FORMULATING A PRODUCT COSTING METHODOLOGY

FOR A COMMERCIAL BANK

by

PIETER CORNELIS OOSTHUYSEN

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DEO DICATUS!!

'For the Lord gives wisdom and from His mouth

comes knowledge and understanding'

Proverbs 2:6

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Key terms:

Management information; banking products; segmentation; overhead expenses; standard costing; activity-based costing; activity drivers; cost drivers; product costing; activity-based management; statutory costs.

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CHAPTER 1

INTRODUCTION

1.1 Background to the study

The primary financial objective of a bank's chief executive officer and the executive team is to ensure that their organisation provides its shareholders with an acceptable and sustainable return on capital invested over the long term (Gup & Walter 1988:24-29). The achievement of this objective is dependent on management's ability to set appropriate strategic objectives and to facilitate the achievement thereof through an integrated process of strategic management and decision-making. A critical success factor is the availability of accurate, timeous and relevant management information. Cole (1995:3) emphasises that *'good management information flow'* would be at the top of the priority list of a successful bank.

During the 1980's the banking sector across the world experienced significant changes in the business environment (Sheridan 1983:4). These changes, which are of an operational, socio-economical and statutory nature, include:

- A more volatile economic environment;
- Inflationary pressures;
- Increased statutory requirements;
- The emergence of electronic banking;
- A significant increase in the level of competition in the banking sector;
- Diversification of customer needs;
- Shorter product life-cycles.

During the same period South African banks also had to deal with the following factors:

- Political instability;

- Sanctions and foreign investors withdrawing from the South African economy;
- Additional pressure on the economy with the depreciation of the Rand against key foreign currencies, exchange control regulations and restricted access to international markets;
- Labour unrest;
- The introduction of a new act, initially called the Deposit Taking Financial Intermediaries Act of 1990, promulgated February 1991, that allows commercial banks and building societies to compete in the same market. This Act, which has since been renamed the Banks Act, lifted the restrictions placed on building societies and aligned statutory requirements with international practices.

A further complication besides the aforementioned challenges, is that banks can no longer depend on wide margins to meet profitability objectives. A bank's ability to improve net interest income is under substantial pressure due to the narrowing funding margins. The impact of the intense competition is evident in two areas where banks strive to obtain competitive advantage:

a) Banks are conducting expensive marketing campaigns in order to establish a bank/customer relationship with existing and new customers that provides opportunities for cross-selling. Consequently, banks are spending significant amounts on advertising and marketing to retain and/or gain market share (Koenderman 1995:24-25). Besides the quality of the product, pricing is also a critical component of any marketing strategy. Customers match quality and price to determine whether a bank's value proposition is acceptable.

b) The banking requirements of customers are more diverse and at varying degrees of sophistication. It is, therefore, necessary to spend large sums of money on product development and enhancement. Instead of one cheque account package, a bank now has to structure product packages to meet the sometimes unique needs of customers across the customer life-cycle, i.e. youth to pensioners.

The reduced funding margins, increased customer resistance to excessive repricing and higher marketing and research and development costs put pressure on the executive team's ability to meet its obligations to shareholders. In order to manage a bank, the executive team requires management information to assess the profitability of products, segments, as well as customer relationships. There is no substitute for a well-designed management information system. Rose (1985:44) says that *'banks must know what their costs are in order to make profitable loans'*. Davis (1994:27) emphasises that cost management in banks is the key to success as *'revenues become harder to earn and loss provisions eat away a large portion of net interest income'*.

The abovementioned business parameters have complicated the managing of banks in South Africa during this period. South Africa's re-entry in the world economy, after the first all inclusive democratic election in 1994, also had a significant impact on the local banking industry. Local banks now have to face the threat of increasing competition from overseas banks, that are beginning to focus on profitable niche markets in South Africa. The strong inflow of foreign banks will mainly affect the wholesale market, but in the longer term, retail banking business could also come under threat (Amos 1995:5 and Sharpe 1995:11).

The international and local competition, an increase in fraud and money laundering activities, bank robberies, customer resistance to excessive price increases, aggressive and innovative marketing initiatives, are some of the challenges banks have to face. Also high on the priority list is the local banks' ability to successfully address the needs of the unbanked market (approximately 60% of the population) (Amos 1995: 19,21).

1.2 Statement of problem

Commercial banks are generally referred to as a single entity, but in practice, a commercial bank comprises the establishment and maintenance of a very complex infrastructure to meet the needs of customers. Key areas in a South African commercial banking structure include:

- A sophisticated and large branch network to provide an efficient banking service to customers across South Africa and since 1990 local banks have moved into Africa and the main financial centres of the world;

- Some two hundred products are utilised by customers on a daily basis (refer Annexure 1). The more generic banking products include cheque, savings and investment accounts as well as payment and withdrawal mechanisms;

- A wide range of electronic banking facilities and products;

- Home loans;

- Asset financing;

- Credit cards and recently the emergence of private label cards;

- Treasury, international and security services;

- Corporate and merchant banking services;

- Factoring;

- Retail and commercial banking areas to focus on the needs of customers outside the corporate and merchant banking area;

- A large number of centralised functions to support the delivery of services in the branch network as well as ensuring compliance with statutory requirements. Examples of centralised services include credit, operations support, computer and information systems, security, personnel, property, accounting and internal audit.

The challenge facing management is to co-ordinate the areas referred to above to satisfy the banking needs of an individual customer as well as the strategic performance objectives of a bank. It is clear from the list of business parameters and its associated challenges, referred to in paragraph 1.1, that the key to a successful bank is management's ability to sell the right product to the right customer at the right price and to make the right decision at the right time.

Besides high technological expenses to maintain and upgrade the sophisticated infrastructures, banks are also confronted with high risk-related costs. Significant amounts are spent to safeguard customers, staff and bank property against bank robberies and other fraudulent activities. It follows that if costs are not carefully managed, banks can be trapped in an upward cost spiral. A dedicated process of total cost management is therefore a prerequisite to ensure the long-term survival of a bank. (Bruce 1990:30-31, Joffe 1990:13-16, Sharpe 1995:11.)

Davis (1994:27-28) emphasises that banks have to focus on cost accounting and management information to address the challenges of the changed economic and business environment. Taylor (1986:39) concludes that where banks have attempted to implement a method of product costing, the methodologies borrowed from the manufacturing sector have proven totally inappropriate.

At the centre of the challenge to banks is a satisfied customer, who provides the business volumes and income to service the expensive infrastructure of a bank. Becker (1993:15-19) emphasises that *'attempting to satisfy all customer demands without regard to the financial implications thereof can have disastrous consequences for an organisation'*.

The problem is that current management information reporting does not provide management with timeous and reliable information to assess the following:

- The cost of a product;
- The profitability of a product;
- The profitability of a customer, customer profile and market segment.

The term 'product' also refers to and includes a service. The latter is nothing other than an invisible or intangible product (Glad & Becker 1994:23).

The key questions in relation to the problem of relevant and timeous management information are:

- How much does it cost a bank to provide a product/service to a customer?

- Does management understand the cause-and-effect relationship of costs incurred for product or services provided to a customer?

A visit to banks in the United Kingdom and Canada during October 1990 has shown that the problem of understanding how much a product really costs is not unique to South African banks. Drury and Pettifer (1993:36) confirm that building societies in the United Kingdom have *'only recently turned their attentions to product costing'*.

1.3 The importance of the study

Traditionally, costing literature has focused on the manufacturing industry and not the service industry. It is true that the basic principles of cost accounting are relevant in any industry, but the application thereof within a banking environment with different product characteristics requires careful consideration.

Traditional costing methodologies have been criticised in numerous publications since the late 1980's, for example Johnson and Kaplan's (1987) book on *'Relevance lost - The rise and fall of management accounting'*. It was this criticism that, amongst other things, lead to the formulation of the activity-based costing methodology. Activity-based costing introduces fundamental changes in management accounting applications in practice. Glad and Becker (1994:v) confirm that activity-based costing which, *'originally appeared to be simply a new method of tracing costs to products has lead to the development of an entirely new philosophy referred to as Activity-based Costing and Management (ABC&M)'*.

This study focuses on the application possibilities of costing in a bank and more specifically the application of standard costing and activity-based costing, to determine meaningful and reliable product costs. Arising from the research conducted for this study, coupled with visits to overseas banks as well as research information obtained from the Human Sciences Research Council, it became clear that there is lack of relevant costing material pertaining to costing in a banking environment.

Glad and Dilton-Hill (1992:47) also refer to the lack of South African literature on the topic of activity-based costing and the scope for its application. This study endeavours to

contribute to the apparent lack of literature regarding the topic of product costing as it applies to a banking environment.

1.4 The purpose of the study

The importance of cost management in banks as one of the critical success factors to counter competitive threats is widely acknowledged (Davis 1994:27-28). Bigbie (1995:47) in a study commissioned by Deloitte Touche on the future of retail banking concludes that: *'First and foremost they* (banks) *need to understand, based on activity analysis, which businesses they operate in, and hence comprehend the true costs within these businesses.'* One of the focal points for a successful bank is cost management and understanding the causes of costs in a bank. Drury and Pettifer (1993:36) highlight the shortcomings of traditional product costing systems that cater for a small number of products with long product life-cycles and where the accurate allocation of overheads is not a priority.

This study gives an overview of costing in a banking environment and provides easy-to-use guidelines for the formulation of a product costing methodology in a bank. The application of this study is not confined to a specific bank, but provides the basis for implementing a product costing system in any bank that operates a branch network.

The purposes of the study can be sub-divided into three categories:

a) Firstly, to focus on the need for costing in a banking environment as well as the application of costing techniques.

b) Secondly, to evaluate the appropriateness of traditional costing methodologies as well as the internationally well-publicised activity-based costing in a bank.

c) Thirdly, to provide guidelines for the establishment of a product costing methodology in a bank.

The study focuses primarily on the banking environment and more specifically a commercial bank with a large branch network and a high level of centralised support costs.

1.5 Method of research

The initial stage of the research involved an in-depth analysis of overseas literature relating to cost accounting in the United States, United Kingdom, Germany, Japan and Singapore. This phase of the research revealed the lack of literature pertaining to the topic of product costing in the financial services environment. Reference searches conducted by University of South Africa and the Human Sciences Research Council as well as input received from a McKinsey and Company Inc., world-renowned consultancy firm, provided very little reference material with regards to costing in a banking environment. Drury and Pettifer (1993:36) confirm that *'research into the management accounting practices in retail financial services organisations has been virtually ignored'*.

The exploratory phase of the research coincided with a visit to banks in the United Kingdom and Canada during October 1990. This visit focused on banks that operate an extensive branch network. The objective of this visit was to assess the status and purpose of product costing in overseas banks. The visit included the following banks and consultancy firm:

a) United Kingdom

- Midland Bank;
- Lloyds Bank;
- National Westminster Bank;
- Royal Bank of Scotland;
- Clydesdale Bank;
- Peat Marwick Management Consultants: Banking and Finance Group.

b) Canada

- Toronto Dominion Bank;
- Bank of Montreal;
- Royal Bank of Canada;

- Bank of Nova Scotia.

The discussions with representatives of these banks and the interviews conducted revealed that the majority of banks did not operate a comprehensive product costing system. All the representatives of the banks acknowledged the importance of having a good product costing system. The banks confirmed that they are either in the process of formulating a product costing methodology, or it is their short-term objective to embark on an extensive product costing system development initiative.

Arising from the literature research and the overseas visit, it became clear that there is no master plan that can be used to establish a world class product costing system in a commercial bank. Thus development of a good product costing system in a bank requires pioneer work.

Arising from the above, the research in support of this study comprises a combination of four aspects:

a) The study is based on an extensive research of literature, mainly periodicals addressing product costing as well as other related topics.

b) A visit to nine banks in the United Kingdom and Canada.

c) The formulation and implementation of a product costing methodology in one of South Africa's biggest banks during the period 1991-1994, which was primarily based on the background information obtained from the available literature, the visit to overseas banks, and practical experience gained in a leading commercial bank in South Africa.

d) The important, final facet of the research was the validation phase which involved the practical application of the formulated methodology and the assessment of the product costing information generated by the product costing system.

1.6 Outline of the study

Chapter 1: Introduction

The introduction presents the background to the changing and challenging banking environment, the statement of the problem, the importance and the purpose of the study, the method of research as well as the outline of the study.

Chapter 2: The role of costing in a bank

This chapter provides the background information required to formulate a product costing methodology in a bank. Key aspects that are addressed, include a description of banking products, the objectives of costing, the definition of product costing and the features of a product costing system. The chapter also recognises the importance of understanding the costs structure of an organisation and reviews the importance and the application of costing in a bank.

Chapter 3: Evaluating traditional costing methodologies in the context of the banking sector

This chapter reviews conventional management accounting techniques as well as the problems associated with the application thereof and identifies the most appropriate cost accounting techniques for application in a commercial bank.

Chapter 4: Activity-based costing

The introduction of an activity-based costing methodology is discussed as an answer to the management information problems experienced by banks. This chapter describes the process of activity-based costing, the application possibilities as well as the advantages and disadvantages of activity-based costing.

Chapter 5: Formulating a product costing methodology for a bank

A ten stage development and implementation programme is formulated and explained to facilitate the introduction of a product costing methodology in a bank. This chapter also addresses the application of product costing information in the strategic management of a bank.

Chapter 6: Cost of statutory requirements

This chapter identifies the importance of statutory product costs, it reviews these statutory requirements and formulates a costing methodology to calculate the associated product costs.

Chapter 7: Summary and conclusion

This chapter summarises the key aspects of the study and concludes with an overview of the framework for the establishment of a product costing methodology in a bank.

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CHAPTER 2

THE ROLE OF COSTING IN A BANK

2.1 Introduction

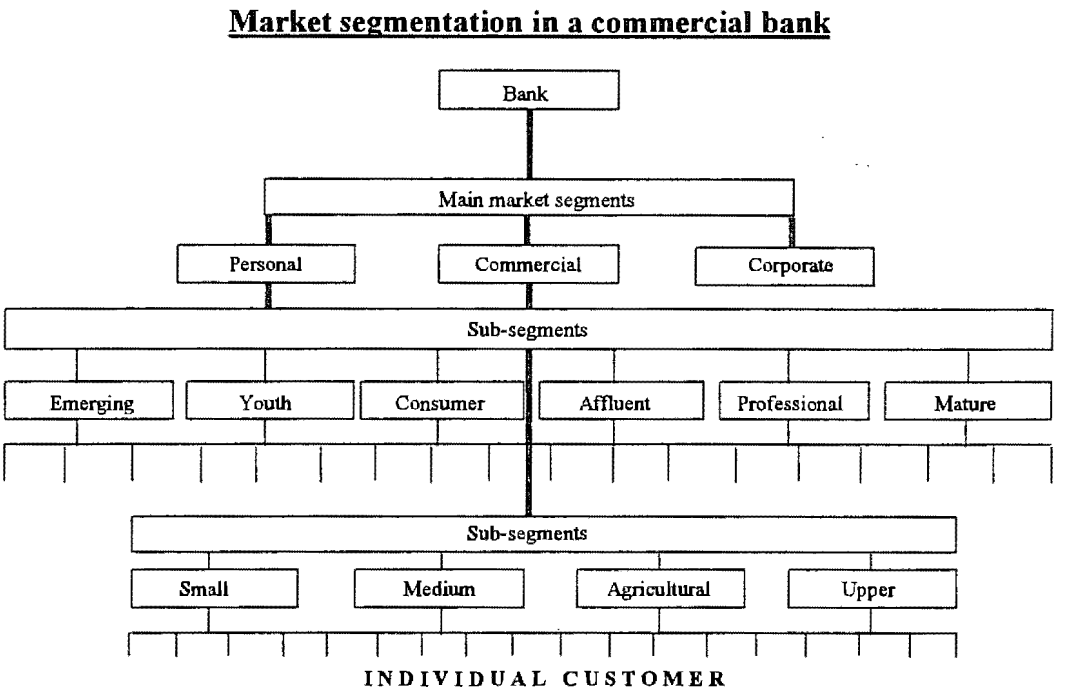
According to Dopuch, Birnberg and Demski (1974:1) the main objective of cost accounting is to provide useful information to the decision-makers within an organisation. Two decades later in South Africa, Glad and Becker (1994:10-11) conclude that modern cost accounting deals with the identification of meaningful costing information that assists management in the decision-making process, the classification of costs and the presentation of timeous and accurate information in an acceptable and understandable format. The purpose of this chapter is to discuss the features of banking products and analyse the importance of costing in the context of a bank.

2.2 The features of banking products

2.2.1 Customer diversity

A bank provides a variety of financial services to a broad spectrum of customers. These customers could be categorised into three main market segments, namely personal, commercial and corporate. Within these segments there are various sub-segments to cater for the unique profile and banking requirements of a customer within a specific market segment. Figure 2-1 shows a possible segmentation of a bank.

Figure 2-1: Market segmentation in a commercial bank



The structure corresponds with the segmentation of banking services as defined by Yorke (1986:14-22). An important market segment that is largely unique to a bank with a large third world customer base, is the emerging market segment. This emerging market segment, also referred to as the mass or lower income markets, focuses on those products which will satisfy the needs of lower income customers. Examples of such products are overnight loans, stokvels, savings accounts and low cost housing loans. Recent examples of the increased attention given to this market segment is the formation of Nedbank's People Bank, Standard Bank's E Bank and the Community Bank. (Amos 1995:19-21.)

It is important to recognise that two customers will not necessarily have the same banking requirements. Personal customers utilise products that will satisfy their banking needs, for example current account, home loan, overdraft, credit card, savings account and investment account.

The commercial market represents an even wider distribution of customers. The commercial market includes the small one man business with very basic banking needs at the lower level, to the upper-commercial segment which require the same sophisticated banking services as the corporate customers at the upper level. The differentiation between upper-commercial and corporate customers is normally based on turnover.

The more sophisticated corporate customer uses the current account as a deposit and payment mechanism and is the core product in terms of its relationship with a bank. Besides a current account with cash management facilities (paragraph 6.2.2. refers), banks also provide corporate customers with specialised lending and investment products, such as derivative instruments, call deposits, notice deposits and negotiable certificate deposits, leasing, bankers' acceptances, medium term loans and call loans. Corporate customers also utilise banking services such as guarantees, payroll services and a range of foreign exchange products. A corporate customer's relationship is not necessarily restricted to one bank. Bruce (1994:389-393) in a survey of corporate customers indicates that most top industrial companies utilise the banking services of at least two banks.

The Vice President - Marketing of First National Bank in East Chicago, summarises customer diversity in the personal market as follows (Shepherdson (1990:49): *'The mature market wants to have face-to-face contact with a bank. But our kids are growing up in a high technology environment which minimises person-to-person contact. Anything that will keep them out of the bank will be attractive to them'*. This trend is also confirmed by Bigbie (1995:23) and table 2-1 illustrates the tendency of younger customers to avoid doing banking business in the branches of banks in the United Kingdom.

Table 2-1: Younger customers in particular are abandoning the branch

	% of population holding a card	
Age group	**Credit card**	**Debit card**
25-44	45%	25%
45-64	35%	22%
65+	2%	18%
	Users of telephone banking	
18-34	50%	
35-54	40%	
55+	10%	

2.2.2 Intangibility

The uniqueness of a banking product is evident in the intangibility of a financial service. Unlike the products of the manufacturing industry, banking products cannot be stored on a shelf or in a warehouse. This intangibility necessitates the involvement of people in the service delivery process and it has a profound effect on the marketing of services (Rushton & Carson 1989:19-40).

According to Moebs (1986:38) the intangibility causes services to be highly regulated because it is difficult from a customer's point of view, to accurately judge the quality and integrity of a service. In South Africa, there are a number of regulations such as the Reserve Bank Act, Banks Act, Insurance Act and the Usary Act, to protect the consumer from exploitation by institutions.

Brooks (1987:7) is of the opinion that regulations in the financial services industry determine the ground rules for marketing and pricing. Regulations, inevitably, have cost implications and, therefore, affect the costs associated with a product in the financial services industry. Chapter 6 elaborates on the effects of regulations on costing and pricing methodologies in a bank.

2.2.3 Delivery process

Another important aspect of a financial service is the high degree of human intervention associated with the execution of banking services specifically at the front-line. The efficiency of the service provided by banks depends not only on the type of customer, but also on the skills, experience, knowledge and attitude of the person executing the service. Rushton and Carson (1989:34) use the following phrase to illustrate the complexity of the delivery process in selling services instead of goods: '*We employ people because they have the right qualifications, but they aren't always very good at dealing with people - some even consider our clients to be nuisances - which makes marketing very difficult*'.

Marketing and business systems are key contributors to the provision of a satisfactory service. The sophisticated communication and distribution systems of the world economy can deliver products virtually anywhere in the world. It follows that the location of the *factory* is not the most important factor in the delivery process of a tangible product. The successes of mail order companies and business by telephone initiatives, serve as examples (Bruce 1995:41; Hewitt 1994:18-19).

However, in the case of a financial service where interaction with the customer is an integral part of every service, the location of a branch is very important to provide a satisfactory service. Banks deal with cash, a high risk commodity, and the location of the service centre or branch must take into account factors such as convenience and security. The proliferation of electronic and home banking is exposing customers to the paperless banking environment with limited human intervention. The attributes of electronic banking could, therefore, simplify the delivery process (Hewitt 1993:79-81).

The banking sector in South Africa is faced with the challenge of accommodating and servicing *two worlds*, namely a *first world market* that requires sophisticated banking services, and the *developing market* requiring more basic but cost effective technology-driven banking services. This will, undoubtedly, put pressure on the ability of banks to manage the duplication of costs, to provide satisfactory services and to compete with overseas banks as well as smaller investment banks in South Africa that focus on servicing a very profitable niche market. (Amos 1995:19-21; Brooks 1987:13-17.)

2.2.4 Product diversity

Banks offer a diverse number of products to its customers. These services cannot be bought off a shelf because the production and delivery of the service is triggered by customer demands. Annexure 1 contains a list of some of the products offered by a South African bank.

2.3 Objectives of costing

In a panel discussion, consultants from Ernst and Young answered questions relating to the role of costing in an organisation (FMN 1991:35-39). The panel summarises the objectives of costing in a successful organisation as follows:

- It provides input to management reports;
- It facilitates process control and activity-based management;
- It calculates costs associated with products;
- It supports the *ad hoc* decision making process.

The remainder of the paragraph explains the four objectives of costing.

2.3.1 The provision of input to management reports

This objective focuses on improving the executive's understanding of the relationships between costs and profitability. Moebs (1986:142) argues that historically, pricing and profitability decisions were taken *'without any real understanding of underlying cost structures'*. A successful organisation requires a pro-active approach to costing. Sheridan (1989:20) concurs that *'costs have to be planned for and managed rather than added-up after the event...'*

Banks service a wide range of customers, which can be classified into homogenous business segments. Bigbie (1995:14) argues that *'only by proper segmentation of the entire customer-base can the clear break points at which one tackles the retail client-base from a product or from a relationship view point be fully understood'*. Management requires management information to assess the performance of business segments. It follows that the availability of segmented management information in a bank is now a critical success factor to ensure acceptable and sustainable profitability over the long-term. The problem is that branch staff members serve customers from all segments and costs are, therefore, not accounted for on a segmented basis. A bank's ability to assign costs to products, customers and segments, is a critical success factor to ensure the availability of relevant management information (Moebs 1986:157).

2.3.2 Process control and activity-based management

Process control focuses on all the identifiable processes in an organisation. However, the current interest in activity-based costing has lead to a better understanding of activity analysis. Cooper (1990c:78-80) defines an activity centre as a component or unit of the production process. In the context of a bank the process also represents the final product, for example cashing a cheque. The process of activity analysis forms an integral part of the activity-based management concept. Activity maps containing all the activities comprising a process will provide a valuable management tool to facilitate business process design, process management and cost management in an organisation (Morrow & Hazell 1992:36-38).

The process of activity-based management consists of two steps:

- Step 1: Activity analysis - what activities are performed and what is the purpose of the activities?
- Step 2: Identify activities and assign relevant activities to the cost object.

The costing of activities or processes facilitates the identification, and evaluation of the processes involved in the delivery of a banking service as well as its associated costs. This information plays a vital role in evaluating the need for and the efficiency of existing processes. The availability of accurate and relevant product costs facilitates the evaluation of the processes in an organisation.

2.3.3 The calculation of product costs

The primary objective of a product costing system is to determine the cost of various activities or processes associated with a product (Garrison 1982:45; Sephton & Ward 1990:29).

Dugdale and Shrimpton (1990:40-42) identify three types of product costs, namely:

- Product costs for stock valuation;
- Product costs for management reporting purposes;
- Product costs for decision-making and strategic planning purposes.

The integrity of a product costing system is important to ensure the acceptance by management of the product unit costs determined by the costing system. Management wants the cost of *something*. Drury (1992:22) describes *something* as the cost objective and defines it as any activity or process or product for which a separate measurement of costs is required.

2.3.4 *Ad hoc* projects to support the decision-making process

It is impossible to know in advance what the costing requirements of special studies will be. A costing system is, therefore, not designed to satisfy *ad hoc* costing information requirements. However, a successful costing system should provide most of the data needed for special costing exercises.

Current costing systems often attempt to achieve the four different objectives of costing (refer paragraph 2.3) through a single costing system. The difference in the allocation levels of process control, which focuses on controllable costs, and product costing, which strives to allocate all costs to products, does not make a single system a viable and feasible option (Kaplan 1988:61-66).

An organisation, therefore, requires a dynamic and flexible costing system that will keep abreast with changes in the business environment. Sheridan (1989:20) refers to costing as an area of strategic management. The main focus should be to improve decision making, and in order to do so it must reflect business realities.

2.4 Definition of product costing

Bierman, Dyckman and Hilton (1990:108) define product costing as *'the process of accumulating and classifying costs and then assigning those costs to products.'* Product costing constitutes, according to Anderson and Raiborn (1977:94), *'the entire cycle of accumulating and assigning manufacturing costs to work-in-process and finished goods inventories'*. Drury (1992:2-3) distinguishes between product and period costs. Product costs refer to those costs identified with goods purchased or products for resale, also referred to as manufacturing costs, while non-manufacturing costs are classified as period costs.

The abovementioned definitions clearly indicate that product costing, as defined, relates to manufacturing organisations that produce goods that are inventoriable (Bierman *et al.* 1990:108). Service industry firms such as insurance companies, auditing firms and banks will adopt another approach to product costing. Service costing involves the assignment of costs to units of service (Morse & Roth 1986:33). Because the services provided by a

bank represent its product range, such services will be referred to as products in this study.

The specifications of a product costing system depend on the nature of the products, the complexity of the manufacturing process and the financial and logistical support given by management. Kaplan (1988:61-66) points out that a product costing system is designed to cater for the unique needs of a specific organisation.

Drury (1992:70) identifies two basic purposes of product costs:

- to allocate manufacturing costs incurred during a relevant period between cost of goods sold and inventories;
- to facilitate management decision-making through the provision of useful management information.

The first purpose represents an accounting requirement to do stock valuation and is largely relevant in a manufacturing environment and is applicable where an organisation produces a tangible product that can be stored for later distribution. The second purpose addresses the management accounting requirements in manufacturing and services industries.

2.5 The features of a product costing system

Sheridan (1989:20-24) points out that '*costing should be much more than a system - it should be part of the profit making process of the business*'. A costing system should compliment the business objectives as specified by management of an organisation. In a competitive environment products become obsolete very quickly and costing systems must be flexible enough to respond to rapid changes (Dugdale 1990:38-41).

Sandretto (1985:111) says that *'cost accounting can be extremely difficult in complex production setting... where it is difficult to associate costs with products or segments of the production process'*. According to Taylor (1986:38), banks should develop a costing system to facilitate a better understanding of the factors influencing operating revenues and operating expenses in an organisation. It is, however, of critical importance that the cost accountant has a good understanding of the current and future requirements of the proposed system. Text books may supply ideas, but the final costing system is, to a large degree, dependent on the cost accountant's skill, experience, initiative and understanding of the business.

The seven key questions to establish a costing system are:

a) Why? Identify and list the objectives or purposes of the system, such as cost control, product costing, process control and quality control.

b) What? The level of aggregation of the information required, for example divisional, departmental, product or activity level.

c) Who? The customers of the costing system, for example product costs, management reporting, customer profitability analysis.

d) Relevant period? The costing information relates to a specific time period, such as a week, a month, or a quarter.

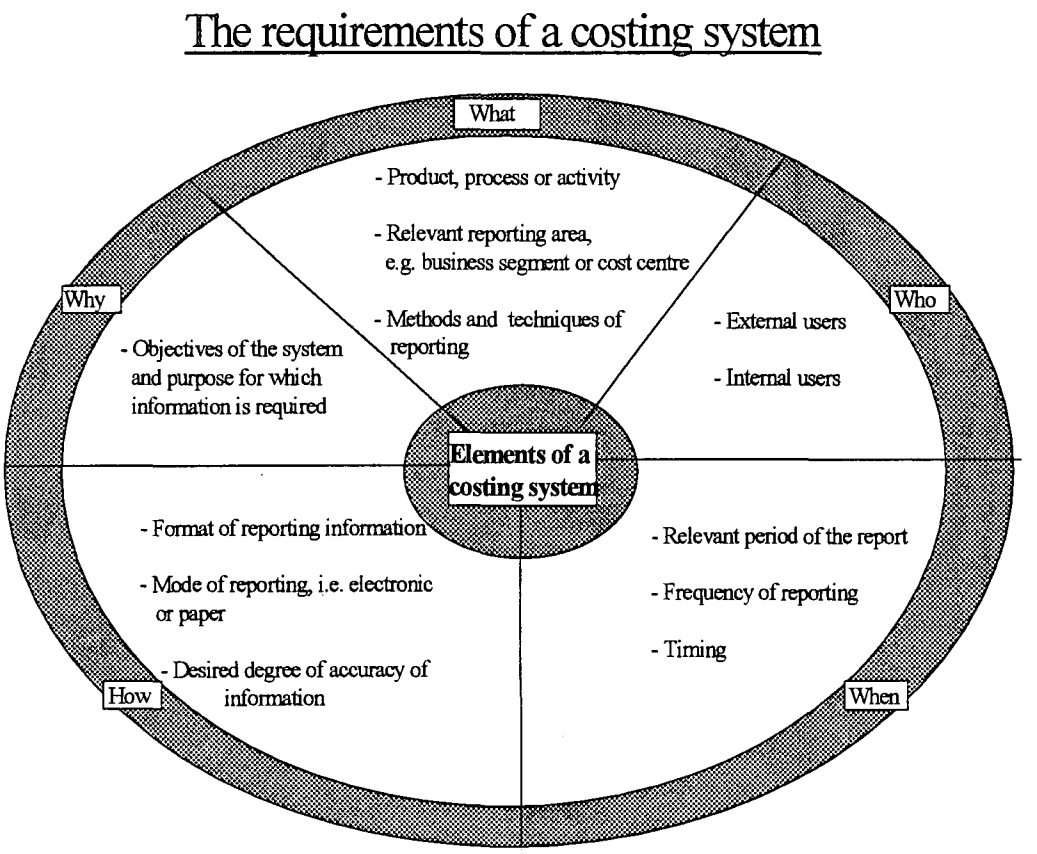
e) Timing? It is necessary to establish from the users the timing and frequency of information requirements.

f) Accuracy? The extent of accuracy desired may depend on the level and detail of the information required.

g) Format and mode? The format of the output as well as the delivery, i.e. paper or electronic should be agreed with the relevant areas.

Shah (1981:75) concurs and uses Figure 2-2 below to illustrate the requirements of a costing system.

Figure 2-2: The requirements of a costing system



Achieving the organisation's financial objective in a competitive market is a challenge, even with all the right information. If management respond to incorrect information it could sabotage the organisations competitive position. Costing information obtained from a flawed costing system could encourage management to set wrong priorities and focus on the wrong problems (Turney 1993:1).

The integrity of a costing system, therefore, plays a vital role in the provision of meaningful management information. In recognition of this requirement, the Committee on Managerial Decision Models of the American Accounting Association, identifies four focus areas to ensure the integrity of a costing system (Neuner & Deakin 1977:4):

a) Relevance criteria

The requirements of users must be addressed in the establishment of a costing system.

b) Verifiability

Users must be able to understand the logic applied in the development of a costing system.

c) Application

The objective of a costing system is to give an accurate reflection of the costs involved. The correct application of a variety of costing techniques will facilitate the reporting of accurate and meaningful costing information. The assumptions and procedures in a product costing system should be documented and reviewed periodically to ensure a high degree of accuracy.

d) Economic feasibilities

It does not make sense to spend excessive time and money to improve the accuracy of costing information from 90% to 100%. The time taken to achieve this degree of accuracy could be better spent solving other business problems or developing new business strategies. It is unlikely that the decisions made on the 90% accurate information would differ from those made with the 100% accurate information.

Turney (1993:29-40) agrees with the key issues referred to above to ensure the integrity of costing systems. He also emphasises that conventional costing systems do not necessarily adhere to these criteria.

2.6 Understanding the cost structure of an organisation

One version of product costing information is not good enough to meet all management information requirements in a very demanding business environment. Kaplan (1988:61-66) and Moebs (1986:142) support this view and conclude that different costs are needed for different purposes. They also emphasise that this may cause problems of an educational nature because management is uncomfortable with using different types of product costs in different circumstances.

It follows that the development of a new product costing system should take cognisance of the changing business environment with shorter product life-cycles and a greater variety of products to cater for various customer segments. It is also necessary to focus on the appropriate cost drivers to facilitate the accurate allocation of overhead expenses and to educate management in terms of what costs to use, and when. (Dugdale 1990:38-41.)

The product costing project team requires a basic understanding of cost accounting and it is, therefore, necessary to focus the attention on the following costing principles:

2.6.1 The need to understand cost behaviour patterns

Management must understand the cause-and-effect relationships affecting the organisation's cost basis. The cost behaviour patterns reflect the cause-and-effect relationship of the various cost categories. According to Drury (1992:27), cost behaviour refers to the way in which a cost will react or respond to changes in the level of business activities.

The classification of costs, namely variable or fixed, determines the cost behaviour pattern. The classification of costs is based on the reaction of costs in relation to changes in the activity levels (Bierman *et al.* 1990:31).

2.6.2 The classification of costs

Blumberg (1993:23, 27,230) as well as Morse and Roth (1986:20-22) define the basic cost behaviour patterns as follows:

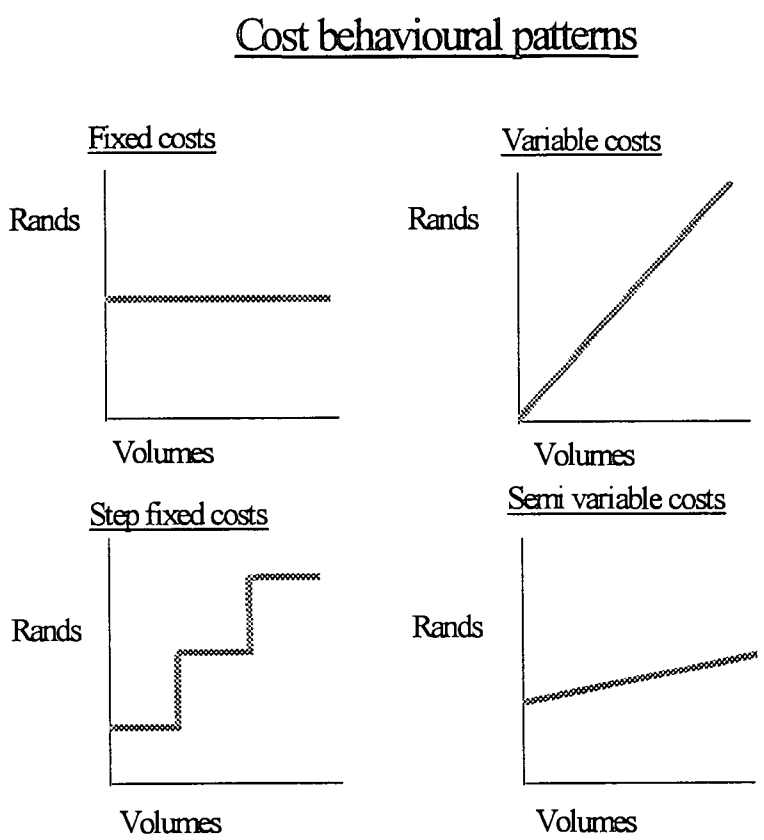
- A variable cost is a cost that changes in direct proportion to fluctuations in the activity levels;
- A fixed cost is a cost that does not respond to changes in the volume of activities within the relevant period;
- Mixed costs, sometimes called semi-variable costs, contain a fixed and variable cost element;

- Step costs are fixed within a given time period, but vary between ranges of activities.

