

Chapter 2

Management accounting as a discipline

Before the study can assess how the education of management accountants compare with the expectations in practice, the basic foundational concepts behind management accounting must be clearly understood. This chapter will, therefore, take an in-depth look at the way management accounting was designed to function and the way in which it is developing and changing at present.

2.1 Conceptual foundations

Management Accounting is designed, firstly, to supply information to internal decision-makers of a given organisation; secondly, to facilitate their decision-making; thirdly, to motivate their actions and behaviour in a desirable direction and, finally, to promote the efficiency of the organisation (Belkaoui, 1980; Allen, 2002: 12).

Management Accounting is accounting-based and individual-, organisation- and decision-centered (Belkaoui, 1980; Drury, 1988: 831-857). Thus management requires an accounting, behavioural, organisational, and decisional grounding. An understanding of each of these foundations will allow the management accountant to design and understand a management accounting system responsive to the diverse needs and demands emanating from within and from without the organisation. (Belkaoui, 1980; Parker, 2001). Such an understanding will also allow students in management accounting to get the bigger picture of the subject and of the required

skills to be successful (Howieson, 2003). It is important that all four groundings should be included in the applicable syllabi so that none will be lost to a rule-based, memorisation or test-for-content teaching approach which is inefficient (Russel and Kulesza, 2000).

Belkaoui (1980) gives the following overviews on each of the conceptual foundations of management accounting:

2.1.1 Accounting foundations

The accounting characteristic or problem of management accounting is one of determining the ways in which accounting information may be accumulated, classified, analysed, and adapted to specific problems, decision-making, and day-to-day conduct of an organisation. These management accounting techniques are derived from and supported by a management accounting conceptual framework.

2.1.2 Organisational foundations

The organisational characteristic or problem of management accounting is one of tailoring the internal reporting systems to the organisational structure and to the significant elements which approximate the patterning and order inherent in organisations (Roslender, 1996: 545; Parker, 2001). This objective requires a good understanding of the elements of organisational structure and the theories of organisation (Bromwich and Bhimani, 1994).

2.1.3 Behavioural foundations

The behavioural characteristic or problem of management accounting is one of adapting the internal reporting system to the different factors that shape the “cognitive make-up” of individuals within the organisation and affect their performance (Boer, 2000: 313-335). These factors include the perception by the individual of what should be the objective function or goals of the firm, the various elements likely to motivate the individual to performance, and the decision-making model most relevant to particular contexts and most preferred by the individual (Drury, 2000). The individual may adopt as a decision-making model the rational view, the process-oriented view, the organisational procedures view, the political view, or the individual differences view. Each of these behavioural concepts identifies factors and situations that influence individual behaviour, and indicate avenues for management accounting to adapt its services.

2.1.4 Decisional foundations

The decisional characteristic or problem of management accounting is one of determining the types of decision and decision systems, plus the type of information and information system needs. In the literature on management accounting, several frameworks have been proposed for viewing these decisional foundations, e.g. the Anthony framework etc. Each of these frameworks provides the basis for making resource allocation decisions about information systems in general and management accounting in particular.

Given that the decisional characteristic is one of determining the types of decision, plus the type of information needs, it is important to note that the difference between cost accounting and management accounting has not been explicitly clarified. It is usually believed that it is one of point emphasis. Cost accounting deals mainly with cost accumulation, inventory valuation, and product costing. It emphasises cost aspects. The objective function is implicitly perceived to be cost minimisation. Similarly, management accounting deals with the efficient allocation of resources. The objective function may be perceived to be profit maximisation. It is also believed that the cost accountant and the management accountant are performing different activities: cost control is in the domain of the cost accountant, while cost reduction is in the domain of the management accountant (Siegel and Sorenson, 1999: 1-19).

2.2 The changing role of the management accountant

Management accountants must be aware of the influence of new technologies and changes in production management on the usefulness of various accounting techniques. Most of the issues are not new, but their significance changes under different sets of conditions (Ashton, Hopper and Scapens, 1995; Howieson, 2003; Parker, 2001).

Until very recently only one well-understood philosophy of manufacturing existed. A relatively narrow set of techniques was sufficient to meet management's needs. Many of the underlying assumptions about inventories, quality and labour management were simply taken for granted and not considered issues important enough to be discussed in accounting textbooks, since the underlying philosophy of traditional manufacturing

was relatively consistent from plant to plant. But now these assumptions are changing, some for the first time in almost one hundred years. Consequently, the role of the management accountant is also changing and becoming more management-orientated (Ashton, Hopper and Scapens, 1995; Pierce and O’Dea, 2003; Howieson, 2003; Parker, 2001).

For example, management accountants must:

- * carefully analyse their environments,
- * be aware of production technology changes influencing the current costing system,
- * work with other professionals, like the production engineers, to ensure the implementation of appropriate changes to the cost systems to maintain its relevance as environmental uncertainties and management information needs evolve, and
- * develop the facility to deal with soft measures while still maintaining their objectivity and credibility.

According to Litter and Sweeting (1989), a group of companies surveyed indicated the prevalence of a management philosophy which espouses flexibility, a lesser degree of confidence in the value of quantitative information as an input for decision-making activities and greater emphasis on informal processes. This has important consequences for the role of the management accountant as an *interpreter* of these often speculative and qualitative data, drawing out what it could mean for the performance of products and the business as a whole, as a *counselor*, in articulating

the rationale for advisable and non-advisable courses and as the *guardian* of the business' financial integrity with external parties.

Surely it is a break away from the familiar normative approach to management control, which describes a feedback process of planning, objective setting, monitoring, feedback and corrective action to ensure that outcomes are in accordance with plans (Parker, 2001).

