product can be accelerated by the accounting department (Mendes and Machado 2012: 794).

The results from Rattray *et al.* (2007:77) have provided a mean of 3.45 of the involvement of accounting, measuring from one to five, where one means that there is no involvement at all and five means that their great involvement from the accounting department.

In this study it was assessed whether the support from the accounting department has an influence on the adoption of target costing. In this study it was found a mean of 3.62 of responses from one to five, one being strongly disagree and five being strongly agree.

4.5.1.5 Resource adequacy for implementation of target costing

The discussion on resources covered these components, time and effort of accountants, professional staff, top management, operating personnel, finance, tools and material, software and external consultants (Nassar *et al.* 2013 :18; Kudanga 2018: 42). This study supports that by Al-Qady and El-Helbawy (2016: 43) that the resources must be enough to adopt target costing as management accounting. Many of the respondents have agreed that having the ability to assign the resources is a factor influencing the adoption of target costing, at 46.2% agreed and 30.8% who strongly agreed.

4.5.1.6 Staff skills and expertise

The researchers have laid out that the adoption of target costing has been hindered by expertise and knowledge about target costing. Inadequacy of skills has influenced that

target costing has not been implemented. Having staff with no knowledge of this cost management tool is negatively contributing to the adoption of this pricing technique (Weiyi and Luming 2009: 537; Motuba *et al.* 2016: 1-3).

In this study, opposite results were found, where many of the respondents disagreed that staff expertise influenced the adoption of target costing. These results agree with Briciu. and Căpuşneanu (2013: 460) that target costing does not require extensive expertise as it is an easy system to use. Briciu and Căpuşneanu (2013: 460) asserts that target costing requires constant communication between the supply chain partners. In this study 46.2% have disagreed and 15.4% have strongly disagreed that staff expertise had a significant contribution on the adoption of target costing.

4.5.1.7 Intensity of competition

Different researchers have shared a similar view that the competition has an influence on the adoption of target costing. Reen *et al.* (2017: 91) provides clarity that the competition is important not only on the adoption of target costing, but on pricing in general. Hammami *et al.* (2019: 218) disclosed that the strength of market competition has more influence on the adoption of target costing specifically. In a share market target costing is very important to consider the customer value and at the same time, to keep the cost very low. In this study, many respondents have agreed that Intensity of competition has influence on the adoption of target costing. A total of 46.2% of the respondents agreed and equally 46.2% strongly agreed that intensity of competition has an influence on the adoption of target costing.

4.5.1.8 Customers' perceptions on value

Researchers (Ingenbleek *et al.* 2010: 1 032; Reen *et al.* 2017: 91; Drury 2012: 233) have provided an emphasis on the importance of customer perception on the value when deciding to adopt target costing. These researchers have disclosed that the customer value is always a priority with the requirement to engage in an intense market research to gather reliable information.

In this study different results were noted, where the respondents disagreed that the understanding of customer perception on value has influence on the adoption of target

costing. In this regard, the researchers looked at the ease to understand students' perceptions on the quality of education.

4.5.1.9 The restriction by government rules and regulations on pricing

According to Harrington (1984: 577), government pricing regulations have dictatorship over the prices in the market. In this study it was also found that government relations on the prices have influence on the adoption of target costing. A total of 50% agreed and 8.3% strongly agreed that government regulations on pricing influence the adoption of target costing with a mean of 3.17, measured from one to five, one being strongly disagree and five strongly agree.

4.5.2 Factors delaying the adoption of target costing

This subsection examines the extent to which the university makes considerations of target costing and/or piloting target costing. The subsection assesses the factors that influence the delay in the adoption of target costing. Table 4.12 below shows the results of the factors that influence the considerations and piloting of target costing based on the respondents that elected that target costing is under consideration. In Table 4.12 the mean value measured for the 1st, 3rd, 4th, 5th, 6th, 7th, 9th, 10th, 11th, 12th and 13th statements was greater than 3.5. This means that the respondents have agreed that these statements are the factors that influence the delay in the adoption of target costing.

The statement that has the highest contributing influence on the delay of the adoption of target costing was the 3rd statement which indicates "lack of support from the top management", which the results yielded as ($M=4.50\pm 0.707$), and the first statement which indicates "size of the institution", with results ($M=4.00\pm 1.054$). Opposite to the points above, the 2nd and 14th statements have mean values lower than 3.0. This means that the respondents disagreed with these statements as factors delaying the adoption of target costing. The respondents have disagreed that it is the delays caused by government rules and regulation on the pricing decision. Further, they have disagreed that the delay is because the adoption of target costing is not relevant in the merged institutions.

Overall, the Chi-square values have shown that the difference was statistically significant amongst the respondents' level of agreement with the 4th ($p < 0.003$), 5th and 6th statements ($P = 0.024$). There was no significant difference amongst respondents' level of agreement and or disagreements for the 1st, 2nd, 3rd, 7th, 8th, 9th, 10th, 11th, 12th and 13th ($P > 0.05$) statements.

Table 4.12 Factors delaying the adoption of target costing

	Factors delaying adopting of target costing (n=10)					Mean	Standard Deviation	P-value
	SD	D	N	A	SA			
1.The size of the institution.	0%	10%	10%	30%	40%	4.00	1.054	0.572
2.Target costing is irrelevant in the merged institutions.	0%	60%	20%	10%	10%	2.70	1.059	0.079
3.Lack of support for implementation from the top management.	0%	0%	10%	30%	60%	4.50	0.707	0.150
4.Uncertainty in the inclusion of all staff across all departments.	0%	10%	20%	50%	30%	3.80	0.919	0.308
5.Inefficiency in the current information system for data management.	0%	10%	30%	20%	40%	3.90	1.101	0.572
6.Difficulty in creating collaboration and cross-functional teams.	0%	10%	30%	20%	40%	3.90	1.101	0.572
7.Insufficient formal support to Accounting or Finance Department.	10%	10%	10%	20%	50%	3.90	1.449	0.199
8.High cost of implementing target costing.	10%	20%	20%	10%	40%	3.50	1.509	0.558
9.Difficulty in assigning resources.	0%	20%	10%	30%	40%	3.90	1.197	0.572
10.Inadequacy of resources to adopt target costing.	0%	10%	40%	30%	20%	3.60	0.966	0.572
11.The institution is still safeguarding threats to job losses.	0%	30%	30%	20%	20%	3.30	1.160	0.940
12.Insufficiency in the expertise on target costing.	0%	20%	20%	40%	20%	3.60	1.075	0.753
13.Challenges in figuring the perception of students on the quality of education.	10%	10%	20%	30%	30%	3.60	1.350	0.736

14. Delays caused by government rules and regulations on pricing.	40%	20%	30%	10%	0%	2.10	1.101	0.572
A Likert scale of 1 = strongly disagree (SD), 2 = disagree (D), 3 = neutral (N), 4 = agree (A), 5 = strongly agree (SA).								
*Level of significance P>5% (2-tailed)								
**Level of significance P<5% (2-tailed)								

4.5.3 Factors influencing the rejection of target costing

This subsection examines the factors that resulted in the rejection of target costing at DUT (Never considered target costing). This subsection looks at the factors that are a driving force behind target costing not being considered as a compatible pricing method for pricing of fees at DUT. The information is presented in full details in Table 4.13 below showing how much each of the statements listed below had an influence on the rejection of target costing based on the respondents that elected that target costing has not been considered at DUT.

The 9th, 10th, 14th and 16th statements have a mean value greater than 3.5. This is an indication that the respondents have agreed that these statements are the factors that result in the rejection of target costing at DUT. The 10th statement is the highest influencing statement that results in the rejection of target costing, which suggests that there is a “lack of knowledge to adopt the target costing”, which has yielded results as (M=4.29±0.756) and the 9th statement which indicates that there is an “Inadequacy of resources to implement target costing”, which has yielded the results as (M=3.86±1.215).

Also, the 1st, 2nd and 12th statements were closest to disagreement. This is an indication that these factors are not the contributing factors for the rejection of target costing. The respondents disagreed that target costing is rejected because “target costing cannot be implemented in large institutions” with the results yielded as (M=2.71±1.113), “irrelevant in merged institutions” (M=2.57±0.787) and “fear of job losses by the employees” (M=2.43±0.976). These statements are said to not be the influencing factors for DUT not using target costing.

In totality, the Chi-square value shows that there was no significant difference found in the respondents' level of agreement and/or disagreement with the statements highlighted in Table 4.13 ($P > 0.05$).

Table 4.13 below is an overview of all the results based on the respondents who suggest that target costing has not been considered at DUT.