It is, however, important to realise that the abovementioned cost behaviour patterns are only applicable for a specific period and to a specific range of activities. According to Neuner and Deakin (1977:430) this specific period and range are normally referred to as the relevant period (normally the financial year) or the relevant range.

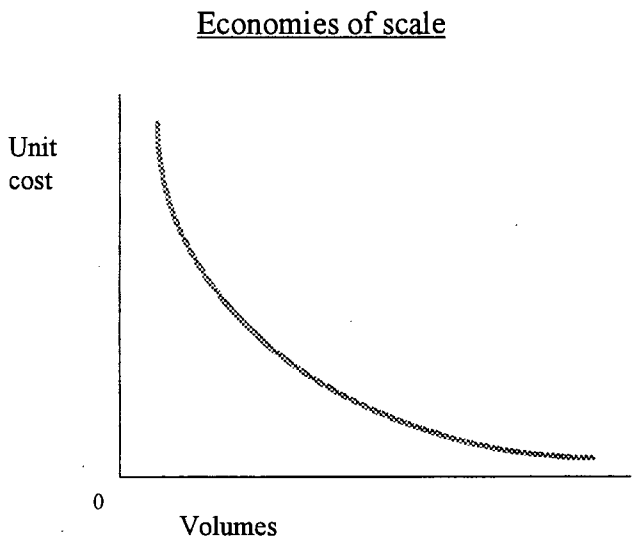
Liao and Boockholdt (1989:25-28) illustrate the relationships between cost and volume (cost behaviour) by means of the following graphs (Graph 2-1):

Graph 2-1: Cost behavioural patterns



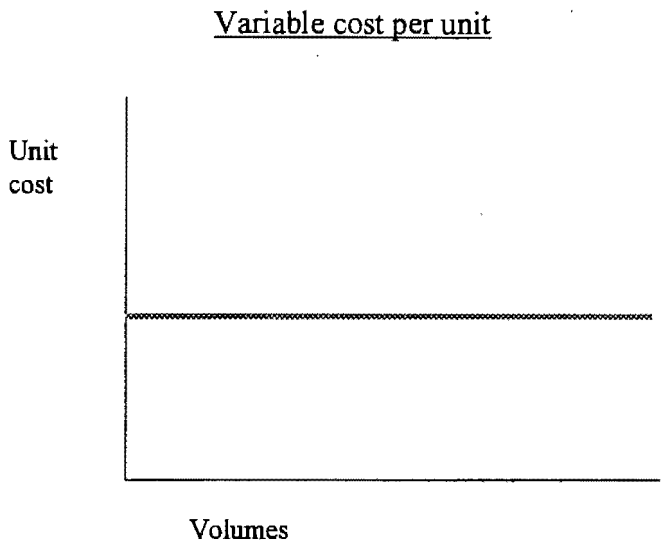
The unit cost curve for fixed costs requires careful interpretation because total costs will not increase in relation to the number of units produced. In the case of fixed costs, the additional cost incurred to produce one more unit is zero. This trend, which is illustrated in the next graph (Graph 2-2), is referred to as the *economies of scale benefit*.

Graph 2-2: Economies of scale



It is important to note that in terms of a variable costing system approach, fixed costs are treated as period costs. Period costs are fixed for a given period, normally the financial planning period. In contrast, the variable cost per unit is equal to the cost of producing one more unit (Graph 2-3 refers).

Graph 2-3: Variable cost per unit



Bierman *et al.* (1990:33) illustrate the differences between the various cost classifications as follows:

Table 2-2: Cost classifications

Cost item	**Activity measure**	**Behaviour**
Salary of administrative staff of retail store	Merchandise sold	Fixed
Cost of sheet metal used in manufacturing automobiles	Automobiles produced	Variable
Cost of telephone service at a clinic	Telephone calls made	Semi-variable (Fixed monthly service charge plus costs incurred per call)

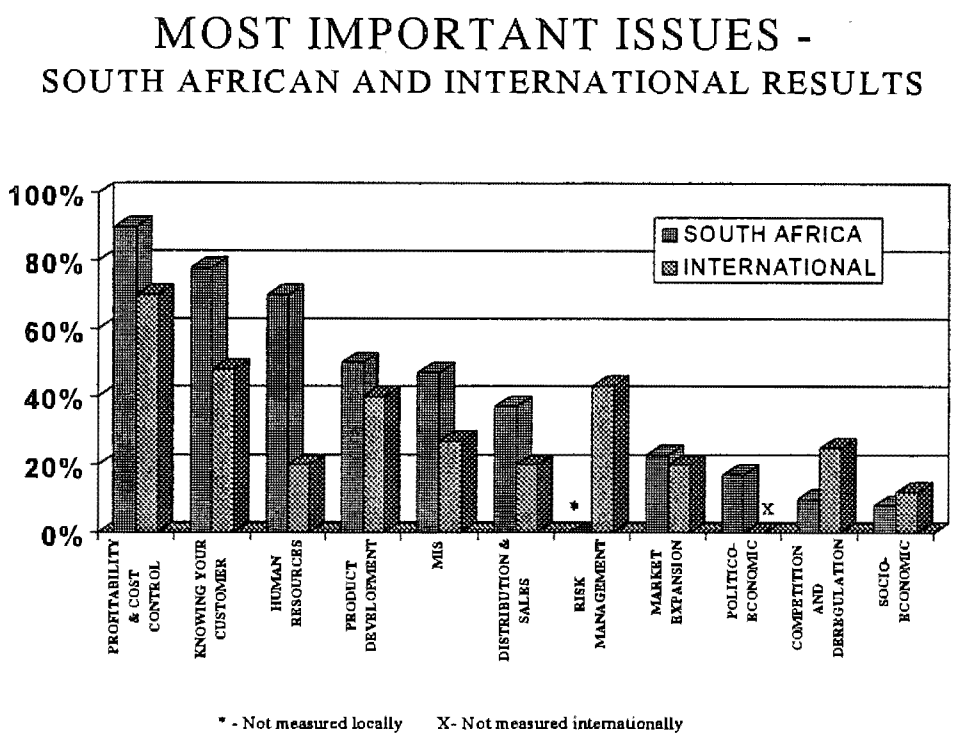
The most common cost allocation basis used in traditional cost allocation methodologies is production volume. Cooper (1990c:58) refers to unit-based systems as costing systems that assign overhead in proportion to production volume. Activity-based costing systems, which are dealt with in chapter 4, adopt a more complex cost allocation methodology. Cooper (1990b:4-14) lists the activity-based costing allocation bases as unit-level, batch-level, product-level, process-level and plant-level allocation bases. These allocation bases are discussed in paragraph 4.3.2.

2.7 The importance of costing in a bank

Relevant and timeous information is a key requirements to enable management to manage an organisation successfully and to ensure sustainable profit growth. According to Neuner and Deakin (1977:1): '*The complete business organisation of today requires frequent information about its operations in order to plan for the future, control its present activities and evaluate the past performances of its staff and business segments*'. This paragraph will show that this statement is a true reflection for today's business environment, as it was two decades ago.

During the eighties, banks all over the world realised the importance of cost accounting and it has become an integral part of the information requirements of banks (Drury & Pettifer 1993:36, Sheridan 1983:24). A survey of business issues facing the financial industry, conducted by Deloitte Touche (Store & Guise-Brown 1994:6), indicates that in the top five categories of issues, at least three categories are dependent on the availability of meaningful costing information. The survey includes participants from the South African financial services industry and results are compared to international findings. Graph 2-4 summarises the results of the survey.

Graph 2-4: Most important issues facing local and overseas banks.



The graph shows that profitability, cost control, understanding the customers' needs, product development and management information systems are some of the most pertinent issues identified by banks. These issues and to a lesser extent the other issues included in the graph require sound and relevant management information to facilitate the management process. The availability of management information, of which costing information is a critical component, will ensure that banks offer the right product, to the right customer and at the right price.

In another survey of 70 of the largest banks as well as savings and loan associations conducted in the United States of America, Gardner and Lammers (1988:34-39) conclude that the most important cost accounting goals are as follows:

a) The most important objective of costing is to facilitate the process of product development and price setting. Most of the large banks identify cost accounting as a key component of the overall strategic planning system.

b) Second on the list is cost accounting's contribution to the concept of total cost management. This is, however, not surprising given the intense competition in the financial service industry.

In support of the total cost management approach, Sephton and Ward (1990:29) list three areas where banks could gain benefits from the application of relevant costing techniques:

i) The calculation of product costs.

ii) Budgeting and performance measurement in branches as well as head office departments.

iii) A good understanding of cost behaviour to facilitate meaningful profitability analyses at product, branch and divisional level.

Chapter 1 concludes that the executive of a profit-orientated organisation is primarily concerned with the long-term survival of the organisation. Banks will achieve this objective through sustained business growth. Business growth will provide the economies of scale necessary to service the expensive infrastructure required for the provision of banking services (Bruce 1990:30). A bank's ability to generate business volumes requires an acceptable value proposition from a customer's point of view.

It was the increased pressure on overseas banks' profitability that has resulted in the increased recognition of costing as a prerequisite for the long-term economic survival of a bank. According to Sheridan (1983:25) *'costing is now taken seriously in banks after a long period of virtual neglect'*. Ford (1987:70) confirms this trend with the following two statements: *'Traditionally, the first bank to launch a new product in the marketplace sets the price'*, whereas: *'In today's environment, however, banks need to develop a better understanding of pricing and product costs'*.

Since the late eighties, the South African financial services sector has experienced fierce competition following deregulation that allowed banks to compete in traditional building society markets and vice versa. Entrance into the banking arena is no longer restricted to financial institutions, for example in 1990 Edgars had already provided credit to in excess of 2 million Edgars card holders (Joffe 1990:13-16). These competitive threats, the

soaring costs of technology and skilled staff, customers becoming more price sensitive as well as narrower funding margins put pressure on the South African banking fraternity (Joffe 1990:13-16).

Parkinson (1992:26-28) argues that sustained profitability in a competitive market can be achieved through three strategies:

a) Option 1:- The focus is to become the lowest cost producer.

b) Option 2:- The focus is on an organisation's ability to provide value added products.

c) Option 3:- A combination of the first two options, i.e. focus on costs as well as providing value added products.

According to Merrill (1990:11) the industry shows an increased emphasis on cost management and control, fee generation and reorganisation for productivity gains and these aspects will resemble an ever-increasing tide throughout the 1990's. Paragraph 2.8 discusses the reasons for the sudden demand for costing information.

2.8 The need for better costing information

South African banks operate in an increasingly competitive environment and sound decision-making is a critical prerequisite to ensure long-term survival. It is important that the information base is correct because it enables management to successfully address the business challenges facing banks. These business challenges include competition, new products entering the banking arena and a bank's ability to accurately assess product profitability.

2.8.1 Competition

The banking sector in South Africa has become more competitive since the beginning of the eighties. During the eighties the traditional *'Big Five'* banks, namely First National Bank, Nedbank, Standard Bank, Trust Bank and Volkskas, experienced fierce competition from building societies entering the commercial banking arena. This lead to the establishment of the United Bank

and Allied Bank, followed in 1988, by the formation of Nedcor (following the merger of Nedbank and South Africa Permanent Building Society).

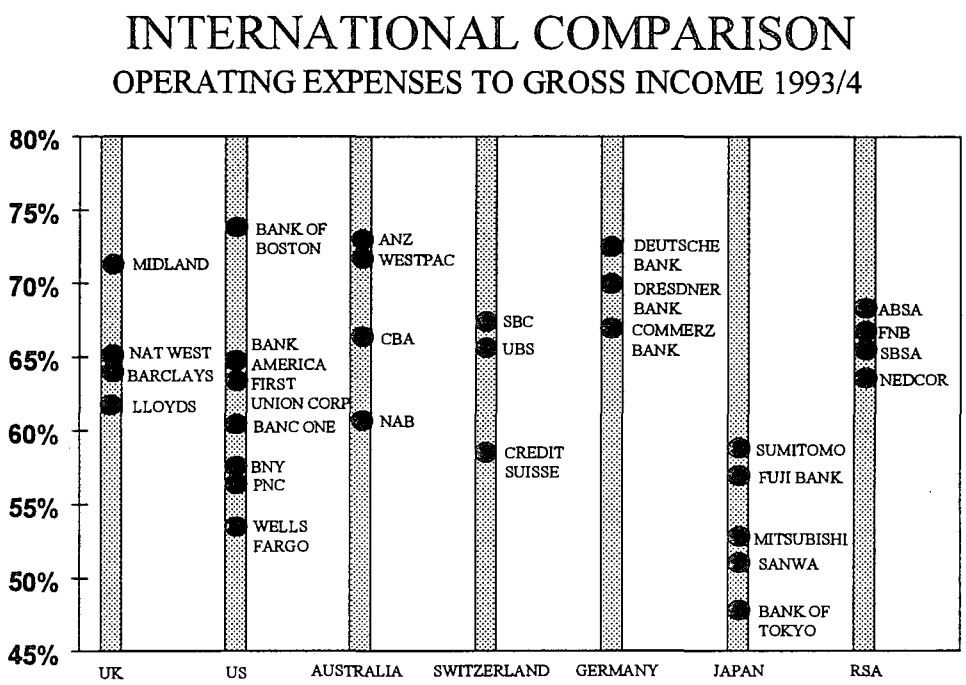
In 1991 this was followed by the establishment of the banking giant Amalgamated Banks of South Africa (ABSA), which consists of United Bank, Volkskas, Allied Bank and Trust Bank. This process of consolidation was also evident in the United States of America where the number of commercial banks have dropped by 1100 during the period 1986 to 1990 (Cross, Ogilvie & Ho 1990:51-52).

As a result of the new political dispensation in South Africa, the competitive threat now also comes from the overseas banks, as more banks enter the local market. These overseas banks and smaller investment banks in South Africa are not involved in commercial banking, but concentrate on the profitable niche markets in the corporate and upper commercial segments. However, there are examples where international banks such as Citibank successfully entered the retail banking arena and it could happen in South Africa (Sharpe 1995:11).

South African banks' ability to compete effectively is largely dependent on curtailing cost growth and improving its costs to gross income ratio in a price sensitive environment.

Graph 2-5 shows the percentage of gross income absorbed by costs in order to operate various banks in countries across the world (Davis 1994:28).

Graph 2-5: International comparison - Operating expenses to gross income



The operating expenses to gross income ratio* is an imperfect benchmark because of different pricing and industry structures, but taken widely as in this graph, it make some sense of the underlying issues. At an average of 66%, South African banks are internationally in a mid-range position. However, in order to counter competitive threats South African banks would typically benchmark themselves against leading and not lagging operators. The graph shows that local banks do not perform well. The big branch banks such as Lloyds in the United Kingdom 61,5%, Banc One in the United States of America 60,4% and National Australia Bank 60,1%, have all recorded substantially better ratios. There is not a single comparable major high street branch banking operation in the world that is not targeting to operate below a 60% ratio (Davis 1994:27-28). The reasons why it is a general phenomenon are not dissimilar to the challenges facing local banks. Management in a successful

* This ratio does not include any bad debt provisions. Gross income is net interest income plus trading income plus commissions and other revenues. Operating expenses relating to staff, occupancy, computer, depreciation as well as other overhead expenses.

bank must take cognisance of the pressures on quality service, customers becoming more price sensitive and reduced funding margins. The optimal way of running a bank is to reduce the cost of running the business by increased efficiency and effectiveness. Davis (1994:27) states that *'cost management has become the banker's latest mantra as revenues become harder to earn and loss provisions eat away a large portion of net interest income'*.

According to Howcroft and Lavis (1989:4), the emergence of increased competition in the United Kingdom, particularly from building societies, has put even greater pressure on interest margins. What used to be the main source of income for a bank is now being eroded to meet the competitive challenges of the other banks and the more sophisticated needs of the corporate customers. Another reason for the narrowing of the funding margins is that insurance companies' contractual savings products are absorbing a major portion of the retail (personal) savings. Banks are consequently forced to rely on more expensive wholesale funding to fund asset growth (Joffe 1990:30). Wholesale funding relates to those funds obtained from the institutional investors and corporate clients. These wholesale funds are more expensive than branch or retail funds and an increased reliance on wholesale funds to fund lending growth will put pressure on funding margins.

Banks are forced to shift the focus from growth in interest income to an increase in operating revenue and/or a reduction in operating expenses. Increased customer resistance to repricing has limited banks' ability to grow operating revenue. Consequently the focus has shifted to the management of costs to maintain profitability at an acceptable level (Davis 1994:27). In order to remain competitive banks need reliable product costs to formulate pricing as well as product strategies, and to evaluate the performance of different reporting units, segments, products and customers (Bigbie 1995:48).

2.8.2 New products

On the non-financial side, banks are faced with the challenge of introducing new products that meet customer demands and are more attractive than the products offered by competitor banks. There is consequently a continuous stream of new products entering the financial services market as banks strive to improve market share and become leaders in the market place (Gardner & Lammers 1988:34). Bart (1988:34-38) argues that *'new products are essential for the long-term growth and prosperity of any firm'*.

Myers (1988:54) argues that customers have become more critical of prices and now require a value-added service at an acceptable price.

This improved understanding of the cost structure of a bank and the factors affecting the level of expenditure will enable management to calculate the costs of new products and will contribute towards the setting of realistic prices and the achievement of an acceptable level of profitability on all new products.

2.8.3 Product Profitability

A bank's ability to maintain profit at an acceptable level is dependent on its understanding of the relative contribution each product is making towards a bank's performance (Bigbie 1995:48). Before launching a new product it is necessary to assess its probable profitability. The calculation of the product profitability associated with new and existing products is dependent on the availability of a sound costing methodology.

A sound knowledge of costing and an understanding of the causes of costs are the critical success factors for an organisation to maintain its earnings at an acceptable level (Bear, Mills & Schmid 1994:20-22). It follows that a well-structured product costing system will give management a better understanding of the true cost of providing a service. According to Canright (1989:34-35) the establishment of a costing system to satisfy management information requirements is one of the critical success factors of a bank.

2.9 The uses of costing in a bank

2.9.1 Background

It is important to realise that a cost is not absolute and it can be used in many different ways. In other words, the same costs cannot serve all purposes equally well (Dugdale 1990:41). It follows that there are many different types of costs and that these costs are classified differently according to the immediate needs of management (Garrison 1982:29).

A panel discussion conducted by consultants from Ernst and Young's cost management practice in the United States of America (FMN 1991:35-39), conclude that total cost management earned great respect from corporate executives. This is especially true for three objectives of costing:

a) Understanding cost and profitability.

b) Identifying and prioritising cost reduction opportunities.

c) Improved pricing and investment management.

To understand why costs are not absolute, it is necessary to look at the cost accounting process which is subjective in nature. It is based on a series of judgements and assumptions to allocate costs to cost objects for reporting and decision-making purposes.

In the context of a bank these cost objects include:

- Markets, branches, divisions;

- Individual products/customers;

The integrity of costing information depends on an understanding of the cost structure of a bank as well as the quality of judgements applied during the allocation process. Management must understand how costs will react or respond to changes in the level of business activity (Drury 1992:27).

According to Gardner and Lammers (1988:34) the general uses of costing information are the following:

- to assist management in the planning and control of ongoing operations;
- to develop product and pricing policies;
- to evaluate alternative actions;
- to facilitate performance measurement.

This analysis of the uses of costing information is in line with the high level objectives of a costing system referred to in paragraph 2.3. Paragraphs 2.9.2 to 2.9.5 explain the uses of costing information.

2.9.2 Planning and control

Horngren and Foster (1987:3) define planning as *'a delineation of goals, predictions of potential results and a decision how to attain desired results'*. The definition of control is *'action that implements the planning decision'* and *'performance evaluation that provides feedback of the results'*. The planning and control processes are interdependent and the term control is often used to describe the planning and control process in an organisation.

It is the costing function's responsibility to assist management in the development of a costing methodology that will facilitate the planning and control processes in a bank.

2.9.3 Pricing and product policies

A critical prerequisite for any bank in terms of setting pricing and product policies is a sound knowledge and understanding of its own cost structures and the main causes of costs (Allen & Mucha 1988:22-27; Howcroft & Lavis 1989:3-7; Rose 1985:44-49).

Banks operate in a highly competitive environment and costing is just one of three pricing criteria. The other two are:

- What the market can accept.

- The pricing structure of the competitor banks.

The role that costing should play in this regard is to ensure that management does not market an unprofitable product because of understated costs that lead to an inadequate pricing structure. In other words, banks should not invest in unprofitable products unless for strategic reasons. A bank can, for example, invest in the youth and student markets at a loss to secure a client-base that will be profitable in the long-run.

Costing should be used to establish a normative price for a new product (Sephton & Ward 1990:29; Ford 1987:70.). Taylor (1986:38) states that banks used to do pricing on a *follow-my-lead* basis, where it was up to the biggest banks to introduce a new price that all the other banks would follow. The focus on product and customer profitability necessitates a greater need for price differentiation and consequently, accurate product costs.

2.9.4 Evaluation of alternative actions

Such an evaluation would take the form of a cost-benefit analysis. The types of cost-benefit analyses in a bank are:

a) Cost benefit analysis - new products/ventures

The competitive market in which banks operate, demands that new innovative products are introduced on a regular basis, to meet the challenge of increased customer sophistication and increased competition for a limited market share (Bart 1988:34).

b) Customer and product profitability analysis

This type of analysis assists management in measuring the profitability of products, customers and segments within a bank. This information is used to identify problem areas and to focus on the profitable products, customers and business segments.

Canright (1989:34) believes that most banks are unable to determine whether customers and products are profitable, mainly due to a lack of knowledge about the behavioural patterns of operating expenses. This lack of understanding adversely affects a bank's ability to implement a world class costing system that is required to do profitability analyses.

2.9.5 Performance measurement

Traditional performance measurements include the ratios and figures available in an organisation's annual financial statements. These measurements include profits after tax (bottom line) return on assets, return on equity and earnings per share. Glad & Becker (1994:172-183) confirm the aforementioned, but emphasise that increased competition has required a shift from the traditional external performance measures to internal performance measures that would facilitate the achievement of business strategies. The focus has shifted to a combination of internal financial and non-financial measures. Internal financial measures focus on customer, product and segment profitability while the non-financial measures focus on the causes of costs.

Bigbie (1995:48) stresses that one of the critical success factors for a world class bank includes the ability to identify profitable and unprofitable products and segments. This will allow management to ensure that a bank's resources are channelled towards the profitable customer, products and segments. The ability to satisfy this requirement is dependent on the availability of relevant product-costing information.

2.10 Summary

Banks provide a whole range of intangible products to customers with different profiles and banking needs. The location of the delivery point (branch) is important because convenience and security are two factors that will persuade a customer to do business with a bank.

The availability of costing information requires a thorough understanding of the cost structure of a bank. The costing system must be carefully planned to ensure that it

addresses all the requirements of an effective and relevant costing system. This chapter concludes that there is no master costing system that can be introduced in all organisations. Each costing system must recognise the unique characteristics of an organisation and the way it operates.

The competition in the South African financial services sector between local banks and the entrance of foreign banks in the South African economy, will force local banks to upgrade existing costing systems in order to meet the competitive challenge in the market. The high cost infrastructure requires business volume growth to generate income to pay for the infrastructure and satisfy the shareholders. A survey of local and international banks has identified the five most important issues facing banks as:

- Profitability and cost control;
- Knowing your customers;
- Human resources;
- Product development;
- Management information systems.

All these issues require a focus on a bank's cost structure to successfully address the challenges facing local and international banks. This chapter concludes that there is a definite and strategic need for the adoption of a sound costing methodology in a bank.

The purposes of costing in a bank can be summarised as follows:

- Information for the planning and control of ongoing operations;
- The calculation of customer, product and segment profitability;
- Establishing an improved decision-making process through the utilisation of recognised costing techniques to evaluate alternative courses of action;
- Evaluating the viability of new products.

The abovementioned application possibilities of cost accounting in a bank show the urgent need for cost information at cost object level, for example product, customer and segment.

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CHAPTER 3

EVALUATING TRADITIONAL COSTING METHODOLOGIES IN THE CONTEXT OF THE BANKING SECTOR

3.1 Introduction

The long-term success of an organisation is dependent on the availability of reliable management information to plan for the future, to monitor operations and to assist in the decision-making process. The achievement of these aspects of the management process will enable an organisation to realise its predetermined business objectives (Drury 1992:20). Management relies on accurate costing information to formulate a wide range of business and operational strategies. Turney (1993:5) states that *'unreliable cost information is an open invitation to disaster'*. Pogue (1990:46-48) describes strategic management accounting as *'the provision and analysis of management accounting data relating to a business strategy'*.

An important decision that often drives the profitability, and perhaps even the survival of a business, is the pricing decision. Howcroft and Lavis (1989:3) agree with this view and point out that, traditionally, banks have treated pricing as a marketing tool and this phenomenon resulted from a basic lack of knowledge about the essential cost-profit characteristics of products and customers.

There are many factors that could influence price setting and Figure 3-1 illustrates the elements of pricing (Howcroft & Lavis 1989:4).

Figure 3-1: Determinants of price setting

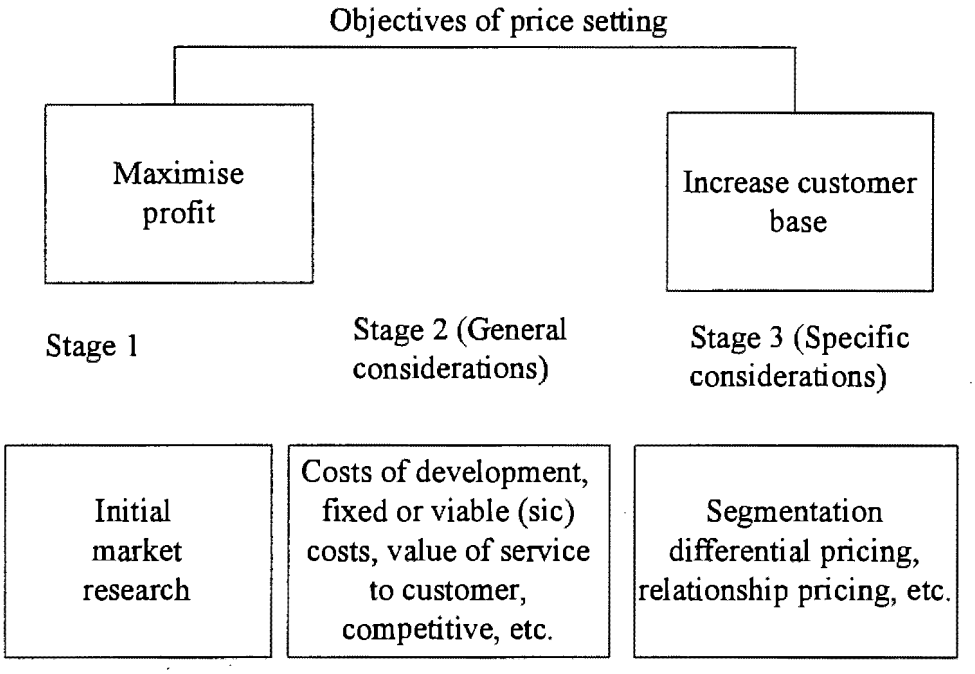


Figure 3-1 depicts the objectives of pricing as a balance between higher profits and more customers. These two objectives are interdependent and it is difficult to achieve the one objective without achieving the other. The process of price setting involves three stages and the study will focus on the second stage, namely product costing, but it is recognised that other factors will also influence the price of a product. Drury (1992:289) agrees that although it is not the only factor to be taken into account, costs are an important starting point in setting a price.

The objectives of this chapter are to review conventional product costing techniques as well as the problems associated with the application thereof and to identify the most appropriate cost and management accounting techniques for application in a commercial bank.

3.2 The identification of the elements of product costs

Batty (1974:122,157) and Drury (1992:25-27) list the following elements of product costs:

– Direct labour	XXX
– Direct material	XXX
– Direct expenditure or prime costs	XXX
– Overhead costs	XXX
– Total costs	XXX

The direct costs, such as labour and material and other expenses, can be assigned to a specific cost object. These costs are also referred to as prime costs. Prime costs, as defined, normally constitute the major portion of a product's cost. (Killough & Leininger 1977:10-11; Liao & Boockholdt 1989:31.)

There is not necessarily any correlation between direct costs and the controllability of costs, for example rental is normally regarded as a direct cost but the manager of a branch within a large organisation, such as a bank, has very little control over the rental expense. Controllable costs are those costs that can be influenced by the responsibility centre's manager within the relevant period (Horngren & Foster 1987:157-158).

Indirect costs are those costs that cannot be attributed to a product, an activity, and in some instances even a department. These costs are also referred to as overhead costs (Garrison 1982:41).

Bulloch, Keller and Vlasho (1985:5.35) conclude that overhead costs refer to those costs which, unlike direct labour and direct material, cannot be traced directly to a responsibility centre. These costs are incurred at organisational

level and typical examples of overhead costs are: insurance costs, general maintenance costs and administrative costs.

However, many overhead costs can be associated with specific responsibility centres, especially at the higher levels of an organisation's structure. Depreciation on machinery, for example is a direct charge, but if the process involves more than one product then an allocation methodology must be devised to assign such costs to all relevant products. (Gardner & Lammers 1988:37-39; Morse & Roth 1986:29.)

3.3 Different types of product costing systems

Bierman *et al.* (1990:110) argue that the choice of an appropriate product costing system depends on the type of industry (i.e. manufacturing or service), the costing objectives identified by management and the characteristics of the product. Shah (1981:185) points out that in order to select an appropriate product costing methodology, it is important to '*understand the nature of a company's business and, in particular, ascertain whether the production processes are continuous or discrete and whether the products are standard or custom made*'. In essence, there are basically two types of product costing systems, namely those that cost tangible products and those that cost services.

According to Bierman *et al.* (1990:110) the key components of a product and service costing system include the following:

- It is based on either actual, normal or estimated/standard costs;
- The treatment of fixed overhead expenses;
- The procedures used to accumulate costs.

The remainder of this chapter focuses on the abovementioned characteristics. For the sake of simplicity, the term product costing, as used in this study, also refers to product costing in the service industry.

3.4 Actual, normal and estimated or standard costs

Product costing involves the assignment of costs to products. There are basically three types of costing methodologies, namely actual, normal and estimated or standard. Anderson and Raiborn (1977:102); Bierman *et al.* (1990:110) and Shah (1981:190) define the application of the various types of costs in costing of products as follows:

3.4.1 Actual costing

Actual costs, i.e. direct material and direct labour as well as actual overheads are assigned to products. There is, however, a 'lag period' because the costing process based on actual costs only occurs after the production costs have been incurred and recorded. This necessitates the production of a large volume of data at the end of the accounting period.

A further shortcoming of this costing procedure concerns the allocation of costs to identical products, which may show a significant monthly fluctuation in the overhead cost allocation. This fluctuation is caused by volume fluctuations, i.e. a factory produces 100 units in one month and only 50 in the next.

3.4.2 Normal costing

In terms of normal costing procedures, actual direct material and direct labour costs are assigned to various products. However, in order to avoid major fluctuations in the overhead costs applied to

products, and to address the lag period problem, a predetermined overhead rate is calculated at the beginning of the planning period, for application throughout the relevant period.

The accuracy of this costing procedure is, however, dependent on the accurate prediction of total activity and total overhead costs. In the case of variable overheads there will be a relationship between the predicted overheads and the projected level of activity.

Horngren and Foster (1987:106) illustrate the difference between actual and normal absorption costing in Table 3-1.

Table 3-1: Difference between actual and normal costing

	Actual costing	Normal costing
Direct materials	Actual costs	Actual costs
Direct labour	Actual costs	Actual costs
Variable factory overhead	Actual costs	Actual costs
Fixed factory overhead	Actual costs	{Actual activity base x budgeted overhead rates}

3.4.3 Standard or estimated costing

Actual costing systems incorporate actual costs only, while normal costing systems also apply estimated costs in its costing of overheads. Standard costing, however, uses predetermined costs based on predetermined standards for various activities. The emphasis is more on what costs should be, and not on historical costs, as in the case of actual and normal costing systems.

The difference between an estimated cost and a standard cost is the effort involved to calculate such a cost. Standard costs are based on workstudy principles, such as the setting of standard times to complete a specific activity and the use of engineering specifications in a manufacturing environment. Estimated costs are determined through trend analyses of historical costs and are merely a reflection of past cost performances. (Bierman *et al.* 1990:229; Liao & Boockholdt 1989:386,387.)

Estimated costs can be used in the same manner as standard costs. The determination of standard costs is, however, a more reliable method for product costing purposes because it applies tested methodologies. It is important to note that the characteristics of an organisation's products are a critical factor in the application of a standard costing methodology. The introduction of standards for control and costing purposes is only feasible where the production of a product involves repetitive procedures or the product consists of easily identifiable activities (Drury 1992: 509). In the case of a consulting firm, the setting of standards for a consultancy will be difficult because the nature of the consultancy, as well as the diversity of the consultancy products, will make identification of specific activities and the setting of standards impractical.

3.5 Standard costing

3.5.1 Introduction

To be effective, standard costs should reflect an attainable standard of performance. The process of setting standards is, therefore, of paramount importance and forms the basis of an effective standard costing system.

Blumberg (1993:26) argues that standard costing is not a system but a method of costing. It is, therefore, not an alternative to job-order and process costing because both these systems can use standard costing. The alternatives to standard costing are actual, normal or estimated costing.

3.5.2 Definition of standard costing

The Oxford Dictionary describes a "standard" as follows:

'A definite level of excellence, attainment, wealth or the like, or a definite degree of quality, viewed as a prescribed object of endeavour or a measure of what is adequate for some purpose'.

Garrison (1982:342) defines a standard *'as a benchmark for measuring performance'.*

According to Horngren and Foster (1987:188) standard costs are *'carefully predetermined costs that are usually expressed on a per unit basis'.*

Drury (1992:509) defines standard costs as *'predetermined costs; they are target costs that should be incurred under efficient operating conditions'.*

3.5.3 Setting of standards

According to Drury (1992:512-514) and Ferrera, Dougherty and Keller (1987:267) the responsibility for setting standards could vary depending on the business type but normally it falls within the accounting, engineering or workstudy areas. These standards are set in consultation with the managers responsible for the relevant areas.