These results, according to Litter and Sweeting (1989), have important implications for the role of management accounting because they suggest that unless management accounting mechanisms are devised for enhancing the efficiency of the managing functions of organisations in an environment which is fast-changing and turbulent, the significance and value of management accounting as a management function is likely to diminish (Bromwich and Bhimani, 1992; Emmanuel, Otley and Merchant, 1992; Ashton, Hopper and Scapens, 1995; Gabbin, 2002).

Moreover, it appears that novel forms of management accounting practices need to focus on the uniqueness of the firm's specific organisational processes. Further, account needs to be taken of the changing nature of corporate life from a socio-technical perspective rather than relying on a needs-based financial framework without which it is assumed that the organisation cannot properly function. This assumption is often implicit in the application of conventional management accounting tools (Drury, 1996).

There has been a reduction in the need for accountants to spend a large proportion of their time preparing accounts due to the development of computerised accounting systems. The accountant's role in some companies has changed from one of recording and preparing accounts to one close to that of an all round business manager (Burns and Yazdifar, 2001; Parker, 2001).

According to May (2001: 37) the modern finance function must be able to:

- * deliver analytical, strategic and value-added services,
- * act as a consultative business partner and as an adviser,
- * become a participant and leader in the decision-making process and
- * foster company-wide continual performance enhancement.

Finance professionals in the new order will typically fall into three categories:

business consultants, business analysts and technical specialists. Where possible, existing staff will be redeployed according to their strengths.

Business consultants are usually a core of shared-service corporate staff who specialise in specific processes, models or initiatives, providing advice and support to the business units. Business analysts operate from within the business units as the financial specialists on the management team. In addition to traditional roles of scorekeeping and budgetary control, analysts are at the sharp end of making the new decision-support and value-adding roles work. Their job involves as much non-financial as financial information (Howieson, 2003).

Technical specialists are experts in finance and accounting, who use technology to provide transaction processing, financing and stewardship. They are often located centrally and there are far fewer of them than in the traditional finance function.

These new, dynamic finance professionals will be leaders of multi-disciplined teams engaged in strategic and tactical planning, taking equal responsibility for the future success of the company and should have an in-depth understanding of how the whole business operates (May, 2001).

With increased automation the role of the accountant will change from a processor of data to that of an interpreter of information. It is essential that the management accountant actually gets involved in the design and implementation of the new technology. A passive attitude on these issues will create opportunities for other groups who will know how to exploit the potential. Participation in, and understanding of the use, design and implementation of computer technology must be a highly prioritised area if the management accountant wishes to maintain his/her position in the future (Bromwich and Bhimani, 1992; Ashton Hopper and Scapens, 1995; Gabbin, 2002).

Due to increased automation, the emphasis is shifting from book-keeping to flexible reporting and strategic planning. The management accountant's role is evolving strongly into one of systems audit and "oiling the wheels" of the system to keep it running. The need is for accountants who understand the total systems of the company and who can act in a co-ordinating role. They must ensure that the

developments undertaken by other departments cater for accounting requirements (Sharma, 2000; Siegel and Sorenson, 1999).

The accountant must be ready to take on the role as “change agent,” becoming proactive rather than reactive. The development of the system must anticipate requirements rather than react to events (Burns, 2000).

Cost accounting needs to become proactive by highlighting problems and bringing them to the attention of management rather than reacting to the requests for information by management. With the widening span of control experienced by some companies, the management accountant needs to be the “watchdog” of the first line managers, providing better control information and highlighting where action is necessary.

The dialogue between accountants and line management has improved with the introduction of information technology. Management accountants are able to respond to requests from management in a positive way and to present the results of their analysis in much more understandable format. This has enabled the management accountant to become much more part of the management team (Burns, Scapens and Turley, 1998: 9-10).

In addition, the developments in information technology have allowed operational accounting to become dispersed throughout the company (Boer, 2000: 329). As a result there is a greater interplay between accounting and other data in operational management. Management accountants should recognise the challenges posed by the

springing up of “pseudo”- accountants and the decentralisation of accounting knowledge and expertise. Managers may become less reliant on financial information systems as they increasingly make use of operational data, leaving the financial information systems to provide the necessary external reports when they are needed (Burns, Scapens and Turley, 1998). This decentralisation of knowledge means that management accountants should increase their commercial awareness (Mayer, 2000: 335-347).

Apart from its role in the decentralisation of accounting knowledge and expertise, information technology has helped change the role of the management accountant to a more proactive and strategic one (Siegel and Sorenson, 1999). It can be argued that too often budgets represent the past carried forward, and the emphasis on monitoring performance by the feedback of actual against budget leads to an overconcern with internal rather than external matters and past rather than future events. However, accounting practice should be integrated with strategy formulation and marketing. Accounting systems tend to be directed at the operational level, whereas studies of strategy suggest that key success factors lie in strategic choices and monitoring business performance relative to competitors. Strategic management accounting systems need to look at the organisation holistically and to examine its competitive position (Roslender, 1996; Sharma, 2000). Such systems should look outwards and forwards, examine the relative market share of existing products, their position in the product life cycle, marketing prospects and the portfolio of products produced, and incorporate costing based on experience curves. The analysis should not be based solely on the individual organisation but on its competitive advantages relative to competitors (Roslender, 1996). In addition, it should analyse competitors’ past and

future costs and their market performance and strategic options (Drury, 1996; Howieson, 2003).

If, over time, emerging routines become widely accepted in the organisation such that they become the unquestionable form of management control, then they can be said to be institutionalised. As such, they are more than a set of routine procedures required by senior management and implemented by accountants; they are an inherent feature of the management process, representing the expected form of behaviour and defining relations between the various groups within the organisation. As such they will influence organisational activity and are likely to become quite resistant to challenge (Burns and Scapens, 2000: 12-13; Howieson, 2003).