Table 4.13 Factors resulting in the rejection of target costing

	Never considered target costing (n=7)					Mean	Standard Deviation	P-value
	SD	D	N	A	SA			
1.Target costing cannot be implemented in large institutions.	0%	57.1%	28.6%	0%	14.3%	2.71	1.113	0.368
2.Irrelevant in merged institutions.	0%	57.1%	28.6%	14.3%	0%	2.57	0.787	0.368
3.Lack of top management support.	0%	14.3%	42.9%	28.6%	14.3%	3.43	0.976	0.666
4.Difficulty in including all staff across all departments.	0%	28.6%	28.6%	42.9%	0%	3.14	0.900	0.867
5.No collaboration or cross-functional teams in an institution.	0%	42.9%	28.6%	14.3%	14.3%	3.00	1.155	0.666
6.Inadequacy of formal accounting or finance support.	14.3%	0%	28.6%	42.9%	14.3%	3.43	1.272	0.666
7.Accounting information management system is not compatible for target costing.	0%	42.9%	14.3%	0%	42.9%	3.43	1.512	0.565
8.High cost for implementing target costing.	0%	0%	71.4%	28.6%	0%	3.29	0.488	0.257
9.Inadequacy of resources to implement target costing.	0%	14.3%	28.6%	14.3%	42.9%	3.86	1.215	0.666
10.Lack of knowledge to adopt target costing.	0%	0%	14.3%	42.9%	42.9%	4.29	0.756	0.565
11.Inadequacy of research relating to target costing.	14.3%	0%	28.6%	42.9%	14.3%	3.43	1.272	0.666

12.Fear of job losses by the employees.	14.3%	42.9%	28.6%	14.3%	0%	2.43	0.976	0.666
13.Staff has no clarity on the goals and objectives of an institution.	14.3%	0%	71.4%	14.3%	0%	2.86	0.900	0.102
14.Insufficiency in the target costing expertise at DUT.	0%	0%	57.1%	28.6%	14.3%	3.57	0.787	0.368
15.The institution will not be competitive in strong competitive market.	0%	28.6%	42.9%	28.6%	0%	3.00	0.816	0.867
16.There is no intensity of competition in the public higher education institutions.	0%	14.3%	42.9%	14.3%	28.6%	3.57	1.134	0.666
17.Challenges in figuring the perception of students on the quality of education.	0%	28.6%	57.1%	0%	14.3%	3.00	1.000	0.368
18.Government regulations imposed on the establishment of fees.	0%	28.6%	28.6%	14.3%	28.6%	3.43	1.272	0.934
A Likert scale of 1 = strongly disagree (SD), 2 = disagree (D), 3 = neutral, 4 = agree (A), 5 = strongly agree (SA).								
*Level of significance P>5% (2-tailed)								
**Level of significance P<5% (2-tailed)								

4.5.4 Summary of objective 3

The section covered the factors that contribute to adoption, delay in adoption and rejection of target costing at DUT. This section was dependant on the objective 2, “extent to which target costing is adopted. For each “extent of adoption of target costing”, there were corresponding statements in this section (objective 3) that assessed the factors that influence that extent of adoption. Summarily, the respondents that opted for target costing being implemented in selected areas, delayed adoption and rejection had to choose corresponding questions in the section on factors influencing adoption of target costing. These question statements were not designed as universal statements that can accommodate all extent of adoption. They were each designed specifically for each extent of adoption.

4.6 OBJECTIVE 4: EXAMINING THE RELATIONSHIP BETWEEN THE BIOGRAPHIC DATA AND FACTORS INFLUENCING TARGET COSTING

4.6.1 Introduction

Hypotheses are tested on the relationship between the biographic data and the factors influencing target costing. The study first looked at the relationship between the biographic data and the implementation of target costing. Following that was the relationship between the biographic information and factors delaying target costing. Lastly, it looked at the biographic data and factors influencing the rejection of target costing.

4.6.2 H₁. There is a significant relationship between biographic data and the factors influencing the implementation of target costing

The study looked at the socio-demographic characteristic and implementation of target costing. This section looked at the socio-demographic variables and implementation of target costing and presented the results on the relationship in Table 4.14. The relationship was tested using the one-way ANOVA to test whether the respondents' views on the implementation of target costing differed in relation to their socio-demographic characteristics. It was statistically identified that there were no significant differences in the respondents' socio-demographic characteristics and their views on the implementation of target costing at DUT (($P > 0.05$)).

Table 4.14 The relationship between respondents' socio-demographic characteristics and the factors influencing the implementation of target costing

Socio-demographic characteristics		N (13)	Mean	Std. Deviation	P value
Gender	Male	6	3.7179	.35640	0.372*
	Female	7	3.3846	.80800	
Age group	26-39 years	3	4.0000	.40704	0.529*
	40-49 years	4	3.2308	.93158	
	50-59 years	5	3.5231	.48772	
	60 years and above	1	3.4615	.	
Highest qualification	National diploma	2	4.1538	.43514	0.414*
	Bachelor's degree	2	3.6154	.10879	

	Honour's degree/ Postgraduate	1	3.6923	.	
	Master's degree	2	2.8462	1.41421	
	PhD/Doctoral degree	9	6	3.5128	
Highest qualification category	Accounting and Informatics	7	3.5275	.80485	0.976*
	Applied Science	1	3.1538	.	
	Engineering and the Built Environment	2	3.5385	.43514	
	Health Science	2	3.7692	.76150	
	Management Science	7	3.5275	.80485	
Experience	0- 5 years	2	4.0769	.54393	0.217*
	6- 10 years	1	3.8462	.	
	11-15 years	2	2.6923	1.19664	
	16-20 years	5	3.7077	.40849	
	21 years and above	3	3.3590	.29123	
Designation	Head of Department	8	3.6264	.39331	0.841*
	Finance staff	5	3.4769	.97665	
Level of knowledge	Basic knowledge	6	3.5513	.45226	0.954*
	Good knowledge	5	3.4769	.97057	
	Excellent knowledge	2	3.6538	.27196	
*Level of significance P>5% (2-tailed)					
**Level of significance P<5% (2-tailed)					

4.6.3 H₂. There is a significant relationship between biographic data and the factors influencing the delay in the adoption of target costing

This subsection looked at the socio-demographic factors and whether they delay the adoption of target costing. The relationship between the socio-demographic factors delaying the adoption of target costing is presented in Table 4.15.

The ANOVA values indicate that there were no statistically significant differences in the respondents' socio-demographic characteristics such as gender, highest

qualification, highest qualification category, experience in higher education, designation, level of knowledge and the perceived factors delaying the adoption of target costing ($P>0.05$). Nevertheless, ANOVA values also measured suggest that the respondents' perception of factors delaying the adoption of target costing significantly differ by respondents' age group ($P=0.010$). The mean value measured for the respondents aged 40 to 49 years was the highest ($M=4.23\pm 0.7497$) while those measured for respondents aged 26 to 39 years was the lowest ($M=3.00\pm 0.00$). This indicated that respondents between the ages of 40 and 49 years agreed that the highlighted factors in Table 4.12 influenced the delay in the adoption of target costing at DUT when compared to other age group categories.

Table 4.15 Relationship between respondents' socio-demographic characteristics and the factors delaying the adoption of target costing

Socio-demographic characteristics		N (10)	Mean	Std. Deviation	P value
Gender	Male	6	3.5833	.74972	0.956*
	Female	4	3.6071	.41445	
Age group	26-39 years	1	3.0000	.	0.010*
	40-49 years	4	4.2321	.39286	
	50-59 years	4	3.1964	.18785	
	60 years and above	1	3.2143	.	
Highest qualification	National diploma	1	3.3571	.	0.225*
	Bachelor's degree	1	4.5714	.	
	Honour's degree/ Postgraduate	1	4.1429	.	
	Master's degree	4	3.6429	.64153	
	PhD/Doctoral degree	3	3.0952	.10911	
Highest qualification category	Accounting and Informatics	6	3.6667	.59875	0.264*
	Engineering and the Built Environment	1	3.3571	.	

	Health Science	1	4.5000	.	
	Management Science	2	3.0357	.05051	
Experience	6- 10 years	3	3.3095	.36654	0.255*
	11-15 years	1	4.5000	.	
	16-20 years	2	3.1786	.25254	
	21 years and above	4	3.7857	.69253	
Designation	Head of Department	5	3.4286	.61445	0.425*
	Finance staff	5	3.7571	.62188	
Level of knowledge	Basic knowledge	6	3.6786	.67272	0.641*
	Good knowledge	1	3.0000	.	
	Excellent knowledge	3	3.6190	.57735	
*Level of significance P>5% (2-tailed)					
**Level of significance P<5% (2-tailed)					

4.6.4 H₃ There is no significant relationship between biographic data and the factors that resulted in the rejection of target costing

The subsection covers the socio-demographic characteristics and factors resulting in the rejection of target costing. The relationship between socio-demographic variables of the respondents and the perceived factors resulting in the rejection of target costing is highlighted in Table 4.16 below. The ANOVA values indicated that there were no statistically significant differences in the respondents' socio-demographic characteristics and the perceived factors resulting in the rejection of target costing ($P>0.05$). This means that the socio-demographic characteristics of the respondents did not influence their responses on the statements measuring the factors that resulted in the rejection of target costing.