The calculation of standard costs requires an accurate assessment of how a task should be accomplished and how much the accomplishment of the task should cost. The setting of standards can be done on the following bases or a combination thereof:

a) A combination of historical analysis, expert advice and managerial insight.

b) The input provided by engineers, purchasing managers and market researchers.

c) Time and motion studies where the performance activities are of a repetitive nature.

d) Historical costs and experiences are perhaps the most common basis to set standards. There is an inherent danger in the utilisation of historical costs because historical costs do not necessarily reflect the most efficient processes but are merely a financial expression of existing processes. The utilisation of historical costs can result in the incorporation of inefficiencies that existed in prior periods.

Standards are an indication of how efficiently a specific task should be performed. It is necessary that standards recognise the environment in which the task is performed, the skills of the workers as well as their experience levels. Ferrera *et al.* (1987:268) as well as Horngren and Foster (1987: 196) identify two main types of standards, i.e. attainable standards and perfection standards. These two types can be defined as follows:

- An attainable standard is the performance which should be attained under efficient operation of existing facilities using specified materials.

- A perfection standard is the performance which should result from the perfect operation within existing product specifications and with existing equipment.

An attainable standard recognises the impact of the environment, and the skills and experience levels of the labour force. These standards are neither too easy nor too difficult to achieve and, therefore, provide a realistic norm for measuring and projecting costs. Slavin (1986:604) also refers to normal or practical standards. Perfection standards do not allow for any production or distribution problems during the planning period and are also referred to as ideal standards (Bierman *et al.* 1990:230; Slavin 1986:603).

In terms of generally accepted accounting practice (Exposure draft (ED) 94 - Inventories) normal capacity should be used to allocated fixed production overheads. ED94 (1994:3) defines normal capacity as *'the production expected to be achieved on average over a number of periods or seasons under normal circumstances ... The actual level of production may be used if it approximates normal capacity'*.

Horngren and Foster (1987:196) state that attainable standards are the most common standards used by organisations. This study focuses on the banking industry and because of the nature of its product, i.e. a financial service, it is only necessary to set labour standards.

3.5.4 Standard costing stays in touch with developments

The common criticism of traditional costing methodologies is that it does not keep pace with the changing business environment. Intense competition has lead to shorter product life-cycles as well as a greater variety of products as organisations strive to retain or gain market share in the profitable market segments.

Turney (1993:25) lists four issues that should be successfully addressed in order to stay in touch with the changing business environment:

a) Customers are interested in quality - There is no second chance;

b) They desire good service - the right products and services must be delivered on time;

c) They want flexibility - the product or service must satisfy their requirements;

d) They covet value - the price may not exceed the perceived value from the product.

All these aspects put pressure on the process of standard setting which adversely affect the integrity and relevancy of standard costs.

Lyall, Okoh and Puxty (1990:44-45) have done research on how these market changes affect standard costing. This research funded by the Chartered Institute of Management Accounting had three aims:

a) Firstly, to determine the extent to which standard costing and budgetary control are used in practice;

b) Secondly, to assess the impact of market changes on traditional costing methodologies;

c) Thirdly, to evaluate the influence of information technology on costing systems.

The research concludes that 76% of the organisations uses standard costing. The research also shows that standard costing has not stagnated, but has changed with the business environment. Respondent organisations also indicate that standard costing changes are necessary to ensure sustained integrity in costing systems. Table 3-2 below summarises the reasons for the changes to standard costing (Lyall *et al.* 1990:45).

Table 3-2: Why standard costing systems were modified?

Reasons for the modification of standard costing systems	%
To improve effectiveness of the control system	84,7
To reflect changes in technology	40,3
Standards too frequently out of date due to inflation	4,1
Standards too frequently out of date due to changes in circumstances/markets	15,8
Other	5,1

The research concludes that standard costing is here to stay. Lyall *et al.* (1990:44-45) suggest that traditional costing systems *'continue to be used extensively in industry and are probably being adapted successfully to meet challenges presented by recent developments in production and information technologies'*. The important aspect is that traditional costing methodologies should reflect changes affecting the organisation.

3.5.5 The calculation of standard costs

As mentioned in the introduction, the basic prerequisite for accurate standard costs is accurate standards. Horngren and Foster (1987:16) identify the following possible causes of inappropriate standards:

a) The use of unrealistic standards. Such standards are normally set at an achievable level to stretch employees. Standard costs based on unrealistic standards will be too low resulting in possible underpricing and a subsequent loss in revenue.

b) Accurate standards are difficult to achieve in areas experiencing a high level of technological change.

c) The use of incorrect data, which affects the accuracy of standards. Any changes to procedures in the delivery process must be recognised in the determination of standards.

d) Workers can also undermine the standard setting process by deliberately working slowly.

The setting of <u>labour standards</u> could vary from one sector to another and is primarily dependent on the nature of the processes

required to produce a product. Ferrera et al. (1987:271-274) list the following types of direct labour standards:

- Piecework rates;
- Incentive plans;
- Hourly rates;
- Individual and crew standards;
- Standards for quality incentives.

Overhead standards are more difficult to determine than labour and material standards. This can be appreciated if one considers that indirect or overhead costs represent the cost pool of a business, namely all those costs that can not be classified as direct material, direct labour or direct overhead. The next section explains the complications of overhead cost allocation.

3.6 Overhead cost allocation: An overview

3.6.1 Introduction

Morse (1978:47) refers to overhead as the *'Achilles heel'* of many product costing applications. Cornick, Cooper and Wilson (1988:41) confirm that overhead expenses has become more important in an era of automation where labour expenses are decreasing in relation to overhead expenses.

Management must realise that overhead costs are real and essential costs in the production process. Bellis-Jones and Hand (1989:48) confirm that traditional costing systems are fairly accurate with the allocation of direct costs but do not adequately address the allocation of overhead costs.

It follows that in order to know the total cost of production it is necessary to assign overhead costs to products. The critical question is: How much of each overhead cost item must be assigned to each product, and on what basis?

3.6.2 Definitions

Drury (1992:70) defines overheads as those *'costs that cannot be directly assigned to cost objectives'*.

While Ferrera *et al.* (1987:187) explain that '*manufacturing overhead is simply the total cost of operating the factory, or plant other than direct material and labour'*.

The abovementioned definitions are applicable to a manufacturing environment. According to Garrison (1982:30) the basic concepts of overhead cost accounting are equally applicable to activities outside the manufacturing industry. The only difference is that service organisations will focus on the expenses relating to the selling, administration and technical support functions.

3.6.3 The objectives of overhead cost allocation

Sheridan (1989:20-24) argues that overhead costs need to be managed and not merely spread among products. He believes that the indiscriminate allocation of certain overhead expenses adversely affects the credibility of management information and, in relation to performance measurements, it only creates alibis for below standard performance.

Drury (1992:86) and Horngren (1977:87) list the following reasons for the allocation of overhead costs:

a) Ascertaining product costs

An important reason for the allocation of overhead costs is to calculate product unit costs. In practice, product costs form the basis of inventory valuation for balance sheet purposes, and for determining the costs of products sold as reflected on the income statement. Horngren and Foster (1987:89) attribute the need for the allocation of overhead costs for product costing purposes to '*management's desire for a close approximation of costs of different products*'.

b) Decision making

The allocation of overhead costs will enable management to identify the relevant costs as well as the profitability of products, customers and segments. The allocation and the collection of overhead costs should be done in a logical and controlled manner, so as to enable management to apply those costs in various decision-making processes.

c) Management fees

It is common practice for a company within a group of companies to utilise the expertise of a holding or subsidiary company at an agreed price. Such a price is referred to as a management fee, and is charged to recover the costs of services rendered. The recoupment of costs involves the analysis and apportionment of costs, normally head office costs, in order to determine the costs of services rendered.

d) Interdivisional transfer pricing

According to Bulloch *et al.* (1983:20.19-20.32) the successful functioning of an organisational unit is sometimes dependent on services rendered or goods provided by another organisational unit. For performance measurement purposes, the supplying unit receives compensation from the receiving unit at an agreed price. According to Horngren and Foster (1987:835-848) such a price is referred to as a transfer price, and the charge is based on any one of the following transfer pricing methodologies:

- Full costs;
- Marginal costs;
- Costs plus a mark-up;
- Market-based price.

The appropriate allocation of overhead costs is essential to the determination of a reasonable cost-based transfer price.

e) Determining product profitability

The availability of accurate costs for each of the products in an organisation's product range will enable management to assess the profitability of each product. This allows for careful application of an organisation's limited resources to only those products that would maximise profitability and, therefore, shareholders' wealth.

f) Regulatory requirements

In the United States of America, cost allocations are required for segment reporting to the Securities and Exchange Commission,

as well as line of business reporting to the Federal Trade Commission, and in external financial reporting subject to Statement 14 of the Financial Accounting Standards Board (Bulloch *et al.* 1983:5.4).

Generally Accepted Accounting Practice (GAAP) in South Africa also addresses the allocation of fixed overhead expenses for inventory purposes (refer AC108 as well as new exposure draft 94). In terms of the exposure draft, the cost of inventories should include fixed production overhead expenses.

3.6.4 Problems and limitations of overhead cost allocation

A number of problems and limitations are associated with the process of overhead cost allocation. These problems range from the potential misinterpretation of allocated costs in decision making and control situations, to the question of the appropriateness of cost allocation methods and activity levels.

a) Appropriateness of the allocation of overhead expenses

Garrison (1982:261) observes that cost allocation problems exist in every company. The cost accountant has to deal with two major problems, namely the control of overhead costs and the allocation of overhead costs for product costing purposes. It is, however, important to note that the solutions to these problems are not necessarily the same.

Kaplan (1988:61-66) argues that many companies now recognise that their costing systems do not meet management information requirements. Kaplan points out that, in the past, costing system

designers did not realise that costing systems need to address three different functions:

- inventory valuation and inventory control;
- operational control;
- product costing.

Drury (1992:70) classifies the objective of calculating product costs through overhead allocation into two groups, namely a financial accounting focus to determine the cost of inventories and a management accounting focus to provide management information for decision making purposes.

In the article *'One system isn't enough'* Kaplan (1988:62) concludes that: *'No single system can adequately cover all three functions. The demands of each differ in terms of reporting frequency, degree of allocation, nature of variability, system scope and degree of objectivity'.*

b) Controllability of overhead costs

The allocation of overhead costs sometimes involves the assignment of costs to responsibility centres even though such costs are not controllable within that responsibility centre. The purpose of such an allocation is to achieve a greater level of cost awareness within the organisation. This process also facilitates the determination of product costs.

If an organisation maintains a separate performance measurement system there is no need to allocate common or uncontrollable costs to profit and cost centres. Kaplan (1988:63) argues that only controllable costs, that can be influenced by activities within

the cost or profit centre, should be reported for performance measurement purposes.

The assignment of overhead costs in performance reports must be done in such a manner that there is clear distinction between controllable and non-controllable costs.

c) Overhead cost behaviour pattern

The differences in cost behaviour patterns also complicate the allocation of overhead costs. It is easier to allocate overhead expenses with a variable behavioural pattern than fixed overheads. Paragraph 2.6.2 explains the various cost behaviour patterns associated with costs.

d) Activity levels

Another problem with the allocation of overhead costs relates to the selection of an allocation base (capacity) to allocate costs. Tuit (1991:9) identifies the six types of activity levels:

- Actual capacity is based on the actual output achieved;
- Budgeted capacity refers to the anticipated capacity for the next planning cycle;
- Economic capacity recognises the market conditions and the ability to sell;
- Normal capacity is the anticipated annual activity and recognises all the known factors that influence activity levels;

- Technical capacity, also referred to as theoretical or ideal capacity, assumes a 100% production output;

- Practical capacity is equal to technical capacity adjusted for weekends and public holidays.

e) Reporting on overhead costs

The final problem regarding overhead costs relates to the presentation of costing information as required by management. The available options include attributable, absorption or marginal costing. The next paragraph focuses on the calculation of overhead rates, while paragraph 3.6.6 deals with these methodologies in more detail.

3.6.5 The calculation of overhead cost rates

Management requires costing information to set prices for products and to make key decisions in terms of marketing and product development. Actual costs cannot be used because it is only available at the end of the planning period. The postponement of key decisions pending the availability of actual costs, could adversely affect an organisation's competitive position.

Garrison (1982:67) and Drury (1992:79) conclude that because of the timing problems most organisations use estimated or standard costs as a basis to calculate overhead rates. An overhead rate based on estimated costs is known as a predetermined overhead rate, and is calculated as follows:

Overhead rate = Estimated overhead costs ÷ Estimated units

According to Bellis-Jones and Hand (1989:48-50) and Cooper (1990b:4-13) the companies that have reviewed their traditional costing systems used a two-stage procedure to allocate overhead costs. The first stage involves the allocation of overhead costs to production centres. Overhead costs are assigned based on one or only a few allocation bases while more advanced first stage systems identify the consumption of resources and reduce arbitrary allocations. The more complex systems could contain several hundred production cost centres.

The second stage involves the allocation of overhead costs at production centre level to individual products. Many of the companies use either direct labour or direct machine hours as the allocation base. Costing systems assigning overhead costs in proportion to production volumes are referred to as unit-based systems.

Sorgdrager and Tromp (1977:163-164) summarise the process of allocating overhead costs, for example electricity, as follows:

a) Identifying the relevant overhead costs, in this case electricity.

b) Identify all those departments that use electricity.

c) Choosing a representative basis for the allocation of the overhead cost to all the relevant departments, for example kilowatt hours.

d) Calculate the overhead cost rate, the cost per kilowatt hours, for the whole business.

e) Allocate the overhead cost by multiplying the overhead cost rate as calculated with the allocation basis, for example kilowatt

hours. The general overhead cost is now an attributable overhead cost per department.

3.6.6 Allocation methods used in practice

According to Drury (1989:60) surveys done in the United States of America and the United Kingdom, have indicated that approximately one-third of all respondents used a single plant-wide rate.

Drury (1989:60) points out that in the 1980's a new approach has been developed to address the problematic issue of overhead cost allocation for product costing purposes. This approach is known as Activity-Based Costing, and is discussed in chapter 4.

3.7 Costing techniques

Blumberg (1993:26) distinguishes between costing systems, for example job-order and process costing, and costing techniques such as absorption, marginal and standard costing.

Chapter 2, paragraph 2.4 defines product costing as the process of assigning costs to individual products. It is specifically overhead costs that present an allocation problem to management. Traditionally, the cost accountant had a choice between two alternatives, namely absorption or full costing and contribution or marginal costing. Another alternative that will be dealt with is attributable costing.

Drury (1992:189-192) and Horngren (1977:295) explain absorption and marginal costing as follows:

- Absorption costing allocates fixed as well as variable costs for costing purposes. The accuracy of this costing technique is dependent on the

relevancy and stability of the allocation base. Cost allocations that are based on an incorrect or illogical allocation base as well as allocation bases that show significant fluctuations over different relevant period, will adversely affect the accuracy and credibility of an absorption costing evaluation. Another consideration is whether capacity costs should be assigned to products. The danger of including capacity costs when production is under capacity, is that product costs are overstated which will distort profitability and pricing decisions.

- Marginal costing recognises variable costs only, while fixed costs are treated as period costs that are off-set against gross profits. The application of marginal costing will understate product costs, which could lead to underpricing.

Attributable costing is a combination of absorption and marginal costing methodologies because the objective is to allocate only attributable fixed costs to certain products. Maynard (1994:22) explains that attributable costing *'combines responsibility accounts with a genuine performance measure and produces an understandable system of control'*.

3.8 Cost accumulation procedures

3.8.1 Background and definitions

Horngren and Foster (1987:21) define cost accumulation as the *'collection of cost data in an organisational way via an accounting system'*.

The type of costing system used to calculate product costs is dependent on the nature of the manufacturing process. Two basic techniques applied in costing systems are job-order costing and process costing (Blumberg 1993:26).

Bierman *et al.* (1990:110-112) describe the differences between the two approaches as follows:

- Job-order costing is used by firms in which goods are produced in distinct batches. For example printers, furniture, manufacturers and construction companies use job order costing.

- Process costing procedures are employed by firms producing large quantities of relatively homogeneous products. These firms tend to engage in either continuous or repetitive production operations. Examples of firms using process costing include chemical firms, food processing firms and oil companies.

These two techniques are also applied in non-manufacturing industries, for example:

- Job-order costing: - auto repair, auditing, consulting and research projects.

- Process costing: - cheque clearing in banks, mail sorting in post offices, premium handling in insurance companies.

Some companies may combine both types of reporting systems for their products. For example, an automobile manufacturer may use a process costing system for a standard economy model and a job-order costing system for a limited edition model.

Garrison (1982:63) and Slavin (1986:406-407) agree with the abovementioned definitions.

3.8.2 A distinction between job-order and process costing

Slavin's (1986:405) distinction is based on the nature of management reporting in an organisation. The job-order system identifies all of the production costs to a specific customer. The process cost system identifies all of the production costs to a production department.

According to Horngren and Foster (1987:507-508) a typical job-order production has a clearly identifiable starting point and finishing point. Costs are accumulated from the starting point until the product is completed. Process costing is used to measure the costs associated with a continuous production process that does not have any specific starting and completion time.

Arising from the above, it is clear that the distinction between job- and process costing is largely dependent on how product costing is accomplished. The basic distinction stems from the size of the denominator or product unit. In the case of job-order costing the cost object is usually identifiable unit that is made to a customer's specification, and is usually in small quantities. Process costing is used for the production of large volume stock from which deliveries can be made to any customer. The production processes normally involve long runs, high production volumes and are of a repetitive nature.

Product costs are calculated in terms of the following formula:

Cost per unit = Total costs ÷ Number of units produced

The only difference between job-order and process costing is the denominator of the formula where the number of units is usually much lower in a job-order costing system than in a process costing

system. Slavin (1986:469) illustrates the difference between job-order costing and process costing as follows:

Type of manufacturer	*Type of system*	*Production costs incurred*	*Units produced*
Piano Company	*Job-order costing*	*$1 800 000*	*450 pianos*
Drug Company	*Process costing*	*$1 800 000*	*7 200 000 capsules*

Cost per unit

- *Job order system:*

  1 800 000 ÷ 450 pianos = $4 000 per piano

- *Process cost system:*

  $1 800 000 ÷ 7 200 000 capsules = $0,25 per capsule

3.9 Relevance lost

The effectiveness of traditional costing systems has been under scrutiny for some time. This resulted in numerous articles concerning the shortcomings of traditional costing systems. (Cooper & Kaplan 1988:96-103; Dugdale 1990:38-41; Kaplan 1988:61-66; Sheridan 1989:20-24.)

In the book *'Relevance Lost: The rise and fall of management accounting'*, Johnson and Kaplan (1987:39) argue that although costing techniques were developed primarily for cost management, costing systems' relevance are

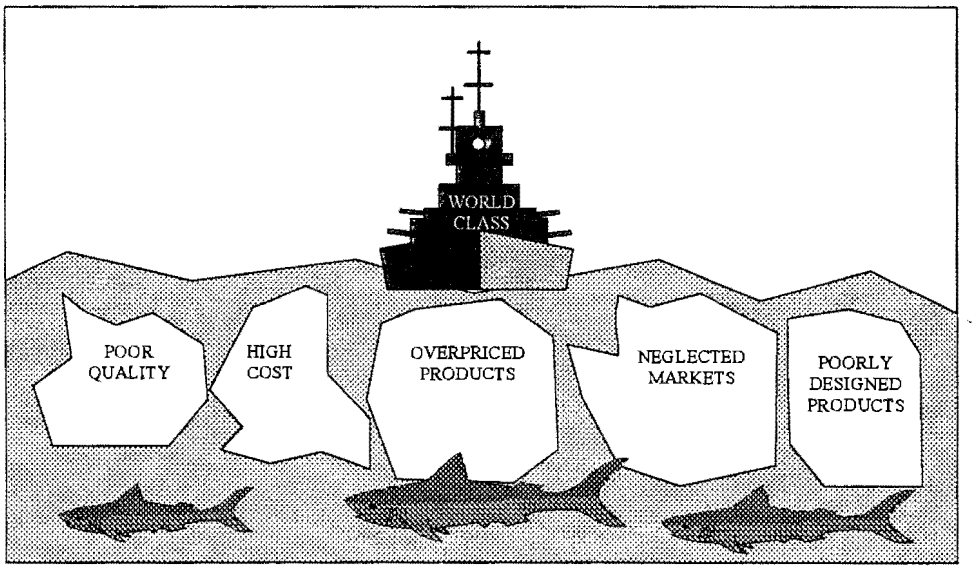
questioned because cost accounting is dominated by the demands of financial accounting.

The consensus amongst all the authors referred to above is that the traditional costing systems have lost touch with reality. Sheridan (1989:20) in discussing the applicability of traditional costing methodologies refers to the *'Model-T situation'* in cost accounting, i.e. a costing environment with long production runs, virtually no product diversification and long product life-cycles.

Conventional costing methodologies do not provide management with the relevant costing information to ensure sustained profitability of an organisation. According to Turney (1993:49-50) *'conventional cost systems actually hide problems and fail to identify opportunities'*. In Figure 3-2 Turney (1993:50) compares the dangers of relying on conventional cost information with a ship sailing through dangerous waters.

Figure 3-2: The hidden pitfalls of conventional costing information

ROCKS AND SHARKS



On the surface the organisation reflects short-term successes but underneath the surface the organisation is making fundamental mistakes that will have a crippling effect on the long-term success of an organisation.

3.10 Problems caused by conventional costing systems

Costs are a critical variable in the decision-making process. Cooper and Kaplan (1988:96) conclude in their article *'Measure costs right: Take the right decisions'* that: *'Bad information on product costs leads to bad competitive strategy'*. The article conclude that managers in companies with a diversity of products may base their decisions on distorted information.

Sheridan (1989:20) suggests that *'costing needs to be regarded as an area of strategic management'*. The purpose of costing is to facilitate better decision making and, therefore, it should reflect business realities. Turney (1993:49-51) in his book *'Common Cents'* argues that costing information should play an important role in value added management. Cost information is used to highlight problem areas as well as business opportunities.

Luck (1989:17-18) associates the following problems with a conventional costing system:

- Cause-and-effect relationships are not identified;
- Design costly products;
- Difficulty to determine the profitability of cost objects;
- Inaccurate product costs cause pricing and profitability errors;
- Limited value added cost information;
- Improper decisions relating to cost management.

One of the biggest contributing factors to invalidate conventional costing systems is the changing business environment. The features of the changed business environment are listed below (Bruce 1990:30-32; Turney 1993:5-21):

a) Competitive environment

There are a number of strategic management activities that should become an integral part of a world class bank's management focus, for example customer-orientation, cost efficiency, quality focus and innovation (Bigbie 1995:1-48; Sharpe 1995:11).

b) Shorter product life-cycles

Products become obsolete more quickly and it is necessary to respond to the changing demands of the market (Dugdale 1990:38). As a result of the shortening of product life-cycles, an organisation's ability to recover research and development costs during the shorter life-cycles is under pressure. The product life-cycle represents the period from inception of a product to abandonment.

c) Product diversity

One product is not enough for the market. The market consists of customers with different profiles and different needs. In the motor manufacturing industry differentiation is mainly based on buying power of customers, i.e. the product range stretches from the ordinary sedan with basic features for the *man-in-the-street* up to the luxury sedan for the *executive*. Shepherdson (1990:48) states that: *'Custom-designed packages for well-defined customer segments are becoming a competitive tool that few banks feel they can ignore'*.

Banks have identified various market segments and sub-segments and product development is structured to address the unique needs of the various market segments (see paragraph 2.2). Product diversity has resulted in higher research and development costs as well as marketing costs. These higher upfront costs, coupled with the shorter product life-cycles to recover upfront costs, require sound decision-making capabilities. Davis (1994:27) warns that product diversification and product duplication require specific attention in a bank to ensure the optimum utilisation of available products.

d) Delivery mechanisms

Improved technology has made a significant contribution to more efficient delivery systems. An excellent example is the development in the area of electronic banking, i.e. cash dispensers, telephone banking and point of sale equipment as well as the success of telesales initiatives (Bigbie 1995:13-24; Hewitt 1993:79-81).

e) Quality insurance

Customers demand a quality product and quality control is strongly related to operating expenses. Sheridan (1989:20) argues that '*quality has to be built into one's products and services, not inspected into them*'. This can be achieved through training and creating a quality culture in the workplace. Training and the incorporation of quality control in the production or delivery process will, therefore, result in additional operating expenses but it should be offset by lower inspection costs and a reduced cost of non-conformance also referred to as the scrap or wastage rate as well as improved levels of customer satisfaction. (McAulay 1986:46; Oliver 1986:32-35.)

f) Management information

Management in companies in the United Kingdom and the United States and, to a growing extent in South Africa, recognise the importance of accurate and timeous management information relating to product and segment profitability to successfully manage a company (Davis 1994:27; Sharpe 1995:11). There is a shift in emphasis from the traditional control accounting (variance analysis) to management accounting systems that facilitate planning and strategic decision-making. Costing systems represent, to a growing extent, a key component in a company's management information strategy (Glad & Becker 1994:219).

g) Risks

The current socio-economic conditions in South Africa have resulted in an escalation of operating risks such as theft, armed robbery and fraud (Amos 1995:5). As a consequence thereof, additional controls with its associated costs have been introduced to curtail any risk exposure in the banking sector.

3.11 Problems with traditional costing systems

Traditional systems do not keep pace with the changes that have taken place in the work place (Sheridan 1989:21; Dugdale 1990:38). Traditional volume-based systems apply a small number of traditional allocation bases, which vary in a direct relationship with the volumes of the cost object (Cooper 1988:41). These traditional allocation bases include direct labour hours, machine hours and the value of material.

Arising from a review of traditional costing systems, Dugdale (1990:38-41) categorises the criticisms in three groups:

- Today's business environment is very competitive and this has resulted in shorter life-cycles for products. New and innovative products enter the market on a periodic basis in order to retain or gain the competitive edge. Traditional costing systems are not flexible enough to cater for the stream of new products that enter the banking arena.

- Existing systems are outdated and do not recognise changes that have taken place.

- Allocation of overheads is a problem.

The development of a new costing system or an update of the existing costing system should take cognisance of the problem areas identified in published literature as well as user requirements (Dugdale 1990:38-41 and Glad & Dilton-Hill 1992:147-153).

Traditionally costs are classified into two main groups, fixed and variable. One school of accountants argues that total costs, which include the allocation of fixed costs, should be used in the decision-making process while another school of accountants argues that the a company has incurred certain fixed costs to establish the basic operating capacity. These costs will not change in the short-term and, therefore, decisions should be based on variable costs which represent relevant costs.

The latter argument may be true if variable costs constitute a high proportion of total costs. However, Drury (1989:60) concludes that the variable cost portion of manufacturing costs is reducing at a rapid rate. In the banking environment staff costs, occupancy costs, depreciation and computer costs, with a fixed cost behavioural pattern, represent approximately 80% of total costs (Refer paragraph 5.7).

It follows that the application of variable costs will not be a useful tool in the decision-making process. Drury (1989:60) argues that most decisions

concerning product strategies involve a long-term commitment, i.e. two to five years, and over this time scale most costs are variable.

On this basis, marginal costing is believed to be inappropriate because of its short-term emphasis, and absorption costing because overhead costs are allocated to product on a number of plant-wide allocation bases that do not recognise the cause-and-effect relationship of costs (Drury 1992:73).

The high proportion of upfront costs in respect of investment in technology, product enhancements, research and development costs, points to the critical need to manage overhead costs. According to Sheridan (1989:22) an important aspect of cost management is to scrutinise overhead costs in an organisation. Sheridan specifically referred to those businesses where technology and a changed business environment have played a major role in changing the traditional characteristics and cost structure of the business. An example is the financial services industry where technology has changed the face of banking services with the introduction of a wide variety of electronic and home banking services.

Arising from the changed business environment, it is important that businesses review the classification and the treatment of overhead costs. It is now necessary to revise the overhead allocation methodologies that traditionally consist of a number of plant-wide rates which is normally based on direct labour time (Drury 1992:73).

Glad and Dilton-Hill (1992:148) indicate that one of the main problems with traditional costing systems is the focus on cost accumulation instead of cost management. The traditional systems do not provide information regarding the profitability of individual cost objects, for example customers, product and segments within the business.

3.12 The application possibilities in a banking environment

This study focuses on product costing in a service industry, i.e. a bank. Normally service industries do not have any work in progress, nor are they able to keep stock. (Refer to chapter 2, paragraph 2.2). It follows that it is not necessary for the purpose of this study to do a detailed analysis of the accounting procedures involved in the two basic costing systems, namely job-order and process costing. (Bierman et al. 1990:111.)

Paragraph 3.6 emphasises that the allocation of overhead costs to products is a critical component in establishing accurate product costs. The ratio of direct costs to overhead costs determines the complexity of a costing system. If the cost distribution in an organisation is 75% direct costs and 25% overhead costs, the probability of deriving product costs with a high confidence level is very good. If, however, the distribution of costs is weighted towards overhead costs, for example 40% direct costs and 60% overhead costs, then the accuracy of product costs is largely dependent on the accuracy of the overhead cost allocation.

In a bank one staff member can provide a variety of services to customers with different profiles within a short period of time, for example during any day a teller could provide the following services to customers within the market segments and sub-segments defined in chapter 2:

- Cash deposits;
- Cash withdrawals;
- Cheque deposits;
- Cashing of cheques;
- Mail and on-line transfers with or without cash;
- Telegraphic transfers.

The objective of a product costing system is to assign the costs of the teller to the various products as listed above. Banks have a cost structure with a predominately fixed cost behaviour pattern. During the 1990 visit to banks in Canada and the United Kingdom, all banks agree that the majority of costs in a bank could be classified as fixed costs (Bruce 1990:30-32; Sephton & Ward 1990:29). The ability to determine accurate product costs depends on the accurate allocation of all relevant fixed costs within a bank.

Sephton and Ward (1990:29) also point out that none of the traditional costing techniques focus on the allocation of fixed costs, especially costs associated with large central support and administration functions, that have been built up by banks over the years. In paragraph 3.9 it is concluded that traditional costing techniques merely allocate overhead costs, instead of focusing on what initiated the costs.

In recognition of the aforementioned constraints a new activity-based costing approach has been formulated that addresses the allocation of overhead costs. Jeans and Morrow (1989:42) conclude that activity-based costing reflects a movement away from the functional analysis of costs where the factory floor is the boundary for cost allocation. According to Dugdale (1990:40) the objective of activity-based costing is to trace overhead expenses more accurately and it aims to achieve this by cutting across traditional and functional cost accounting boundaries. The high fixed cost base as well as a diversity of products, services and customers make activity-based costing suitable for the financial services industry. Luck (1989:17-18) concludes that activity-based costing will provide the information to identify the hidden problem areas facing an organisation. This is also the view of KPMG's (Peat Marwick) Banking and Finance Group in the United Kingdom (1990).

3.13 Summary

Chapter 3 gives an overview of costing systems and techniques and provides the costing background needed to establish a costing methodology in a bank. This chapter deals with the fundamental aspects of the whole spectrum of cost accounting, but focuses on the most relevant aspects namely standard costing and overhead cost allocation.

It is important for management to realise that the long-term success of their organisation is dependent on the availability of meaningful management information. Costing is often neglected and is most probably the single biggest reason for an organisation's failure. Turney (1993:5) states emphatically that *'unreliable costing information is an open invitation to disaster.'*

Standard costing provides a basis for establishing relevant product costs. It is, however, noted that banks operate in a challenging and dynamic business environment with shorter product life-cycles, a high level of competition and continuous technological changes. It follows that the standard costing methodology must adapt to these changes in order to provide relevant costing information.

Overhead costs are also called the *Achilles heel* of most organisations' management information methodologies. If not correctly applied overhead cost rates can provide incorrect and misleading costing information. Options to be considered by management in order to allocate overhead costs include whether to apply a single plant wide overhead rate; whether to base overhead rates on either normal, economic, ideal or expected capacity levels; and whether to allocate all overhead costs.

The changed business environment, increased level of competition, shorter product life-cycles and product diversification have adversely affected the

application possibilities of traditional costing systems. The utilisation of incorrect costing information has a negative impact on decision-making and will adversely affect an organisation's performance.

Research has shown that the inflexibility and inability to accurately assign overhead expenses are the main criticism against conventional costing systems. Banks have an expensive infrastructure spread over a wide geographical area with large central support services. The ability to accurately allocate overhead costs incurred at head office level is a critical success factor in the establishment of a meaningful management information methodology.

The use of the cause-and-effect relationships to assign overhead costs based on either a normal or expected capacity is proposed to ensure the provision of accurate costing information.

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CHAPTER 4

ACTIVITY-BASED COSTING (ABC)

4.1 Introduction

Cooper and Kaplan (1988) introduced activity-based costing as a more refined and relevant approach for allocating overhead expenses and calculate product costs (Drury 1992:273; Dugdale 1990:40).

This chapter deals with the basic principles of activity-based costing and provides the background for Chapter 5 which focuses on the implementation of a product costing methodology in a banking environment through the application of a hybrid of standard costing and activity-based costing methodologies..

4.2 Definition of activity-based costing

Drury (1992:275) explains that activity-based costing emphasises the importance of understanding the cost structure of an organisation. This understanding will facilitate the identification of the causes of overhead expenses as well as how they behave when there is a change in product volumes. Activity-based costing also recognises that in the long run most overhead expenses show a variable cost behavioural pattern. It is, therefore, necessary to understand and identify the forces (drivers) that cause overhead expenses to change over time.

Turney (1993:315) defines activity-based costing as follows: *'A method of measuring the cost and performance of activities and cost objects. Assigns cost to activities based on their use of resources, and assigns costs to cost objects based on their use of activities'.*

According to Clarke (1994:16) *'activity-based costing assigns transaction overheads to products using various activities'.*

Cooper (1988:41) agrees that: *'Activity-based costing systems by focusing on activities instead of products, overcomes the distorted product costs inherent to traditional volume-based cost systems'.*

FSA (1993:18) argues that the objective of activity-based costing is to find out more about the costs and the activities in the organisation.

4.3 The introduction of an activity-based costing system (ABC)

4.3.1 Background

Traditional costing systems focus on specific products and traditional overhead allocation methodologies are used to assign overhead expenses to products (Luck 1989:16-17). According to Drury (1989:60), *'activity-based costing emphasises the need to obtain a better understanding of cost behaviour and thus ascertain what causes the overhead costs'*.

Beischel (1990:53) points out that many companies with a diverse range of products find it difficult to accurately assess the profitability of products. The indiscriminate application of overhead allocation rates could distort the cost allocation to products. This process of incorrect cost allocation will distort profitability analyses as well as pricing decisions because there is cross-subsidisation between products. The inability of management to assess the true profitability of products has been identified as one of the main problem areas within organisations (Luck 1989:16-17; Sephton & Ward 1990:29,32).

Costs are a critical variable in the decision-making process. Cooper and Kaplan (1988:96) concluded in their article *'Measure costs right: Take the right decisions'* that: *'Bad information on product costs leads to bad competitive strategy'*. The article concludes that managers in companies with a diversity of products may base their decisions on distorted information.