Such a process of management accounting change can be characterised as evolutionary (Nelson, 1995: 561) in the sense that it involves:

1. change over time, and comprises
2. both random elements (e.g. working out of mutually acceptable methods of working) and systematic mechanisms (e.g. the selection of the new “efficient” system); and
3. inertial forces, i.e. forces hostile to change through lack of energy, which provide continuity over time.

The term *revolutionary* simply recognises that processes of change are shaped by a combination of random, systematic and inertial forces, which together create the context out of which new practices emerge. It is in this sense that an evolutionary

perspective is required to understand an organisation's management accounting practices, and in particular the process of management accounting change. In other words, the process of management accounting change is much more complex than the rational selection of so-called "optimal procedures and techniques", and it is inherently path-dependent (Burns and Scapens, 2000).

Specific changes in management accounting could be quite revolutionary, involving radical change to existing routines and fundamentally challenging the prevailing institutions. Nevertheless, the change process will be influenced to some extent, by the existing routines and institutions, and as such the process is still path-dependent. Such revolutionary change is likely to be possible only as a result of major external change, e.g. take-over, economic recessions, market collapse, and so on. However, the response to such major events is likely to be determined largely by the current context of the organisation; including its routines and institutions – going down one road inevitably closes off the possibility of certain others (North, 1990; Parker, 2002).

Thus, managing change in general, and management accounting change in particular, require a thorough understanding of the current context of the organisation, especially its routines and institutions (Howieson, 2003). This involves much more than knowledge of the formal systems; it requires an understanding of the habits of organisational members and the underpinning assumptions which are taken for granted in day-to-day activity. It requires a questioning of the "unquestionable" and as such can be difficult for insiders – although outsiders will have to acquire detailed knowledge of the complex processes which are involved (Burns and Scapens, 2000).

Different management accounting changes are discussed in sections 2.2.1 to 2.2.3 below.

2.2.1 Formal and informal management accounting change

Formal change occurs by conscious design, usually through the introduction of new rules and/or through the actions of a powerful individual or group (Rutherford, 1994). Informal change, however, occurs at a more tacit level; for example, as new routines adapt over time to changing operating conditions. It would probably be reasonable to expect that formal management accounting change will be more straightforward than attempting to change the ways of thinking which are embedded in existing management accounting routines. However, the successful implementation of a formal change may require new ways of thinking (Burns and Scapens, 2000). Formal change may be problematic in the absence of an accompanying change in ways of thinking – the latter being the essence of informal change. If the processes of informal change lag behind the formal change processes, tensions may be introduced in the form of anxiety and resistance, possibly leading to the failure of its implementation.

The distinction between formal and informal change is similar to the distinction between intentional and unintentional management accounting change. The term unintentional was used to imply that change is not specifically directed, although it may evolve out of the intended actions of the individuals who are enacting and reproducing organisational routines. The intentional/unintentional distinction focuses attention on:

1. change which flows from the introduction of new rules; and
2. change which evolves at a more tacit, subconscious level.

The former is normally easier to observe, although the latter is equally important for understanding management accounting change. However, most processes of management accounting change are likely to incorporate a mixture of both intended and unintended elements (Burns and Scapens, 2000).

It seems reasonable to expect that top-down (e.g. imposed) management accounting change will have its initial and most direct impact on the formal rules (e.g. the technical aspects) of management accounting systems, but only an indirect impact on the informal processes which underpin management accounting routines. On the other hand, bottom-up change (initiated by organisational members who use management accounting from one day to the next) is more likely to have an impact at a tacit level and to shape informal as well as formal management accounting processes (Burns and Scapens, 2000).

2.2.2 Revolutionary and evolutionary management accounting change

Also important for any study of management accounting change is the dichotomy between revolutionary and evolutionary change (Nelson and Winter, 1982). While revolutionary and evolutionary change involves a fundamental disruption to existing routines and institutions, evolutionary change is incremental, with only minor disruption to existing routines and institutions. Again there is some overlap with the

distinction between intentional and unintentional change, but there are also important differences. For example, intentional changes in management accounting systems may remain firmly grounded in existing routines and institutions, and as such would not be revolutionary. Also, unintentional change in informal processes could, in practice at least, be revolutionary, in that they could challenge existing institutions (Birkett and Poullaos, 2001: 1-205).

2.2.3 Regressive and progressive management accounting change

Tool's (1993) dichotomy of regressive and progressive institutional change offers further insight into processes of management accounting change (Bush, 1987). He began by distinguishing between what he called "ceremonial" behaviour and "instrumental" behaviour. Ceremonial behaviour emerges from a value system which discriminates between human beings and preserves existing power structures, whereas instrumental behaviour emerges from a value system which applies the best available knowledge and technology to problems and seeks to enhance relationships. He then adopted the term regressive change to describe behaviour which reinforces ceremonial dominance, thereby restricting institutional change; and adopted the term progressive change to describe the displacement of ceremonial behaviour by instrumental behaviour. Such progressive change can take place even where there is ceremonial dominance, because new technology can incite questioning of previously dominant, ceremonial values.

2.3 Management accounting and the rest of the organisation

One strain of argument, which arises in most of the observations cited in the research about the relationship of the management accountants to the rest of the organisation, is that their expertise cannot be applied independently of knowledge about the operational activities specific to their organisation. A link must exist between the particular processes considered to be required for organisational success and the technicalities of the management accounting task (Parker, 2002; Burns, 2000).

Management accounting, on the basis of the results of the research described in section 2.2, needs to become embedded within operational activities to enhance its effectiveness. The value of communicating management accounting information through informal channels must not be underestimated either (Howieson, 2003). Moreover, most of the empirical studies reviewed reveal the growing importance of qualitative information, which arises because of the changing product environment (Francis and Minchington, 1999: 301-319). Greater stress is being put on quality, delivery performance, customer satisfaction etc., and the development of such factors appears to be desirable. These empirical studies point to the need for management accounting to cultivate an understanding of marketing problems and processes, as well as to become increasingly integrated with the strategic components of organisational activities (Parker, 2001; Boer, 2000).