Table 4.16 The relationship between respondents' socio-demographic characteristics and the factors resulting in the rejection of target costing

Socio-demographic characteristics		N (7)	Mean	Std. Deviation	P value
Gender	Male	3	3.4074	.85406	0.572*
	Female	4	3.1250	.36956	

Age group	40-49 years	3	3.4074	.85406	0.766*
	50-59 years	3	3.2222	.38490	
	60 years and above	1	2.8333	.	
Highest qualification	Master's degree	3	3.4074	.85406	0.572*
	PhD/Doctoral degree	4	3.1250	.36956	
Highest qualification category	Accounting and Informatics	2	3.3333	.47140	0.625*
	Applied Science	2	3.6944	.98209	
	Engineering and the Built Environment	1	2.8333	.	
	Management Science	2	2.9167	.11785	
Experience	0- 5 years	1	2.8333	.	0.698*
	11-15 years	3	3.4630	.80188	
	21 years and above	3	3.1667	.44096	
Designation	Head of Department	6	3.3148	.60110	0.492*
	Finance staff	1	2.8333	.	
Level of knowledge	No knowledge	3	3.6852	.69463	0.241
	Basic knowledge	1	3.0000	.	
	Good knowledge	3	2.8889	.09623	
*Level of significance P>5% (2-tailed)					
**Level of significance P<5% (2-tailed)					

4.6.5 Summary of objective 4

The above hypotheses have tested the relationship between the socio-biographic information and factors influencing target costing. The results have shown that there is a significant relationship between the socio-demographic information and factors influencing the implementation of target costing and factors delaying the adoption of target costing. However, the relationship is no statistically significant relationship between socio-demographic information and factors resulting in the rejection of target costing.

4.7 THE PRESENTATION OF INFORMATION FROM OPEN-ENDED QUESTIONS

There are several questions relevant to this study that were not covered in the close-ended questions. This is because of the nature of the design of close-ended questions. To strengthen this research, the open-ended questions were added in the questionnaire. It was very important to include these questions to cover a much broader scope of the findings in this research. The analysis for the findings from the open-ended questions will be discussed below.

4.7.1 The pricing methods used in DUT

Looking back to the previous results, it can be noted that there are respondents who have indicated that target costing has not been adopted at DUT. Hence, it was important and reasonable to question the pricing method that is used by DUT. It emerged that DUT uses the traditional accounting method. It was also revealed by some respondents that DUT uses a full cost-plus pricing method. Traditional method is the blanket or single plant-wide overhead rate, which is a traditional overhead allocation approach where the single, predetermine overhead rate is used throughout the company. The predetermined overhead rate for the cost centre is the traditional accounting method which is based on the characteristics of the cost centre. Basically, this is a method to allocate all the costs based on a predetermined overheads rate (Jeyaraj 2015: 40). Therefore, this means that DUT still uses the traditional method to allocate the costs and that there is a predetermined rate to account for the costs.

It made sense that in the findings the results showed that the full cost-plus pricing method is dominant at DUT. This is because the full cost-plus method is pricing based on the cost at which it is indicated and that those costs are allocated using the traditional method. Full cost-plus method means that the cost-based method relies on full absorption costing, at which there should be a primary basis to determine the price under normal circumstances. The costs are assumed based on that absorption and then the mark up (Guilding *et al.* 2005: 126). This is the forward procedure of pricing which is the commonly used cost-plus pricing. The target costing works reverse and

the cost allocation becomes the last concern. The first focus is on the price and the expected return.

Furthermore, one of the respondents indicated that DUT uses a differentiated approach. Meanwhile others argued that DUT uses target costing, however it has not yet been announced or made known to the staff. This is reinforced by one of the respondents who indicated that no single method of accounting is used by DUT. More importantly, it was not identified by the respondents that target costing and cost-plus method are used together.

Table 4.17 Pricing method respondents indicated is currently used in DUT

Traditional approach (n=7) 36.8%	Full cost-plus method (n=7) 36.8%	Differentiated approach (n=1) 5.3%	Target costing (n=3) 15.8%	No single method (n=1) 5.3%
<p>1. Basic traditional approach.</p> <p>2. Historic costing for now.</p> <p>3. Historic-based approach is dominant.</p> <p>4. Historical cost method on old programmes whilst new subjects and programmes are costed correctly and priced.</p>	<p>1. Cost-plus method (n=2).</p> <p>2. Cost-Plus pricing (n=2).</p> <p>3. it is not fully implemented, but rather works hand in hand with the cost-plus approach</p> <p>4. Cost-goal specificity is available in some parts of the institution.</p> <p>5. Few sections contain aspects of cost goal objectivity.</p>	<p>1. Differentiated approach.</p>	<p>1. It is implemented in some parts. Just like the working out of fees is average.</p> <p>2. The institution is using target costing, but it is not announced and not known by the staff.</p> <p>3. This system is applicable in other parts of the institution especially on</p>	<p>1. DUT does not have a single basis of pricing accountability.</p>

5. I think traditional method, not sure.			fees, looking at their proximity with the competing institution.	
6. Traditional costing.				
7. We are currently on a traditional costing system.				

4.7.2 Indication on whether current pricing method is the best for the university

After the respondents had indicated the prices that are used at DUT they were given a chance to indicate if the current pricing method was the best for the university. From the total response of 39 respondents (n=39) 74.4% indicated with “yes” to state that the current pricing method was the best. The remaining 25.6% answered “no” to indicate that this was not the best method to be used by the university. This means that many of the respondents are satisfied with the dominating pricing method.

Table 4.18 Opinion on whether the current pricing method is the best for the university

		Frequency	Valid Percentage (%)
Do you think the current pricing method is the best method to be used by the university?	Yes	29	74.4%
	No	10	25.6%
	Total	39	100.0%

The respondents had to explain the reason for their argument on whether they felt the pricing method was the best for the university. The respondents had to give a reason why they think the method currently used can be regarded as the best or whether it wasn't.

The reasons are presented in Table 4.19 for the respondents who opted that the current pricing method was the best and those who are against the current pricing

method. The respondents justified the answers, which are presented in Table 4.19 for the questions in Table 4.18. Amongst those who answered “yes”, it emerged that there are minimal errors of costing. The efficiency and flexibility of the system were among the reasons uncovered while stating that the current pricing method was the best for DUT. Nonetheless, there are respondents who opted that the pricing method was not the best for DUT. There was an indication of the high cost of fees that kept increasing as well as the fact the method of costing was unknown.

The respondents deemed the dominant system of cost-plus pricing as a good fit, as it limits errors when trying to rework fees. Therefore, the cost will be controllable in this regard. Many of the respondents suggested that it is safe for DUT to stay in the current pricing method, as it does not create financial ills for the institution. Respondents suggested that the current pricing method is correct as costs allocated are reliable at the institution and to then change to a different pricing method might create financial difficulties.

There are respondents who have argued that the pricing method for fees is not correct. This is because the fees are not a correct representation of the fees as they are still based on the historic judgement that was made several years back which might have since changed. The pricing method ignored the cost procedure which some of the respondents deemed to be inappropriate.

However, many of the respondents have agreed that the current price is not worth changing. The respondents are of the opinion that the institution is sustainable and the scepticism for change may yield positive results.

Table 4.19 Reasons on why the respondents deem the current pricing method used at DUT as the best or not.

Yes	No
1.Fees are not restructured each year; we increase on historic judgement which limits errors from costing information. Costs are calculated using the current trend. 2.Clear cost assignment and estimates. 3.Controllable cost accountability. 4.Fees are on agrees with pricing of fees.	1. All must be cost centre based. 2. It appears not to be working. This is a layperson’s perspective. 3.Fees are high. 4.Method of setting costs is unknown.

<p>5.I think our costing is reliable.</p> <p>6.It can respond to current higher educational dynamics.</p> <p>7.It takes into consideration current resources employed within the sector as well as market norms.</p> <p>8.Market is competitive and reasonable.</p> <p>9.Predictions and analysis are possible using the available trend on changes in values.</p> <p>10.The institution can implement its objectives, nonetheless, there is no condition of financial distress. This reasoning excludes conditions brought by Covid-19.</p> <p>11.The institution is benchmarking with other institutions of higher learning. The prices are capped.</p> <p>12.The institution is doing well in operations.</p> <p>13.The university is not experiencing financial difficulties.</p> <p>14.The price can cover the cost of operations.</p> <p>15. There are no indications that the institution is in financial difficulty.</p> <p>16. They have sustained the institution and are fair.</p> <p>17. To avoid the risk of uncertainty in the new pricing.</p> <p>With that approach, the university provides quality education that is different from other universities.</p>	<p>5.The cost allocation, especially on the topic of fees in question, is not updated but based on the previous judgement.</p> <p>6.The fees keep on increasing.</p> <p>7.The structure of fees must be reconsidered.</p> <p>Based on the idea that a variety of cost basis for the historic judgement on fees that is has changed.</p>
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4.7.3 Other factors influencing target costing

This section covers other factors influencing adoption of target costing. Amongst many, the respondents highlighted that possible factor influencing the adoption are the use of another pricing method, marketing of the product and designing of the product according to the customers' needs, students' socio-economic demographics and amount of influence on general staff with knowledge.