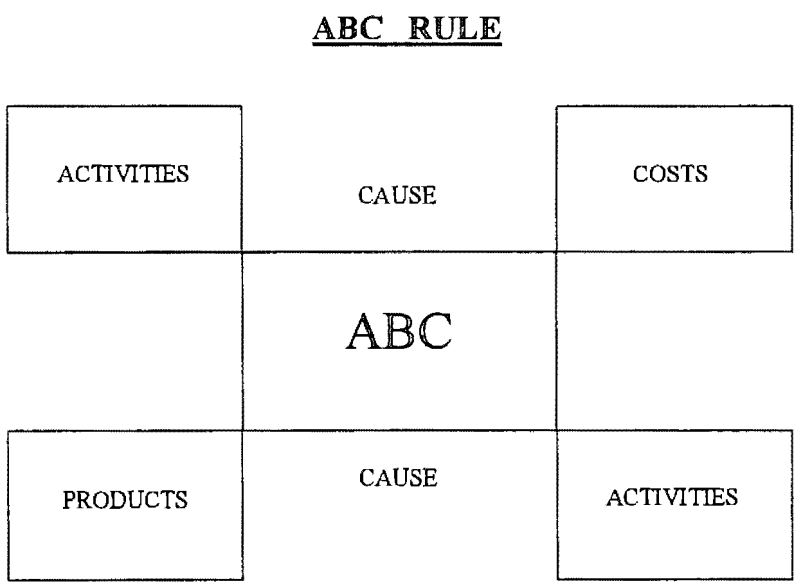
Sheridan (1989:20) suggests that *'costing needs to be regarded as an area of strategic management'*. The purpose of costing is to facilitate better decision making and therefore, it should reflect business realities. Turney (1993:49-51) in his book *'Common Cents'* argues that costing information should play an important role in value added management. Cost information is used to highlight problem areas as well as business opportunities.

Ostrenga (1990:42-49) emphasises the importance of total cost management (TCM). It is important to understand that costs are not merely incurred, they are caused. The underlying principle of total cost management is the focus on activities that cause operating expenses to be incurred by an organisation. Sephton and Ward (1990:29) agree that the '*implementation of activity-based costing involves identifying activities and the events which cause activities*'. Any sustainable reduction in operating expenses can only be achieved if those activities that cause costs, are reduced. The term cost drivers explains the cause-and-effect relationship referred to under the activity-based costing methodology.

4.3.2 Cost Drivers

Blumberg (1993:51) and Cooper (1990a:86-88) agree that it is not possible to understand a product without analysing the underlying activities. Blumberg (1993:51) illustrates the inter-relationship between activities, costs and products by means of a graphic illustration of the *'activity-based costing rule'* (Figure 4-1).

Figure 4-1: Activity-based costing (ABC) rule



An accurate allocation of overhead costs requires the identification of responsibility areas, the activities performed within the responsibility areas and a detailed analysis of the way in which products consume activities. Drury (1992:35) refers to responsibility centres as a segment of an organisation where an individual manager is held responsible for the segments performance. The accurate allocation of overhead costs in terms of the activity-based costing methodology generally involves the identification of multiple cost drivers to calculate accurate product costs. Drury (1989:61) defines cost drivers as '*those activities or transactions that are significant determinants of costs*'.

Sheridan (1989:24) argues that the cost driver approach is to '*look where the decisions are made or the factors occur that give rise to costs - often somewhere else*'. The introduction of activity-based costing enable management to understand the cost behavioural patterns of various components of their business. A clear understanding of how costs behave will enable management to control costs and to identify a variety of cost drivers that facilitate the allocation of overhead costs.

Clarke (1994:16-17) and Cooper (1990b:4-14) classify the levels of activities utilised in an activity-based costing methodology as follows:

a) Unit-level basis

Resources are consumed everytime a unit is produced. These activities are the same as the traditional variable costs, for example machine power.

b) Product-level basis

Resources are consumed when different products are produced or developed, for example inspection.

c) Batch-level basis

Resources are consumed in direct proportion to the number of batches of each product.

d) Plant- or facility-level basis

Resources are consumed by all products and allocation is done in an arbitrary manner. This basis represents the traditional fixed overhead costs, for example factory rent. However, the application of the activity-based costing analyses will reduce the size of fixed overhead costs.

The objective of the cost driver approach is not to allocate all overhead costs but only to allocate overhead costs to the lowest meaningful level. The objective should be to allocate all costs but the viability of such an allocation is an important factor. According to Sephton and Ward (1990:33) the critical question should always be: *'Do the benefits of the enhanced cost allocation outweigh the cost of obtaining it?'* Some costs can only be allocated at product group levels, i.e. the costs of an advertising campaign to promote a range of products should be included in the calculation of the profitability of that product group. However, if the aim of the advertising campaign is to promote a personal cheque account, then the advertising costs should be included in calculating the profitability of that product.

4.4 Establishing an activity-based costing methodology

4.4.1 Implementation criteria

Cooper (1988:41) and Jeans and Morrow (1989:42) list some of the characteristics of an organisation in a manufacturing environment where the successful application of activity-based costing could enhance the integrity of cost information of an organisation:

- Highly competitive markets;
- Diversity of products, processes and customers;
- A significant portion of overhead costs is not assigned to individual products;

- The demands on overhead resources placed by individual products and customers are not proportional to volume;
- Cross-subsidisation between products;
- High cost of errors due to poor decision-making in relation to product design, marketing focus etc.

An analysis of the cost structure of a bank as well as the diversity of products and customers shows that banks are perfectly suited for the implementation of the activity-based costing methodology. Sephton and Ward (1990:29) concur with this statement: *'The main characteristics of a retail financial service institution are very similar to those required for the successful application of activity-based-costing in a manufacturing industry'.*

4.4.2 Basic structure of an activity-based costing system

Glad and Becker (1994:12-25), Morrow and Ashworth (1994:32-36) and Turney (1993:81-92) describe the basic structure of an activity-based costing system as a two dimensional model. The following illustration (Figure 4-2) shows how operating costs and non-financial information should be applied to provide management with the cost information to formulate business strategies.

Figure 4-2: Basic structure of the activity-based costing methodology

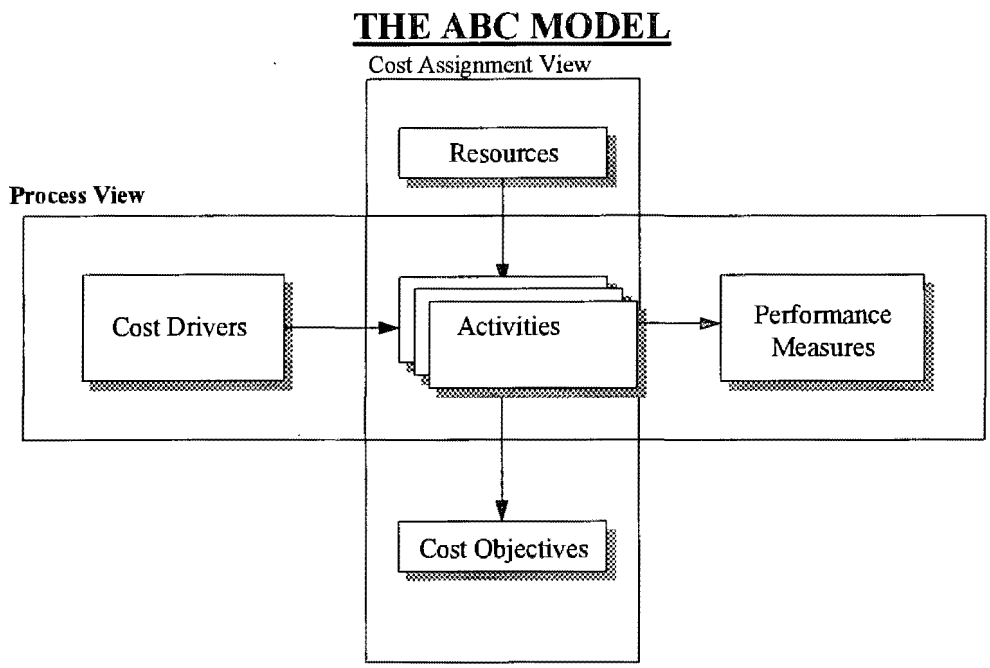


Figure 4-2 highlights the two main components of activity-based costing namely cost assignment and process analysis (Glad & Becker 1994:12-25; Turney 1993:81-92):

- Cost assignment view

  An organisation requires cost information pertaining to cost objects to make key decisions that will affect the organisation's future. Cost objects in the context of a bank include products, customers and market segments. The key decisions include pricing, new products, optimum product mix, product upgrades and the phasing-out of products approaching the end of the product life-cycle.

  The underlying principle of activity-based costing is that cost objects require activities which in turn require resources. In Figure 4-3 the process of assigning costs consists of two phases. Firstly, it involves the allocation of resources to activities and secondly, the allocation of activities to cost objects.

The first phase gives a better understanding of the relative costs of activities and identifies opportunities for improved cost management as well as identifying the costly customer support activities.

The second phase provides the cost information relating to the cost objects such as product, customer or market segments.

The cost assignment view gives management insight into the following management issues:

- High cost activities;
- Opportunities to improve product design and cost management;
- Opportunities to focus on the most profitable product lines or customer segments.

According to Turney (1993:85) the cost assignment process provides the *'economic intelligence about the work going on in the company and the reasons for performing that work. This intelligence facilitates the cost impact of various strategic and operational decisions'.*

- Process view

The process view of process analysis provides non-financial information about activities and the inter-relationship with other activities to form a process. Turney (1993:86) argues that activities are all part of a value chain where activities are interdependent to provide value to customers. Glad and Becker (1994:19) explain the structural analysis of a business as follows:

- The lowest level of a process consists of tasks. These tasks reflect the elements of an activity;
- The next level consists of one or more tasks also referred to as activities;
- A group of interdependent activities performed in a logical order represent the business process;

- At the highest level of a process is the value chain, consisting of primary and secondary processes.

The process view includes information about the determinants of activities also referred to as activity drivers and the applicable performance measures. Activity drivers explain the causes of an activity as well as the effort required to perform an activity. Performance measurement focuses on the efficiency of the activity, the time required as well as an indication of quality.

Turney (1993:89) states that the process view of activity-based costing provides the *'operational intelligence'* and brings the *'world of operations directly into the heart of the cost systems'*. The operational information enables management to understand the following management issues:

- The causes of an activity;
- The factors that could adversely affect the performance of an activity;
- The efficiency and quality of the process.

The combination of the cost assignment and process views provides management with a total view of the work done in an organisation and facilitates various management initiatives such as total cost management and process improvement.

4.4.3 Implementation of an activity-based costing system

Numerous articles have been published describing the process required to establish an activity-based costing system (Cooper 1990d:78-80; Cooper & Kaplan 1988:96-103; Glad & Dilton-Hill 1992:47-153; FSA 1993:17-24; Morrow & Ashworth 1994:32-36; Turney 1993:75-136). Although there are subtle differences in the implementation processes explained in the publication, the underlying logic remains intact, namely the implementation of activity-based costing involves identifying activities and processes that primarily causes costs.

The activity-based costing process as discussed in the literature referred to above can be described as follows:

a) Define the objective of the costing system

As discussed in Chapter 3 one costing system is not necessarily sufficient to meet the wide ranging costing requirements of an organisation. It is, therefore, important to define the objectives of the costing system, for example long-term planning or product costing.

b) Define and identify the activities

An activity represents an aggregation of numerous actions or tasks and is central to the activity-based costing approach. It is, therefore, important that the cost accountant realises the importance of activities. This exercise is normally much easier than anticipated and can be achieved through questionnaires or interviews with staff. The basic questions to be asked include:

- What activities are performed?

- When are these activities performed?

- Why are these activities performed?

- Are there any dependencies?

c) Identifying the value chain within the organisation

The value chain represents the value-added activities within an operational unit to ensure the successful delivery of a product (Glad & Dilton-Hill 1992:150). A critical part of this process is a thorough understanding of processes that occur within an accounting unit. Beischel (1990:53-57) suggests that process-value analysis (PVA) will improve the understanding of the processes involved.

The step-by-step approach to process-value analysis is summarised below:

Step 1: Prepare detailed flowcharts of the various processes and activities in an organisation.

Step 2: Distinguish between value added and non-value added activities. An activity is a value added activity if the elimination thereof will adversely affect the quality of services provided to the customer or it may result in a financial loss to the company, for example credit checks, etc.

Step 3: Identify the causes of activities.

Step 4: A critical analysis of the activities undertaken and elimination of non-value added activities.

d) Identifying the relationships between resources and activities

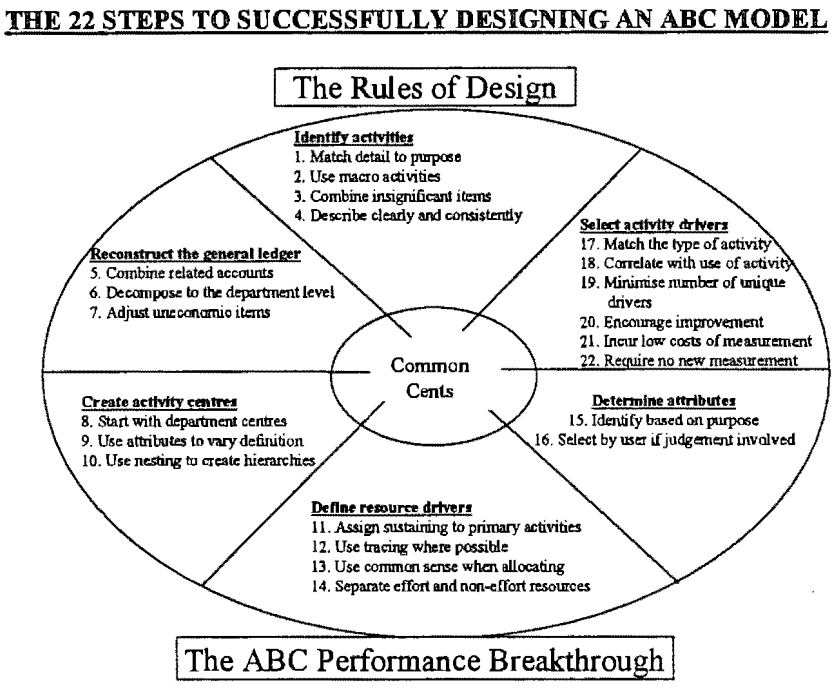
This process involves an analysis of the cost structure and the identification on the major resources- or cost elements. People-orientated costs in the case of service organisations will represent the major proportion of costs. The allocation of resources to activities is based on the application of cost drivers. According to Glad and Becker (1994:21) the cost drivers include the time for labour, kilowatts for power consumption and value of equipment used for depreciation.

e) Calculating product costs

Assign costs to activities and ultimately to products through the application of cost drivers that will result in a fair apportionment of the costs.

In Figure 4-3 Turney (1993:310) summarises 22 steps to ensure the successful design and implementation of an activity-based costing model.

Figure 4-3: The 22 steps to successfully designing an ABC model



The *activity-based costing breakthrough* reflects the management's ability to utilise activity-based management to improve performance. Typical management initiatives will include cost analyses and customer value analysis.

The activity-based costing process also exposes one of the main criticisms against traditional costing systems, namely no focus is given to wasted activities, duplications, and non-valued added activities.

Cooper and Kaplan (1988:98) identify three rules to assign overhead costs:

- First rule:- Focus on expensive resources.
- Second rule:- Focus on those resources where consumption could vary significantly by product or product type.
- Third rule:- Focus on those resources where the behavioural patterns do not correlate with traditional cost allocation bases such as direct labour.

The first rule requires the application of Pareto's principle, also referred to as the 80/20 rule. The objective is to initially concentrate on those resource

categories where the new product costing system has the potential to make the biggest differences in product costs.

The second and third rules identify those aspects of the business where there is the greatest potential distortion. The critical question according to Cooper and Kaplan (1988:98) is: *'which parts of the organisation tend to grow as the company increases the diversity of its product line, its processing technologies, its customer base, its marketing channels and its supplier base?'*

It is important to realise that the process of allocating costs to individual products is, in essence, a judgmental process and cannot be done with precision. According to Cooper and Kaplan (1988:100), *'it is better to be basically correct with activity-based costing, say within 5% or 10% of the actual demands a product makes on organisational resources, than to be precisely wrong (perhaps by as much as 200%) using outdated allocation techniques'.*

The application of activity-based costing enables management to allocate costs with a greater degree of accuracy and involvement of the end users of the cost information.

4.5 The application possibilities of activity-based costing

The application of activity-based costing will provide the following assistance to management (Sephton & Ward 1990:29):

- Understand the cost behavioural sensitivities in an organisation;
- Calculate meaningful product costs;
- Ascertain the profitability of customers and products.

Arising from the above, the utilisation of an activity-based costing methodology in an organisation will assist management as follows:

a) Reduce and contain costs

Activity-based management involves the identification of time consuming (costly) activities and the introduction of procedures to reduce time spent in completing certain activities.

b) Improving profitability

Management can identify where to concentrate the organisation's resources in order to maximise profits.

c) Improving productivity, efficiency and quality

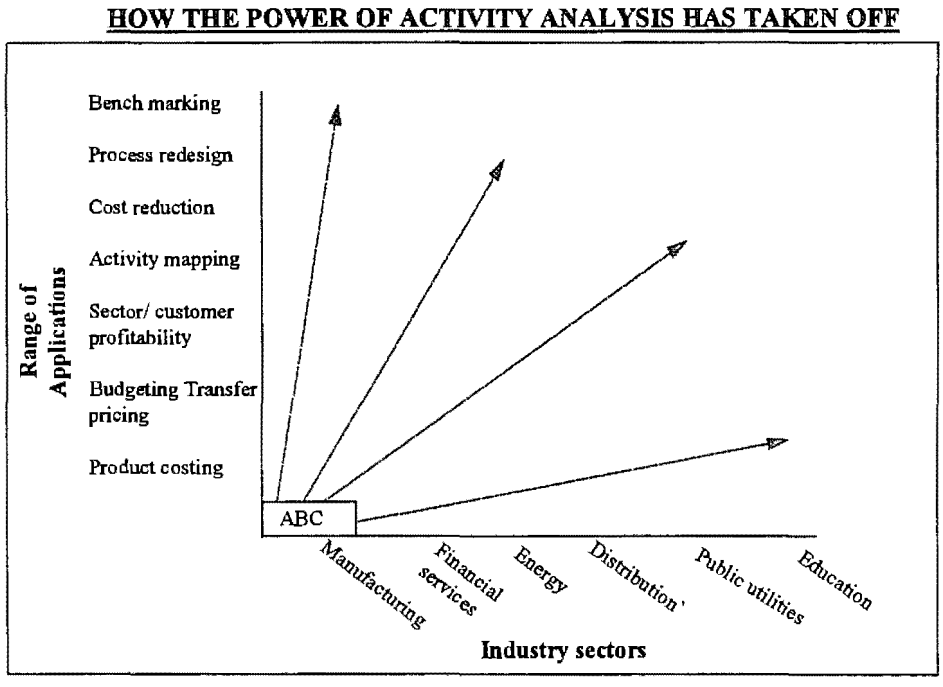
The survival of an organisation over the long-term depends on its ability to service customers and to deliver products more efficiently and at a lower cost than its competitors with at least the same degree of quality.

d) Rationalising the business

Which activities if rationalised, via new procedures or phasing-out, will create additional capacity or a permanent saving?

Morrow and Ashworth (1994:32-36) portray the application of activity-based costing in a range of industry sectors as follows:

Figure 4-4: Application possibilities of activity-based costing



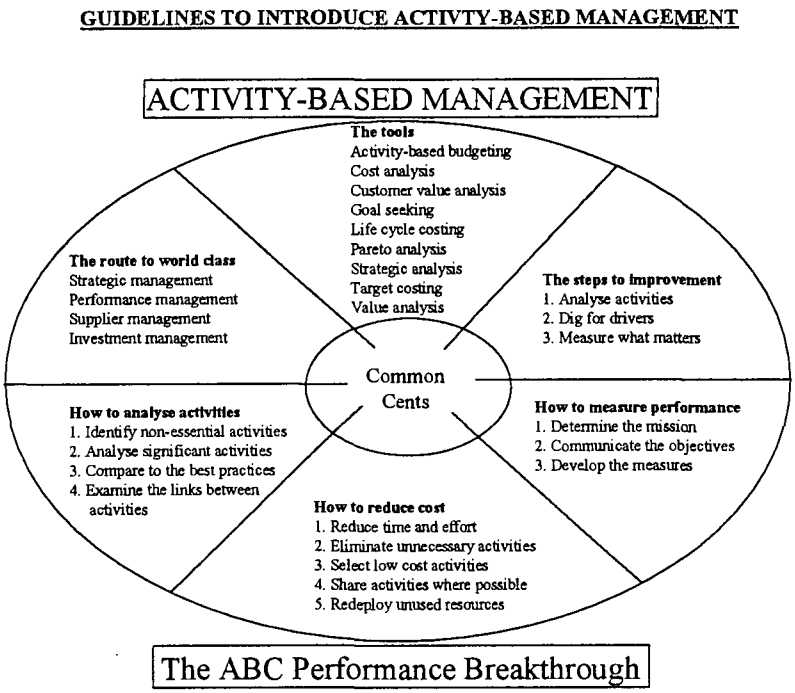
An analysis of the application possibilities of activity-based costing shows that it is difficult to formulate business strategies if management does not understand the causes of costs and profitability of the components of their business. Table 4-1 illustrates the wide range of activity-based costing applications (Morrow & Ashworth 1994:32-36).

Table 4-1: The powerful range of activity-based costing applications

Application Categorisation			
Broad classification	**Classification by Internal/external focus**	**Description**	**Business need trigger**
PERFORMANCE MEASUREMENT	Internal activities	Activity-based costing Activity-based budgeting	To gain a better understanding of the costs of products or services. To optimise the allocation of scarce resources across the business.
	External activities	Customer profitability management	To understand and manage the relative profitability and attractiveness of customers.
PERFORMANCE IMPROVEMENT	Internal activities	Activity mapping Business process redesign	To change the way things are done in order to ensure that they are done more effectively.
	External activities	Benchmarking	

The activity-based costing methodology provides management with the tools to perform activity-based management. The focus of activity-based management is to eliminate the wasted or inefficient activities. The process of activity-based management also includes those activities where customer contact takes place on a regular basis. Management should consistently strive to improve the efficiency and quality of those activities. In Figure 4-5 Turney (1993:311) portrays the process and application possibilities of activity-based management.

Figure 4-5: Achieving a breakthrough performance with activity-based management



The objective of activity-based management is to improve the operating efficiency of an organisation. At the top of the list is the identification of waste activities, unnecessary cost drivers and those activities that are critical from the customer interaction point of view.

Paragraph 4.5 has dealt with the application possibilities of activity-based costing. Bailey (1991:30-32) conducted a survey amongst companies in the United Kingdom to determine whether the implementation of activity-based costing systems has improved the standard of management information. Table 4-2 summarises some of the benefits identified by participants as well as the possible applications.

Table 4-2: Activity-based costing in practice - Benefits identified and applications

Benefit identified	**% of sample positive**	**Probably leading to:**
Greater accuracy in product costing	100	Improved 'buy or make' decisions Improved product pricing strategy
Improved management information	70	Greater cost awareness of department managers Better product design strategy Improved management control Improved quality management
Improved profitability	40	
Reduction in costs	60	Greater profitability Improved investment performance Enhanced business opportunities
Greater involvement of production managers	90	Improved cost awareness Improved feeling of ownership Improved interaction between finance and operations depts Greater budget accountability

4.6 Advantages and disadvantages of activity-based costing

Numerous articles and seminars have been and will be presented to discuss the advantages and disadvantages of activity-based costing. Table 4-3 summarises the advantages and disadvantages associated with activity-based costing (Glad & Dilton-Hill 1992:147-153):

Table 4-3: Advantages and disadvantages of activity-based costing

Advantages	Disadvantages
1 Cost management abilities are better than traditional costing systems.	1 Activity-based costing is more complex and sophisticated.
2 The focus on activities facilitates the restructuring of the value chain at the lower costs.	2 It should be carefully managed, because it is easy to go overboard.
3 Accurate customer and product profitability analysis.	3 The availability of a tailor-made fully integrated system remains a problem especially in the banking environment.
4 Activity-based costing requires a thorough understanding of costs and activities that causes costs.	
5 Management focuses change from functional to process management.	
6 Cost drivers give management a clear understanding of what causes costs in an organisation.	
7 Activity-based costing has a common sense appeal.	

4.7 Summary

Cooper (1990b:11) identifies three major benefits associated with activity-based costing:

- It provides more accurate product costs and play a vital role to improve the decision-making process;
- To gain a better understanding of the causes of overhead expenses in an organisation;
- The provision of a relevant costing information for application in the management of a more cost effective organisation.

Activity-based costing addresses the shortcomings of conventional costing methodologies and provides management with the relevant cost information to formulate business strategies. The basic structure of an activity-based costing system reflects two views, namely cost assignment and process analysis.

The cost assignment view represents the assignment of resources or cost elements, as sourced from the general ledger, to activities. The final cost assignment point is referred to as a cost object. The cost assignment process provides the economic intelligence to management.

The cost assignment process highlights the following issues to management:

- High cost activities;
- Opportunities to improve product design and cost management;
- Opportunities to focus on more profitable products, customers or segments.

The process analysis view combines the operational activities with the costing system. It provides management with the operational intelligence to perform activity-based management. The process analysis focuses on the determinants of activities, also referred to as activity or cost drivers as well as measuring the performance of activities. Performance measurements focus on the efficiency of an activity, the time required as well as measuring quality.

Activity-based costing classifies all costs as resources and does not make the traditional distinction between direct and indirect costs or fixed and variable costs. The banking industry operates large central support functions to service a branch network spread over a vast geographical area. These large centralised cost structures, coupled with the banking activities performed at branch level, for example deposits, withdrawals and payments, provide the basis for an activity-based analysis. It follows that the banking industry is ideally suited for activity-based costing and activity-based management. Chapter 5 deals with the application of activity-based costing in a bank.

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CHAPTER 5

FORMULATING A PRODUCT COSTING METHODOLOGY FOR A BANK

5.1 Introduction

The previous chapters have highlighted the fact that the availability of accurate product costing information is one of the critical success factors of management information requirements of the nineties. Critical decisions affecting pricing, customer and product profitability as well as the viability of new products are dependent on the availability of accurate and relevant product costing information (Llewellyn & Drake 1993:20; Bear et al. 1994:20-22).

Sephton and Ward (1990:29) mention that cost accounting in the retail financial services industry has traditionally lagged behind the developments in the manufacturing industry. They suggest that the activity-based costing methodology provides banks with an opportunity to gain lost ground and be at the leading edge of cost accounting development.

The following questions highlight the complexity of the costing process in a bank (Sheridan 1983:25):

a) How do you allocate staff costs (the major portion of any bank's costs) over the diversity of products?

b) What does it mean when you have done the allocation?

This chapter focuses on the application of costing techniques such as standard costing and activity-based costing to facilitate the formulation and implementation of a sound product costing methodology in a bank.

5.2 Evaluating the existing product costing methodology

Where an organisation already has an existing product costing system it is necessary to critically review the existing system to ensure that the new system will improve the

integrity and relevancy of product costing information. This evaluation process should address the following three issues:

- Does the bank need a new product costing system?
- Identify the shortcomings of the existing product costing methodology.
- Specify the main objectives of a new product costing methodology.

5.2.1 Does the bank need a new product costing system?

Cooper (1989:77-82) concludes that redesigning a new costing system is a costly and time-consuming exercise. It is, therefore, necessary to determine whether a new product costing system is really necessary. There are two criteria to establish whether a new costing system is necessary (Cooper 1989:77-82):

a) An outdated costing system normally sends many signals as an indication that a new system is needed. Examples of such signals are:

   – Departments have their own internal costing systems which create problems because systems are not compatible and utilise different cost methodologies;

   – The costing function in the organisation spends a lot of time on *ad hoc* projects to calculate the costs of new and existing products;

   – Due to integrity problems management does not recognise product costs as a critical and credible variable in the decision-making process;

   – Changes in the banking environment lead to the introduction of new products and phasing-out of current products. An outdated system cannot keep pace with the changes;

   – The product costing information needs have changed and users now require cost differentiation by market segment and sub-segments.

b) Costing systems do not become outdated overnight but gradually out live their usefulness because of:

- Changes in business environment, for example competition and product innovation, should be supported by the application of relevant costing methodologies;

- New developments relating to product costing methodologies, for example the introduction of activity-based costing requires a new approach to product costing;

- The availability of a more powerful personal computer capability;

- Software and database packages that are becoming more flexible and user-friendly;

- The introduction of new products and the phasing-out of old products in the product costing system are time-consuming exercises.

5.2.2 Identify the shortcomings of the existing product costing system

Before a new system is developed, it is necessary to identify and understand the shortcomings and problems experienced with the existing product costing system. The extent of the problems may vary and the list below contains some of the generic shortcomings of an outdated product costing methodology (Own research 1991-1995; Sephton & Ward 1990:29-33; Turney 1993:1):

a) The existing system does not provide meaningful costing and product statistics to facilitate the establishment of strategic product plans and to calculate the profitability of customers and products.

b) Because of the dependencies on other departments and systems, running and updating the product costing system is a time-consuming process. The dependency on in-house systems could present data source problems such as continuity and reliability of source.

c) In an era of automation and powerful computers the existing product costing system may still be a manually operated system.

d) The existing costing system does not apply the latest costing methodologies. Traditional costing methodologies with its associated shortcomings (refer chapter 3 and 4) are used to calculate product costs.

e) Due to the lack of adaptability of the costing system it is becoming more difficult to incorporate new products and phase-out old products.

f) Not all the products are included in the product costing system because the system is not flexible enough to include new products.

g) There is a lack of controls to test the accuracy of product costing information.

h) Changes in business strategy and organisational goals also emphasise the need for a new product costing system.

i) The product costing system contains single level information and does not distinguish between the various types of costs which roll-up into the unit costs, i.e. a significant proportion of the product costs is classified as indirect or overhead costs.

j) The product costing system excludes head office costs which represent a substantial portion of total costs.

k) The activities assigned to various products profile are incorrect and need to be updated automatically when tasks, activities and processes are reviewed.

l) The product costing system does not recognise the importance of differentiated costs to cater for price differentiation by customer/market segment.

Cooper (1989:82) concludes that a product costing system should last about ten years, at which point it is very difficult to do further patchwork on the system.

5.2.3 Main objectives of a product costing system

Sephton and Ward (1990:29) note that the primary objectives of a product costing system are to provide reliable and meaningful product costing information for pricing purposes and to ensure the accurate allocation of costs in the management reporting system.

Gardner and Lammers (1988:35) conducted a survey to determine the most important goals of a costing system. Based on a sample of 245 participants in the 70 largest financial institutions in the United States of America, the following rankings have been noted:

- Product development and pricing - 219 participants.
- Achieving cost reductions - 186 participants.
- Performance evaluations - 158 participants.

These rankings illustrate that these institutions place more emphasis on the planning objective rather than the control objective of a costing system.

Other objectives of a world class costing system include (Glad & Becker 1994:10-11; Own research 1991-1995):

- Product costing information should reflect business processes;
- Provide a multi-level product costing system to enhance application possibilities;
- Assigning the majority of costs incurred, including head office expenses, to the different products. This will result in a lower overhead cost rate;
- Provide information for a life-cycle costing approach;
- More automation through the use of modern technology;

- The product costing system should assist in the identification of value-added and non-value added activities/processes;

- Performance evaluation for responsibility centres;

- At least all the core products should be catered for in the new system. The initial objective should be to determine all the product costs on an 80/20 basis;

- The ability to determine the efficiency and capacity of a bank. The difference in costs of being open for business and the total costs per a bank's general ledger. Glad and Becker (1994:80) confirm that an activity-based costing system could play a significant role in managing productivity and capacity within an organisation;

- Price differentiation by market segment;

- Provide product costing information for *ad hoc* projects;

Sephton and Ward (1990:33) explain that *'the objective of the product costing system will be to identify the costs of activities and then, through the use of cost drivers, to allocate costs to the lowest meaningful level'*.

The next step is to devise a structured development and implementation programme to ensure the achievement of the product costing objectives through the successful implementation of a new costing system.

5.3 Development and implementation programmes for product costing systems

Chapter 1 refers to the lack of cost accounting literature pertaining to the financial services sector. Research and the visit to banks in the United Kingdom and Canada have shown that there is no master plan to formulate a product costing methodology for a commercial bank.

Having recognised the importance of sound product costing as a valuable management tool, this study focuses on the development and implementation programmes adopted

elsewhere in the industry. Numerous publications have discussed the introduction of an activity-based costing system in a manufacturing organisation (Cooper & Kaplan 1988:98; Drury 1992:276-279; Glad & Becker 1994:185; Turney 1993:207-287). The study utilises the implementation guidelines described in the publications, referred to above, to formulate a feasible and viable product costing implementation programme for a commercial bank.

Glad and Becker (1994:186) refer to the twelve steps to implement an activity-based costing and management system:

- *Feasibility and review;*
- *Strategic analysis;*
- *Value chain analysis;*
- *Process analysis;*
- *Activity definitions;*
- *Cost objects and bills of activities defined;*
- *Tracing cost to activities;*
- *Tracing non-financial information to activities;*
- *Activity classification;*
- *Calculating activity rates;*
- *Calculation of the costs of cost objects;*
- *Determination of wastage.*

The procedures to ensure the successful implementation of a costing system, as identified by Turney (1993:207-287), are summarised below:

- Convincing management to change and obtain management commitment;
- Formulate the objectives;
- Describe deliverables;

- Set the scope;
- Analyse organisational structures;
- Establish project team and identify training requirements;
- Complete project plan with cost estimates;
- Gather information at required organisational level;
- Design model;
- Identify activities;
- Reconstruct the general ledger;
- Analyse activities and create activity centres. Activity centres are clusters of activities.
- Define resource drivers;
- Select activity drivers. Activity drivers reflect the relationship between activities and cost objects;
- Determine attributes. Attributes enable the user to enhance the meaningfulness of activities in an organisation.

FSA (1993:18-19) recognise the following steps to ensure the successful implementation of an activity-based costing system:

- Define goals;
- Define activities;
- Select an accounting period;
- Allocate direct costs to activities;
- Identify people-orientated costs;
- Estimate time devoted to activities;
- Analyse by activity;
- Analyse by product.

The three potential implementation programmes referred to above, show a large degree of similarity but none represents a practical and feasible master plan for application in a commercial banking environment.

An analysis of the procedures referred to above, experience gained in the commercial banking environment and input received from the 1990 visit to overseas banks in Canada and the United Kingdom, form the basis of the ten stage development and implementation programme referred to in paragraph 5.4.

5.4 Ten stage development and implementation programme for a product costing system in a commercial bank

Implementing a product costing methodology is not a very complex task if it is done in an organised manner. The implementation process requires commitment, time and effort from a dedicated team. It is, therefore, important to ensure the successful implementation of the costing system. Turney (1993:225) refers to the *'rule of seven P's - Proper, Prior, Planning, Positively, Prevents, Poor, Performance'*. The proposed development and implementation programme for a costing system in the banking environment consists of ten stages:

Stage 1 - Obtaining executive approval and presenting a project plan.

Stage 2 - Identify cost objects and the high level costing information requirements.

Stage 3 - Analysing the cost structure of a bank.

Stage 4 - Formulating a product costing methodology for a bank.

Stage 5 - System configuration and development.

Stage 6 - Structuring the product costing database.

Stage 7 - Categorising activities and establishing product profiles.

Stage 8 - Calculate the product costs.

Stage 9 - Prepare feedback report to general management.

Stage 10 - Implementation, application and on-going maintenance.

A thorough understanding of the organisational structure as well as its products, processes and costs are critical to ensure the successful implementation of the costing system. Stages 2 to 5 represent the preparatory phase and provide the project team with an understanding of the cost structure of a bank as well as the requirements of the new product costing system. Stages 5 to 8, the application phase, focus on the end product, i.e. establishing a world class product costing system for a bank. The final phase deals with the communication to general management as well as the implementation and validation of the new product costing methodology.

5.5 Stage 1:- Obtaining executive approval and presenting a project plan

A critical prerequisite for the undertaking of a major project in any organisation is to obtain executive support. This can only be achieved if a bank's executive is convinced that there is a need for more accurate and relevant product costs. The issues addressed in the first four chapters of this study clearly indicate that the development of a new product costing system is a major and very important project in any organisation.