2.4 Changing accounting practices - surveys in different countries

2.4.1 United States of America

Bromwich and Bhimani (1992) has explained the argument made by certain prominent management accounting researchers in the US that the poor state of management accounting practice today stems from distortions imposed by external financial requirements. They suggest that demands made by management decision-makers may be partially satisfied by adopting management accounting techniques which encompass new methods of recording costs, appraising investments and recognising longer term strategic factors to facilitate the more effective pursuit of organisational goals.

The empirical findings on trends in US manufacturing firms suggest that some of the advocated techniques for improving cost management in organisations are moving, broadly speaking, in the right direction (Chen, Romocki and Zuckerman, 1997: 28-30). There are, however, many challenges which are seen as continuing to face the management accounting profession (Boer, 2000). There is a need to look at wider issues of evaluating enterprise performance, analysing investments and dealing with ingrained business management practices, rather than simply advocating innovative modes of tackling alleged management accounting failures judged in isolation from other organisational processes and which may not be crucial to many firms. There is also the problem that the publicity attracted by the suggested innovations may lead to ignoring other problems with fixed costs of equal or greater importance. Certain costs are often fixed once the decision is made to incur them. There is, therefore, a need to

change overhead accounting methods so that such costs are traced back to the original decision-maker (Holzer and Norreklit, 1991).

2.4.2 United Kingdom

The reactions to fast changing products, markets and manufacturing environments have the following implications for management accounting practitioners in the United Kingdom (Bromwich and Bhimani, 1992; Birkett and Poullaos, 2001):

- * Management accountants need to alter what some managers perceive as their often self-assumed role as watchdogs rather than as suppliers of information and as parties to decision-making, which is the role that managers and many management accountants expect management accountants to fulfil.
- * The overwhelming influence of financial control and the emphasis on short-term monetary returns by United Kingdom managers are seen as inhibiting the implementation of advanced manufacturing technology.
- * Management accountants need to adopt a more outward-looking and strategic perspective both for investment justifications and for broader decision-making, following those sectors of British manufacturing industry where some firms have already adopted such a stance.

- * Responsibility accounting systems, information flows and organisational control measures may be affected by the new production methods. Management accountants can hinder or can enhance new attitudes to manufacture.

- * Non-financial accounting information has been found to have become increasingly important in many different manufacturing environments, even where the use of advanced manufacturing technology varies substantially in various industrialised countries. Qualitative and non-financial quantitative information will have a high and growing level of significance in enterprise management, and its incorporation into management accounting systems will provide important challenges for management accountants.

- * Apparently, both strategic investment appraisal techniques and strategic management accounting are becoming increasingly important as a means of processing relevant management accounting information, and need to become more important. Enterprise accounting systems would need to be geared more to the market where demand has to be retained and competition overcome.

- * The cost of achieving the value added to the firm's products relative to competitors needs to be determined and continually monitored.

- * There is urgent need for management accountants to experiment, to seek out new ways of using their existing expertise, and to enlarge their competence by seeing management accounting as a much broader function.

- * It is recommended that techniques such as activity-based costing (ABC) and target pricing, as used by some Japanese firms, where price is determined by the price required to win a desired market share rather than to cover full cost, should be used and further developed.

Indeed, one study of five leading American manufacturers responding to global competition by implementing various components of advanced manufacturing technology (AMT) concluded that:

“The management accounting profession is following, not leading, the process of change, and is often inhibiting rather than instigating productive manufacturing change (McNair, 1988:xviii).”

A comparison with German theory and practice in engineering suggests that British management accounting overemphasises the single-minded pursuit of profit. This may have contributed to Britain’s relative industrial decline. German management accounting was found to be more modest in its goals, more restricted in its use and more accurate in content (Strange, 1991).

2.4.3 Japan

Much literature has appeared in this vein attempting to describe the complexity and richness of Japanese management attributes, but with differing degrees of success. There is, however, a consensus that the aspects which are central to Japanese style management in their large companies include: enterprise unions, seniority based payment/promotion systems, lifetime employment, consensus-oriented “bottom-up” decision-making, lifetime in-company training, recruitment of workers directly from school/university for lifetime employment, and various company incentives and perks, such as low interest loans, company housing and special welfare schemes (Chen, Romocki and Zuckerman, 1997).

In a study by Currie and Seddon (1992) it was found that Japanese firms, unlike their Western counterparts, are uninterested in the “new” management accounting techniques such as ABC. The managers felt that knowledge that some products were more expensive to produce than others was not in itself sufficiently important to determine product strategy decisions. On the contrary, expensive products were likely to be of real strategic importance to the company and their elimination on the basis of simple product costing information could prove disastrous.

Various studies (Chen, Romocki and Zuckerman, 1997; Hiromoto, 1988) have demonstrated that Japanese companies differ from their Western counterparts in the areas of cost management, investment appraisal, market orientation and strategic awareness of AMT. In the area of cost management, Japanese managers perceive target costing as important. They feel it is important to calculate the right price for a

product at the pre-manufacturing stage. Financial planning for the entire product life cycle is therefore carried out prior to manufacturing. Product pricing has to relate to “what the market could bear”. Japanese companies show more attention to product costing at the pre-manufacturing stages, with earlier and more sustained attempts at target costing and reduction. They also make positive use of quality control feedback. Cost control is also everyone’s job in Japan and not necessarily the job of the accounting department. They also develop the cost of a design and then establish the market price. Prices are fixed according to market tolerance. Thus the Japanese work backwards to the basic cost of the product and then design it to an acceptable quality at the right cost (Hiromoto, 1988).