4.8 CONCLUSION OF CHAPTER 4

In conclusion, the above results highlight the responses of those who participated in the study on the factors that may influence the adoption of target costing as a contemporary management accounting technique in a public HEI, based on the DUT. Both descriptive and inferential statistics were performed and used in presenting the study findings.

The respondents' socio-demographic data suggests that many were male, within the age group 50-59 years, hold a doctorate level qualification from the faculty of Accounting and Informatics and hold the position of HOD but had no knowledge about target costing. In terms of the level at which respondents understood target costing, it was uncovered that many have Level 1 knowledge and it was revealed that DUT had implemented target costing in selected areas.

Nevertheless, it emerged that lack of support for implementation from top management as well as the size of the institution were among the main factors delaying the adoption of target costing. It was uncovered that lack of knowledge to adopt target costing as well as inadequacy of resources to implement target costing were among the main factors that resulted in the rejection of target costing at DUT.

Additionally, the study uncovered that DUT uses several costing methods, prominent among these being the traditional method and cost-plus pricing method where the costs are absorbed based on a one allocation basis. Nonetheless, most of the respondents were positive that the accounting method used by the university was the best, after identifying many of the factors that have been determined to have an influence on the adoption of target costing.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The previous chapter discussed the findings of this study. This chapter commences with an overview of the study's aim and objectives and reports the outcomes of the research objectives. A highlighted summary of the key findings for each objective is presented. The limitations of the study are provided as well as possible avenues for future research. Lastly, the value of this study is discussed before providing concluding remarks.

5.2 MAIN RESEARCH OUTCOMES

This study was conducted mainly to investigate the factors influencing the adoption of target costing as a contemporary management accounting technique in public HEIs, using the DUT as the case study. To achieve the aim of this research, research objectives were established.

The research objectives for this study were as follows:

- ✓ To determine the level of understanding of target costing at DUT.
- ✓ To investigate the extent to which target costing is adopted at DUT.
- ✓ To determine the factors that may influence the adoption of target costing at DUT.
- ✓ To examine the relationship between the biographic data and factors influencing the adoption of target costing.

This section concludes on the findings of this research presented in chapter four. The findings are structured based on the research objectives that were presented in chapter one. This is all consolidated through staged development, meaning the research questions were developed based on the research objectives. It is therefore easy to present the findings based on the research objectives.

5.2.1 Research findings

The research findings have been presented in accordance with the research objectives.

Objective 1: Determine the level of understanding of target costing at DUT

5.2.2 Determining the level at which target costing is understood

This objective was staged from determining the understanding of target costing, and therefore the level of understanding was developed. The ultimate objective was to know at what level respondents understood target costing.

This study found that many respondents had at least a basic, good or excellent knowledge of target costing. The researcher did provide a definition in the research instrument to at least discourage respondents from assuming they don't know the concept of target costing only by virtue of not knowing the term. Despite this, the results showed that at most 32.6% of the respondents had no knowledge of this concept and the rest had at least basic, good and excellent knowledge. None of the respondents were experts in target costing and therefore, as no respondents chose the option of being an expert in target costing on the questionnaire, that section was not added to the table when the analysis and presentation was conducted.

The research findings agree with Eldalahmeh (2018: 400) and Dekker and Smidt (2003: 297) that the concept of target costing was understood. It may not have been considered or adopted, but at least the concept itself was known. They provide that there is high likelihood of practitioners being familiar with the concept of target costing.

This is opposite to the findings by Helm *et al.* (2005: 51) and Briciu and Căpuşeanu (2013: 1 037) who found that the problem with target costing was that it is not understood by practitioners in industries.

The researcher further tested knowledge of target costing by placing two positive statements of the commonly known definitions of target costing, to assess if the respondents would agree with these concepts. The respondents who had agreed with these concepts clearly understood target costing. The last statement required the

respondents to indicate if the fundamentals of target costing were understood. Therefore, it was evident that the concept was known to the respondents. The respondents have disagreed that the fundamental elements of target costing are understood. Therefore, the respondents agreed with being familiar with the concept of target costing, however the fundamental elements that are necessary to put target costing in place were not understood.

The objective was initially to establish at what level target costing is understood. There has been no study that has tested the level at which target costing is understood. A previous study conducted by Yazdifar and Askarany (2012) assessed the level of adoption of target costing. The study by Yazdifar and Askarany (2012: 384) developed a 4-Level strategy. This is the same strategy that was adopted in this research to determine the level at which target costing is understood.

From this 4-Level strategy, it was found that each level is defined according to the strength of the definition of target costing. A Level 1 understanding means defining target costing where expected returns are simply removed from the market price to get the targeted costs. The second level included the definition of level 1 plus having additional knowledge on how to cut down the costs. Level 3 is made up of level 1 and 2 and having an ability to examine the cost-cutting strategy during the stage of planning and prior production. The final is level 4, which is a combination of all three levels, plus knowing how value engineering can be used to meet the customers' needs.

Many of the respondents understood target costing from a level where target costing is defined as the process used to remove the targeted profits from the acceptable prices to get targeted costs. A total of 41.4% of the respondents indicated that they have level 1 understanding of target costing. The results also found that 31% had level 2 understanding of target costing. There are few (20.7%) respondents that have a level 3 understanding of target costing. Only 6.9% of the respondents, which was the lowest rate, indicated having a level 4 understanding of target costing.

Objective 2: Investigate the extent to which target costing is adopted at DUT

5.2.3 The extent to which target costing is implemented

Not only at HEIs, but most of the studies that have been conducted in manufacturing industries have focused on the adoption and non-adoption of target costing. Very few studies have assessed the level of adoption of target costing. Therefore, there is a gap in examining the extent to which target costing is adopted that needs to be closed.

Nonetheless, amongst the studies that have been conducted by Yazdifar and Askarany (2012: 383), Tang (2015: 89) and Dekker and Smidt (2003: 294), it was found that none of these investigated firms have fully adopted target costing.

In the study conducted by Yazdifar and Askarany (2012: 388) it was found that the adoption rate is still low in firms in Australia, New Zealand and the UK. The study found that 52.4% of the manufacturing and 59.6% of the servicing firms surveyed have not considered target costing. The remaining firms were found to have fully implemented target costing. In the same share of percentage, some have introduced target costing on a trial basis. These findings cannot ideally be compared directly to this study, as this study has only focused on one institution, while the above study was conducted at several manufacturing and services industries in Australia, New Zealand and the UK. In this study it was found that many of the respondents commented that target costing had been implemented in selected areas of DUT.

In the study conducted by Tang (2015: 89), the results provide that PTEs in New Zealand have adopted target costing at a rate of 33.3%. More than half of the PTEs have adopted target costing at a basic level. It concludes that in PTEs in New Zealand there is still room for improvement when it comes to target costing (Tang 2015: 89). Thus, the results also relate to several industries, whereas this study is only focused on DUT.

Objective 3: Determine the factors that may influence the adoption of target costing at DUT

5.2.4 Factors influencing the adoption of target costing

The amount of literature and empirical reviews on the adoption of target costing in HEIs is very low. A lot of studies focused on the adoption of target costing in the manufacturing industry. Each factor was looked at and the variables were analysed based on the statements that were in the questionnaire. Below will be the analysis of the results stating whether the following factors influenced the adoption of target costing. The responses in this objective were reliant on the above discussed objective 2 (The extent of adoption of target costing). Many of the respondents opted that target costing had been implemented in selected areas of DUT, therefore the results of these variables will be tested against factors influencing the adoption of target costing rather than using variables on the factors delaying the adoption and factors resulting in the rejection. This is because the variables built from factors delaying adoption and factors resulting in rejection are built from the less chosen extent of adoption in the above objective.

However, there is little exception to the negative variables which could not be possibly tested against factors influencing the implementation of target costing. They were then tested against factors delaying target costing.

According to Ax *et al.* (2008: 97), target costing is mostly possible within large corporations. There has been a lot of similar supporting literature which agrees that target costing can be influenced by the size of the business (Hammami *et al.* 2019: 218; Ax *et al.* 2008: 98; Gonçalves *et al.* 2018: 379). Amongst identified empirical findings, only one study (Rattray *et al.* 2007: 76, has provided different opinion, that the size of the firm has no effect on the adoption of target costing. In this study, it was found that the size of the firm has influence on the adoption of target costing. The results presented a mean value greater than three, outlining that many respondents have agreed that the size of DUT has an influence on the adoption of target costing. Similarly, as DUT is one of the merged institutions, it was assessed that the merger of the institution would yield the same results. The respondents have agreed that the merger of DUT had an influence on the adoption of target costing.