The questions that need to be addressed in the submission to the executive are:

- Why does the bank need a new product costing system?
- What are the underlying principles to be adopted in the new product costing system?
- What are the short, medium and long-term objectives?
- How will the objectives be achieved?
- What are the application possibilities?
- How much time is required?
- How much will it cost the bank? It is necessary to distinguish between internal costs, i.e. the costs of people assigned to the implementation team, and external costs

consisting of the price of software and hardware required, coupled with training and consultancy expenses.

An important component of the executive support is to obtain the approval to form a multi-discipline project team. It is important to realise that the structuring of the project team also provides an opportunity to obtain commitment to the product costing methodology throughout an organisation. The project organisation consists of three parts, namely the project team responsible for actual development and implementation, the project manager who is responsible for the successful implementation and reports to the project sponsor or a steering committee representing general management.

The project sponsor oversees the planning and implementation processes. The project sponsor is also responsible for the review and acceptance of the project plan and its objectives. Once the project has commenced, it is important that the project sponsor meets with the project team on a regular basis to review progress. Consultants can also be employed to assist in the development and implementation phases (Turney 1993:232-234).

The skills base of the project team should include the following disciplines:

- Cost accounting:- a sound knowledge of standard costing and activity-based costing;
- Workstudy:- understand activities in a bank as well as the setting of standard times;
- Representatives from business entities who represent the requirement of the users;
- Product specialists , on an *ad hoc* basis, will play a vital role in the identification and allocation of activities and cost drivers.

The size of the project team as well as their commitment, i.e. part-time or full-time, depends on the size of the project and urgency of completion. The completion of an organisational costing system in a short period requires more full time commitment from the project team.

Planning is a key to the successful implementation of a project of this nature. A detailed project schedule or timetable, Annexure 2 refers, must be included in the project plan

presented to the project sponsor for acceptance. This project schedule lists all the tasks, time and sequence of project activities, to be accomplished by the project team, to meet the project deadline.

The executive of a bank will be presented with a product costing project proposal and the project will commence once the executive team has confirmed their commitment to the project.

The project plan also includes training requirements because it is difficult to complete the project within the timeframe and to achieve the quality objective, if project members are not equipped to do the job. The type of training includes exposure to the fundamentals of the product costing system, namely:

- Understand what represents cost objects as well as an understanding of the activities and products;
- Understand the fundamentals of activity-based costing and standard costing;
- A thorough understanding of the software and the application thereof;
- A visit to a branch and processing centres will give the team a better understanding of the environment as well as the process required to deliver a bank product.

5.6 Stage 2:- Identify cost objects and the high level costing information requirements

Chapters 3 and 4 indicate that the process of cost accounting addresses a magnitude of issues. To understand why costs are not absolute, it is necessary to evaluate the cost accounting process which is subjective in nature because it is based on a series of judgmental factors and assumptions, to allocate costs to various cost objects (products or services) for reporting and decision-making purposes. Keys (1994:30) defines a cost object as '*an activity, a product, department, project, customer, or some other focus for which a decision-maker would like to know the cost.*'

Within the context of a bank cost objects include:

- Market segments, branches, divisions;

- Products - Annexure 1 contains a list of products available in a bank.;

- Customers - refer to the segmented structure in Figure 2-1.

The impact of the judgmental aspects in the allocation of costs could be reduced by achieving a clearer understanding of the factors that will affect the behaviour of costs in a bank. This is especially relevant to banks with their large central support and administrative functions (Sephton & Ward 1990:29).

The following questions illustrate that the costing information requirements for different types of decisions are not absolute (Walker 1970:13):

- Will the new product make a contribution to the bank's profitability and when?

- Should a bank automate a service?

- What is the initial price of a new service? What is the marketing objectives? Is market penetration pricing required?

- What price concessions can a bank offer corporate customers?

- Is it time to discontinue an existing service?

- What are the true costs of existing products?

It is clear from the abovementioned examples that different types of costing methodologies are desirable, i.e. activity-based, marginal, incremental, absorption, attributable or life-cycle.

It follows that in order to define the application of costing information it is necessary to:

- understand the cost structure of a bank;

- to identify and understand the cost drivers in a bank.

5.7 Stage 3:- Analysing the cost structure of a bank

Product costing involves the allocation of costs based on various allocation bases and through the application of suitable costing techniques. The initial phase of the product costing process involves a detailed analysis of the operating expenses. This cost analysis focuses on the composition of operating expenses in order to categorise costs in various cost categories. The general ledger is the ideal starting point because not only does it contain the various cost elements but it also reflects operating expenses by cost and profit centre. Table 5-1 shows an analysis of the cost structure of a commercial bank in South Africa (Own research, 1995).

Table 5-1: The cost structure of a commercial bank in South Africa

Cost categories	% Allocation	Description of cost elements
Personnel costs	52%	payroll related costs plus fringe benefit as well as the training of such personnel
Computer costs	14%	depreciation, general running and maintenance
Equipment costs	7%	depreciation, maintenance and rental
Occupancy costs	11%	rental, leases, water, lights, taxes and premises maintenance
Stationery costs	3%	general stationery items, cheque books and product packages
Promotional costs	2%	advertising and marketing expenses
Other costs	11%	overhead costs, for example audit fees, legislative costs and insurance
	100%	

The objective of the costing system is to allocate the abovementioned costs to cost objects through the application of an activity analysis and cost drivers to give an accurate reflection of the actual costs of products.

With reference to Table 5-1, costs in a bank are categorised as follows:

a) **Operational costs**, i.e. costs incurred to service customers. These costs will include mainly branch costs, attributable regional head office costs and also central head office costs where there is a direct relationship with the customer.

b) **Directly attributable head office costs** are head office costs which are traceable to a specific product or service.

c) **Services department costs** include house-keeping functions and support activities in branches and business divisions. These services are usually rendered on a centralised basis and include departments such as:

- Personnel and training;
- Security;
- Technical services;
- Information systems.

d) **Corporate services** include those areas that fall in the 'need-to-have' category. These areas include: Accounting, Internal Audit, Economics, Group Secretaries office as well as **general bank overhead expenses** for example:

- Salaries of executives and directors;
- Image advertising;
- Membership in statutory organisations;
- Audit fees;
- Insurance;

An analysis of the cost structure of a bank reveals that a bank's costs are largely fixed in the establishment of a capacity to provide a service to its customers. Recent research by Deloitte Touche (Bigbie 1995:4-12) shows that a bank's cost structure does not reflect the traditional fixed cost behavioural pattern due to factors such as technology upgrades, increased number of new products for the different sub-segments, more complex products and different pricing methodologies.

According to Sephton and Ward (1990:29-33) the success of any bank is dependent on its ability to provide quality services at low costs. They conclude that in order to achieve this objective management must understand and manage the banks cost base without adversely affecting the quality of service.

At the end of stage 3, the project team will have a good understanding of the cost structure in a bank as well as the sensitivities associated with various cost elements. The project team is now in a position to formulate a product costing methodology.

5.8 Stage 4:- Formulating a product costing methodology for a bank

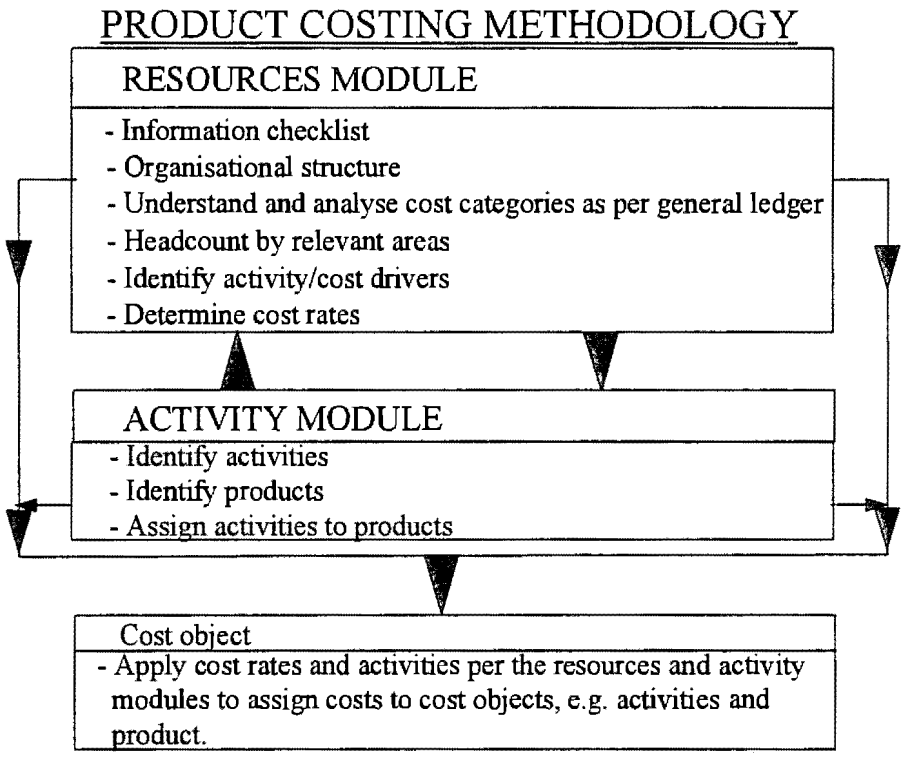
The ideal costing methodology is to allocate all costs directly to individual activities and products. This approach is, however, only possible where the majority of an organisation's expenses reflects the traditional variable costs behavioural pattern. In Chapters 3 and 4, various costing methodologies are discussed and the conclusion reached is that an activity-based and standard costing approach will be best suited to address the product costing needs of a bank. Activity-based costing provides the costing methodology to facilitate accurate and relevant allocation of large central support and administration functions (Sephton & Ward 1990:29).

The financial products and services delivered via a bank's branch network are of such a nature that it permits the setting of standard times to complete a specific process (range of activities), for example depositing cash, issuing a cheque book, etc. Targett (1985:37) agrees that *'a cursory examination of branch clerical routines soon shows fundamental similarities between branches of whatever size and location'*. The application of standard times and consequently standard costing makes it possible to assign staff expenses incurred in the completion of a business process. The major portion of other costs cannot be allocated directly to specific activities based on the standard times because there is not necessarily a clear relationship between standard times and these costs. The allocation of overhead expenses represents the key challenge in the development of a product costing system in a bank.

In Chapter 4, the cost allocation is described as two interdependent procedures, namely the cost assignment and process assignment procedure. The application of this two

dimensional approach to assign costs and activities represents the basic structure of the activity-based costing approach. Figure 5-1 illustrates the proposed product costing methodology.

Figure 5-1: Product costing methodology



The objective of the costing system is to accurately calculate the cost of activities and to use identifiable cost drivers to allocate costs to the lowest meaningful level. Overhead costs, where cost drivers cannot be identified, for example accounting, internal audit, image advertising, security expenses, etc. will be grouped together in the overhead cost pool.

Ostrenga (1990:44) and Keys (1994:30-36) illustrate the basic logic of modern cost accounting in Figure 5-2 below:

Figure 5-2: The basic logic of modern cost accounting

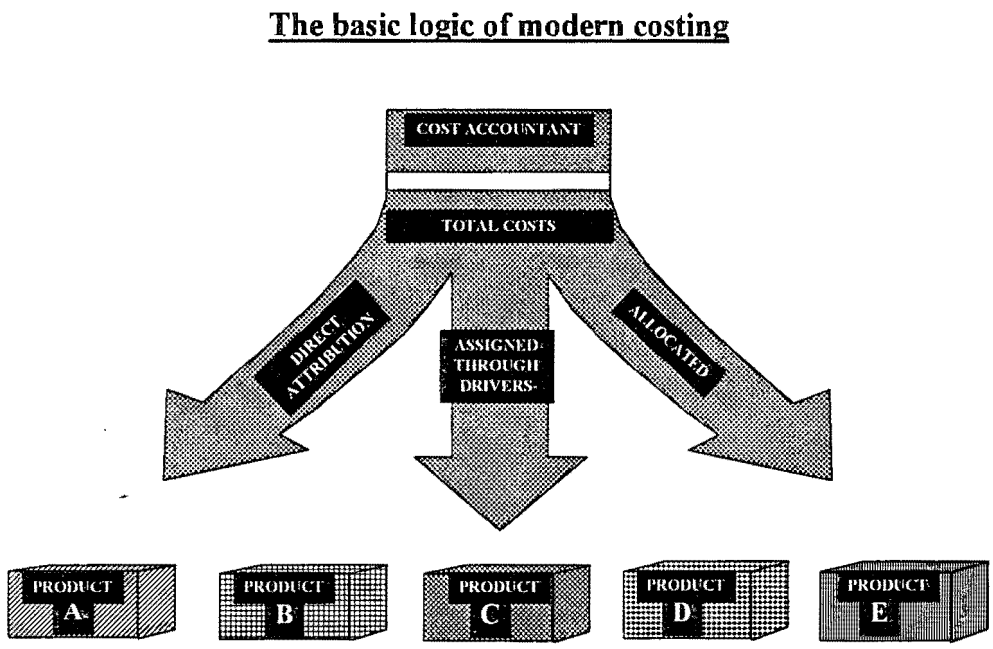


Figure 5-2 shows that the allocation of costs to cost objects consist of three costing processes, in order of preference:

a) Firstly, **direct attribution** that involves the direct assignment of expenses to cost objects.

b) Secondly, **cost drivers are used to assign expenses** to cost objects. The application of activity-based costing principles that focus on the cause-and-effect relationship plays an important role in the assignment of costs through drivers.

c) Thirdly, the **allocated costs** represent the cost pool where it is difficult to identify a cause-and-effect relationship. Costs in this category include corporate services costs, for example costs relating to statutory requirements, accounting, company secretarial activities and internal audit functions.

The conceptual foundation of the product costing methodology is to acknowledge that information needs are determined by the nature of the decisions to be taken. Consequently, the costing methodology and techniques should be tailored to satisfy the management information requirements. Arising from the aforementioned, it is evident

that management needs multi-level costing information on which to base different types of management decisions.

The first level of costing information includes all branch staff costs and other costs allocated through the application of a hybrid of standard costing and activity-based costing principles. The second level of costing information reflects the allocation of head office directly attributable to cost objects. The third level of costing reflects the allocation of head office expenses where a cause-and-effect relationships (driver) can be identified. The fourth level consists of unallocated head office expenses where it is not possible to identify specific cause-and-effect relationships and it is referred to as the 'cost pool' of an organisation. Table 5-2 summarises the costing principles to be applied in the multi-level product costing system. Stage 8 gives a detailed analysis of the methodologies involved to formulate a multi-level product costing system in a bank.

Table 5-2: The components of a multi-level product costing system

First level:	Costing techniques: standard costs and activity-based costing Applicable areas: • Branch costs • Attributable regional costs • Attributable central services expenses
Second level:	Costing techniques: Activity-based costing and direct attribution Applicable areas: • Attributable head office business division • Attributable head office support services
Third level:	Costing techniques: Activity-based costing and an overhead rate as a last resort Applicable areas: • Head office areas
Fourth level:	No meaningful allocation of costs is possible. These costs are deducted from contributions made by business units. These costs should represent a small portion of head office expenses, i.e. approximately 10%.

5.9 Stage 5:- System configuration and development

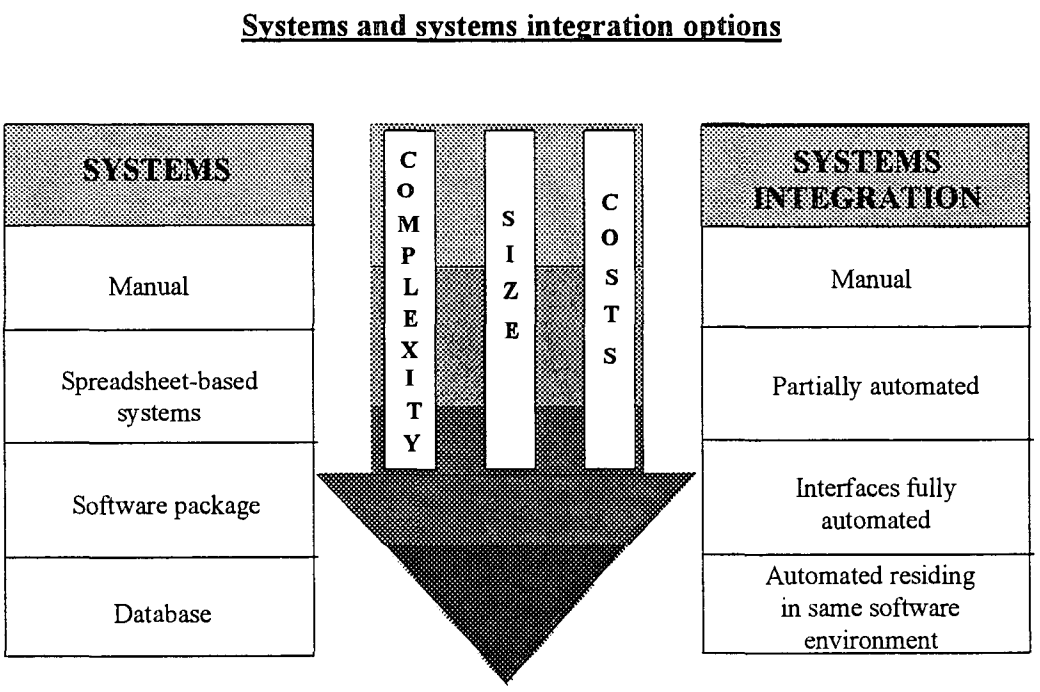
The establishment of a product costing system in a bank is a very demanding project and requires effective planning to enable management to focus on a number of critical aspects affecting the new product costing system, namely:

- System design and computerisation requirements;
- Development and delivery platform;
- Format of design process;
- Information gathering.

5.9.1 Systems design and computerisation requirements

The design of a costing system is dependent on the complexity and size of the required system. Figure 5-3 illustrates the relationship between the type of system and system integration as well as the complexity, size and costs of a system.

Figure 5-3: Systems and systems integration options



Glad and Becker (1994:197-198) summarise the various system options as follows:

a) Manual system

In smaller organisations with a small number of products, it may not be viable to implement a computerised system. The computerised general ledger will provide the source data.

b) Spreadsheet-based systems

This approach is normally useful for new developments where a steep learning curve will be evident. This type of system lends itself to an informal approach. Any changes to the specifications of the system is not as disrupting as is the case with a formal design approach. The differences between a formal and informal design approach are explained in paragraph 5.8.3.

The spreadsheet application is, however, not regarded as a long-term solution because further development and maintenance functions are largely dependent on the availability of the designer of the system.

c) Packaged products

Packaged products provide the user with well-researched methodologies as well as disciplines required to develop a costing system. This is especially useful where a company does not have the necessary resources to develop a costing system. The utilisation of a software package could also reduce the time required to develop a costing system.

d) Database systems

Database systems are ideally suited for high volume costing systems. Costing databases are populated with financial and non-financial data from a variety of systems such as the general ledger, work measurement system and branch accounting systems. It is also important that a database system

contains all the necessary controls to ensure data integrity. (Chasin 1994:12-15.)

Brown and Killough (1988:34-38) conclude that powerful personal computers, coupled with the availability of user-friendly database systems provide the basis for easy-to-use and easy-to-understand database applications. Paragraph 5.10 deals with the development of the product costing databases.

5.9.2 Development and delivery platform

Choosing the right software option or accounting system is one of the most important components of the project because it is a business decision that management must live with for years. Connolly and Ashworth (1994:34-36) and Lee (1990:17) identify the following critical issues that require consideration before a decision is made:

- The objective of the system;
- Involvement of the users;
- Availability of data;
- Data integrity;
- Flexibility and responsiveness of the system;
- Skills required for the implementation and support of the system;
- Frequency of running updates;
- Access to information;
- User friendliness;
- System flexibility;
- Reputation of the supplier;
- Post implementation support and updates;
- Costs and benefits.

A further aspect that needs to be addressed is whether development and modelling should be done on an integrated (mainframe) or a stand-alone (software application) system. The following table, 5-3, lists the main features of the two options. (ABC seminar 1991a; Glad & Becker 1994:199.)

Table 5-3: Features of stand-alone and mainframe applications

Stand-alone application	Mainframe application
Flexible - user friendly	Rigidity
Faster	Time-consuming
Lower costs	Expensive
Limited or no programming required	Programming required
Prototyping capability	Maintenance problems

The development of product costing systems in a banking environment is a complex process that requires a great deal of flexibility from a system's perspective. The power of modern personal computers and the user-friendliness of current software and database applications facilitate the development of a product costing system as a stand-alone system.

5.9.3 Format of the design process

The decision to be taken is whether the development should be based on a formal or an informal approach. The formal approach involves a mainframe application while the informal approach opts for a stand-alone application on a personal computer. The design process comprises a number of joint application design sessions for the project team and other relevant parties, to flowchart the development process as well as the mechanics of the costing system. The objective of this process is to identify the requirements of the costing system,

dependencies as well as possible risk areas, that could affect the timeous completion of the project. Table 5-4 summarises the benefits of the two approaches to the design of any new system. (ABC seminar 1991b.)

Table 5-4: Benefits of informal and formal design process

Informal approach	Formal approach
Faster	Central control
Less rigid	Activity dictionary
Allows for evolution	Comparability across sites
Allows creativity	Difficult to deviate from plan

The informal process allows a greater degree of flexibility in the development process. The development of an integrated product costing system in a bank is a challenging task and the incorporation of head office expenses is often done for the first time and requires a high degree of flexibility to ensure successful implementation (Sephton & Ward 1990:29-33). It follows that the power, flexibility and user-friendliness of current computer and software packages favour the informal approach in a bank.

5.9.4 Information gathering

It is important that the project team knows where to find information. Turney (1993:241) identifies three primary sources:

- *'The accounting department has information about the cost of resources,*
- *Information about activities comes from the people who do the work or are knowledgeable about the work,*
- *Information about cost objects, activity drivers and some performance measures is found in the company's information systems.'*

The process of information gathering presents the ideal opportunity to expose the organisation to activity-based costing and the purpose and importance of the product costing system. The process of information gathering is not a simple process and it requires the application of various data collection techniques (ABC Seminar 1991b; own research 1995; Turney 1993:241-253).

The following techniques can be used to collect data:

a) Observations

The process requires members of the project team to observe and absorb. This process is not time consuming and not costly but it is dependent on the observers' interpretation skills. The approach is normally used to supplement and substantiate information obtained elsewhere in the organisation.

b) Work measurement

As mentioned earlier the nature of activities in a bank is conducive to the application of standard times. It follows that the work measurement system will provide vital information for those areas where it is feasible to introduce a work measurement methodology. The work measurement system will provide information regarding:

- Types of activities;
- The time required to perform an activity;
- The volumes associated with the various activities.

c) Questionnaires

Questionnaires can provide useful information about the activity performed as well as the reason for performing an activity. Questionnaires can be used as a primary tool to gather data. The distribution of a list of questions or discussion points prior to an interview is useful and a follow-up questionnaire can be distributed after an interview.

It is important that the questionnaire to section or department heads meet the following criteria:

- Explains the purpose of the questionnaire;
- Easy to understand;
- Concise;
- Reasonable timeframes;
- A contact person must be provided in the event of any queries.

d) Storyboard

According to Turney (1993:246), storyboarding involves a facilitator from the design team, management and entire staff of each department. The objective is to hold three sessions over a period of time:

i. The first session covers basic costing principles, identifying and defining activities, flow charting activities and identifying activity drivers;

ii. The second session focuses on the defining of cost objects and determining relationships between activities and cost objects;

iii. The last session focuses on activity-based management and the team strives to classify all activities as value added and non-value added activities as well as those areas where there is scope for process improvement.

e) Interviews

Interviews are key instruments in the development of a new product costing methodology. It provides the ideal opportunity to expose and involve users to the development process. Turney (1993:248) lists the following key purposes of an interview:

- Gathering information from reliable sources;

- Educating users,
- Obtaining ownership.

Interviews are fairly time-consuming and it is important that the team identifies those individuals with the potential to make a contribution to the information required. The success of an interview is dependent on the level of preparation. This preparation involves both parties and includes an understanding of the objective of the interview, the required deliverable, the activities performed by the interviewee, formulating questions in advance and possibly have a preliminary interview.

It is important that the interview is conducted in a manner conducive to obtaining the commitment and co-operation of all interviewees (ABC seminar 1991b). Table 5-5 provides a checklist of interviewing guidelines (Turney 1993:251).

Table 5-5: Guidelines to conduct an effective interview

	Interviewing guidelines
1	Explain the purpose of the interview.
2	Review the benefits to be derived from the new product costing system.
3	Describe the project.
4	Explain the project schedule and highlight those stages relevant to the interviewee.
5	Ask easy to understand key questions.
6	Facilitate answers.
7	Provide constructive feedback.
8	Explain interviewee's responsibility.
9	Offer support.
10	Express appreciation.

A well-structured interview is necessary to obtain commitment and support from all the users and application areas in the bank.

5.9.5 How to get data into the product costing system

The method used to capture data affects the running time of the system, the accuracy of data as well as the costs of running a system.

There are two options available, namely:

a) Manual capture

This is a time-consuming exercise and requires detailed validity check to ensure data integrity.

b) Electronic interface

This is the most effective way of entering data into any system and involves the electronic transfer of data from one computer system to another. This process is also referred to as downloading and requires assistance from the information and technology specialist.

5.10 Stage 6:- Structuring the product costing database

5.10.1 Defining a product cost database

Stage 4 (paragraph 5.7) - Formulating a product costing methodology for a bank, summarises the costing applications required to develop a product costing system. Reference is made to interactive modules, namely a resources module and an activity module. Stage 6 explains the development of these modules as integral components of the product costing database.

Product costing systems in a banking environment are characterised by high data volumes to facilitate the costing of a large number of products (Annexure 1 refers). Annexure 3 is an extract from a typical work standards manual and

reflects the activity of cashing a cheque as well as the standard times associated with each task.

The grouping of activities will facilitate the compilation of a bill of activities (BOA) for each product. Glad and Becker (1994:25) define a bill of activities as *'a description of the routing the product (or other cost object) takes through the activities in its path towards completion'*. Annexure 4 illustrates the bill of activities for cashing a cheque.

Glad and Becker (1994:197-198) argue that database systems are ideally suited for the introduction of high volume product costing systems. A database collects, in one source, financial and non-financial data from a number of systems in a bank. A critical success factor to ensure management information, is the confidence level of the source data. It is, therefore, very important that the database contains all the required checks and controls to ensure data integrity.

Depending on the state of systems within a bank, the product costing database could be a stand-alone database or it could be an integral part of the centralised data warehouse. Chasin (1994:12) defines a data warehouse as *'an integrated, shareable source of data of a historical nature'*.

The main source systems of the product costing system are the general ledger system, the productivity management information system, the customer information system and the branch accounting system. The product costing system consists of two databases, namely an **activity-database** and a **cost-database** that are updated from the source systems. Ideally, the periodic updates should be done by means of an electronic downloading.

5.10.2 Activity-database

The activity-database, also referred to as the activity module, includes all the activities in the work measurement system, the volume per activity as well as the standard times required, to complete the defined activities. Annexure 5

reflects an extract from such an activity-database of a large commercial bank in South Africa. This database also provides for the apportionment of the workload *(number of activities x standard time = workload)* and volumes represented by these activities to the mainline product groupings as identified in the product costing system, for example current accounts, savings accounts, investments, account transactions, ancillary products, foreign services, home loan products and electronic products.

The standard times, which are maintained and determined by the workstudy department, are a critical component of the activity database of the product costing system. These standard times are utilised throughout the entire costing process and are used to assign the direct staff costs for a product. It is for this reason that it is of paramount importance that reliable standard times are used. Paragraph 3.9.4 emphasises the importance that these standard times must recognise the changes to the activities, products and processes. (Moebs 1986:144-145; Targett 1985:36-38.)

The standard times are measured using a stopwatch technique or a method of determining standard times called MOMET (Measurement Office Methods Evaluation Technique). The MOMET methodology has been adopted from the United Kingdom and the standard times are set at 100 BSI (British Standards Institute). According to Evans (1975:1) MOMET *'provides office supervisors with a methods time based system for the evaluation of office methods for calculating manning requirements'*. Annexure 6 illustrates the use of data in terms of the MOMET technique (Evans 1975:7). These standard times take into account incentives that are paid to the branch staff, based on productivity levels. In an environment of incentivised remuneration structures, a foreign exchange clerk at one branch may be more efficient at processing draft applications than a foreign exchange clerk in another branch. The first clerk will, therefore, be paid a higher salary.

Where branch staff are not remunerated according to such an incentive scheme, it is necessary to adjust the standard times. It is, therefore, necessary to apply a BSI weighting to the standard times required to perform an activity. This

weighting is supplied by the workstudy department and depending on the activity being performed, is set at, say 83 BSI.

The formula for the conversion of standard times to a lower BSI is as follows:

Input:

- *Standard time for cashing a cheque at 100 BSI 3 minutes*
- *Actual BSI is estimated at 83*

Adjusted standard time = Standard time x (100 BSI ÷ Actual BSI)

= 3 minutes x (100 ÷ 83)

= 3,61 minutes (3 minutes, 37 seconds)

The adjusted standard time is utilised in the product costing calculation. Stage 7 deals with the assignment of activities to products in order to establish the product profiles.

The activity-database also includes activity volumes. These volumes are historical volumes and management must decide on a growth factor to increase the volumes for product costing purposes. Paragraph 3.9.3(d) and Tuit (1991:31-26) identify two basic options, namely an attainable/normal activity level or a perfection/ideal activity level. A conclusion is reached that an attainable activity level should be used to formulate a budgeted activity level which represents a challenging but a realistic activity level. The activity volume in the activity database could be used to calculate the budgeted activity volumes. The extract from an activity-database in Annexure 5 shows a 3% mark-up on historical volumes to determine the budgeted product costs for the ensuing year. It is also possible to differentiate between the anticipated volume growth rate of different product groupings. The planned business and product strategies will assist in finalising a realistic budgeted volume growth rate.

5.10.3 Cost-database

The cost-database, also referred to as the resources module, contains the operating expenses sourced mainly from the general ledger and the branch accounting system. Costs are grouped in relevant cost pools to facilitate the calculation of cost rates based on the standard times or any other cost drivers identified in a bank. These cost rates are used to facilitate the calculation of product costs (refer Stage 8). It is important that the integrity of the cost database is unquestionable. The cost database requires a number of validity and cross checks to ensure that the cost database reconciles to the general ledger. These reconciliation and validity checks should form an integral part of the cost database. The cost database, therefore, requires reconciliations and exception reports.

The cost-database also includes non-financial data in the form of staff numbers. These staff numbers are reconciled to the number of staff represented by the assessable minutes. The difference between the actual headcount numbers and the headcount numbers based on the assessable minutes represents either spare capacity or is an indication of efficiency in branches.

Stage 8 provides more detail on the utilisation of cost data from the cost-database and activities from the activity-database, to determine cost rates and its application in the calculation of product costs.

5.10.4 Database manual

In order to ensure an acceptable level of data integrity in the new database, the product costing project team should be tasked to compile an operating manual for the new system. This operating manual should explain the procedures as well as the controls in place to ensure a problem-free production and maintenance of the activity- and cost-databases. Upon finalisation of this manual, it should be submitted to the internal audit department to approve the system controls and procedures.

5.11 Stage 7:- Categorising activities and establishing product profiles

5.11.1 Identifying and recording activities

The purpose of this stage is to prepare a bill of activities for each product in the costing system. The first objective of the product costing system is to allocate activities, sourced from the activity-database, in a logical order (also referred to as a process/profile) to the relevant products and the second objective is to establish product profiles.

Certain activities are directly attributable to various product types, but the real challenge lies with the allocation of the *pool of activities*, i.e. those activities that are applicable to a variety of products. This pool of activities includes activities such as enquiries, telephone calls, switchboard activities, exception reports and referral reports.

The principles of activity-based management are used to facilitate the allocation of activities to various products. The objective is to focus on the causes of activities, also referred to as the activity or cost drivers.

Products are the cost objects of the product costing system, and represent a grouping of a variety of activities in a logical order. These products include, for example entries, deposits, withdrawals, accounts and other ancillary products. It is also necessary to determine the costs associated with the maintenance of accounts. Account maintenance includes activities such as opening of an account, closing of an account and other periodic activities such as scrutinising, enforcing set controls, balancing, updating records and granting of facilities.

Each product unit type consists of a number of activities and it is important that the bill of activities of a product, represents a true reflection of the actual flow of activities. In this regard the workstudy department plays a key role in identifying activities, the establishment of realistic standard times for activities as well as counting the volumes associated with activities. These standard times are listed in a work standards manual containing a description of the various

activities comprising a product (Annexure 3). There are a number of methods to count volumes, namely:

a) Electronic counts, i.e. where the system counts the number of activities. This method is, however, only restricted to the electronic activities that can be identified in branch information system.

b) Manual counts are used where it is difficult to identify the activity on a customers account, for example an interview , enquiry or telephone calls.

c) Ratio-derived counts are based on the activity driver concept. Certain relationships are used to establish the number of activities, for example the relationship between a telephone call and a switchboard activity is one to one. It is, therefore, only necessary to count the number of telephone calls and the switchboard volumes are based on the predetermined ratio.

Each group of activities are further categorised into direct and indirect activities. The former relates to those activities where a clear relationship with the product can be identified, while the indirect activities relate to those activities where a relationship exists with a variety of products. Indirect activities are performed in support of the direct activities. Glad and Becker (1994: 66-68) distinguish between primary and secondary activities. Primary activities have an external focus and require customer interaction while secondary activities are performed in support of primary activities.

Arising from the abovementioned, the activities in the branch environment can be categorised into two main sections, namely:

- Primary activities also referred to as branch or front-line activities;

- Secondary activities also referred to as back-office or processing activities.

Secondary activities are more difficult to assign and the study, therefore, firstly focuses on the assigning of secondary activities and thereafter primary activities where it is not difficult to identify the cause-and-effect relationship.

5.11.2 Back-office or processing activities

Experience gained by the project team as well as input from the workstudy area play an important role to facilitate the identification of back-office activities as well as the allocation of activities to relevant product groups. As mentioned in paragraph 5.5, the project team should also visit a processing centre to observe the processes required to deliver a service.

The first phase of the allocation of back-office activities involves the high level identification of all the activities directly attributable to specific products or product, for example ledgers department to current accounts, savings accounts department to savings accounts and investments department to all investment accounts.

It is important that the product costing methodology recognises the banking needs and profiles of different groups of customers. It is, therefore, necessary to differentiate product costs where the activities and activity volumes vary according to the banking requirements of customers in the various market segments. Table 5-6 illustrates the categorisation of products by segment:

Table 5-6: Categorisation of products by market segment: An example.

	Market Segments				
Product	Personal	Lower Commercial	Middle Commercial	Upper Commercial	Corporate
Current Acc	X	X	X	X	X
Overdraft	X	X	X	X	X
Savings Acc	X	X			
Home Loans	X				

Current account statistics relating to the number of debtor and creditor accounts and the number of entries per account could be used to establish account profiles for the various market segments. The commercial market segment could be categorised into three sub-segments viz. lower, middle and upper. This sub-segmentation reflects the wide spectrum of customers operating in this market segment. Research in a large commercial bank shows that the account profiles vary from 26 entries per month in the small business segment to in excess of 250 entries per month per account in the upper commercial segments. These account profiles are also important to allocate indirect back-office volumes to products.

The cause-and-effect relationship of activities is used to assign activities to products, and forms the basis of the identification of activity drivers.