Investment appraisal is also practised differently by Japanese and Western managers. In recent years, the problems of traditional investment appraisal techniques have been well documented. The fixation on labour costs by perceiving the range of new technologies as labour saving has arguably distorted the real strategic advantages of this form of capital investment. The continuing decline in direct labour costs as a proportion of total manufacturing costs suggests that this predominance indication is less relevant (Kaplan, 1989). It has also eliminated one of the key justifications for introducing AMT.

Hiromoto (1988) has further highlighted the difference between Japanese management and their Western counterparts. Whilst Western managers appear over-concerned with the quantitative advantages of AMT, Japanese managers instead include a wider array of performance indicators when assessing the benefits from production technologies. Some claim to quantify the qualitative benefits of AMT, with particular

attention focused on quality control costs, scrap, rework, warranty, service costs, wastage, space saving and machine performance.

A notable difference between Japanese and Western management accounting is the managerial level of responsibility for investment appraisal. The “technical champion” (referring to individual effort by technical personnel) is not recognised by Japanese managers. On the contrary, Japanese managers are keen to explain that individual performance is assessed along with group performance. In most of the cases expenditure on e.g. AMT is decided at management meetings comprising the president, board-level directors and associated expert teams from the organisation.

The significant reason for the scant attention paid to Japanese management accounting, particularly in the USA and UK, is because the methods and techniques used are “traditional” and do not, in isolation, explain the Japanese “miracle” or Japan’s position as a “world-class manufacturer”. Indeed, Japanese management accounting has arguably played little part in Japan’s post-war pursuit of economic success. In fact, some Japanese managers desire management accounting activities simply as “good housekeeping”. Even the focus on cost reduction through the redeployment of direct labour suggests that while traditional accounting may influence rather than simply inform decision-makers (Hiromoto, 1988), manufacturing goals are nevertheless achieved by an all-embracing corporate strategy and not by cost cutting and performance measurement alone. Japanese companies focus upon a wide array of multi-disciplinary financial and non-financial performance indicators and a strong “engineering voice” is present at board level. Explanations for these differences cannot be attributed to one or two simple factors alone but to a wider

socio-economic and cultural explanation which looks at government support for manufacturing, the banking and education systems, human resource practices and Japan's post-war "backwardness" and keen desire to catch up with the West, particularly the United States, Britain and West Germany.

2.4.4 South Africa

Powerful and invasive developments are taking place in the world's business community, and we in South Africa are not excluded from the impact. As was to be expected, the accountancy and management accounting profession has been and will continue to be profoundly affected (Sulcas, 2000: 17-18; Parker, 2002; Howieson, 2003).

According to Sulcas (2000) the major shifts that are taking place are the following:

* Information technology

"Internal usage of computers, inter-organisational linkages and the Internet are combining to create powerful processing and communication mechanisms, which are rapidly transforming planning, control and operational methods in the majority of medium to large organisations."

* Marketing

"Major companies are actively pursuing niche marketing, building brand loyalties and undertaking focused market research to retain and build their customer base."

* Environmentalism

“Many initiatives are in progress to protect planet earth from environmental abuse. These range from anti-pollutant laws through to the anti-smoking and -drinking lobby groups.”

* “No jobs for life”

“Lifetime job security is a thing of the past. An employee’s future depends on the level of contribution he/she is making relative to the demands of management.”

* The Receiver of Revenue

“Without doubt there have been major developments regarding the assessment of taxes and revenue collection. In addition, many tax avoidance schemes are now being thoroughly scrutinised.”

* Affirmative action

“There are “carrot-and-stick” approaches being followed here, some of which more successful than others. However, a major move is happening that can be expected to escalate in the future.”

* Black empowerment

“The need for providing opportunity and wealth creation is widely acknowledged. Progress is being made via powerful local groups into businesses which traditionally were white owned, controlled and managed. In some instances, especially regarding businesses dealing with government or quasi-government, being a member of a previously disadvantaged group is a prerequisite for being awarded a tender.”

* Labour laws

“Major revisions to the law have placed an increasing burden on organisations relative to managing and remunerating employees.”

* Government

“The emergence of national, regional and metropolitan government has, in many instances, altered the balance of power from the past. In turn, organisations have to learn to cope with the increasing levels of bureaucracy.”

In summary, what can be clearly understood from the above is that on a local, national and global basis, organisational management is having to be highly astute in recognising the potential impact of all the above-mentioned factors on established operation norms. In addition, proactive or reactive strategies will have to be formulated and implemented to ensure not only future growth but, in many instances, actual survival of the organisation (Sharma, 2000; Burns, 2000).

Important challenges which logically flow from the above are the following (Sulcas, 2000; Parker, 2002; Howieson, 2003):

- * Companies should attract and retain highly competitive staff, which will have an impact on remuneration policies.
- * In-house or external educational and personal development programmes will become increasingly important in order to equip staff to manage their professional responsibilities relative to the needs and expectations of the customer base.
- * It will be important for firms to profile themselves, from the perspective of their customers, as professionals in the “business of business”.
- * “Adding value” is becoming a prerequisite for continuous employment.
- * The management accounting profession should position itself to supply the national corporations with national expertise as South Africa moves into the global market place.

Management accountants should be aware of these challenges and should also be able to handle these challenges. This brings a huge responsibility to educators as to the way in which they should help the profession not only to survive, but also to add value to organisations (Boer, 2000; Maher, 2000).

2.5 Problems in the management accounting environment

Some of the problems perceived as not yet satisfactorily dealt with in management accounting include (Burns, Scapens and Turley, 1998; Boyce, 2004; Russell and Kulesza, 2000; Roslender, 1996; Ward, 1992: 283-304):

- * Management accounting is alleged to be subservient to external financial accounting requirements.
- * Its failure to capture a company's progress towards world-class manufacturing, which will allow a company to manufacture a high-quality product reaching the customer quickly with high performance and customer satisfaction.
- * It lacks strategic considerations in management accounting and project appraisal. The internal orientation of accounting information is too narrow for strategic decision-making. "Today's management accounting information, driven by the procedures and cycle of the organisation's financial reporting system, is too late, too aggregated, and too distorted to be relevant for managers' planning and control decisions. With increased emphasis on meeting quarterly or annual earnings targets, internal accounting systems focus narrowly on producing a monthly earnings report" (Johnson and Kaplan, 1987:1).