According to Dekker and Smidt (2003: 296), the adoption of target costing requires cross-functional teams across all the functional teams in organisations. This outlines

the importance of having staff inclusion in the adoption of target costing. The inter-organisational cost control requires involvement of all the team members. Therefore, including staff from across all the parts of the organisation is fundamental for the adoption of target costing (Dekker and Smidt 2003: 296). This study found that the possibility of including all staff from across all parts of DUT is a contributing factor. There is a mean value of 3.92 showing the number of people who agree that the possibility of including staff from across all departments is a factor influencing the adoption of target costing. The findings have agreed with Dekker and Smidt (2003) that staff from across all departments must be included to adopt target costing.

The robust information system is required from the beginning phase of target costing. This means that when doing planning and research and development an information system that is of high standard is required (Helms *et al.* 2005: 50; Alwadan 2018: 6). Similarly, the technology should be equally advanced in the process and post adoption of target costing. This is because enhanced technology spreads over to ease the work required and it creates quality cost savings (Okpala 2016: 19). Okpala (2016:19) further states that the strategy to manage costs of the product works simultaneously with advanced technology.

The research findings by Gonçalves *et al.* (2018: 381) suggest that as the technology gets more advanced, the easier it becomes to adopt target costing. Target costing, therefore, gets more intensified as technology gets more advanced. This is also in agreement with the argument by Sarokolaei and Rahimipoor (2013: 20) that when there is less technology, it becomes less likely to put in practice the MAS. Contrary to this, in the study conducted by Rasit and Ismael (2017: 7 807), it is argued that there is insignificant relationship between the adoption of target costing and technological advancement.

In this study it was found that the efficiency in the information management system has a positive influence on the adoption of target costing. There is a mean value of 3.31, where 61% of the respondents agreed that the information system influences the adoption of target costing. Therefore, the findings in this study agree with the findings provided by Gonçalves *et al.* (2018: 381) that an information system has an influence on the adoption of target costing.

There is a common opinion that when adopting target costing, the accounting department is not as important as the engineering department (Mendes and Machado 2012: 794). Rattray *et al.* (2007: 77) measured the extent of the involvement of the accounting department in the adoption of target costing. The mean frequency was 3.42 measuring from one to five, where one meant not at all and five being very much involved. On the contrary, Dekker and Smidt (2003: 296) are of the opinion that less of the accounting department is required when adopting target costing. This research found that the sufficiency in the formal support to the accounting department has an influence on the adoption of target costing. The mean value of 3.62 shows that the support given to the accounting department has an influence on the adoption of target costing. Mean value was measured from one to five, where one means strongly disagree and five means strongly agree.

To implement target costing there should be enough resources. The resources refer to effort of accountants, professional staff, top management, tools, software, resources and external consultants (Nassar *et al.* 2013 :18). There is a suggestion that there should be enough resources for target costing to be implemented (Nassar *et al.* 2013 18). In this current research, the respondents agreed that there should be enough resources for target costing. The mean value of 3.54 shows that many of the respondents agreed that the adequacy of resources has an influence on the adoption of target costing. The mean value was measured from one to five, where one means strongly disagree and five means strongly agree.

This variable could not be possibly tested in the adoption of target costing as it is negative in nature. Therefore, it was tested under the component of the delays in the adoption of target costing. The research has assessed whether target costing has an influence on the delay in the adoption of target costing. Target costing is known for its mission to cut down costs. According to Briciu and Căpuşneanu (2013: 461), this cost management tool poses a threat to workers. Al-Awawdeh and Al-Sharairi (2012: 6) suggested that the achievement of target costing can be dragged down by workers as they fear for their employment. The job security challenge poses a threat to their employment and then hinders them from putting effort for adoption of target costing. In this study, the results found that the scepticism of job losses was a factor that resulted

in the adoption of target costing, as there was a fear of job cuts when adopting this technique.

As mentioned above that these variables were to be tested on the factors influencing the adoption of target costing, this variable is negative in nature, therefore it will be tested against factors resulting in the rejection of target costing.

Mendes and Machado (2012: 795) suggested that staff needed to have a clear idea of the organisation's goals to adopt target costing. Staff must have useful information about the company for them to adapt to the change toward target costing. The objectives of the firm on the quality improvement should be clear to the staff (Mendes and Machado 2012: 795). In this current study many of the respondents were neutral about this factor.

Analysis by Ax *et al.* (2008: 94), Hammami *et al.* (2019: 218) and Rasit and Ismael (2017: 7 807) found that the intensity of competition has a positive relationship with the adoption of target costing. This means that target costing is very important where the competition is tighter (Drury 2012: 233). In this study it was found that the intensity of competition is the significant factor contributing to the adoption of target costing. The results in the current study produced a mean of 4.31, at which one means strongly disagree and five means strongly agree. Target costing is not viable where a market is not competitive (Sharafoddin 2016: 126).

Many staff members are mostly unaware of how prices can fit their firms. Education and expertise on target costing are not enough amongst staff (Reen *et al.* 2017: 94). Motuba *et al.* (2016: 8) argue that target costing has not been adopted because there is a lack of basic knowledge on how to put target costing in place. The staff involved in decision-making are not equipped on the use of target costing. This has given them the perception that target costing would be hard to implement because of inadequacy of information (Motuba *et al.* 2016: 1-3). There is a lack of expertise on these pricing methods and there is insufficient cost data; this will result in improper use (Weiyi and Luming 2009: 537; El- Dalahmeh 2018: 404).

The results of this current study found the totally opposite results. The study found that staff expertise has no relationship with the adoption of target costing. There is no need

for staff to be experts to be able to adopt target costing. The study found a mean range of 2.62, at which one means strongly disagree and five means strongly agree.

According to Drury (2012: 233), target costing technique requires very in-depth market research to enable a clear understanding of customer perceptions on the value of the product or a service. Sarokolaei and Rahimipoor (2013: 19) suggest that it becomes hard to measure the customer satisfaction as it may differ from each customer and may not be common to everyone. In this study, the results showed that there is no relationship between factors influencing the adoption of target costing and the customer value. In this study, the adoption of target costing at DUT is not affected by the students' perception on the value of education.

The government regulations have dictatorship over the market rate. The government regulation includes an intervention on price controls (Harrington 1984: 577). This has attracted the economist to be interested in reasons behind the government's price regulations on other markets (Joskow 1974: 196-197). This current study has similar results showing that government regulations have an influence on the adoption of target costing. Limiting government regulations will result in the adoption of target costing. The results show the mean value of 3.17, measured from one to five, where one is strongly disagreeing and five is strongly agree.

Objective 4: To examine the relationship between the biographic data and factors influencing the adoption of target costing

5.2.5 Relationship between biographic data and factors influencing the adoption of target costing

The hypotheses were developed to examine the relationship between the biographic data and the factors influencing the adoption of target costing.

H₁. There is a significant relationship between biographic data and factors influencing the implementation of target costing.

Here the study highlighted the findings of the relationship between socio-demographic variables and the factors influencing the adoption of target costing. The researcher performed a one-way ANOVA test, to test if the respondents differed in views on the

implementation of target costing in relation to their socio-demographic characteristics. The results found that there are no statistically significant differences in the respondents' socio-demographic characteristics and their opinion on the implementation of target costing.

H₂. There is a significant relationship between biographic data and the factors influencing the delay in the adoption of target costing.

The socio-demographic variables of the respondents and the perceived factors delaying the adoption of target costing were discussed here. An ANOVA test was performed to test if there was a difference between the respondents' socio-demographic characteristics and perceived factors delaying the adoption of target costing. The characteristics of socio-demographic characteristics included gender, highest qualification, highest qualification category, experience in higher institution, designation and level of knowledge. The ANOVA test indicated that there are no statistically significant differences in the respondents' socio-demographic characteristics and the factors delaying the adoption of target costing ($P > 0.05$).

On the other hand, the ANOVA values on the respondents' perceived factors delaying the adoption of target costing differed significantly depending on the respondents' age group ($P = 0.010$). The mean values for the respondents in the age group of 40-49 was highest at ($M = 4.23 \pm 0.7497$), meanwhile, those who were 26-39 had the lowest mean value at ($M = 3.00 \pm 0.00$). This suggests that respondents aged 40-49 agreed that the highlighted factors in Table 4.12 influenced the delay in the adoption of target costing at DUT when compared to other age groups.

H₃ There is a no significant relationship between biographic data and the factors that resulted in the rejection of target costing.