The list of possible activity drivers includes:

- Number of entries per account to facilitate the allocation of voucher processing and other indirect activities.

- The allocation of activities in the correspondence department could be based on the number of letters typed in the various departments.

- Telephone calls in the various departments is the driver for the allocation of switchboard volumes.

5.11.3 Branch or front-line activities

The methodology explained above is used to allocate branch activities. The branch activities relate largely to those activities that involve an interaction with customers. The allocation is not as complex as for back office activities because a large percentage of the activities are directly attributable to specific products or product groups. It is, however, necessary to distinguish between selling and service activities. The selling activities can provide vital statistics to establish the success of marketing techniques in branches as well as the costs associated with the selling of products.

In order to compile segmented product costs, information supplied by the workstudy department and business divisions is used to identify attributable activities. To facilitate the apportionment of these activities within a product group, a variety of activity drivers could be applied, for example:

- Interviews in the various departments within a branch as well as the number of cheque books and statements collected could be used as the basis for the apportionment of enquiries: main counter volumes.
- Segmented account profiles, i.e. number of entries per account..
- Number of overdrawn accounts.
- Number of accounts in lock-up, i.e. overdrawn accounts where customers are unable to service their debt.

Branch activities are also referred to as primary activities. The back-office activities on the other hand relate to the internal procedures and requirements of the bank.

The profiled standard time recognises the fact that all activities do not occur on a one to one basis, i.e. enquiries on savings accounts do not occur at the same intervals for every account. The profiled standard time is based on the actual volume for a specific activity, i.e. number of savings accounts opened, divided by the total number of saving accounts. In all instances, the profiled minutes are based on the volume per unit type, for example number of accounts or entries. Profiling facilitates the calculation of an occurrence or incident per account (refer example that follows).

- *Example:*

  Number of accounts opened *20 000*

  Total number of accounts *100 000*

  Profile per account = (20 000 ÷100 000) x (100 ÷1)

  = 20%

In order to calculate the profiled time attributable to an account over its life-cycle, it is necessary to apply the profile of 20% to the standard time required to maintain one account. The calculation of the time required to open an account can be achieved by applying a profile of 100%.

The cost associated with the opening of an account must be spread over the life-cycle of the product. It follows that if there is any doubt that the profile does not reflect the anticipated product life-cycle, then the profile needs to be reviewed. In the example the profile is 20% which indicates a five year life-cycle. In the event of the launch of a new long-term loan product, it will be necessary to adjust the profile because in the launch year the profile for opening accounts will be 100%. In this instance the profile will be adjusted to reflect a more realistic position that represents the life-cycle of the product. Annexure 4, 7 and 8 illustrate the application of profiled standard times to calculate product costs.

5.12 Stage 8:- Calculate the product costs

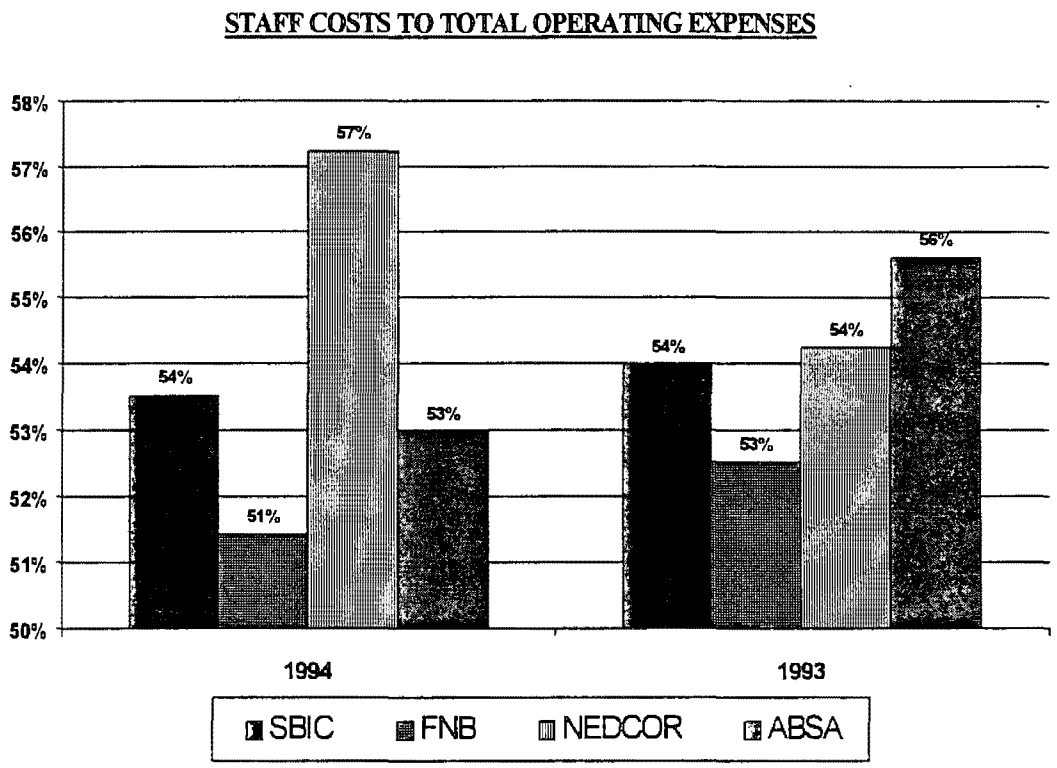
There are many dimensions to costs, some will relate to one decision and some to another. What is needed, is a structure which presents the components of costs in a manner that will enable the decision-maker to select certain components which are applicable to the decision-making process (Horngren & Foster 1987:22).

5.12.1 Background

Questions of operating efficiency and product costing in the branch banking environment are best answered by techniques such as activity-based and standard costing. The calculation of standard costs involves the quantification of the established standards. The nature of activities in a bank is largely of a repetitive nature. Activities performed in a banking environment is therefore ideally suited to set standard times for an activity. An analysis of the annual financial statements of the four biggest banks in South Africa shows that staff

costs represent approximately 55% of total costs. It is, therefore, feasible to calculate standard costs for a large percentage of costs in a bank (Cole 1995:7). Graph 5-1 shows the relationship between staff costs and total costs in leading South African commercial banks.

Graph 5-1: Staff costs to total operating expenses in the four biggest South African banks



The graph shows that staff costs represent the biggest component of a bank's cost structure. The application of standard times makes it possible to allocate labour costs incurred to complete specific activities. However, other operating expenses cannot be allocated to specific activities based on the standard times unless there is a cause-and-effect relationship between the standard times and the overhead costs.

In recognition of the aforementioned constraint, it is necessary to apply the principles of activity-based costing which concentrates on what initiated a cost as opposed to merely allocating overhead costs through the application of a

bank-wide overhead rate. Activity-based costing emphasises the need to obtain a better understanding of cost behaviour to identify the causes (drivers) of costs. It, therefore, concentrates on the forces behind the overhead costs called cost drivers. In terms of chapter 4 cost drivers are those activities or transactions that are significant determinants of costs.

The objective of the costing system is to accurately calculate the cost of activities and to use the cost drivers to allocate costs to the lowest meaningful level (Sephton and Ward 1990:29). Overhead costs where cost drivers cannot be identified, for example accounting, internal audit, image advertising and security expenses, will be assigned using a bank overhead rate. An alternative approach is not to allocate these bank overheads to specific products or entities, but to deduct it from gross profits or contributions at total bank level. The size or materiality of the overhead pool will most likely determine the costing treatment thereof.

The conceptual basis on which the costing methodology is based, is to acknowledge that information needs are determined by the nature of the decisions to be taken. Consequently, the costing methodology and techniques must be tailored to produce the information required by management. Management, therefore, needs multi-level costing information to support different types of decisions. Stage 4 (paragraph 5.8) lists the four levels of the product costing information.

5.12.2 Cost allocation methodologies

A number of cost allocation methods is used to calculate product costs, viz. direct allocation of attributable costs, allocation based on cost drivers, allocation based on predetermined profiles of specific products, allocation based on number of entries or accounts and allocation based on predetermined mark-up percentages (overhead rates). The application of a bank-wide overhead rate is not recommended.

The objective is to allocate at least 80% to 90% of total costs directly to products. The time required to establish a methodology for the other 10% to 20%, that represents those expenses where it is not cost effective to identify a cause-and-effect relationship, prohibits any further development. It is, therefore, acceptable from an economic and time point of view to apply an overhead cost rate. (Bellis-Jones & Hand 1989:48-50; Elphick 1985:22-27; Keys 1994:30-36; Maynard 1994:22.)

5.12.3 Principles applicable to the different levels of product cost information

a) First level - Branch costs (60% of total bank operating expenses)

i. Branch staff costs (30% of total bank operating expenses).

Staff costs in the product costing system are primarily based on standard times. Annexure 3 is an extract of a work standards index and reflects the standard time for cashing a cheque. It is the workstudy area's responsibility to ensure that the work standards index is updated.

Standard times form the basis for the application of activity-based and standard costing methodologies. The different staff rates and the profiled time per the bills of activities are used to calculate the staff costs attributable to different products. Staff costs will be split into direct and indirect staff costs, the latter to cater for managers, branch administrators/accountants and typists.

<u>Direct branch staff cost rates</u>

These rates are calculated using the salary package per staff grading. In order to calculate the cost of a salary package, the following factors are included: basic salary; pensions fund contributions; motor vehicle allowances (where applicable); medical aid contributions; 13th cheque, other fringe benefits where there is a cost to the bank and any sundry allowances. Direct staff costs rates in the product costing system are categorised in the following grades: doing (junior clerical); checking

(senior clerical) and supervision (supervisors). The cost of branch management is based on attributable activities or is assigned to products based on an indirect staff cost rate.

The workload represented by all staff in these three categories, reflects the available assessable workload. The calculation of the available workload takes into account a five day week, consisting of an eight hour working day less 45 minutes for lunch and another provision for other breaks, say 15 minutes. The calculation is also adjusted to recognise public holidays during the week. The available assessable minutes are used to determine the cost rates relating to indirect staff and other indirect costs where the time spent by staff is the cost driver.

The direct staff cost rates should be adjusted to make allowance for exceptions, for example:

- Managers department and foreign exchange department doing rate

  In practice a large percentage of staff in the two departments performing the 'doing' function, are employed at the senior clerical grades due to the complexities of activities as well as the high risk of error associated with such activities. Thus these doing rates have to be adjusted accordingly.

- Mark-up % of direct staff cost rates

  The direct staff costs rates are adjusted to recognise the other staff costs, which are not included in the calculation. These staff costs are: salaries - overtime; Saturday pay and other statutory contributions, for example Unemployment Insurance Fund and Regional Services Council Levy.

<u>Indirect staff cost rate</u>

The difference between the total branch staff costs and the calculated direct staff costs after the above adjustments is regarded as the indirect

staff costs. The indirect staff costs represent the costs of management, typist and other workers in the branch that do not perform typical branch activities, but provide critical support or guidance to the front-line staff. The indirect staff cost rate is calculated as follows:

Indirect staff cost rate = Indirect staff costs ÷ total assessable minutes

The assessable minutes represent the total available minutes of the assessable staff categories, i.e. doing, check, supervisors and branch management.

ii. Branch premises expenses (8% of total bank operating expenses)

Included in this category are the following cost items:

- Rental;
- Service fee for buildings;
- Premises maintenance;
- Light, fuel and water.

Premises expenses represent the costs of establishing an infrastructure to provide an efficient service to the customers. The allocation of premises expenses to the products is based on a cost driver, i.e. a basis of allocation that will be a true reflection of what causes costs associated with a specific product.

There is a direct correlation between the number of staff and floor space needed and consequently, the number of staff is used as a cost driver for cost allocation purposes. Premises costs are expressed as premises expenses per staff minute.

Other premises expenses cost drivers could include computer activity for electronic services where computers occupy space or number of safe custody boxes where a bank offers a safe custody service.

iii. Branch computer expenses (7% of total bank operating expenses)

Computer expenses are categorised as attributable computer expenses (current account, savings bank and investment costs per entry and per account) or non-attributable computer expenses (terminals, printers, development).

The cost drivers to allocate the attributable computer costs are the relevant number of accounts and number of entries. These unit costs are calculated by or with the assistance of the information systems area. Examples of the applicable unit costs and the relevant cost drivers can be summarised as follows:

ATM transactions	= R0,35 per transaction
Current accounts	= R0,37 per account
Current account entries	= R0,10 per entry
Card enquiries	= R0,05 per entry
On-line enquiries	= R0,05 per entry
On-line money transfers	= R0,15 per entry
On-line statements	= R0,10 per transaction
Savings accounts	= R0,30 per account
Savings account entries	= R0,09 per entry
Batch data entry	= R0,03 per entry
ATM terminal	= R0,30 per entry

The other computer expenses which cannot be directly attributed include, amongst others, new systems development costs and branch terminal expenses. The calculation of non-attributable computer expenses rate could be based on the volume capacity of these terminals. The allocation of terminal costs is based on the total number of entries processed while

development costs are assigned to specific product categories or to research and development costs.

iv. Branch depreciation (6% of total bank operating expenses)

Depreciation and the applicable cost drivers are categorised as follows:

Asset category	Cost drivers
Soft furnishings	Office space (No. of staff)
Furniture and fittings	Office space (No. of staff)
Office equipment	Business volumes
Mainframe and branch computer equipment	Business volumes
Personal computers	Number of staff
Motor vehicles	Number of managerial and business development staff

Business volumes represent all the monetary transactions processed through a customers account, i.e. all debits and credits to a customers accounts but excludes recoveries and payments by a bank.

Normally the accounting depreciation rates are applied. However, consideration could be given to apply a lower depreciation rate for product costing purposes. This consideration should only be considered where there is marked difference between the fixed assets operational lifespan and the accounting lifespan. (Brimson 1989:47-53.) An example is the automated teller machine, where the depreciation for accounting purposes is normally based on a 20% depreciation rate. In practice, these machines are operational for 10 years and longer.

v. Branch communication expenses (2% of total bank operating expenses)

Communication expenses are classified into three categories, namely postages, telecom and electronic communication expenses. Postage

expenses are directly attributable to the outward correspondence activities as identified in the activity database. Telecom expenses are directly attributable to the outward telex and telephone calls activities.

The costs associated with electronic communication expenses, for example on-line money transactions and magnetic tape entries are normally accounted for in the computer expenses category.

vi. Branch stationery expenses (2% of total bank operating expenses)

Stationery expenses are classified into four categories, namely stationery expenses - cheque books; stationery expenses - office requisites; stationery expenses - product package; stationery - promotional items.

Stationery expenses - cheque books, product packages and promotional items are assigned to the cost of issuing a cheque book and the cost of maintaining a current account as part of a product package such as Status Account, PrimaPlan, AchieverPlan and PrestigePlan. Stationery expenses - office requisites are assigned using number of staff in head office and business volumes in a branch environment.

vii. Other attributable expenses (5% of total bank operating expenses)

The activity-based costing methodology is used to attribute certain expenses to identifiable activities, for example cash handling expenses; automated clearing bureau costs and processing expenses. (Refer to the table below for further examples of attributable costs.)

Processing expenses for cheque sorting	= R0,004 per cheque
Automated clearing bureau	= R0,14 per cheque
Differences in tellers cash	= R0,02 per cash withdrawal/deposit
Agents commission paid	= R250,00 per home loan processed
Assessment fee paid	= R3,235 per home loan processed

Cash handling fee	= R0,017 per R100 cash deposits
Cash handling fee	= R0,18 per cash withdrawal/deposit
Cheque book cost per page	= R0,16
Losses - stock and shares	= R7,46 per purchase/sale
Losses - investment accounts	= R0,152 per investment account
Losses - savings accounts	= R0,52 per savings account
Losses - current accounts	= R4,43 per current account
Losses - teller services	= R0,03 per cash withdrawal
Losses - teller services	= R0,002 per R100 cash deposits

ix. Summary of the allocation of branch expenses

The first level of the product costing calculation will represent approximately 60% of the total operating expenses of a bank. The guidelines for the allocation of branch costs could be summarised as follows:

- Staff costs:- Standard times and activity-based and standard costing and mark-up percentages to cater for indirect staff costs;
- Premises expenses:- Standard costing in terms of premises cost per staff member;
- Computer expenses:- Allocation will be based on number of accounts and entries as well as a mark-up percentage to cater for non-attributable branch costs;
- Depreciation:- Cost drivers and indirect cost rate;
- Communication expenses:- Two methods of apportionment have been identified viz. cost drivers and inclusion in the overhead rate applicable to all products;

- Stationery expenses:- Cost drivers (cheque books) and indirect cost rate;

- Attributable expenses:- Attributable cost rates based on predetermined cost drivers.

b) Second level - attributable head office expenses (15% of total bank operating expenses)

The key determinant in the classification of head office expenses is whether costs could be regarded as attributable to various market segments. Based on the above, only the costs incurred in the business divisions or by segment or product managers, the home loans division and certain departments within retail marketing, credit, international, treasury and the electronic banking division could be regarded as attributable costs.

Through an analysis of the electronic banking costs it is possible to identify those costs directly attributable to the running and maintaining of the automated teller machine network, certain electronic products as well as costs attributable to the cash management bureau. It is, therefore, possible to assign the majority of these costs to specific products. The attributable business volumes are the most prevalent cost drivers.

c) Third level - central support service divisions expenses (18% of total bank operating expenses)

This category consists of the indirect support costs of the bank, i.e. costs that could not be allocated to specific products. Divisions included in this category are the remaining support services such as the remaining portion of information technology, operations, human resources, property and security divisions.

The possible cost drivers for each of the categories are:

i. Information technology:- Number of entries and accounts.

ii. Operations support:- Number of entries/account and staff complement will be the main cost drivers.

iii. Human resources:- Number of staff and the different staff grades.

iv. Property:- Space required is largely the result of the number of staff.

v. Security:- Number of outlets.

d) The Fourth level - corporate services (7% of total bank operating expenses)

Expenses relating to the corporate services represent those areas required in terms of statutory obligations as well as areas such as internal auditing, accounting and legal. This level also includes general bank overhead expenses such as audit fees, donations, insurance and statutory subscriptions. The indirect overhead cost rate is determined by dividing the total indirect overhead costs by the total available minutes. This rate (based on the same formula as the indirect staff cost rate) is included in the calculation of the indirect overhead costs associated with products. It is not deemed viable to spend more than the proportionate time on the allocation of these costs.

e) Summary

The multi-level product costing system includes the following costing principles:

Table 5-7: Elements of the multi-level costing system

Level	Costing Principle	Costs included	% of Total
First	Activity-based costing and standard costing	Branch expenses	60
Sub-total represents the costs of primary and secondary activities at branch level.		Branch expenses	**60**
Second	Attributable costing and activity-based costing	Attributable head office expenses	15
Sub-total represents attributable product costs		Attributable expenses	75
Third	Activity-based costing	Central support services	18
Total costs included in product costing system. This cost includes overhead expenses but excludes corporate services costs.		Total product expenses	**93**
Fourth	Applied at total bank level. Allocation to products is normally done on an arbitrary basis.	Corporate services	7
Total		Total costs	**100**

These costing principles will be applied to the bill of activities, consisting of primary and secondary activities, to calculate the unit costs of a bank's products.

Annexures 7 and 8 illustrate the format of the product cost pages for maintaining a savings bank card-based account as well as the cost for cashing a cheque.

The product cost pages (Annexures 7 and 8) are structured in such a way that each product page has sub-totals for activities performed at branch level or back-office. The product cost page also provides for an activity description to facilitate the calculation of costs applicable to specific activities within a product, for example the cost of opening or closing of an account and the cost of granting an overdraft.

The unit costs available from the product cost system consist of:

- Opening and closing of an account;
- Maintaining an account;
- Servicing an overdraft;
- Cost per account activity, i.e. debit and credit entries, on-line transfers, debit orders, etc;
- Ancillary products.

The abovementioned cost items will be used to establish the total unit costs of products applying the 80/20 principle. The product unit cost is presented in a product costing index reflecting the following information (Own research 1995):

Table 5-8: An extract from the product costing index

Product costs - 1995	
Product name	Cashing a cheque
Product description	Encashment of cheques
Volume statistics	916 984 per month
Unit type	Per transaction
Product unit cost - cost per cheque cashed	R2.98
Prior year information:	
Volume statistics	880 000 per month
Product costs	R2.60

This product cost information will provide the costing building blocks to enable the user to calculate the cost of a specific account for a certain customer profile, i.e. where the account activity will vary significantly from one segment to the other. Paragraph 5.14.2 refers to the building blocks of the product costing system.

5.13 Stage 9:- Prepare feedback report to general management

One of the critical success factors identified earlier in the chapter (stage 1 paragraph 5.4) is to obtain executive approval and support for the development of a new product costing system. It is, therefore, important to give the executive a comprehensive feedback report which should include the product costing index, i.e. the list of product unit costs, as well as a comparison with the product costs prior to the implementation of the product costing methodology with detailed explanations of differences.

The feedback report will include:

- A swot analysis of the new system;
- Short- and long-term objectives;
- Linkage to the bank's management information system strategy;
- Activity-based management application possibilities.

5.13.1 SWOT analysis of the new system

A swot analysis could *inter alia* address the following issues:

a) Strengths

- Is the system flexible enough to cater for the inclusion of new products and the exclusion of discontinued products?
- How will it affect management reporting and performance measurement?
- What are the maintenance dependencies?
- What is the flexibility of the system in terms of introducing new and phasing-out of old products?

b) Weaknesses

- Does this product costing system cater for all products?
- Does it successfully allocate the majority of costs (80%) based on a cause-and-effect relationship?
- The absence of segmented times could prove to be a weakness of the system. Servicing different customers may require different procedures and time spent.

c) Opportunities

- Does it facilitate the introduction of activity-based management?
- The possibility exists to incorporate product costing information in the budgeting process and introduction of activity-based budgeting.
- The system can be used to operate and maintain a product costing system for different geographical areas.
- Periodic volume checks and counts on a sample basis in a number of branches could improve the accuracy of assumptions made regarding the apportionment of volumes.

d) Threats

- Due to the huge volume of information available from the new system, it may lead to the misinterpretation of costing information. A Product Costing User Guide is essential to address this problem.

5.13.2 Short and long-term objectives

a) Short-term objectives

- To liaise with the workstudy department and business entities to verify all assumptions made. Key volume counts are to be verified on a sample basis throughout the branch network;
- The compilation of a product costing operating manual and request internal audit division to sign-off the new system/procedures;
- Complete guidelines to facilitate the correct application of product cost information for decision-making purposes;
- Incorporate the new product costing information into management reports and customer/product profitability analysis;

- To incorporate into the individual product pages information relating to costing implication of statutory requirements, for example: capital requirements as well as the factors to be applied to ensure an adequate return on the required capital (Chapter 6 refers);

- To use the product costing system as a vehicle to promote a cost awareness and facilitate cost management in a bank.

b) Long-term objectives

- To supply on-line costing information for customer and product profitability purposes. Executive information systems will play an important role in achieving this objective;

- The incorporation of product description pages in the product costing manual;

- The application of the product costing methodology and the contents thereof will be promoted as a key tool for process re-engineering purposes;

- To continually strive to improve the accuracy of product costing information.

5.13.3 Linkage to the long-term management information systems strategy

The product costing system should form an integral part of the ultimate management information reporting system. In the short-term, the product costing system will contribute towards the elimination of *cottage industries* through the introduction of a standardised costing methodology and system throughout the organisation. The primary objectives are to calculate segmented product costs for utilisation in the costing of products throughout the organisation as well as to provide the costing information consisting of relevant and accurate information to assess an entity's performance and to facilitate the decision-making and product development processes in a bank.

The long-term objective of the product costing system is to supply accurate product cost information via the executive information system to facilitate the performance of customer and product profitability analyses. Product cost information will be downloaded from the product costing system into a customer profile matrix. This matrix will facilitate the performance of a customer relationship- and product profitability analysis. The availability of value added cost information will also contribute towards the introduction of a total cost management process in the bank.

5.13.4 Activity-based management

As mentioned in paragraphs 5.10 to 5.12, the new system will have the capability to calculate the cost of one activity, for example the cost of updating character cards. The activity description will facilitate the calculation of the costs for a group of activities or a service for example: the cost of opening an account.

This capability gives management the opportunity to improve the profit potential of a product or a group of products by managing the activities involved in rendering a specific service. This understanding of the cause-and-effect relationship of costs in a bank will enable management to review the viability of activities and processes. This activity-based approach compliments concepts such as process streamlining, process innovation or process re-engineering (Morrall 1994:67-71).

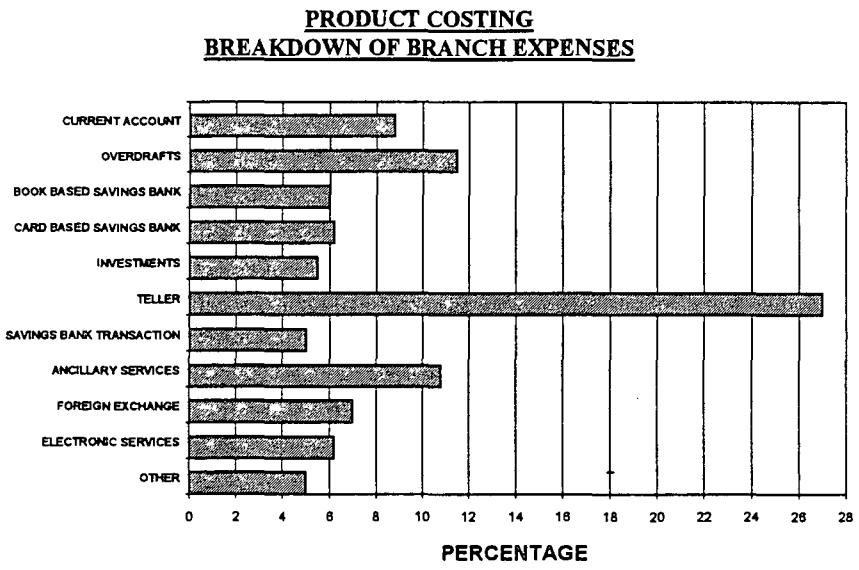
Activity-based management could assist management in their endeavour to:

a) Reduce and contain costs

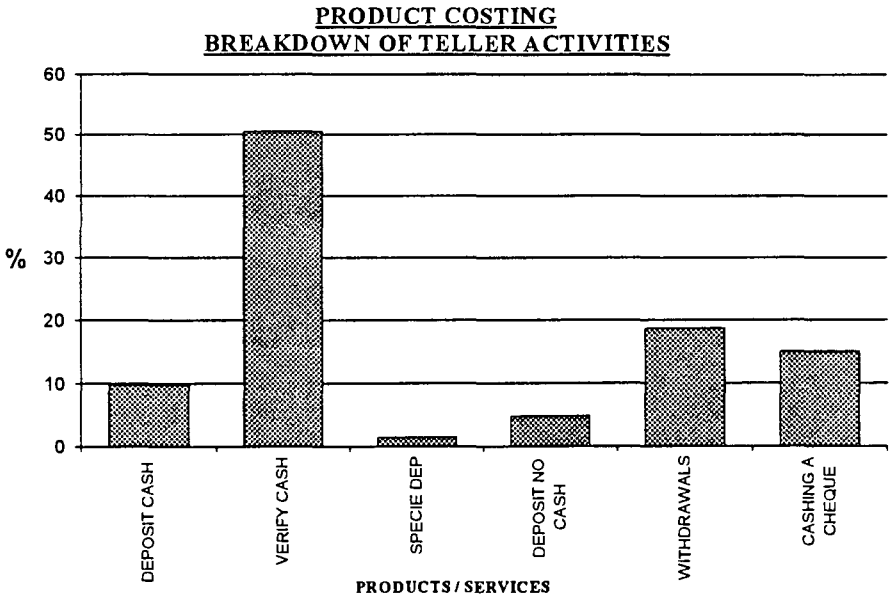
This is done through the identification of time consuming (costly) activities and the introduction of improved procedures to reduce time spent in completing certain activities. Activity value analysis can play an important role in reducing costs.

The next two graphs (5.2 and 5.3) show typical activity-based management information that will be available to identify the costly activities in a branch (own research 1995). The research includes the analysis of approximately 150 products in a bank based on the 80/20 rule. The research relating to the assignment of activities to products was done over twelve months and it involves some one thousand activities.

Graph 5-2: Breakdown of branch expenses by product



Graph 5-3: Breakdown of activities performed by a teller



These graphs clearly indicate that the high cost area in a branch is the teller area and specifically all cash-related activities. Management could utilise this activity analysis to formalise an action plan that focuses on the reduction of costs or to ensure an adequate revenue recovery for services rendered.

b) Improving profitability

Management can identify where to concentrate the organisation's resources in order to obtain for maximum return.

c) Improving productivity and efficiency

The survival of a bank over the long-term depends on its ability to service customers and to produce products more efficiently and at a lower cost than its competitors.

d) Rationalising the business

Which activities if rationalised could create additional capacity or permanent saving?

5.14 Stage 10:- Implementation, application and on-going maintenance

5.14.1 Introduction

An excellent product costing system could be a mediocre product costing system with integrity and credibility problems within two years if on-going maintenance is not done by a dedicated product costing team. This product costing team will be situated in the costing area of a bank and normally consists of two staff members.

The banking industry is very dynamic and innovation and/or competitor threats will result in the introduction of new or upgraded products on a regular basis which require timeous maintenance of the product costing system. Process re-engineering will also affect the bill of activities of various products and will result in changes to the product costing system.

Stage 10 involves the very important validation phase to obtain management's commitment to the application of the product costing information. This commitment can only be obtained once management is able to assess the applicability and integrity of the product costing information. This can only be achieved if the product costing information is applied in the day-to-day decision making and strategic planning processes of a bank. Stage 10 describes the application possibilities that will enable management to improve the efficiency and profitability of a bank.

5.14.2 The application of the product costing information to improve a bank's profitability

The product costing system provides information to facilitate the effective management of a bank. Partridge and Perren (1993:37-38) emphasise that cost efficiency and differentiation are the two pillars to achieve a competitive advantage. Cost efficiency focuses on being the lowest cost producer in the industry. Differentiation refers to an organisation's ability to identify profitable and not so profitable customers, products and business segments. The product costing information will make a significant contribution towards achieving a competitive advantage. The application possibilities of the information available from the product costing system are:

a) Product costing and segmented management reports

The product costing system enables management to determine the cost associated with its products. These product unit costs form an integral part of management reporting in a bank. A bank's ability to do market segment reporting is also dependent on the availability of relevant product costing information.

b) Price differentiation

This study shows that the profile and banking needs of customers in a bank differs substantially. It is, therefore, necessary to identify the product costs

associated with a specific customer profile and to match a bank's pricing philosophy with the costs incurred.

c) Customer and product profitability

It is critical that a bank is able to calculate the profitability of customers and products. Drury (1992:811) and Becker (1993:15-19) agree that customer profitability analysis provides important information that can be used to determine whether a customer relationship should be targeted or not, and to introduce price differentiation for customer services.

d) Product life-cycle profitability

The product costing information also allows management to determine and manage the performance of a product over the product life-cycle. Drury (1992:307) explains that the life-cycle of a product consists of four phases:

- The introduction phase involves the development and ultimately the launch of a product;
- The growth phase includes the marketing initiatives to facilitate greater customer awareness and shows rapid growth of the new product;
- The maturity phase reflects market saturation, as new and more innovative products enter the market;
- Lastly, the decline phase shows lower sales because customers are opting for the new products.

The duration of phases differs and it is important that banks manage the performance of products during these life-cycle phases. A large portion of a product's costs is incurred during the early phases of the life-cycle, for example research and development as well as marketing costs. It is, therefore, necessary to do a post implementation evaluation. This process compares all the revenues earned by a product with all the costs incurred over its life-cycle.

This life-cycle analysis is also referred to as life-cycle costing and this process basically involves the tracking of all revenues and costs attributable to a product from inception to withdrawal from the market. In an inflationary environment it is necessary to combine life-cycle costing with a discounted cash flow analysis.

e) Product costing building blocks

The costs associated with individual product elements or activities represent the building blocks that provide cost and operational information about the processes in a bank. These building blocks can be used to construct the cost of a new product. The availability of building blocks will also enable banks to do target costing. Target costing is widely used by Japanese companies and is receiving more attention in western companies. Target costing is driven by what the market can bear, i.e. the target price is set at a level that will enable a company to achieve its sales and market share targets. A profit margin is deducted from the target price to determine a target costs. The product development is structured not to exceed these target costs (Drury 1992:810; Yoshikawa, Innes & Mitchell 1989:20-23).

f) Activity-based management and value analysis

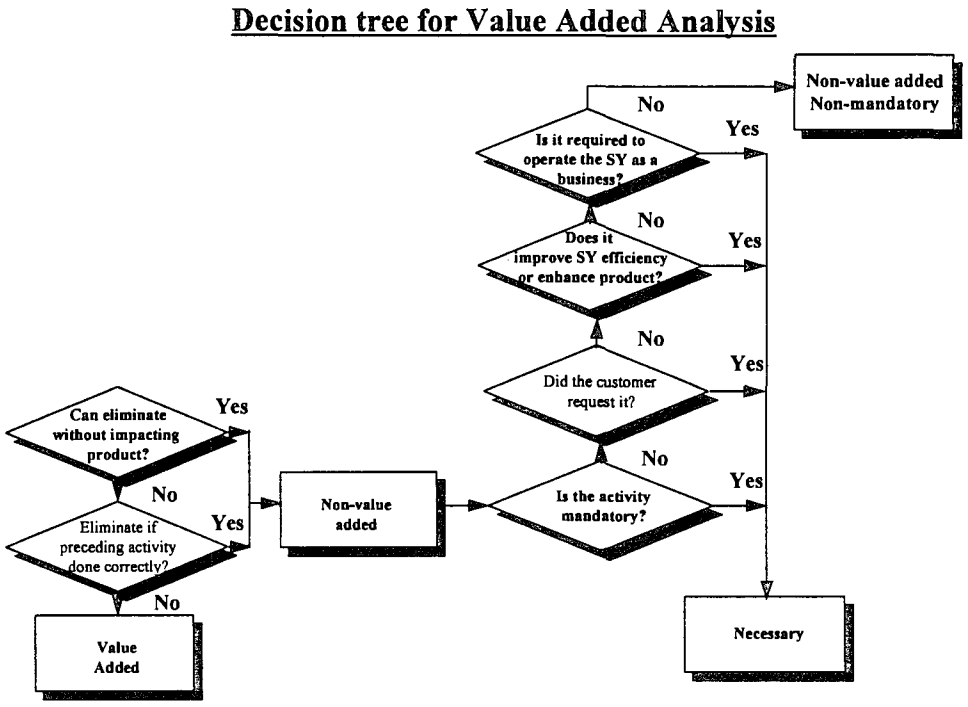
The process of categorising activities can also assist and play an important role in the process of business process re-engineering. Flowcharting the activities representing a process and identifying the value-added and non-value added activities will contribute towards a better understanding of the process required to render an efficient service. Glad and Becker (1994:29) define a value added activity as an activity that *'adds something that a customer wants to a product or service'*.