- * Incorrect product costs in multi-product companies due to overhead absorption methods. It seems desirable for management accountants to assess the causes which lie behind the growth in overhead costs and to gain an appreciation of the factors which cause fluctuations in overhead costs, in a manner similar to their understanding of how labour and material costs arise in manufacturing operations.

- * The maintenance of traditional assumptions in performance evaluation and the continued short-term orientation of this process.

- * The reliance of management accounting on redundant assumptions concerning manufacturing processes. This is reflected in an overconcern with direct labour and components produced within the firm, rather than overheads and brought-in components.

Changes in the business environment which are seen as being likely to affect those redundant assumptions upon which existing management accounting practices rely, and which will be discussed in sections 2.5.1 to 2.5.5.4, are founded on:

- * Direct labour
- * Direct material
- * Overhead costs
- * Accounting variances
- * Accounting records
 - Back flush accounting

- Qualitative and non-monetary measures
- Investment appraisal of Advanced Manufacturing Technology
- Activity-based Costing

2.5.1 Direct labour

Direct labour becomes a smaller proportion of manufacturing activity as an organisation moves from traditional production techniques towards advanced manufacturing capabilities. This is because labour is replaced with machinery and the remaining payroll becomes fixed with regard to operating activity. The repercussions on traditional costing practices are of great significance, because direct labour has until now been a major cost factor and the principal allocation base for indirect cost assignment (Miller and Volman, 1985).

2.5.2 Direct material

Direct material might be expected to constitute the same proportion of manufacturing costs under a system using Advanced Manufacturing Technology (AMT) as with a traditional manufacturing facility, except for the material and brought-in parts (BIP) obtained from subcontractors for further processing and assembly in larger firms. Such costs can be expected to diminish as subcontracting firms also adopt increasingly advanced production techniques and benefit from any resulting cost advantages (Solomons, 1968).

However, one result of adopting a modern manufacturing process is the expansion of BIP, and factories increasingly becoming a facility for assembling material and BIP as they are in Japan in some industries. According to Solomons (1968) this trend is likely to result in an increase in the input cost of raw material compared with the traditional production process and necessitates enhanced material control and monitoring systems. Firms where these costs represent well over 50 per cent of all costs are increasingly common. Proportions up to 95 per cent have been observed in some industries. This change may require the use of methods which cost the activities required for material and BIP. In a more conventional accounting system it may require the switching of the overhead allocation basis from direct labour hours to material and BIP.

Another important implication of AMT is that the material cost pool would be expected to disappear in a purchasing department using Just In Time (JIT) techniques, because the warehouse would be eliminated and material handling costs would be reduced. An organisation which traditionally allocated purchasing, material handling, quality inspection and warehouse costs separately would have to discard the warehouse cost pool and to combine other cost pools because of their diminishing importance (Horngren and Foster, 1988).

2.5.3 Overhead costs

Overhead costs can be expected to increase as capital-intensive AMT investments are made. This trend may be offset to some extent by the adoption of novel accounting techniques, which seek to reduce the costs that are treated as overhead. This is

achieved by trying to increase the direct traceability of costs to individual production lines, thereby limiting the size of the overhead “globe” (Vangermeersch, 1986). Material handling will move from an indirect cost in the traditional environment to a direct cost in the JIT environment.

Overhead allocation bases, which correspond to number of employees and floor space among other factors become less suitable in this setting. Both these categories decrease in size with the implementation of AMT. For instance, one of the goals of computer-integrated manufacturing is to achieve a “peopleless” factory structure. Moreover, in a pure JIT environment, there are no warehouses. This suggests that allocation bases tied to number of employees or floor space will suffer significant shortcomings in the “factory of the future”.

High ratios of fixed costs to variable costs limit a company’s ability to respond to changes in the economy. Labour-intensive industries can to some extent cut costs during a recession by laying off workers. Capital-intensive sectors of industry relying on robotised production methods and flexible manufacturing systems, will by contrast find it more difficult to reduce operating expenses. It is consequently regarded as doubly important for such industries to seek ways of tracing costs that are conventionally viewed as unavoidable overhead expenses and attempt to address these through new forms of manufacturing accounting methods so as to enhance their controllability and bring them within the locus of costs that can be monitored by the manager (Banker, Potter and Schroeder, 1995: 115-138).

2.5.4 Accounting variances

The significance of variances are regarded as playing a diminished role in manufacturing environments using AMT because of the changed infrastructure within which manufacturing takes place (Drury, 2000; Fowler and Hawkes, 2004). For instance, purchase price variances lose their relevance when prices are determined by contract and when total cost of operation, quality, availability and long-term reliability arising from vendor contracts take precedence over low material prices resulting from large quantity purchases but which contradict the AMT philosophy of near zero inventory levels of raw material or sub-components (Howell and Soucy, 1987b).

Likewise, efficiency variances relating to plant production performance such as scrap and rework variances can be tracked on an operating rather than a financial basis in the new manufacturing environment and on a real-time rather than on a delayed basis. (Allot, Weymouth and Claret, 2000: 127-136). Thus accounting efficiency variances which focus on financial numbers and which are produced with a time lag may be rendered virtually useless. It is actual material, labour, manufacturing and non-manufacturing expenses which are important in a new production context where, as Howell and Soucy (1987b) state: “we will see a de-emphasis on standard costs and particularly variance analysis in the new factory and much greater emphasis on actual costs and how they are changing.”