The ANOVA test was performed to test the relationship between socio-demographic variables and the respondents' perceived factors resulting in the rejection of target costing. The ANOVA values indicated that there were no statistically significant differences in the respondents' socio-demographic characteristics and the perceived factors resulting in the rejection of target costing ($P > 0.05$). The socio-demographic characteristics of the respondents did not have an influence on their responses to the

statements in the questionnaire given as factors resulting in the rejection of target costing.

5.3 RECOMMENDATIONS

The recommendations for this study are drawn from some part of the empirical literature and the results. The researcher makes recommendations that will increase the chances of target costing being adopted at DUT and in other HEIs.

5.3.1 Staff training

Here the research is putting forward the importance of training the staff directly involved in pricing to receive adequate skill and expertise in the pricing policies for the institution. The staff involved in programme fee structure, budgeting and cost allocation should be more equipped with necessary management accounting tools. This will assist in having the most relevant pricing policy for fees. For any possible changes in pricing, staff must be well educated and informed on how to apply target costing and make it successful (Reen *et al.* 2017: 94).

Likewise, for successful implementation of target costing in the whole institution there should be necessary training to provide awareness on the importance of this pricing method. Staff should be adequately trained to be well informed of the need and strategic objective for this pricing method, which is cutting down the costs. Many respondents agreed that the biggest factor that could lead to target costing being rejected or to it not being adopted is the lack of knowledge amongst the people responsible.

Recognising that many of the respondents have chosen that the current dominating pricing method is sufficient despite the constant rise of fees and the damage involved therein, to minimise the number of people resisting the need to change, there should be more training given to staff. But most importantly, on the issue of constant rising fees, due to an improperly arranged cost structure there is a possibility of continuous protests as government support funds continue to stay in a bottleneck. This will result in the continuous vandalising of property and the institution becoming an unsafe environment for students and potential students. Therefore, by cutting down the costs

in the entire institution, amid government failure to provide for institutions, the fees may be kept low.

5.3.2 Updating the historic judgement

Here the research looks at the process of allocating programme fees to courses. Amongst the respondents, it was noted that the institution does not recalculate its costs on programmes yearly, but the fee increase is based on the present fees. This means that for a decision to add an increase, the increase is made simply on the current fee e.g., an 8% increase for the succeeding year will be 8% of the preceding programme fee. The cost of the fee from which this fee was derived from is not reworked constantly. There is a possibility that costs that were added together to form the current fees no longer exist, e.g., if the fee is made up water and electricity costs, the costs of water and electricity might have been cut due to online leaning. Also, the cost for Wi-Fi may be redirected to the cost of data. In summary, the cost to fees should be reworked to understand the current true cost to the programme.

5.3.3 Adequate resource allocation

Like any other MAS, sufficient resources will be required for target costing to be adopted. This means having well-trained staff, a proper information system and availability of 3rd party for consultations (Nassar *et al.* 2013).

To adopt target costing requires an effort from the seniors in an institution to organise resources that will be necessary for the adoption of a cost cutting management tool. Like any big project, there should be proper planning on how to put target costing into operation in the entire university. The results have shown that target costing elements existing some parts of the institution, therefore, as this is a cost managing tool, it should be a priority to keep the fees in the entire institution low.

5.4 LIMITATIONS

The limitations of the study are generally beyond the control of the researcher. Basically, these are the weaknesses of the study in the research design that may hinder the findings of the study (Ross and Zaidi 2019: 261). This research, like any other research study, was subject to limitation. However, this research has made sure

reliability and validity of the study in achieving the research objectives. This research was only quantitative in nature and included very few open-ended questions. This was because there were limited time scarce resources, and the study was only confined in one public HEI in Durban, DUT. Also, research on the adoption of target costing has not been conducted at many HEIs. Therefore, there is limited literature relating to this study. There is not much rich research with which to compare the current findings to have more reliability in the results. This study investigates the adoption of target costing at DUT; however, the study could have also been conducted at other HEIs. This is because target costing could also be adopted at other HEIs. This study is only focused on one HEI and for that reason the results of this study cannot be generalised to all public HEIs.

The targeted population was employees from the Durban and Midlands campuses of DUT and staff from other public HEIs were not part of the data collection. The research was also restricted to employees from the finance department and the HODs at DUT. This research only focused on these categorised employees because the research was interested in people who have direct involvement in fees, budgeting, and cost allocation in their departments.

The narrowed target population created a delay in collecting data, as it was important to have as many of them represented in this study. The sample size was purposive, meaning the respondents were carefully selected. The selection was not random, where all the potential respondents had equal chances of being selected to participate in this study. Respondents were selected based on the performance of their work activities; therefore, the results of these respondents' comments are generalised for the entire university.

The analysis used for this study is based on one instrument of data collection as only questionnaires were distributed. Interviews could have been conducted to get further opinion on the factors influencing the adoption of target costing at DUT.

5.5 SUGGESTION FOR FUTURE RESEARCH

Understanding that this research had several limitations, this suggests that there is still a gap existing in the empirical literature pertaining to this study. The researcher opines that future research can focus on the following areas.

- ✓ The descriptive study on the factors that affect the adoption of target costing in public HEIs, using other institutions including the Technical and Vocational Education and Training (TVET) colleges.
- ✓ The empirical study can be conducted in other public HEIs to assess the knowledge of the target costing pricing method and willingness to adopt target costing.
- ✓ Empirical study that investigates the effort of HEIs to keep the operating costs and fees low.
- ✓ The DHET's effort to reduce the fee burden through regulated fee administration.

5.6 CONTRIBUTION OF THE STUDY

This study was firstly motivated by students' riots to boycott rising fees in public HEIs. This study aimed to look at the pricing strategy that could bring about a solid solution for the constant increase of fees. The study aimed to overcome the shortfalls caused by uncontrolled cost allocation, which could be the contributing factor to instabilities caused by the continuous increase of student fees. Therefore, research gives the empirical findings of the increasing adoption of target costing as the cost management tool to cut down on costs.

This research dealt directly with the factors that influenced the adoption of target costing as a cost management tool which could be used to keep the cost of operating low. The researcher was interested in finding out the reason why target costing was not adopted beyond its significant contribution toward reducing costs. This study aimed at ensuring that public HEIs prioritise the students by decreasing the fee burden for them. This would reduce the constant riots and protests which cause instability in some

parts of the country. The research has developed the target costing adoption process and made at least provide a framework to guide the adoption of target costing. The purpose was to make available information useful for cost management to ensure that fees remain acceptably low.

This research must be able contribute positively to the body of knowledge and be useful in assisting and giving a framework on a plan to initiate target costing at DUT.

There is readily available literature that has been reviewed on target costing. Even though very few studies have been done on the adoption of target costing in HEIs, this research has increased the body of knowledge. This research will enrich data that is readily available by providing more literature and findings. This research addresses the lack of literature and empirical findings on the adoption of target costing in public HEIs as more focus has been based on the adoption of target costing in manufacturing industries. Therefore, this study bridges the gap, as there is little relatable literature on the adoption of target costing in HEIs. It also provides a clear guideline, using the developed frameworks, on the adoption of target costing. The research provides rich tools for researchers who will be developing their own studies to add to the pool of knowledge. It will also provide guidelines for practitioners who are embarking on the journey to adopt target costing as a cost management tool.

5.7 CONCLUSION OF CHAPTER 5

The chapter concluded the entire thesis and provided the recommendations as well as guidance for future research. The research aim was to investigate the factors influencing the adoption of target costing at a HEI. The research developed objectives from which the literature and research questions emanated. The results of this study were motivated by the structure of the research questions used to achieve the objectives.

This research was quantitative, and the target population was DUT staff, a sample made up of HODs and purposively selected finance department staff. This was for the purpose of ensuring that the most accurate results were acquired. In this chapter, the research findings were also presented summarily. The recommendations were made based on the findings of this research. The recommendation for future research was

also suggested based on what could not be covered in this research due to limitations of resources and feasibility.

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APPENDIX A: COVERING LETTER



23 March 2021

Dear Participant

I am Thango Thobelani, enrolled for a Master of Accounting degree under the Management Accounting Department at the Durban University of Technology (DUT). I would like to invite you to participate in this study. My research is on the adoption of target costing as a contemporary management accounting approach in public higher education institutions.

I wish to make you aware that participating in this study is voluntary. If you feel uncomfortable answering any questions, you can withdraw from this survey. Also, your identity will be kept anonymous, the results of this study will be aggregated and your responses will be kept confidential. The results of the thesis will be available in the DUT Library and they will be accessible to everyone. The response to questionnaires will be stored safely, accessible only to me and the supervisor and will be destroyed after five years. There is no foreseeable risk in taking part in this survey. The survey will take approximately five minutes to complete.

I am looking forward to having you as a participant in this study. Should you have an enquiries, feel free to contact me on my email address: 21600766@dut4life.ac.za or personal email address: thobelani147@gmail.com, or via my cellphone number 061 847 9016. You can also contact my supervisor, Dr. F. Marimuthu, on ferinas@dut.ac.za, or 031 373 5646. or the co-supervisor, Dr. Z.W Nzuza on 031 373 5351.