The process of activity-based management and value-added analyses involves the following procedures:

- In co-operation with the workstudy department prepare a flowchart reflecting the process required to provide a specific service. A process

consists of various activities and activities are reflected in a flowchart to determine areas for improvement or non-value adding activities. Porter and Kehoe (1994:122) utilise a decision tree, refer Figure 5-4 to determine whether activities add value to the final product produced by a naval shipyard (SY);

Figure 5-4: Decision tree for value added analysis



- Identify the volume drivers of each activity;

- Agree and finalise the process required to provide a service. This process should represent an attainable standard and not a perfection standard. An attainable standard recognises the normal problems that may be experienced in the delivery process while the perfection standard assumes the bank operates in an ideal world, i.e. no human error, no system problems, no downtime, etc;

- Use the activity analyses from the productivity management database or activity database to identify value added, mandatory non-value added and

non-value added activities. Define value added and non-value added activities;

- After the elimination of the non-value added activities analyses the activities compromising the value added product processes. The objective of this analysis is to identify the cost drivers that are applicable to this process;

- Determine the workload involved to provide the service and calculate standard activity costs, through the application of key cost rates. The sum total of the activity costs represents the product costs.

5.14.3 Training requirements of the product costing system

Training is another critical success factor to ensure the successful implementation of a product costing system. Periodic workshops conducted by the costing team could play a critical role to ensure that the users accept the integrity and credibility of the product costing system. It is also important to compile a comprehensive training manual to facilitate a better understanding of the product costing methodology to ensure the correct application of product costing information.

The training manual will include:

a) A user manual with guidelines to ensure the correct application of product costs and an operating manual which explains the logic applied in the product costing system as well as the relevant systems used;

b) The Product Costing Index which lists the unit costs of the products in a bank (Table 5-8 refers). Again it is necessary to provide the user with interpretation and application guidelines.

5.15 Summary

The formulation of a product costing methodology for a bank requires careful consideration. Management must identify the need for a new product costing system.

The review of the shortcomings of an existing system or shortcomings identified in overseas literature will enable management to formulate the main objectives of the new system. It is, however, necessary to adapt the issues raised in the research literature which focuses mainly on the manufacturing environment. This chapter addresses the implementation of a product costing methodology in a bank. The development and implementation program for a new product costing system consists of ten stages:

- Stage 1: Obtaining executive approval and presenting a project plan.

  It is important for a project of this nature to obtain the executive's approval and support to proceed with the development. This stage also includes the presentation of a project plan reflecting the project team, project schedule and estimated project costs.

- Stage 2: Identify the cost objects and high level costing information requirements.

  The cost objects in an bank include activities, products, customer, market segment and branch. Stage 2 also identifies the costing information requirements.

- Stage 3: Analysing the cost structure of a bank.

  The objective of this stage is to allow time for the project team to understand the bank's cost structure as well as the main cost drivers.

- Stage 4: Formulating a product costing methodology for a bank.

  The objective is to formulate an interactive multi-level product costing methodology that assigns resources and activities to cost objects. Direct attribution, standard costing and activity-based costing are the key methodologies used to calculate product costs. The four levels of the product costing system are:

  - Level 1: Branch expenses;
  - Level 2: Attributable head office expenses;
  - Level 3: Central support services expenses;
  - Level 4: Corporate services expenses.

- Stage 5: System configuration and development.

  The development of a product costing system in a bank is a complex and very demanding project. It is, therefore, critical that this stage focuses on those issues that will ensure the successful implementation of the project. The following aspects are dealt with:

  - System design and computerisation;
  - Development and delivery platform requirement;
  - Format of design process;
  - Information gathering.

- Stage 6: Structuring the product costing database.

  The product costing database consists of the activity database and the cost database. The activity database includes all activities, products, standard times and monthly volumes. The cost database includes the cost information sourced from the general ledger as well as non-financial information such as number of people per cost centre.

- Stage 7: Categorising activities and establishing product profiles.

  The objective of this stage is to prepare a bill of activities for each product.

- Stage 8: Calculate the product costs.

  The purpose of this stage is to formulate a costing methodology to calculate the costs associated with four levels in the multi-level product costing system.

- Stage 9: Prepare feedback report to general management.

  This stage focuses on the importance of continued executive support to ensure the successful implementation of the new product costing system. The objective of this stage is to prepare a comprehensive feedback report to general management.

- Stage 10: Implementation, application and ongoing maintenance.

  The importance of a formal maintenance plan and a dedicated product costing team are mentioned as critical success factors for a world class product costing system. The implementation and application processes are also integral to the validation process.

  The application of product costing information will provide the value added costing information to assist management with a wide range of management applications.

  The training requirements of the product costing project include an end-user operating manuals as well as a product costing index listing all the product unit costs calculated by the product costing system.

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CHAPTER 6

COST OF STATUTORY REQUIREMENTS

6.1 Introduction

The purpose of Chapter 6 is to determine the costs associated with statutory requirements as laid down by the Reserve Bank and Receiver of Revenue. Statutory costs represent a significant expense in a bank's books. These costs can be attributed to a specific product type and it is, therefore, necessary to recognise the importance of statutory costs in the pricing and profitability equation.

Brooks (1987:7) argues that regulations in the financial services industry determine the ground rules for marketing and pricing. Regulations, inevitably, have cost implications, and therefore, affect the costs associated with a product in the financial services industry.

It is important that the pricing of products recognises all costs incurred by a bank, including the costs to meet the legislative requirements as specified by the Banks Act, the South African Reserve Bank Act and the Income Tax Act.

These legislative costs include amongst others:

- The cost of reserving which is the cost associated with the liquid asset and cash requirements as stipulated in the Banks Act 94 of 1990, section 72 and the South African Reserve Bank Act 90 of 1989, section 10A respectively;

- The cost of capital required in terms of the Banks Act 94 of 1990, section 70;

- The cost associated with the financial services levy as specified in the Income Tax Act of 1962, as amended, section 64A.

The objective of this chapter is to formulate the calculation of these costs associated with statutory requirements.

6.2 Cost of reserving

In terms of the South African Reserve Bank Act and the Banks Act, banks are obliged to hold liquid assets amounting to 7% of total liabilities (2% non-interest bearing cash and 5% liquid assets), as reflected and defined in the Reserve Bank report completed by banks, i.e. return DI 310.

An additional interest bearing cash reserve requirement of 1% of defined short-term liabilities is also required to be maintained in terms of the South African Reserve Bank Act, 90 of 1989.

The minimum cash reserve is essentially an instrument of monetary policy which serves a dual function, firstly, as an instrument to ensure appropriate liquidity management by banks and secondly, it is a mechanism to restrict growth in money supply. Liquid asset requirements are a prudential measure utilised by the South African Reserve Bank to ensure liquidity in a bank.

6.2.1 Cash reserve requirements

The cash reserve requirements are determined under the South African Reserve Bank Act, 1989, and currently specify the maintenance of two types of cash reserves. The first type is non-interest bearing cash reserves, whilst the second type of cash reserve currently attracts interest based on the weekly tender rate for 91 days treasury bills.

a) Non-interest bearing cash reserve

This cash reserve is currently calculated at 2% of total liabilities excluding capital, reserves and other permissible deductions. The permissible deductions are:-

- Loans received under repurchase agreements from the South African Reserve Bank (SARB);

- Loans received under repurchase agreements in liquid assets;

- Loans received under repurchase agreements in readily marketable fixed interest-bearing securities of public sector bodies;

- Loans received under matched repurchase agreements;

- Amounts owing by banks.

The resultant cash requirement is met by deducting a bank's average holdings of Reserve Bank notes and specie (coins) during the reporting month, from the requirement, and any resultant shortfall is then deposited in an account with the South African Reserve Bank. In the event of the average cash holdings exceeding the requirement, the resultant excess qualifies as a liquid asset, from the date of attestation of the return by the chief executive officer, for the ensuing month.

b) Interest-bearing cash reserve

The reserve is based on 1% of a bank's short-term liabilities, i.e. those with a residual period to maturity from the reporting date of 31 days or less, adjusted for permissible deductions. These deductions are:-

- All loans received under repurchase agreement as specified in the Act.

- Amounts owing by banks;

- Deposits having a comparable residual period to maturity and which are pledged to a bank as security for loans granted;

- Fifty percent of remittances in transit.

Remittances in transit are defined in regulation 19(5) of the Banks Act as amounts of cheques or other orders to pay, drawn on a bank's branches in the Republic, or on another bank in the Republic or on the Reserve Bank, and in respect of which the reporting bank has credited a client, but which have not yet been debited to the drawer's account or bank for settlement.

The interest-bearing cash reserve requirement may not be met by any portion of the reporting bank's cash holdings, and must be placed on deposit with the South African Reserve Bank.

6.2.2 Liquid asset requirements

The base of the prudential calculation is a bank's total liabilities, excluding its capital and reserves. No other deductions are permitted. The requirement is currently set at 5% of the total liabilities to public (Banks Act 1990, regulation 22(2)(a)).

Qualifying liquid assets are defined in the Banks Act, 1990 section 72(1) as:

- Reserve Bank notes and coins surplus to the cash reserve requirement utilisation;
- Gold coin or bullion;
- Credit balance in a clearing account with the SA Reserve Bank.
- Treasury Bills of the Republic;
- Government Stocks with a residual period to maturity of less than three years;
- Land Bank bills issued as short-term financing to agricultural co-operatives and control boards;
- Securities of the Reserve Bank with a residual period to maturity of less than three years.

In determining the liabilities of a bank, it is permissible in certain circumstances to off-set client's balances where both debit and credit balances are kept with the bank, thereby reducing the liabilities upon which the cash reserve and liquid asset requirements are based.

The laid down conditions for cash management set-off are:-

- A legal right of set-off must exist, and legal opinion should be sought to the effect that the right to apply set-off is legally well-founded and is enforceable in the liquidation or bankruptcy of the client or the reporting institution;
- The debit and credit balances must relate to the same person;
- Both balances must be denominated in the same currency;
- Both balances must have identical maturities.

Set-off is not permitted in respect of balances relating to clients, other than foreign banks, outside the Republic of South Africa. Banks are offering various cash management products to facilitate set-off on the balance sheet of a bank and its customers.

6.2.3 Calculating the cost of reserving

The purpose of the cost of reserving calculation is to determine the incremental costs to the bank arising from cash reserving and liquid asset requirements. This calculation recognises the incremental costs associated with cash holdings as well as a bank's liquid asset portfolio.

The formula to calculate the annual costs of reserving is:

[(Non-interest bearing cash requirement % x cost of funds) + (Liquid asset requirement % x constant x margin on liquid assets) + (Interest bearing cash requirement % x constant x margin on cash deposited with SARB)] x Multiplier effect.

The "multiplier effect" recognises the impact of the additional funds needed to fund the increased liquid assets and cash requirements associated with the funding obtained by a bank. The multiplier effect based on a 7% liquid asset requirement is 107,5% (i.e. for every R100 advance to a customer a bank must obtain R107,50 funding to provide for the funding cost associated with reserving requirements).

The multiplier effect on the cost of reserving

Balance Sheet			
Loan	100.00	Deposit (1)	100.00
Liquid asset req. on (1)	7.00	Deposit (2)	7.00
Liquid asset req. on (2)	0.49	Deposit (3)	0.49
Liquid asset req. on (3)	0.03		
	107.52		

Multiplier effect = Total funding required ÷ Loan amount

= 107,52/100,00

= 107,5%

Note: *Total liquid asset requirement is 7% (5% liquid assets and 2% cash) of total liabilities.*

Example:

Cash requirement	*2%*
Liquid asset requirement	*5%*
Cost of funds	*14%*
Margin on liquid assets	*-0,25%*
Multiplier effect	*107%*
Constant	*-100%*
Margin on cash deposited with SARB	*-0,75%*

Calculation:

[(2% x 14%) + (5% x -100% x-0,25%) + (1% x -100% x -0,75%)] x 107,5% = 0,329%

It is important to note that the cost of reserving is applicable to total (deposits). This calculation shows that the incremental costs to a bank for every R100 funding required is R0,33. It is, therefore, important that this cost is recognised in the pricing of products.

6.3 Cost of capital

6.3.1 Background

In terms of the Banks Act, 1990 (the Act), banks are required to hold capital of 8% (minimum) of the weighted value of assets, also referred to as risk assets.

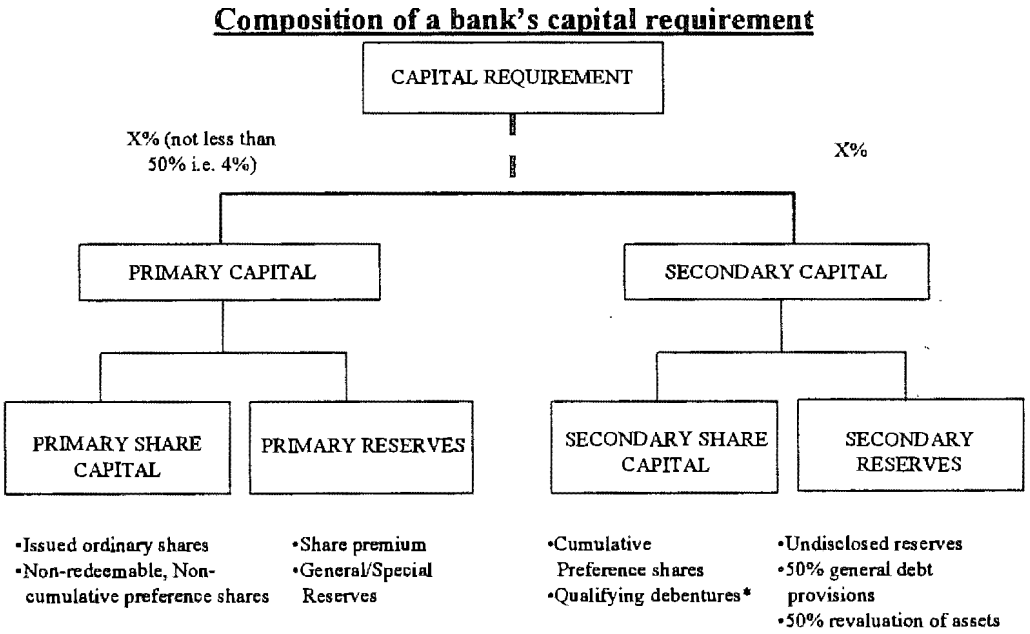
The weightings applicable to the various asset categories depend on the risk profiles of the assets. The risk profiles or risk weightings as referred to in the Banks Act are based on the Bank for International Settlements (BIS) standards. Annexure 9 contains a list of risk weightings applicable to various types of products, as stipulated by the Act.

The purpose of the calculation is to establish guidelines to calculate the cost of maintaining a bank's capital requirement, as prescribed by the Act.

6.3.2 Composition of a bank's capital requirement

The 8% capital requirement may be funded as follows:

Figure 6-1: Statutory capital requirement of a bank



In terms of the Banks Act, debentures shall be reduced by an amount equal to 20% of the amount obtained during the fifth year preceding maturity and thereafter annually at 20% of the amount obtained.

6.3.3 Calculation of the cost of capital

When the cost of capital is required for pricing purposes, the general formula is as follows:

Cost of capital = Cost of primary capital + cost of secondary capital

a) Cost of primary capital

The calculation of the cost of primary capital for decision making purposes is illustrated by means of the following example:

Information:

Advance		*R1 000*
Risk weighting		*100%*
Capital requirement		*8%*
Primary capital	*4%*	
Secondary capital	*4%*	
Return on equity objective		*19,5%*
Tax rate		*35%*
Cost of funds		*14%*

- *Primary capital required*

  = Loan x risk weighting % x capital requirement %

  = R1 000 x 100% x 4%

  = R40

- *Return on Equity objective*

  = [(ROE Objective] ÷ (1-Tax %)

  = [(19,5%] ÷ (1-35%)

  = 30,0%

- *Cost of primary capital*

  = ROE % objective x capital required

  = 30,0% x R40

  = R12,00 or 1,2% of the advance.

It is necessary to recognise that primary capital held is also a form of funding and it is, therefore, necessary to adjust the cost of primary capital to recognise this funding benefit. If this adjustment is not done it could lead to overpricing and in the competitive banking industry this adjustment can be the difference between losing or gaining business.

The funds benefit associated with primary capital is calculated as follows:

- *Primary capital x cost of funds = R40 x 14%*

  = R5,60

- *The adjusted cost of primary capital is, therefore:*

Cost of primary capital - funds benefit = R12,00 - R5,60

= R6,40 or 0,64% of the advance

b) Cost of secondary capital

The calculation to determine the cost of secondary capital is similar to the formula used to calculate the cost of primary capital. The actual costs will be off-set against the funding benefit to arrive at a net cost of secondary capital.

6.3.4 Cost of capital associated with liquid asset requirements

It is important that in terms of the Act certain assets which qualify as liquid assets have an associated risk weighting (i.e. Government Stock, 0% and parastatal stock, 20%). The following example illustrates the calculation of the cost of capital relating to liquid asset requirement.

Information:

Funding		*R1 000*
Reserving requirement		*7%*
Liquid assets		*5%*
Cash		*2%*
Capital requirement		*8%*
Primary capital	*4%*	
Secondary capital	*4%*	
Risk weighting		*20%*
Return on equity		*30,0%*

- *Liquid assets required = Funding x 7%*

  = R1 000 x 7%

  = R70

- *Primary capital required = Liquid assets required x risk weightings x primary capital requirement*

  = (R70 x 20% x 4%)

  = R0,56

- *Cost of primary capital = Capital required x return on equity %*

  = R0,56 x 30%

  = R0,168 or 0,02%

6.4 Financial services levy

The Income Tax Act requires that a financial services levy be charged at a rate of 0,75% of 8% of risk assets. It is levied on a quarterly basis.

6.4.1 Calculation of the cost of the financial services levy

The formula for determining the annualised pre-tax cost of the financial services levy (FSL) is as follows:

FSL (after tax cost) = Required capital (*) x (50% x 4 quarters) x FSL

Pre-tax cost = (Required capital x 2 X 0,75%) - (1 - Tax rate)

(*) Required capital = Asset x risk weighting x 8%

Example:

For each R100 of risk assets bearing a 100% risk weighting, the pre-tax cost is as follows:

(R100 x 100% x 8% x 2 x 0,75%) - (1 - 35%) = R0,18

Thus, for each R100 of risk assets at the full weighting of 100% a cost of R0,18 or 0,18% at a pre-tax level is incurred on an annual basis.

6.4.2 Pricing Consequences

Risk assets form the basis of the financial services levy and the levy is incurred irrespective of whether the bank has surplus capital or not. The business with a 100% statutory risk weighting will attract the levy at R0,18 per R100. It follows that business which generates less than R0,18 per R100 income will incur a net cost to the bank.

6.5 Summary

This chapter highlights the importance of costs associated with statutory requirements. Statutory requirements stemming from the Banks Act, the Reserve Bank Act and the Income tax Act include:

- a cash requirement consisting of 2% of total liabilities (as defined) non-interest bearing cash deposit with the Reserve Bank and a 1% interest bearing cash requirement based on the short-term liabilities, as defined;

- the liquid asset requirement based on 7% of total liabilities, as defined. The 2% cash requirement is included in 7% liquid asset requirement;

- a capital requirement based on risk weighted assets consisting of not less than 4% primary capital that includes shareholders funds and reserves and 4% secondary capital consisting of cumulative preference shares, debentures, 50% of revaluation of reserves and 65% (1 - tax rate) of general debt provisions;

- a financial services levy of 0,75% based on 8% of risk assets and it is levied quarterly.

These statutory requirements represent significant costs, for example the 1993 annual financial of ABSA shows that the financial services levy amounts to R73 million. It is, therefore, important that these costs are recognised in the pricing and profitability calculations.

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CHAPTER 7

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 Summary

The importance, purpose and scope of this study are discussed in Chapter 1. The objective of this study in a nutshell is to ascertain whether there is a need for a product costing methodology in the banking environment.

Chapter 2 recognises the importance of meaningful cost information to enable management to formulate business strategies and achieve their strategic objectives. It is recognised that the banking environment is not comparable to the traditional manufacturing industries. In order to meet customer needs, banks are maintaining an expensive infrastructure spread over a vast geographical area. The five management issues at the top of local and international banks' priority lists are:

- Profitability and cost control;
- Understanding the full implication of the relationship with customers;
- Human resources;
- The ability to develop value added products that will make a contribution to a bank's profitability;
- A management information system that will provide value added information for decision-making purposes.

The golden thread throughout the abovementioned strategic management issues is the availability of value added management information. Cost information is a critical component of management information, which in turn, highlights the need for a value added costing system in a bank.

In the past, banks have relied on wide margins and price increases to generate profits. The local and international banking industries have experienced a significant change in the business environment. Competition, risk control and customer resistance to excessive repricing have forced banks to take a more in-depth look at the costs they incur.

This study has shown that the importance of cost information and cost management have been underestimated by banks during the 1980's. The introduction of a cost management culture requires a thorough understanding of the cost structure of a bank. Chapter 3 evaluates various traditional costing techniques in the context of a bank and concludes that activity-based costing and a modified standard costing approach will provide the basis to establish a value added costing methodology in a bank.

Banks have a substantial central support cost infrastructure. In terms of traditional costing methodologies these costs would be defined as overhead costs. The critical success factor from a cost management point of view, is to find a cost allocation methodology that enables management to accurately assign these costs to cost objects.

In Chapter 4, activity-based costing is evaluated as a possible solution to the effective management of central services costs. Traditional costing methodologies focus on the fixed and variable cost classification to assign costs to cost objects. The problem is that in a bank the fixed portion of total costs represent a substantial percentage of total costs. The allocation of fixed costs remains a problem and banks had to resort to the application of a bank-wide overhead allocation basis, namely numbers of staff or staff time.

Activity-based costing classifies all costs as resources and recognises the cause-and-effect relationship that exists between resources and activities. The basic structure of activity-based costing represents two interdependent views. The first view is the cost assignment view which focuses on improving the understanding of the cost structure of an organisation. The second view, process analysis view, involves an understanding of the determinants of activities also referred to as activity or cost drivers.

The study recognises the critical importance of relevant costing information to perform profitability analyses and to provide value added management information to facilitate the strategic decision-making process in a bank. As a consequence, Chapter 5 addresses the formulation of a costing methodology in a bank.

The formulation of a product costing methodology for a bank requires careful consideration. Management must identify and accept the need for a new product costing system. The development and implementation program for a new product costing system consists of ten stages:

- Stage 1: Obtaining executive approval and presenting a project plan.

  It is important for a project of this magnitude that the executive approves and supports the development of the new product costing system. This stage also includes the presentation of a project plan reflecting the project team, project schedule and estimated project costs.

- Stage 2: Identifying the cost objects and high level costing information requirements.

  The cost objects in an bank include activities, products, customer, market segment and branches. Stage 2 also identifies the cost information requirements as stipulated by management.

- Stage 3: Analysing the cost structure of a bank.

  The objective of this stage is to allow time for the project team to understand the bank's cost structure as well as the main cost drivers.

- Stage 4: Formulating a product costing methodology for a bank.

  An activity-based costing methodology consists of two modules, namely a resources module which includes costing information per the general ledger and an activity module containing all the activities, standard times and volumes attributable to the bank's products. The objective is to formulate an inter-active, multi-level product costing methodology that assigns resources and activities to cost objects. Direct

attribution, standard costing and activity-based costing are the key methodologies used to calculate product costs.

- Stage 5: System configuration and development.

  The development of a product costing system in a bank is a complex and very demanding project. It is, therefore, critical that this stage focuses on those issues that will ensure the successful implementation of the project, namely:

  - System design and computerisation;
  - Development and delivery platform;
  - Format of the design process;
  - Information gathering.

- Stage 6: Structuring the product costing database.

  The product costing database consists of the activity database and the cost database. The activity database includes all activities, products, standard times and monthly volumes. Reference is made to the setting of standard times as well as the activity level for the ensuring planning cycle. The cost database includes the cost information sourced from the general ledger as well as non-financial information such as number of people per cost centre.

- Stage 7: Categorising activities and establishing product profiles.

  The objective of this stage is to prepare a bill of activities for each product. Each bill of activities separates the branch or front-line activities from the back-office or processing activities. Activity drivers are used to assign activities to products. The source system to satisfy the information requirements is the activity database. This stage also involves the determination of product profiles, i.e. the activities required to open an account does not take place on a monthly or annual basis. The profile of the product, therefore, applies an incidence factor to determine a profiled standard time.

- Stage 8: Calculate the product costs.

  The purpose is to formulate a costing methodology for each of the four levels in the multi-level product costing system. Staff costs represent 55% of total costs in a South African bank. The activities performed by staff are easy identifiable and are of a routine nature. It is, therefore, possible to establish a standard time for each activity. This process facilitates the application of standard costing to assign staff costs to products.

  The remaining 45% of total operating expenses is assigned through the application of attributable and activity-based costing methodologies.

- Stage 9: Prepare feedback report for general management.

  This stage emphasises the importance of continued executive support to ensure the successful implementation of the new product costing system. The contents of the feedback report are:

  - A SWOT analysis of the new system
  - Short- and long-term objectives
  - Linkage to the bank's management information strategy
  - Activity-based management

- Stage 10: Implementation, application and ongoing maintenance.

  The importance of a formal maintenance plan and a dedicated product costing team are critical success factors for a world class product costing system. This stage also emphasises the importance of validating the product costing information.

The application possibilities of the product costing information as calculated by the product costing system, include:

- Product costing and segmented management reporting;
- Price differentiation;
- Customer and product profitability;

- Product costing building blocks;
- Activity-based costing and value analysis.

All operating expenses have been assigned to the relevant products, but Chapter 6 highlights the impact of the statutory costs on management's decisions. It is mainly the costs of reserving, capital and the financial services levy that will have a significant impact on the pricing of products.

7.2 Conclusion

This study confirms that accurate meaningful management information is the key to ensuring the sustained profitability of a bank over a long term. Cost information is a critical component of any profitability, strategic planning or decision-making equation. It is, therefore, important that the executive understands the cost structure of a bank as well as the main cause-and-effect relationships that affect operating costs in a bank. The strategic objective is to reduce the *costs to gross income ratio.* This process can only be achieved if management adopts a total cost management strategy.

In order to understand costs, management should identify costs and the causes (drivers) thereof at the lowest level, namely an activity. The availability of accurate and meaningful cost information depends entirely on the existence of a sound product costing methodology in a bank.

This study provides an easy-to-use guideline to formulate a product costing methodology for a bank. The application of the ten-stage product costing development and implementation program, coupled with the overview of the standard and activity-based costing techniques, will assist the management accounting function of a bank to develop a value added product costing methodology. The multi-level product costing system recognises that different costs are required for different purposes.

Once a bank has adopted and implemented a product costing methodology, the opportunities for value added management initiatives will yield substantial benefits. However, the critical success factor is management's attitude towards total cost management and their willingness to deal on a pro-active basis with this complex problem.

7.3 Recommendations

Commercial banks across the world have identified cost management as one of the critical success factors to ensuring sustainable profit growth. It is acknowledged that cost management is only possible if there is a thorough understanding of the costs and the underlying cost drivers in a bank. The study recommends that an activity-based costing methodology is adopted to calculate the costs of products and services in a commercial bank. The improved understanding of the resources absorbed by activities in a commercial bank is very important to assess the performance of business entities in a bank. This process will enable the executives to meet their business objective of ensuring an adequate return on shareholders' investments.

This study has dealt with the concepts of activity-based management and activity-based budgeting in the banking environment, which represent a study in their own right. It is recommended that to optimise the benefits associated with an activity-based product costing system, it is necessary to do further research with regard to the two activity-based costing initiatives. A combination of these methodologies will provide the necessary management tools required by a world-class bank.

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ANNEXURE 1: LIST OF PRODUCTS OFFERED BY A COMMERCIAL BANK

Money transfers and payments

Automatic teller machine

- Withdrawals

- Deposits

- Mini statements

- Cheque issuing

- Account payment

Telephone banking

Bank cheques

Bills for collection

Cheque accounts

Drafts

Electronic account payments

Garage card

Mail transfers

On-line money transfers

Credit card

Motorcard

Stop orders

Travellers cheques

Visa debit card

Savings and investments

Youth accounts

Instalment savings accounts

Call deposits

Employee savings schemes

Fixed deposits

Gilt and semi-gilt stocks

Homeowners savings scheme

Money market investments

Notice deposits

Participating mortgage bonds

Savings deposits

Senior citizen deposits

Society scheme

Special savings

Trusts and curatorships

Financial futures

Trust services

Asset management

Estate planning

Estate duty advice and planning

Investment management

Nominee management

Share portfolio management

Trusts and curatorships

Foreign exchange and travel services

Bills for collection

Commercial intelligence

Discounting of bills

Documentary credits

Drafts

Exchange control matters

Export finance

Foreign notes

Foreign currency finance

Foreign exchange contracts

Import finance

Credit card

Tele Transmission Transfers

Travellers cheques

Visa Debit Card

Loans and finance

Acceptance credits

Agricultural production loans

AgriPlan

Asset based leasing

Business revolving credit loans

Capping facility

Caravan finance

Discounting of bills

Discounting of instalment sales and financial lease rentals

Equipment financing for professionals

Export finance

Factoring

Fixed rate lending

Floor plans for vehicles

Foreign currency finance

Franchise and loan scheme

Full maintenance leasing

Home improvement loans

Housing loans (including Corporate home loans)

Housing schemes

Instalment sale finance

Investors promissory notes

Import finance

Financial services

Asset insurance

Agricultural insurance broking

Assured investments

Automatic settlement benefit

Commercial insurance broking

Corporate insurance broking

Direct mail

Estate planning

Financial planning

Home loan insurance

Home loan protection

Life assurance broking service

Mechanical breakdown insurance

Short-term insurance

Motor insurance

Other services

ACB magnetic tape service

Account reconciliation service

Agricultural advisory service

Bankers acceptances

Business acquisition

Capital reconstructions

Electronic banking:

- Reuters

- Economic review data

- Balance/statement details

- Investment rates/details

- Forex rates/details of forward exchange contracts

- International cash management

- Third party payments

- Fund transfers

Cheque writing service

Commercial intelligence

Correspondence for collection

Customer computer services

Economic research

Electronic delivery services

Financial service for professionals

Fleet management

Foreign trade promotion

Full maintenance

Guarantees

Income tax affairs

Investment advice and portfolio management

International monetary affairs consultancy

Krugerrand purchase and sales

Medium term finance

Mergers and takeovers

Motorway maintenance plan

Personal financial planning

Property management services

Publications

Reports on parties

Reuters ticker tape services

Safe custody (including lockers at certain branches)

Share transactions

Stock exchange listings and share issues

StudentPlan

Training business financial management

Underwriting

Vehicle maintenance plan

Letters of credit

Leasing/Finrent

Medium term loans

Overdrafts

Offshore finance

Promissory notes

Property development finance

Pupil advocate loans

Rental finance

Rentals of motor vehicles and equipment

Revolving credit plan

Sectional title financing

Small business loans

Supplier joint venture companies

Suspensive sale finance

Term loans

Vendor programmes

Project Activities	Months											
	1	2	3	4	5	6	7	8	9	10	11	12
◦ Obtain executive approval												
◦ Finalise project plan and team												
◦ Define cost objectives and costing requirement												
◦ Analysing the cost structure of the bank												
◦ Formulising the product costing methodology												
◦Development and delivery methodology												
◦Developing the product costing database												
◦Categorise activities and establish product profiles												
◦Calculate product costs												
◦Prepare feedback to general management												
◦Implementation												
Project leader												
Project sponsor												

Each stage will have a sub-project schedule detailing the activities required to meet the specified deadline.
The sub-project schedule includes the following activities:

- **Training**
- **Planning**
- **Interviews**
- **Prototypinor modelling**
- **Data capture**
- **Programming**
- **User training**
- **User feedback**

ANNEXURE 3: EXRACT FROM A WORK STANDARDS MANUAL

Activity No.: 124 Short description: Cashing a cheque Function group: Branch Teller

Description of activity	Standard minutes			
	Doing	Checking	Supervisory	MGR
Cheques cashed	0.820000*			
Tasks				
Receive cheque and identify document from customer and scrutinise cheque	0.18100			
Date stamp cheque. Refer cheque to blacklist and/or stop payments	0.117000			
Enter details onto cash paid out sheet	0.396000			
Obtain cash and pay to customer				
Attach cheque to cash paid out sheet	0.046000			
* Detach original cash paid out sheet and place in waste bin with vouchers	0,07900			
* Incidence: 1 cash paid out sheet is used for 10 vouchers				

* Standard time at 100 BSI 0.82000 of a minute

Standard time at 83 BSI 0.98795 of a minute or 59,3 seconds

ANNEXURE 4: BILL OF ACTIVITIES: CASHING A CHEQUE

BILL OF ACTIVTIES

PRODUCT:	CASHING A CHEQUE
UNIT TYPE:	PER CHEQUE CASHED
CUSTOMER TYPE:	N/A
RELEVANT PERIOD:	PER OCCASSION
AVERAGE VOLUME PER MONTH:	914,984

ACTIVITY NO.	DEPT	DESCRIPTION OF ACTIVITY	PROFILED TIME			TOTAL PROFILED TIME
			DOING (03-05)	CHECKING (06)	SUPERVISORY (07-10)	
124	TELLERS	CASH CHEQUES	0.899	0.000	0.007	0.905
446	CENT TEL	CASH CHEQUES - CENTRAL TELLER	0.000	0.018	0.000	0.019
196	TELLERS	REFER CHEQUES TO CCTV	0.004	0.000	0.000	0.004
547	TELLERS	CHs REFERRED BY CLERK/TELLER BEFORE CASH	0.404	0.000	0.017	0.421
171	TELEX	TELEX MESSAGES RECEIVED EXCL T/T	0.028	0.003	0.000	0.031
172	TELEX	TELEX MESSAGES DESPATCHED EXCL T/T	0.027	0.017	0.001	0.044
923	TELEX	ON-LINE MESSAGES DESPATCHED - TRDAC	0.035	0.015	0.001	0.051
933	SUNDRY	ON-LINE MESSAGES RECEIVED	0.295	0.035	0.013	0.342
615	TREASURY	TREASURY WITHDRAWALS FOR TELLERS	0.268	0.268	0.277	0.814
327	MARKETING	INTERVIEWS OTHER SERVICES 02/03	0.000	0.033	0.003	0.036
349	MARKETING	INTERVIEWS OTHER SERVICES SO's	0.000	0.000	0.087	0.087
400	ENQ. MAIN	ENQUIRIES AT MAIN COUNTER	0.115	0.000	0.006	0.121
533	LEDGERS	TEL CALLS LEDGERS DEPT: 02/03	0.000	0.060	0.002	0.061
537	LEDGERS	TEL CALLS LEDGERS DEPT: SOs	0.000	0.000	0.018	0.018
521/2/3	SWB	SWITCHBOARD VOLUMES	0.012	0.000	0.000	0.012
195	CENT TEL	REPLENISH CASH DISPENSER	0.000	0.040	0.001	0.041
PROFILED TIME PER CHEQUE CASHED			2.086	0.488	0.433	3.008

Note: The profiled time represents a factor of a minute or sixty seconds.