2.5.5 Accounting records

The scope and detail of accounting information is likely to change when moving from a traditional to an advanced manufacturing environment (Boer, 2000). Deliveries of raw material and sub-components, as an example, increase substantially in JIT environments. The consequent additional and large resources required for information processing can lead to intense cost-cutting measures such as batching individual purchase deliveries, utilising electronic transfer systems in which a purchase automatically establishes data and funds transfer at the delivery and payment dates, and using a back flush internal accounting system which considerably lowers record-keeping costs.

2.5.5.1 Back flush accounting

A key aspect of the JIT philosophy is that it simplifies production activities. JIT can also allow back flush accounting to be used whereby the level of detail with which product information is recorded is greatly reduced. A back flush costing system focuses first on the output of the organisation and then applies costs to units sold and to stock afterwards. The point at which a sale occurs, or when the product is finished, can be taken to be the point at which accounting entries are made. This point is often referred to as the trigger point. In contrast, conventional product costing systems track costs through work in progress, beginning with the introduction of raw material into production (Horngren and Foster, 1988).

2.5.5.2 Qualitative and non-monetary measures

Within the new manufacturing environment, monitors of quality, delivery time, inventory reduction and machine performance are seen as replacing measures of labour productivity, machine and capacity utilisation and standard cost variances. Accordingly, information systems need to shift their focus from traditional quantitative financial data to operating quality and other measures.

Operating measures in the new manufacturing environment can be grouped into the following five categories: quality, inventory turnover, material/scrap, equipment/maintenance and delivery/throughput (Howell and Soucy, 1987b).

2.5.5.3 Investment appraisal of Advanced Manufacturing Technology

Capital investment in AMT requires the application of financial appraisal and budgeting techniques which emphasise factors different from those usual for conventional investment decisions. Automating and computerising production processes result in economically identifiable cost reductions, such as reduced labour utilisation, diminished scrap and rejects and working capital savings from lower inventory levels. Certain benefits from AMT, however, are not subject to ready quantification but may contribute in substantial ways to satisfying desired corporate objectives. Such benefits can include enhanced quality, faster delivery, less frequent production breakdowns, lower after-sale service requirements, increased production flexibility and diversity, faster throughput and, more generally, attaining a valuable competitive advantage (Vangermeersh, 1986; Howieson, 2003).

Certain investments entail the decision to change the manufacturing design and layout of the production plant completely, resulting in a new factory being built from scratch. Such strategic investment decisions need to be handled differently from more tactical short-term decisions so as to encompass not only cash flow forecasts but also the longer-term strategic aspects of intended projects within the overall perspective of the firm (Howieson, 2003).

There are ways of examining AMT investments in a broader perspective to encompass both quantifiable and qualitative factors. One possibility is to combine formal and informal analysis within a strategic investment appraisal framework by linking corporate strategy to benefits perceived to accrue from AMT adoption (Bromwich and Bhimani, 1994). The method involves separating the strategic benefits internal to the enterprise including increased control of production systems through raw material, labour usage and reduced inventory and extra managerial information.

Market-orientated strategies yield benefits traditionally seen as unquantifiable, such as quality improvements, increased production flexibility and customer satisfaction, enhanced company image and reduced risk through greater product mix possibilities and broader skills range. Internal strategic benefits largely comprise those traditionally expressed in monetary terms, but also include qualitative benefits arising from synergies across plants and divisions and new information exchange possibilities between different advanced manufacturing systems within the organisation.

Both market-oriented and internal strategies need to be assigned to different categories of costs and benefits, according to whether these are already in financial terms or expressible with effort in monetary terms or are inexpressible in monetary terms. The three categories can then be ranked within a strategic planning matrix giving three scores for every investment project proposal as a basis for ultimate decision making. This way of analysing investment projects offers firms a starting point for assessing the decision to automate through individually tailored techniques encompassing costs and benefits specific to the firms and without limitations as to the nature of these costs and benefits. This complements AMT implementation, which must be customised to fit the enterprise seeking to automate (Kaplan and Atkinson, 1998).

The view that traditional practices need to be adapted to provide information that is strategic, outward-looking and which allows the anticipation of events, was particularly strongly felt. For instance, efforts were being made by firms in the study to make absorption costing data more accurate through improved cost analysis with a view to allowing more efficacious studies of product profitability.

It is believed that further evidence on how the continuing implementation of AMT by manufacturing organisations is affecting the information needs of managers, and how the management accounting function can accommodate those changing needs, is desirable. The implementation of the approaches to management accounting systems outlined in this report within individual organisations is to be encouraged. Indeed, experimentation and innovation within accounting functions and systems by individual firms will cast much needed light on how management accounting tools

and concepts can be redesigned to enhance the functioning of organisations. Organisations should be encouraged to react to challenges to management accounting arising from the installation of modern production systems. Advances in technology have meant that many of the companies are pushing accounting “into the field”. Non-accountants are performing the duties traditionally performed by accountants (Burns, 2000).

Management accounting professionals should keenly monitor the results of such changes but should be cautioned against totally revising the assumptions upon which their existing activities are founded on the basis of what is presently known about the implications of AMT for management accounting.

2.5.5.4 Activity-based Costing

During the 1980’s the limitations of traditional product costing systems began to be widely publicised. These systems were designed decades ago when most companies manufactured a narrow range of products, and direct labour and materials were the dominant factory costs. Overhead costs were relatively small, and the distortions arising from inappropriate overhead allocations were not significant. Information processing costs were high, and it was therefore difficult to justify more sophisticated overhead allocation methods (Sharma, 2000).