Kind regards

Thango Thobelani (21600766)

APPENDIX B: QUESTIONNAIRE

SURVEY QUESTIONNAIRE

DEFINITION OF TERMS:

Target Costing – Is a pricing method at which the targeted product costs are estimated by subtracting a desired profit from the market price {e.g. If DUT wants to make R1 000 profit for each subject and they want to charge R2 500 as a tuition fee (price) for that subject, that means the costs (target cost) should be kept between R2 500 - R1 000 = R 1 500. Therefore, targeted cost is R 1 500}.

Differential Approach - Is an organisational strategy to enhance the competitive advantage, through focusing on quality and functionality of a product.

Cost Leadership Approach - Is an organisational strategy through which the firm establishes its competitive advantage by focusing on having the lowest cost of the product.

Value Engineering - Is a process of examining and evaluating each component of the product and value chain analysis and removing the components that do not add value.

Instructions to respondents

Please click on the box provided for your chosen response.

Please do not leave any space blank, except where the question provides the specific instruction to skip other questions.

SECTION A: PERSONAL AND BIOGRAPHICAL DETAILS

Mark the appropriate box with a cross (X).

1 Please specify your gender.

NO.	Gender	Options
1.1	Male	
1.2	Female	

2 Please indicate your age group (in years).

NO	Age category	Options
2.1	25 years and below	
2.2	26-39 years	
2.3	40-49 years	
2.4	50-59 years	
2.5	60 years and above	

3.Indicate your highest qualification.

NO.	Type of Qualification	Option
3.1	National Senior Certificate	
3.2	National Diploma	
3.3	Bachelor's Degree	
3.4	Honors Degree/Post-grad	
3.5	Master's Degree	
3.6	Doctoral/PhD Degree	

4. Please indicate your highest qualification category.

NO.	Qualificationcategory	Option
4.1	Accounting and Informatics	
4.2	Applied Sciences	
4.3	Arts and Design	
4.4	Engineering and the Built Environment	
4.5	Health Sciences	
4.6	Management Sciences	

5. Please indicate your relevant experience in an institution of higher learning.

NO.	Experience category	(Option)
5.1	0-5 years	
5.2	6-10 years	
5.3	11-15 years	
5.4	16-20 years	

5.5	21 years and above	
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6. Please indicate your designation

NO.	Experience category	(Option)
6.1	Head of Department	
6.2	Academic staff	
6.3	Finance staff	

SECTION B: DETERMINING THE LEVEL OF UNDERSTANDING OF TARGET COSTING

The following questions are statements aimed at determining the level of understanding and the understanding of target costing. Please indicate your selected option with a cross (X) in the correct column. Only one option should be selected.

Level of understanding

1.1 Your familiarity with the concept of target costing.

NO.	Experience category	(Option)
1.1.1	No knowledge	

1.1.2	Basic knowledge	
1.1.3	Good knowledge	
1.1.4	Excellent knowledge	
1.1.5	Major expertise	

NB: If you selected No knowledge in question 1.1, please skip question 1.2.

NO.	4-Level Category	Options
1.2.1	Level 1: Target costing is understood and can be identified as a difference between the expected profit and required return.	
1.2.2	Level2: The staff is equipped with the strategies relevant for cutting down the unnecessary costs.	
1.2.3	Level 3: You can examine the cost cutting strategy during the stage of planning and prior production.	

1.2.4	Level 4: You have knowledge of how value engineering can be put to use to meet the customer's needs.	
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2 Understanding of target costing

Please indicate your option with a cross (X) in the correct column. Only one option should be selected where: **SD** = StronglyDisagree, **D** = Disagree, **N** = Neutral, **A** = Agree and **SA** = Strongly Agree.

2.0	Description	SD	D	N	A	SA
	TARGET COSTING					
2.1	Target costing is used to manage the costs of the product throughout its lifecycle.					
2.2	The concepts of target costing are understood for its effectiveness in management of costs.					
2.3	The fundamental elements of target costing adoption are known by staff at DUT.					

SECTION C: THE EXTENT TO WHICH TARGET COSTING IS ADOPTED.

Please indicate one option with a cross (X)

No	Description	Option
2.8.1	Full implementation (If you selected this option, please go to question 3.1)	
2.8.2	Implemented target costing in selected areas (If you selected this option, please go to question 3.1)	
2.8.3	Implemented target costing as a pilot project (If you selected this option, please go to question 3.2)	
2.8.4	Currently under consideration (If you selected this option, please go to question 3.2)	
2.8.5	Rejected target costing after assessment (If you selected this option, please go to question 3.3)	
2.8.6	No consideration of target costing to date (If you selected this option, please go to question 3.4)	

SECTION D: FACTORS INFLUENCING THE ADOPTION OF TARGET COSTING

3.1 If the university has made **full implementation or in selected areas** of target costing, please indicate the factors that resulted in adoption. Only one option should be selected where: **SD** = Strongly Disagree, **D** = Disagree, **N** = Neutral, **A** = Agree and **SA** = Strongly Agree.

3.1.0	Description	SD	D	N	A	SA
3.1.1	The size of DUT fits the use of target costing.					
3.1.2	Target costing is relevant in the merged institutions.					
3.1.3	Enough support for implementation from the top management.					
3.1.4	Possibility that all staff, across all departments can be included.					
3.1.5	Efficiency in the current information system for data management.					
3.1.6	Clear organisational structure creating collaborations and cross-functional team.					
3.1.7	Sufficient formal support to accounting or finance department.					
3.1.8	The institution has the ability to assign the resources.					

3.1.9	There is adequacy of resources to adopt target costing.					
3.1.10	Sufficiency in the expertise of target costing.					
3.1.11	The institution has interest in gaining competitive advantage in the market.					
3.1.12	Easy to understand the perception of students on the quality of education.					
3.1.13	The limited restriction by government rules and regulations on pricing.					

3.2 If the institution is **still making considerations of target costing or piloting target costing**, indicate with the cross (X) factors that delay the adoption of target costing.

3.2.0	Description	SD	D	N	A	SA
3.2.1	The size of the institution.					
3.2.2	Target costing is irrelevant in the merged institutions.					
3.2.3	Lack of support for implementation from top management.					

3.2.4	Uncertainty in the inclusion of all staff across all departments.					
3.2.5	Inefficiency in the current information system for data management.					
3.2.6	Difficulty in creating collaboration and cross-functional teams.					
3.2.7	Insufficient formal support to Accounting or Finance department.					
3.2.8	High cost of implementing target costing.					
3.2.9	Difficulty in assigning resources.					
3.2.10	Inadequacy of resources to adopt target costing.					
3.2.11	The institution is still safeguarding threats to job losses.					
3.2.12	Insufficiency in the expertise on target costing.					
3.2.13	Challenges in figuring the perception of students on the quality of education.					
3.2.14	Delays caused by government rules and regulations on pricing.					

3.3 If the institution **has considered and rejected target costing**, which of the following might have been the influence.

3.3.0	Description	SD	D	N	A	SA
3.3.1	The institution uses differential strategy, which doesn't fit the target costing approach.					
3.3.2	The institution uses cost leadership strategy, which doesn't fit the target costing approach.					
3.3.3	The size of the university.					
3.3.4	Lack of support from top management.					
3.3.5	Difficulty in including all staff across all departments.					
3.3.6	There is no advancement in technological innovations to implement target costing.					
3.3.7	No existence of collaboration or cross-functional teams.					
3.3.8	Inadequacy of formal support to Accounting and Finance Department.					
3.3.9	High cost for implementing target costing.					
3.3.10	Difficulty in assigning the resources.					

3.3.11	Inadequacy of resource for implementation of target costing.					
3.3.12	Internal resistance of staff for job security.					
3.3.13	Staff has no clarity on the institution's goals and objectives.					
3.3.14	The institution will not be competitive in a strong competitive market.					
3.3.15	There is no intensity of competition in the higher education institutions.					
3.3.16	Challenges in figuring the perception of students on the quality of education.					

3.4 If the institution **has never considered target costing** as pricing method for the institution.

3.4.0.	Description	SD	D	N	A	SA
3.4.1	Target costing cannot be implemented in large institutions.					
3.4.2	Irrelevant for merged institutions.					
3.4.3	Lack of top management support.					