Example:-

Activity no. 124 reflects a profiled time of 0.905

The profiled standard time of activity no.124 is calculated as follows:

profiled standard time = Profiled time x 60 seconds

= 0.905x60

= 55 seconds

ANNEXURE 5: EXTRACT FROM AN ACTIVITY DATABASE

PRODUCT COSTING DATABASE - COMPUTERISED BRANCHES ONLY

% MARK-UP OF VOLU 3.0%

COU	DEPT	DESCRIPTION	MONTHLY NAT VOL	OP NO	TIME (MINS) DOING	TIME (MINS) CHECKING	TIME (MINS) SUPERVISOR	VOLUMES USED DETAILED CURRENT ACC	TRANSACTIONS	INVESTM	SAVINGS	BRCH ADM	FOREX SERV	No. ACC	CONTROL
74	COMP BILLS/FOREX	AIRWAY RELEASES ISSUED	388	2100	10.689	2.189	0.420						388.31		0
75	COMP BILLS/FOREX	BILLS OF ENTRY FOLLOWED UP	5,670	2101	4.111	1.837	0.231						5670.15		0
76	COMP BILLS/FOREX	GENERAL PURPOSE SALE	5,385	2308	3.928	2.296	0.259						5384.84		0
77	COMP BILLS/FOREX	REVERSAL OF SALE	830	2309	3.928	2.296	0.259						830.18		0
78	COMP BILLS/FOREX	GENERAL PURPOSE PURCHASE	7,026	2311	3.928	2.296	0.259						7025.63		0
79	COMP BILLS/FOREX	REVERSAL OF PURCHASE	244	2312	5.082	0.000	2.054						244.11		0
81	MANAGERS	REPORTS FOR CUSTOMERS	32,563	449	13.693	3.371	1.153		32,563						0
82	MANAGERS	REPORTS SUPPLIED TO BRANCHES/OTHER BANKS	44,615	448	5.547	2.496	0.553		44,615						0
83	MANAGERS	OCCASIONS SHARE CERTIFICATES REGISTERED	1,590	434	4.133	0.000	2.229		1,590						0
84	MANAGERS	SHARE CERTIFICATES REGISTERED	3,358	433	1.869	0.000	0.817		3,358						0
85	COMP BILLS/FOREX	OUTWARD FRC's PAID	229	2310	3.642	2.473	0.264						228.66		0
86	MANAGERS	APPLICATION FOR LIMIT - FORM (a)	4,934	440	14.714	47.913	4.588	4,934							0
87	MANAGERS	APPLICATION FOR LIMIT - SEC FORM (b)	3,582	439	6.977	26.187	2.437	3,582							0
88	MANAGERS	EXCESS MEMORANDA SUBMITTED	3,318	441	4.807	20.260	4.177	3,318							0
90	MANAGERS	SET-OFF AGREEMENTS	888	419	28.925	10.913	2.723	888							0
91	MANAGERS	CESSIONS TAKEN	4,582	418	10.888	10.529	6.025	4,582							0
92	MANAGERS	GUARANTEES TAKEN	4,978	417	20.545	11.743	7.233	4,978							0
93	MANAGERS	PLEDGES TAKEN	4,447	420	11.882	12.930	7.561	4,447							0
94	MANAGERS	SCRIPT AS SECURITY	2,763	421	5.170	0.000	1.567	2,763							0
95	MANAGERS	SECURITY LODGEMENTS	37,135	422	5.005	1.949	1.541	37,135							0
96	MANAGERS	SECURITY WITHDRAWALS	31,017	423	6.173	1.311	1.078	31,017							0
97	MANAGERS	SAFE CUSTODY - LODGEMENT	8,647	424	5.484	2.873	1.714		8,647						0
98	MANAGERS	SAFE CUSTODY - WITHDRAWAL	10,713	425	6.002	2.334	1.274		10,713						0
99	GEN LEDGERS	PROCESS GL REVEX + HOUSE ACCOUNTS CRS	452,946	AVE	0.003	0.135	0.055	0	0	0	0	452,946			0
101	INVESTMENTS	EXCEPTION REPORT (e) EXCL UNPOSTED	365,390	AVE	0.472	0.026	0.207			365390.44					0
102	INVESTMENTS	UNPOSTED ITEMS REPORT (d)	15,281	AVE	1.589	0.000	0.280			15281.08					0
106	INVESTMENTS	TRANSACTION JOURNAL REPORT (c)	165,801	AVE	0.180	0.128	0.123			165801.16					0
107	INVESTMENTS	DEPOSIT STATEMENT REPORT (f)	130,519	AVE	0.179	0.000	0.010			130518.51					0
108	O+M	NEW ADDITIONAL W/SALE CALL DEPS OPENED	1,366	1896						1366					0
109 *	O+M	DEPOSIT TO WHOLESALE CALL ACCOUNT	15,523	1884F	3.913	0.755	0.261			15523					0
110 *	O+M	WITHDRAWAL FROM WHOLESALE CALL	15,448	1885F	3.951	0.822	0.267			15448					0
111	BRANCH TELLERS	CURRENT ACC CASH DEPOSITED	523,284	459	1.193	0.000	0.009	523,284							0
112	BRANCH TELLERS	CURRENT ACC DEP WITHOUT CASH	585,904	460	0.781	0.000	0.006	585,904							0
114	COMP BILLS/FOREX	BRIDGING FINANCE	2,786	2324	18.166	8.922	1.078						2786.15		0
115	BRANCH TELLERS	MAIL/ON-LINE CASH TRANSFER	369,368	465	1.348	0.000	0.010	369,368							0
116	BRANCH TELLERS	MAIL/ON-LINE TRF WITHOUT CASH	328,661	466	0.980	0.000	0.007	328,661							0
117	BRANCH TELLERS	SAVINGS DEPOSIT WITH CASH	251,161	463	1.708	0.000	0.013				251161.38				0
118	BRANCH TELLERS	SAVINGS DEPOSIT WITHOUT CASH	161,735	464	1.489	0.000	0.011				161734.72				0
119	BRANCH TELLERS	CREDIT CARD PAYMENTS WITH CASH	70,683	467	0.941	0.000	0.007		70,683						0
120	BRANCH TELLERS	CREDIT CARD PAYMENTS WITHOUT CASH	69,585	903	0.619	0.000	0.005		69,585						0
121	BRANCH TELLERS	OTHER CASH DEPOSITS	130,301	468	0.720	0.000	0.005		121,489	8812.65766					(0)
122	BRANCH TELLERS	OTHER DEPOSITS WITHOUT CASH	45,578	469	0.383	0.000	0.003		42,495	3082.54234					0
123 *	BRANCH TELLERS	VERIFY CASH RECEIVED	1,757,902,531	470	0.00218		0.00002		1,757,902,531						0
124	BRANCH TELLERS	CASH CHEQUES	832,371	471	0.988	0.000	0.007	832,371							0
126	BRANCH TELLERS	SAVINGS WITHDRAWAL CASHED	631,261	473	1.767	0.000	0.013				631261.25				0
127	BRANCH TELLERS	CREDIT CARD WITHDR CASHED	21,948	475	1.691	0.000	0.013		21,948						0

128	BRANCH TELLERS	OTHER ENTRIES CASHED	47,563	474	1.896	0.000	0.014		47,563						0
125	OPS. INVESTMENTS	OPEN NEW ADDITIONAL GENDEP ACCOUNTS	0		0.872	0.354	0.040			0					0
151	OPERATIONS COMM	NO OF FACSIMILE MESSAGES RECEIVED	150,873		1.768	0.549	0.048		150,873						0
152	OPERATIONS COMM	NO OF FACSIMILE MESSAGES DESPATCHED	141,383		5.806	1.677	0.539		141,383						0
156	SAVINGS	SAVINGS VOUCHERS VERIFIED/SCRUTINISED	1,374,654	AVE	0.041	0.062	0.006				1374654.48				0
157	SAVINGS	SAVINGS EXCEPTION REPORT (h) EXCL UNPOSTED	136,986	AVE	0.000	0.190	0.037				136985.88				0
158	COMP INVESTMENTS	OPEN NEW GENDEP ACCOUNTS	7,435	180	1.397	2.435	0.365			7434.54					0
159 *	O+M	DEPOSITS TO NOTICE DEPOSITS	32,672	1889F	3.913	0.755	0.261			32672					0
161 *	O+M	WITHDRAWALS FROM NOTICE DEPOSITS	5,470	1090F	3.951	0.822	0.267			5470					0
162	O+M	NEW ADDITIONAL R/CALL DEPS OPENED	3,233	1892						3233					0
163 *	O+M	DEPOSITS TO RETAIL CALL DEPS	14,595	1893F	3.913	0.755	0.261			14595					0
164 *	O+M	WITHDRAWAL FROM RETAIL CALL DEPS	15,629	1894F	3.951	0.822	0.267			15629					0
165	O+M	ITEMS ON REPORT (f) DEALT WITH	0	1081											0
167	G/LEDG	PROCESS G/LEDGER VOUCHERS ALL FEEDERS	221,151	AVE	0.033	0.036	0.003	0	0	0	0	221,151	0		0
168	G/LEDG	INTER-BRANCH (IBT) TRANSACTIONS PROCESSED	74,441	AVE	0.806	0.276	0.040	0	0	0	0	74,441	0		0
169	OPS SUNDRY DUTIES	OUTW MAIL TRANSFERS DIR TO OUR BRANCHES	6,209	2459	1.076	0.527	0.110		6,209						0
170	OPS SUNDRY DUTIES	OUTW M/T CLEARED TO DEPOT/AGENTBANK	18,332	2451	0.443	0.416	0.066		18,332						0
171	TELEXES	TELEX MESSAGES RECEIVED EXCL T/T	40,456	AVE	1.592	0.150	0.027	12,800	16,200	516.902114	4637.02839		6302.57		0
172	TELEXES	TELEX MESSAGES DESPATCHED EXCL T/T	20,941	AVE	2.858	1.760	0.119	3,313	8,658	267.557841	2400.20938		6302.57		0
173	TELEXES	TELEGRAPHIC TRANSFERS RECEIVED	4,818	AVE	2.904	1.662	0.115		4,818						0
174	TELEXES	TELEGRAPHIC TRANSFERS DESPATCHED	3,024	AVE	6.633	4.181	0.712		3,024						0
178	CORRESPONDENCE	REGISTERED ENVELOPES DESPATCHED	32,404	AVE	1.291	0.061	0.032	10,954	0	877.021361	1130.73347		19442.28		0
179	CORRESPONDENCE	REGISTERED ENVELOPES RECEIVED	13,056	AVE	0.000	3.004	0.208	4,414	0	353.37326	455.600048		7833.768		0
180	CORRESPONDENCE	HAND DELIVERIES	87,756	AVE	1.266	0.000	0.027	84,278	0	0	0		3477.82075		0
184	TELEXES	SWIFT MESSAGES RECEIVED	24,494	1262	3.079	0.827	0.119						24494.43		0
185	TELEXES	SWIFT MESSAGES DESPATCHED	37,438	1263	5.183	2.591	0.255						37438.44		0
189	TELEXES	TELEGRAPHIC TRANSFERS RECEIVED ON-LINE	19,190	AVE	3.866	1.943	0.344		19,190						0
191	TELEXES	TELEGRAPHIC TRANSFERS DESPATCHED ON-LINE	9,512	AVE	5.552	3.834	0.307		9,512						0
192	TELEXES	FOREIGN TELEX MESSAGES DESPATCHED	1,130	1266	15.163	5.763	0.665						1129.91		0
193	TELEXES	VARIABLE NUMBERS TESTED/SUPPLIED	1,517	1267	2.620	1.551	0.140					1517			0
194	CENTRAL TELLERS	CASH DEPOSITS RECEIVED FROM CSRs	229,846	1616	2.620	1.551	0.057		229,846						0
195	CENTRAL TELLERS	REPLENISH CASH DISPENSER	3,461	1587	0.000	10.529	0.254	3,461							0
196	BRANCH TELLERS	REFER CHEQUES TO CCTV	5,192	1646	0.756	0.000	0.006	5,192							0
197 *	CENTRAL TELLERS	VERIFY CASH DIRECT FROM CUSTOMERS/AGENTS	126,859,603	1585		0.00231	0.00006		126,859,603						0
199	CENTRAL TELLERS	MAKE UP CASH SPECS f/o WAGE/PAYROLL	22,524	1589	0.000	2.140	0.052		22,524						0
200	CENTRAL TELLERS	CHANGE TRANSACTIONS	45,246	1610	0.000	1.641	0.040		45,246						0
201	O+M	CA OPEN - CREDIT BALANCE	666,488	1082										666,488	0
202	O+M	CA OPEN - DEBIT BALANCE	447,072	1083										447,072	0
203	O+M	HOUSE ACCOUNTS BALANCED	0	1097											0
205	O+M	TOTAL SAVINGS ACCOUNTS	3,090,444	1084										3,090,444	0
206	O+M	TOTAL FIXED TYPE ACCOUNTS	228,732	1085										228,732	0
207	O+M	TOTAL NOTICE TYPE DEPOSITS	146,098	1098										146,098	0
208	O+M	TOTAL CALL TYPE DEPOSITS	48,539	1099										48,539	0
209	MANAGERS	NAMES IN SAFE CUSTODY REGISTER	53,227	426	0.211	0.233	0.031	53,227							0
213/2	SUNDRY DUTIES	PAY STAFF SALARIES INCL SERVICE STAFF	14,074	646	10.092	4.784	1.109					14073.92			0
211	WASTE	AGENT BANKS CLEARED TO - SUB+C	461	AVE	239.193	89.867	7.148		461						0
212	CASH SUMM	DAILY TIME FOR CASH SUMMARY	3,391	AVE	0.000	66.466	4.256	0	3,391	0	0		0		0
229/2	LEDGERS	CA/RCA OPENED - LEDGER FILER	20,546	AVE	1.991	0.000	0.068	20,546							0
266/2	LEDGERS	CA/RCA CLOSED - LEDGER FILER	19,634	AVE	1.487	1.121	0.083	19,634							0
223	LEDGERS	OUTWARD CHEQUE RETURNS - LACK OF FUNDS	18,879	AVE	6.724	0.088	0.231	18,879							0

PRODUCT COSTING DATABASE - COMPUTERISED BRANCHES ONLY

% MARK-UP OF VOLU 3.0%

COU	DEPT	DESCRIPTION	ASSESSABLE MINUTES DOING	CHECKING	SUPERVISOR	MANAGERS OING MINUTE	FOREX DOING MINUTES	CASH WITHDRAWAL	CASH DEPOSITS	TEL-OUT	CORR-OUT
74	COMP BILLS/FOREX	AIRWAY RELEASES ISSUED	4,151	850	163		4,151				
75	COMP BILLS/FOREX	BILLS OF ENTRY FOLLOWED UP	23,308	10,418	1,311		23,308				
76	COMP BILLS/FOREX	GENERAL PURPOSE SALE	21,150	12,366	1,393		21,150				
77	COMP BILLS/FOREX	REVERSAL OF SALE	3,261	1,906	215		3,261				
78	COMP BILLS/FOREX	GENERAL PURPOSE PURCHASE	27,595	16,134	1,818		27,595				
79	COMP BILLS/FOREX	REVERSAL OF PURCHASE	1,241	0	501		1,241				
81	MANAGERS	REPORTS FOR CUSTOMERS	445,902	109,761	37,549	445,902					
82	MANAGERS	REPORTS SUPPLIED TO BRANCHES/OTHER BANKS	247,467	111,360	24,633	247,467					
83	MANAGERS	OCCASIONS SHARE CERTIFICATES REGISTERED	6,572	0	3,545	6,572					
84	MANAGERS	SHARE CERTIFICATES REGISTERED	6,275	0	2,742	6,275					
85	COMP BILLS/FOREX	OUTWARD FBC's PAID	833	566	60		833				
86	MANAGERS	APPLICATION FOR LIMIT - FORM (a)	72,597	236,390	22,633	72,597					
87	MANAGERS	APPLICATION FOR LIMIT - SEC FORM (b)	24,994	93,810	8,732	24,994					
88	MANAGERS	EXCESS MEMORANDA SUBMITTED	15,949	67,216	13,858	15,949					
90	MANAGERS	SET-OFF AGREEMENTS	25,682	9,690	2,417	25,682					
91	MANAGERS	CESSIONS TAKEN	49,899	48,248	27,608	49,899					
92	MANAGERS	GUARANTEES TAKEN	102,271	58,458	36,006	102,271					
93	MANAGERS	PLEDGES TAKEN	52,833	57,494	33,618	52,833					
94	MANAGERS	SCRIPT AS SECURITY	14,287	0	4,330	14,287					
95	MANAGERS	SECURITY LODGEMENTS	185,852	72,390	57,215	185,852					
96	MANAGERS	SECURITY WITHDRAWALS	191,486	40,659	33,424	191,486					
97	MANAGERS	SAFE CUSTODY - LODGEMENT	47,422	24,847	14,824	47,422					
98	MANAGERS	SAFE CUSTODY - WITHDRAWAL	64,304	25,001	13,646	64,304					
99	GEN LEDGERS	PROCESS GL, REVEX + HOUSE ACCOUNTS CRS	1,208	60,997	25,118						
101	INVESTMENTS	EXCEPTION REPORT (c) EXCL UNPOSTED	172,522	9,567	75,454						
102	INVESTMENTS	UNPOSTED ITEMS REPORT (d)	24,287	0	4,272						
106	INVESTMENTS	TRANSACTION JOURNAL REPORT (e)	29,857	21,156	20,430						
107	INVESTMENTS	DEPOSIT STATEMENT REPORT (f)	23,354	0	1,282						
108	O+M	NEW ADDITIONAL W/SALE CALL DEPS OPENED	0	0	0						
109 *	O+M	DEPOSIT TO WHOLESALE CALL ACCOUNT	60,739	11,718	4,045						
110 *	O+M	WITHDRAWAL FROM WHOLESALE CALL	61,028	12,700	4,170						
111	BRANCH TELLERS	CURRENT ACC CASH DEPOSITED	624,158	0	4,619				523284.29		
112	BRANCH TELLERS	CURRENT ACC DEP WITHOUT CASH	457,429	0	3,385						
114	COMP BILLS/FOREX	BRIDGING FINANCE	50,614	24,857	3,003		50,614				
115	BRANCH TELLERS	MAIL/ON-LINE CASH TRANSFER	497,908	0	3,685				369368.3		
116	BRANCH TELLERS	MAIL/ON-LINE TRF WITHOUT CASH	321,929	0	2,382						
117	BRANCH TELLERS	SAVINGS DEPOSIT WITH CASH	429,093	0	3,175				251161.38		
118	BRANCH TELLERS	SAVINGS DEPOSIT WITHOUT CASH	240,848	0	1,782						
119	BRANCH TELLERS	CREDIT CARD PAYMENTS WITH CASH	67,196	0	497				70682.72		
120	BRANCH TELLERS	CREDIT CARD PAYMENTS WITHOUT CASH	43,050	0	319						
121	BRANCH TELLERS	OTHER CASH DEPOSITS	93,817	0	694				130301.18		
122	BRANCH TELLERS	OTHER DEPOSITS WITHOUT CASH	17,441	0	129						
123 *	BRANCH TELLERS	VERIFY CASH RECEIVED	3,823,904	0	28,297						
124	BRANCH TELLERS	CASH CHEQUES	822,342	0	6,085			832370.81			
126	BRANCH TELLERS	SAVINGS WITHDRAWAL CASHED	1,115,735	0	8,256			631261.25			
127	BRANCH TELLERS	CREDIT CARD WITHDR CASHED	37,107	0	275			21948.27			

128	BRANCH TELLERS	OTHER ENTRIES CASHED	90,180	0	667			47563.34			
125	OPS. INVESTMENTS	OPEN NEW ADDITIONAL GENDEP ACCOUNTS	0	0	0						
151	OPERATIONS COMM	NO OF FACSIMILE MESSAGES RECEIVED	266,757	82,864	7,255						
152	OPERATIONS COMM	NO OF FACSIMILE MESSAGES DESPATCHED	820,863	237,101	76,193						
156	SAVINGS	SAVINGS VOUCHERS VERIFIED/SCRUTINISED	55,820	84,553	7,664						
157	SAVINGS	SAVINGS EXCEPTION REPORT (h) EXCL UNPOSTED	0	26,069	5,111						
158	COMP INVESTMENTS	OPEN NEW GENDEP ACCOUNTS	10,389	18,101	2,715						
159 *	O+M	DEPOSITS TO NOTICE DEPOSITS	127,840	24,663	8,514						
161 *	O+M	WITHDRAWALS FROM NOTICE DEPOSITS	21,609	4,497	1,459						
162	O+M	NEW ADDITIONAL R/CALL DEPS OPENED	0	0	0						
163 *	O+M	DEPOSITS TO RETAIL CALL DEPS	57,108	11,017	3,803						
164 *	O+M	WITHDRAWAL FROM RETAIL CALL DEPS	61,743	12,849	4,169						
165	O+M	ITEMS ON REPORT (f) DEALT WITH	0	0	0						
167	G/LEDG	PROCESS G/LEDGER VOUCHERS ALL FEEDERS	11,793	7,961	704						
168	G/LEDG	INTER-BRANCH (IBT) TRANSACTIONS PROCESSED	59,965	20,539	2,944						
169	OPS SUNDRY DUTIES	OUTW MAIL TRANSFERS DIR TO OUR BRANCHES	6,681	3,270	681						
170	OPS SUNDRY DUTIES	OUTW M/T CLEARED TO DEPOT/AGENTBANK	8,115	7,626	1,215						
171	TELEXES	TELEX MESSAGES RECEIVED EXCL T/T	64,420	6,055	1,099						
172	TELEXES	TELEX MESSAGES DESPATCHED EXCL T/T	59,855	36,865	2,482					99202.5994	
173	TELEXES	TELEGRAPHIC TRANSFERS RECEIVED	13,992	8,007	552						
174	TELEXES	TELEGRAPHIC TRANSFERS DESPATCHED	20,059	12,644	2,154					34856.8299	
178	CORRESPONDENCE	REGISTERED ENVELOPES DESPATCHED	41,836	1,971	1,036						
179	CORRESPONDENCE	REGISTERED ENVELOPES RECEIVED	0	39,220	2,714						
180	CORRESPONDENCE	HAND DELIVERIES	111,073	0	2,389						
184	TELEXES	SWIFT MESSAGES RECEIVED	75,410	20,249	2,922						
185	TELEXES	SWIFT MESSAGES DESPATCHED	194,031	96,991	9,565						
189	TELEXES	TELEGRAPHIC TRANSFERS RECEIVED ON-LINE	74,179	37,298	6,597						
191	TELEXES	TELEGRAPHIC TRANSFERS DESPATCHED ON-LINE	52,807	36,470	2,917					92193.7357	
192	TELEXES	FOREIGN TELEX MESSAGES DESPATCHED	17,132	6,511	751					24394.6683	
193	TELEXES	VARIABLE NUMBERS TESTED/SUPPLIED	3,975	2,353	213						
194	CENTRAL TELLERS	CASH DEPOSITS RECEIVED FROM CSRs	602,195	356,414	13,046						
195	CENTRAL TELLERS	REPLENISH CASH DISPENSER	0	36,440	878						
196	BRANCH TELLERS	REFER CHEQUES TO CCTV	3,925	0	29						
197 *	CENTRAL TELLERS	VERIFY CASH DIRECT FROM CUSTOMERS/AGENTS	0	292,585	7,051						
199	CENTRAL TELLERS	MAKE UP CASH SPECS fro WAGE/PAYROLL	0	48,196	1,162			22524.04			
200	CENTRAL TELLERS	CHANGE TRANSACTIONS	0	74,247	1,789						
201	O+M	CA OPEN - CREDIT BALANCE	0	0	0						
202	O+M	CA OPEN - DEBIT BALANCE	0	0	0						
203	O+M	HOUSE ACCOUNTS BALANCED	0	0	0						
205	O+M	TOTAL SAVINGS ACCOUNTS	0	0	0						
206	O+M	TOTAL FIXED TYPE ACCOUNTS	0	0	0						
207	O+M	TOTAL NOTICE TYPE DEPOSITS	0	0	0						
208	O+M	TOTAL CALL TYPE DEPOSITS	0	0	0						
209	MANAGERS	NAMES IN SAFE CUSTODY REGISTER	11,213	12,420	1,675	11,213					
213/2	SUNDRY DUTIES	PAY STAFF SALARIES INCL SERVICE STAFF	142,034	67,330	15,606						
211	WASTE	AGENT BANKS CLEARED TO - SUB+C	110,373	41,468	3,298						
212	CASH SUMM	DAILY TIME FOR CASH SUMMARY	0	225,387	14,432						
229/2	LEDGERS	CA/RCA OPENED - LEDGER FILER	40,915	0	1,391						
266/2	LEDGERS	CA/RCA CLOSED - LEDGER FILER	29,186	22,014	1,622						
223	LEDGERS	OUTWARD CHEQUE RETURNS - LACK OF FUNDS	126,944	1,667	4,364						

ANNEXURE 6: MTM OFFICE METHODS EVALUATION TECHNIQUE

EXAMPLE - FILE LETTER IN FILING CABINET

OPERATION DESCRIPTION

Starts: operator seated, letter on desk within reach

Includes: stand-up, pick-up letter, walk to filing cabinet, open cabinet, select file, insert letter, replace file, close cabinet, return to desk and sit down

Ends: seated at desk, letter filed

Analysis:

Element Description	Code	tmu *
Stand	B-STDC	43
Pick-up letter	GP-SPIH	19
Walk to filing cabinet	B-WKAO	114
Open filing cabinet	S-OPFC	80
Get file	S-REMF	125
Open file	S-OPCV	71
Place letter in file	S-PINF	72
Close file	S-CLCV	67
Replace file in cabinet	S-INSF	88
Close cabinet	S-CLFC	50
Walk back to desk	B-WKAO	114
Sit down	B-SITC	35
		858

* 1 TMU = 0,036 SECONDS

THEREFORE: 858 TMU EQUALS 31 SECONDS

ANNEXURE 7: PRODUCT COSTING CALCULATION: MAINTAINING A CARD-BASED SAVINGS ACCOUNT

PRODUCT: MAINTAINING A CARD-BASED SAVINGS ACCOUNT

UNIT TYPE: PER ACCOUNT

CUSTOMER TYPE: PERSONAL

RELEVANT PERIOD MONTHLY

MONTHLY AVERAGE VOLUME: 2184937

COUNT	DEPT	DESCRIPTION	DESCRIPTION OF SERVICE	PROFILED MINUTES DOING (03-05)	CHECKING (06)	SUPERVISE (07-10)	TOTAL MINUTES	DIRECT COSTS STAFF COSTS	PREMISES COSTS	COMPUTER COSTS	MMUN COSTS	INDIRECT COSTS STAFF COSTS	OTHER COSTS	TOTAL COST (RANDS) DIRECT	INDIRECT	FULL BRANCH
TOTAL FRONTLINE AND BACK-OFFICE ACTIVITIES				0.659	0.908	0.910	2.476	1.219	0.460	0.177	0.313	0.418	0.376	2.169	0.794	2.963
TOTAL FRONTLINE (BRANCH) ACTIVITIES				0.156	0.147	0.240	0.543	0.278	0.101	0.177	0.000	0.092	0.082	0.556	0.174	0.730
332	MARKETING	INTERVIEWS SAVINGS ACCOUNTS SO's	OPENING	0.000	0.000	0.158	0.158	0.101	0.029			0.027	0.024	0.130	0.051	0.180
308	MARKETING	INTERVIEWS SAVINGS ACCOUNTS 02/03	OPENING	0.000	0.103	0.011	0.114	0.054	0.021			0.019	0.017	0.076	0.037	0.112
452	ENQ. SAV	ENQUIRIES AT SAVINGS ACCOUNTS COUNTER	MAINTENANCE	0.090	0.000	0.005	0.095	0.032	0.018			0.016	0.014	0.050	0.030	0.080
935	COMP SAV	SAVINGS ACCOUNTS MANDATES	MAINTENANCE	0.020	0.009	0.008	0.037	0.016	0.007			0.006	0.006	0.023	0.012	0.035
308	MARKETING	INTERVIEWS SAVINGS ACCOUNTS 02/03	MAINTENANCE	0.000	-0.026	-0.003	-0.029	-0.014	-0.005			-0.005	-0.004	-0.019	-0.009	-0.028
332	MARKETING	INTERVIEWS SAVINGS ACCOUNTS SO's	MAINTENANCE	0.000	0.000	-0.040	-0.040	-0.025	-0.007			-0.007	-0.006	-0.033	-0.013	-0.046
308	MARKETING	INTERVIEWS SAVINGS ACCOUNTS 02/03	MAINT TRANSF OUT	0.000	0.009	0.001	0.010	0.005	0.002			0.002	0.002	0.007	0.003	0.010
332	MARKETING	INTERVIEWS SAVINGS ACCOUNTS SO's	MAINT TRANSF OUT	0.000	0.000	0.014	0.014	0.009	0.003			0.002	0.002	0.012	0.005	0.016
308	MARKETING	INTERVIEWS SAVINGS ACCOUNTS 02/03	MAINT TRANSF IN	0.000	0.008	0.001	0.009	0.004	0.002			0.001	0.001	0.006	0.003	0.008
332	MARKETING	INTERVIEWS SAVINGS ACCOUNTS SO's	MAINT TRANSF IN	0.000	0.000	0.012	0.012	0.008	0.002			0.002	0.002	0.010	0.004	0.013
308	MARKETING	INTERVIEWS SAVINGS ACCOUNTS 02/03	CLOSING	0.000	0.044	0.005	0.049	0.023	0.009			0.008	0.007	0.032	0.016	0.048
332	MARKETING	INTERVIEWS SAVINGS ACCOUNTS SO's	CLOSING	0.000	0.000	0.067	0.067	0.043	0.013			0.011	0.010	0.055	0.022	0.077
										0.177		0.000	0.000	0.177	0.000	0.177
400	ENQ. MAIN	ENQUIRIES AT MAIN COUNTER		0.045	0.000	0.002	0.047	0.022	0.009			0.008	0.007	0.031	0.015	0.046

ANNEXURE 8: PRODUCT COSTING CALCULATION: CASHING A CHEQUE

PRODUCT:	CASHING A CHEQUE
UNIT TYPE:	PER CHEQUE CASHED
CUSTOMER TYPE:	N/A
RELEVANT PERIOD:	PER OCCASSION
AVERAGE VOLUME PER MONTH:	914,984

COUN	DEPT	DESCRIPTION OF ACTIVITY	PROFILED MINUTES			TOTAL	DIRECT COSTS				INDIRECT COST		TOTAL COST (RANDS)		
			DOING (03-05)	HECKIN (06)	SUPERVISE (07-10)	INUTE	STAFF COST	REMISE COSTS	CASH HANDLING	IF.TELLE CASH	STAFF COSTS	THER COSTS	IREC	NDIREC	FULL BRANCH
124	TELLERS	CASH CHEQUES	0.899	0.000	0.007	0.905	0.299	0.168	0.179	0.072	0.153	0.138	0.719	0.290	1.009
446	CENT TEL	CASH CHEQUES - CENTRAL TELLER	0.000	0.018	0.000	0.019	0.009	0.003			0.003	0.003	0.012	0.006	0.018
196	TELLERS	REFER CHEQUES TO CCTV	0.004	0.000	0.000	0.004	0.001	0.001			0.001	0.001	0.002	0.001	0.004
547	TELLERS	CHs REFERRED BY CLERK/TELLER BEFOR	0.404	0.000	0.017	0.421	0.143	0.078			0.071	0.064	0.222	0.135	0.357
171	TELEX	TELEX MESSAGES RECEIVED EXCL T/T	0.028	0.003	0.000	0.031	0.011	0.006			0.005	0.005	0.016	0.010	0.026
172	TELEX	TELEX MESSAGES DESPATCHED EXCL T/T	0.027	0.017	0.001	0.044	0.017	0.008			0.008	0.007	0.025	0.014	0.040
923	TELEX	ON-LINE MESSAGES DESPATCHED - TRDA	0.035	0.015	0.001	0.051	0.019	0.009			0.009	0.008	0.029	0.016	0.045
933	SUNDRY	ON-LINE MESSAGES RECEIVED	0.295	0.035	0.013	0.342	0.121	0.064			0.058	0.052	0.185	0.110	0.294
615	TREASURY	TREASURY WITHDRAWALS FOR TELLERS	0.268	0.268	0.277	0.814	0.388	0.151			0.137	0.124	0.539	0.261	0.800
327	MARKETING	INTERVIEWS OTHER SERVICES 02/03	0.000	0.033	0.003	0.036	0.017	0.007			0.006	0.006	0.024	0.012	0.036
349	MARKETING	INTERVIEWS OTHER SERVICES SO's	0.000	0.000	0.087	0.087	0.055	0.016			0.015	0.013	0.071	0.028	0.099
400	ENQ. MAIN	ENQUIRIES AT MAIN COUNTER	0.115	0.000	0.006	0.121	0.056	0.022			0.020	0.018	0.079	0.039	0.118
533	LEDGERS	TEL CALLS LEDGERS DEPT: 02/03	0.000	0.060	0.002	0.061	0.028	0.011			0.010	0.009	0.040	0.020	0.059
537	LEDGERS	TEL CALLS LEDGERS DEPT: SOs	0.000	0.000	0.018	0.018	0.012	0.003			0.003	0.003	0.015	0.006	0.021
521/22/	SWB	SWITCHBOARD VOLUMES	0.012	0.000	0.000	0.012	0.004	0.002			0.002	0.002	0.006	0.004	0.010
195	CENT TEL	REPLENISH CASH DISPENSER	0.000	0.040	0.001	0.041	0.019	0.008			0.007	0.006	0.026	0.013	0.040
PROFILED TIME PER CHEQUE CASHED			2.086	0.488	0.433	3.008	1.201	0.559	0.179	0.072	0.508	0.457	2.011	0.965	2.975

ANNEXURE 9: BANK'S ACT RISK WEIGHTINGS

ON-BALANCE SHEET

– **Types of customers**

Any form of lending, to any of the following, will always attract the following risk weighting:

Group bank funding	0%
Central government	0%
Public sector bodies	10%
Governments in common monetary area (CMA) countries	10%
Member countries of the Organisations for Economic Co-operation and Development (OECD)	0%
Other banks (domestic)	20%
Banks in OECD countries	20%
Non-OECD banks < 12 months	20%
Non-OECD banks > 12 months	50%

– **Actual risk weightings per product**

Cash		0%
Mortgage Loans		
	- Residential	50%
	- Non-residential and overdue	100%
Credit cards		100%
Own bills, notes and acceptances		100%
Preference shares		100%
Overdrafts and loans		100%
*	Debentures issued by banks	Impairment
*	Other debentures and investments	100%
*	Fixed assets	100%
*	Net debit deferred tax balance arising from an assessed loss	Impairment

SECURITY HELD AGAINST ADVANCES

Where assets have been pledged as security against advances granted, risk weightings may be reduced from, for example 100% (credit cards) to 0%, 10% or 20%, depending on the type of asset pledged.

Pledge of assets:

– Group deposits, treasury bills and government stock	0%
– Public sector securities	10%
– Other bank deposits	20%

Guarantees by:

Central government	0%
Public sector government in CMA Countries	10%
Other banks	20%

CONTINGENT LIABILITIES

PERFORMANCE GUARANTEES

Include guarantees and indemnities in respect of contract, settlement, building, shipping, airway and related performance arrangements.

Government and public sector in South Africa and CMA countries	0%
Banks in the same group	0%
Other banks	10%
Other	50%

LENDING RELATED GUARANTEES

"Lending related guarantee" is any undertaking irrespective of how it is structured, whereby a Bank undertakes to fulfil an existing monetary obligation(s) or repay any lessor balance, in the event of default by the person on whose behalf the guarantee was issued.

It includes trade finance, term borrowings, property guarantees, guarantees for repayment of loans and cheques marked "good for funds".

Public sector		10%
Banks in same group		0%
Other banks		20%
Property guarantees	- Residential	50%
	- Non-residential	100%
Other		100%

IRREVOCABLE UNUTILISED FACILITIES

Irrevocable loans are all loans which cannot be UNCONDITIONALLY cancelled.

– Government, Banks in the same group and all irrevocable unutilised facilities with an original maturity of less than 1 year.		0%
Maturity in excess of 1 year:-	Public sector bodies	5%
	Other banks	10%
– 13 month and 366 day facilities will attract a 4% capital requirement		50%

IRREVOCABLE LETTERS OF CREDIT

Original maturity of up to 3 months	0%
Original maturity > 3 months	
Public sector bodies	5%
Other banks	10%
Other	20%