Today companies produce a wide range of products, direct labour represents only a small fraction of total costs, and overhead costs are of considerable importance. Simplistic overhead allocations using a declining direct labour base cannot be

justified, particularly when information-processing costs are no longer a barrier to introducing more sophisticated cost systems. Furthermore, the current intense global competition has made the decision errors due to poor cost information more probable and more costly. Over the years the increased opportunity cost of having poor cost information, and the decreased cost of operating more sophisticated cost systems, increased the demand for more accurate product costs (Holzer and Norrelklit, 1991). It is against this background that activity-based costing (ABC) has emerged. ABC, however, is not a recent innovation. Fifty years ago Goetz (1949) advocated ABC principles when he wrote:

“Each primary (overhead) class should be homogeneous with respect to every significant dimension of management problems of planning and control. Some of the major dimensions along which (overhead) may vary are number of units of output, number of orders, number of operations, capacity of plant and number of catalogue items offered.”

Decreasing information-processing costs resulted in a few firms in the USA and Europe implementing ABC type systems during the 1980's. In a series of articles based on observations of innovative ABC type systems Cooper and Kaplan (1988) conceptualized the ideas underpinning these systems and coined the term ABC. These articles were first published in 1988. They generated a considerable amount of publicity and consultants began to market and implement ABC systems before the end of the decade. In a survey of UK companies Innes and Mitchell (1991) reported that approximately ten per cent of the surveyed companies had implemented, or were in the process of implementing ABC. Based on their experience of working with early

US adopters, Cooper and Kaplan (1988) articulated their ideas and reported further theoretical advances in articles published between 1990 and 1992. ABC ideas have become firmly embedded in management accounting literature and educational courses, and academics should accommodate these changes in their courses.

2.6 Challenges for management accounting education

There are some obvious new directions, given the problems discussed in sections 2.5 to 2.5.5.4, in which to extend management accounting education. First, the traditional cost accounting model, developed for the mass production of a few standardised products, must be updated to accommodate the realities of the manufacturing environment since the 1980's. Companies are now making fundamental changes to manufacturing operations in their organisations. These include JIT scheduling, Zero defect and Zero inventory production systems, and cooperative and flexible work-force management policies (Drury, 1988). The cost-accounting implications of these more advanced production control systems have barely been investigated and, as a result, our management accounting textbooks continue to describe production processes using extremely simplified models, such as the single product, deterministic EOQ formula. These materials are used in the teaching of management accounting and restricts the student's capacity to see the impact of the realities of the latest manufacturing environment.

The challenges of the competitive environment in the 1980's, which included JIT scheduling, Zero defect production systems and cooperative and flexible work-force management policies, caused companies to re-examine their traditional cost

accounting and management control systems, because virtually all of the practices employed by companies during the 80's and explicated in leading cost accounting textbooks had been developed by 1925 (Ashton, Hopper and Scapens, 1995; Emmanuel, Otley and Merchant, 1992; Kaplan and Atkinson, 1998).

Despite considerable changes (Russell and Kulesza, 2000) in the nature of organisations and the dimensions of competition during the past twenty years, the innovation in the design and implementation of cost accounting and management control systems have not been enough. Therefore, it is not only appropriate but also necessary that we understand the current business environment and how it reflects on the new demands for planning and control information, and to develop an education strategy to meet these new demands (Burns, 2000; Sharma, 2000).

The three main change drivers, which caused these changes in the nature of the business environment for which the academic institutions prepare the graduates, are the following (Russell and Kulesza, 2000; Parker, 2002):

1. Technology has been developed that makes information preparation and dissemination very inexpensive. Accounting technology is now low cost. We have high-speed digital and cable video and data transmission that makes information available to anyone, at any place, and at any time. We have access to hardware that produces information accurately, quickly, and easily. Software makes preparation, data, and communication tools available to individuals and entities that previously did not have access to the information they needed.

2. Globalisation has had a significant impact on business and how business is done. Faster methods of transportation, coupled with instantaneous information, have made the world one giant, interconnected marketplace. Consumers can buy products from firms in another country as easily as they can at the store next door.
3. The concentration of power in large market investors, primarily mutual and pension funds, has shifted the corporate balance of power. Armed with easily available and inexpensive information about firms and their competitors, large institutional investors raise the competitive bar very high and, simultaneously, decrease the period of time over which success is measured.

Russell and Kulesza (2000) state that these three change drivers have had two major impacts on business:

- * They have eliminated the old accounting model that information and knowledge is expensive. In the new economy, anyone with the right software can become an “accountant” or “financial manager” and produce financial information for decision-making purposes (Gabbin, 2002).
- * They have resulted in a dramatically increased level of competition among all organisations (Parker, 2002). Institutional investors want the best performance, and they want it instantaneously. Global competitors often have different cost structures that will be exploited to render historically-based business models obsolete.

In this article on this changing role of management accountants, Burns and Yazdifar (2001) support the pre-established argument that the management accounting discipline must understand the current business environment, as well as how it reflects on the new demand for planning and control information, and develop an education strategy to meet these new demands. They record the following research findings (2001: 33-35):

- * “Traditional management accounting (e.g. budgeting and variance analysis) is primarily done in the field by business managers rather than by management accountants.”

- * “Routine tasks, e.g. transaction processing and external reporting, have diminished substantially: they are now the responsibility of much smaller specialist groups and often involve database technology. These tasks are also increasingly being outsourced.”

“New” tasks that will be of future importance for management accountants are:

- * strategic planning and decision-making,
- * implementing business strategy,
- * the generation and creation of value,
- * implementing and designing new information systems and
- * interpreting operational information.

Burns and Yazdifar (2001) summarises as follows:

Traditional management accounting practices and roles will remain important (Sharma, 2000). However, technological advances and the transfer of traditional accounting roles to managers mean that fewer management accountants will be involved in these jobs and that the role of management accountants has changed.

Therefore, to accommodate the above-mentioned changes, professional accounting bodies should modernise their training and education programmes to ensure that members can deal with information systems, strategy and change management (Howieson, 2003).