3.4.4	Difficulty in including all staff across all departments.					
3.4.5	No collaboration or cross-functional teams in an institution.					
3.4.6	Inadequacy of formal accounting or finance support.					
3.4.7	Accounting information management system is not compatible for target costing.					
3.4.8	High cost for implementing target costing.					
3.4.9	Inadequacy of resources to implement target costing.					
3.4.10	Lack of knowledge to adopt target costing.					
3.4.11	Inadequacy of research relating to target costing.					
3.4.12	Fear of job losses by the employees.					
3.4.13	Staff has no clarity on the goals and objectives of an institution.					
3.4.14	Insufficiency in the target costing expertise at DUT					

3.4.15	The institution will not be competitive in a strong competitive market.					
3.4.16	There is no intensity of competition in the public higher education Institutions.					
3.4.17	Challenges in figuring the perception of students on the quality of education.					
3.4.18	Government regulations imposed on the establishment of fees.					

4. Do you think the current pricing method is the best method to be used by the university?

4.1	Yes	
4.2	No	

5. Provide a reason for your answer:

_____.

6. What are other factors that are not listed above that you think might affect the adoption of target costing in a university? Provide a reason.

END OF QUESTIONNAIRE.

Thank you for participating in this survey.

APPENDIX C: LETTER OF INFORMATION AND CONSENT



LETTER OF INFORMATION

Title of the Research Study: The adoption of target costing as a contemporary management accounting technique in public higher education institutions - The case study of Durban University of Technology.

Principal Investigator/s/researcher: Thango Thobelani Sabelo, Master of Accounting (CMA) student.

Co-Investigator/s/supervisor/s: Dr. F. Marimuthu (PhD in Finance) and Dr. Z.W. Nzuza (PhD).

Brief Introduction and Purpose of the Study:

Students have embarked on several massive protests in South Africa and in other parts of the world at Higher Education Institutions (HEIs). This was the result of government's failure to fund higher education. Therefore, the HEIs had to find other streams of income through the introduction of tuition fees. This has happened in most part of the world, where countries realised serious economic recession. Subsequently the price of fees rapidly increased exorbitantly to maintain the quality of education. To respond to the high increase of fees, there is a necessity to focus an investigation on the existing pricing methods used in determining the tuition fees levied. Hence the aim of this study is to investigate the adoption of target costing as a contemporary

management accounting approach in public HEIs. Target costing is assessed as an alternative pricing method that could assist in lowering the price of fees.

Outline of the Procedures

The questionnaire will be distributed electronically by the researcher to observe the protocols of Covid-19 that are meant to curb the spread of the virus. The research will be purposively sampled staff from the DUT Finance Department and HODs. These finance staff members will only be the staff that are directly involved in tuition programme fees. HODs are selected because they are involved in determining the qualification programme fees, in decision-making, budgeting and cost allocation for the departments. A follow-up can be made within a period of 3-4 days after the distribution of the questionnaire. Analysis is done using the SPSS (Version 27®). This research does not provide any necessity for placebo nor treatment. The participants are only required to respond to the questionnaire distributed to them, which will be accompanied by a consent form and covering letter.

Risks or Discomfort to the Participant: This research does not pose any risk of discomfort to the participants. There will be no medical testing, nor will harmful equipment be used on the participants of the study.

Benefits: The study investigates the adoption of target costing pricing method by the university as the tool to manage the costs to keep the tuition programme fee low. This study will help to find out if DUT has adopted or made any considerations of this pricing method and if it can fit the education sector. As there are few studies done to investigate the adoption of target costing in the education sector, the study will broaden the knowledge thereof. This could bring about considerations of target costing in the public HEIs as the management accounting tool which is good for cost management. The study will benefit both the researcher and the respondents by giving clear understanding of the need for the use of a correct pricing strategy. This will also benefit other researchers who will undertake the studies based on the on the adoption of target costing.

Reason/s why the Participant May Be Withdrawn from the Study: The participants in this research study may withdraw at any time they see the need arise. Participants take part in this study voluntarily.

Remuneration: There will be no remuneration for participating in this study.

Costs of the Study: The study does not have costs.

Confidentiality: Data will be kept with the researcher and publication of findings will not divulge the names of the participants.

Research-related Injury: The distribution of questionnaires will not be a harmful process and will not lead to injuries.

Persons to Contact in the Event of Any Problems or Queries:

The researcher, Mr. T.S Thango, can be contacted via email address: 21600766@dut4life.ac.za or personal email address: thobelani147@gmail.com. Please contact the researcher on 061 847 9016, the supervisor: Dr. F. Marimuthu on 031 373 5646,, the co-supervisor, Dr. Z.W. Nzuzwa on 031 373 5351 or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the DVC: Research, Innovation and Engagement, Prof. S. Moyo, on 031 373 2577 or moyos@dut.ac.za.

General:

Potential participants must be assured that participation is voluntary and the approximate number of participants to be included should be disclosed. A copy of the information letter should be issued to participants. The information letter and consent form must be translated and provided in the primary spoken language of the research population e.g. isiZulu.



CONSENT

Statement of Agreement to Participate in the Research Study:

I hereby confirm that I have been informed by the researcher, Thango Thobelani about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: N/A .

- ✓ I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- ✓ I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- ✓ In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- ✓ I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- ✓ I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- ✓ I understand that significant new findings developed during this research which may relate to my participation will be made available to me.

Full Name of Participant	Date	Time	Signature

I, Thango Thobelani, herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

THANGO THOBELANI SABELO

Full Name of Researcher

Date

Signature

Full Name of Witness (If applicable)

Date

Signature

Full Name of Legal Guardian (If applicable) Date

Signature

Please note the following:

Research details must be provided in a clear, simple and culturally appropriate manner and prospective participants should be helped to arrive at an informed decision by use of appropriate language (grade 10 level - use Flesch Reading Ease Scores on Microsoft Word), selecting of a non-threatening environment for interaction and the availability of peer counselling (Department of Health, 2004).

If the potential participant is unable to read/is illiterate, then a right thumb print is required and an impartial witness, who is literate and knows the participant e.g. parent, sibling, friend, pastor, etc. should verify in writing, duly signed, that informed verbal consent was obtained (Department of Health, 2004).

If anyone makes a mistake completing this document e.g. a wrong date or spelling mistake, a new document has to be completed. The incomplete original document must be kept in the participant's file and not be thrown away and copies thereof must be issued to the participant.

References:

Department of Health. 2004. Ethics in Health Research: Principles, Structures and Processes

<http://www.doh.gov.za/docs/factsheets/guidelines/ethnics/>

Department of Health. 2006. South African Good Clinical Practice Guidelines. 2nd ed.

Available at: http://www.nhrec.org.za/?page_id=14

APPENDIX D: ETHICAL CLEARANCE



Faculty Research Office
Durban University of Technology
Date December 9, 2020

Thango Thobelani Sabelo
Student Number: 21600766
Degree: Master of Accounting (Management Accounting)
Email: 21600766@dut4life.ac.za
Supervisor: Dr. F. Marimuthu.
Supervisor email: ferinas@dut.ac.za

Dear Mr Thango

ETHICAL APPROVAL: LEVEL 2

I am pleased to inform you that the Faculty Research Ethics Committee (FREC) following feedback from two reviewers, has granted preliminary permission for you to conduct your research, 'The adoption of target costing as contemporary management accounting technique in a public higher education institution: a case of Durban University of Technology'

When ethics approval is granted:

You are required to present the letter at your research site(s) for permission to gather data. Please also note that your research instruments must be accompanied by the letter of information and the letter of consent for each participant, as per your research proposal. This ethics clearance is valid from the date of provisional approval on this letter for one year. A student must apply for recertification 3 months before the date of this expiry. Recertification is required every year until after corrections are made, after examination, and the thesis is submitted to the Faculty Registrar.

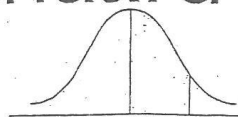
A summary of your key research findings must be submitted to the FRC on completion of your studies.

Kindest regards.
Yours sincerely
Dr Mogiveny Rajkoomar

FREC Chair
Faculty of Accounting and Informatics
Durban University of Technology Ritson Campus

APPENDIX E: STATISTICAL TABLE

Areas under the standard normal curve



z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0754
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2258	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2518	0.2549
0.7	0.2580	0.2612	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2996	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990
3.1	0.4990	0.4991	0.4991	0.4991	0.4992	0.4992	0.4992	0.4992	0.4993	0.4993
3.2	0.4993	0.4993	0.4994	0.4994	0.4994	0.4994	0.4994	0.4995	0.4995	0.4995
3.3	0.4995	0.4995	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4997
3.4	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4998	0.4998

APPENDIX F: LANGUAGE CLEARANCE CERTIFICATE

LAUREN WALFORD PROOFREADING SERVICE

7/04/2022

To whom it may concern

This is to certify that I have proofread the dissertation by Thango Thobelani Sabelo entitled: **“The Adoption of Target Costing as a Contemporary Management Accounting Technique in a Public Higher Education Institution: A Case Study of Durban University of Technology.”**

I have made any corrections to grammar, sentence structure and spelling which I felt necessary.

Regards,

Lauren Walford
+44 7434896010 (WhatsApp only)
lozboyle@gmail.com

