A THREE-DIMENSIONAL APPROACH TO MANAGEMENT CONTROL SYSTEMS

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Traditional management accounting and control practices have come under severe criticism in recent years, indicating that the time may be ripe to reconsider our approach to management control system (MCS) design. To accommodate the call for a more holistic approach in management accounting research a typological framework is developed by positioning the formal MCS along the feedback/feedforward, the financial/non-financial and the formal/informal dimensions of control. The framework developed through cross-fertilization of these dimensions in three steps across eight archetypal MCS designs and characteristics is outlined. An overall contingency perspective is applied and contextual factors with a potential influence on systems design are discussed briefly in conjunction with the presentation of the typology, while recommendations for more thorough research in this respect are given. Also, closer integration between management control and human resource management theory is recommended, particularly when conducting control research in human resource intensive service organizations.

Traditional management accounting and control practices have come under severe criticism in recent years.[1] Some recurring themes in this context are management accounting's propensity to induce a dysfunctional, myopic employee behavior, its backward-looking character, its neglect of relevant non-financial (particularly market related) indicators and its inability to promote organizational flexibility (Fischer, 1992; Johnson, 1992; Johnson & Kaplan, 1987; Lynch & Cross, 1991).

While the inherent problems of evaluating performance based on short-term profitability and rentability measures are nothing new in accounting

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research (cf. Dearden, 1969; Merchant, 1989), the recent works cited above challenge us to relate to management control systems (MCS) in a different way than what has long been perceived as the common practice. However, the arguments presented also generate some ambiguity as to how such control systems can be conceptualized and designed. For instance, the use of non-financial data is sometimes suggested to lead to more forward oriented control practices, providing more timely and frequent feedback on events that are relevant for the ultimate competitiveness of the organization, compared to aggregate historical financial information (Fischer, 1992; Johnson, 1992). By definition, however, all information based on past events is of a historical character. The distinguishing character of various control processes would rather be the actual use of different types of information. Unfortunately, none of the critics cited above go into any greater detail regarding what constitutes feedback and feedforward cycles along the non-financial dimension and how this relates to the wider control context. The use of non-financial information is merely presented as a more forward-oriented practice than providing feedback in aggregate financial terms to managers for motivational purposes.

In addition to the critique briefly referred to above, the need for further examination of the interplay between formal accounting-based controls and informal controls has been recognized in management control research for some time (Ansari, 1977; Dent, 1987; Emmanuel et al., 1990; Preston, 1991a), increasingly so in studies of management control issues in the economically important service sector (Berry et al., 1991; Abernethy & Stoelwinder, 1990, 1995). To grasp a fuller extent of the management control process, it would appear advisable to view the role of the formal MCS in a wider control context (Dermer & Lucas, 1986; Otley, 1980). This might inform research efforts aiming at provision of insights into how to overcome limitations of formal MCSs and may shed some further light on issues targeted by critics of traditional management control practices. It may also be a step towards a more holistic view of management control, which has been advocated in order to counterbalance the fragmentation and

reductionistic tendency of much accounting research (Otley, 1980; Samuelson, 1990).

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As the management accounting and control debate referred to above is largely based on empirical observations of current control problems and, at least in part, the emergence of innovative management control techniques, the time may be ripe to reconsider our approach to MCS design. The aim of this paper is to further the conceptual clarity surrounding the character of formal MCSs in organizations, through the development of a typology linking MCS design to the three dimensions briefly outlined in the foregoing. These are:

- The feedback/feedforward dimension.
- The financial/non-financial dimension.
- The formal/informal dimension.

In this respect, the paper is particularly concerned with behavioral and motivational aspects of management control. While the paper was originally inspired by the contemporary critical debate on management accounting and emerged as an attempted response to this, the discussion is here concentrated to the development of a comprehensive typology for reasons of space limitations. This is believed to be a more fruitful way of

carrying research forward. The recapitulation of previous critique of management accounting is consequently kept relatively brief. An overall contingency perspective is applied and some examples of factors influencing systems design are included in the description of the typology for illustrative purposes, while recommendations for future research in this respect are given in the concluding section of the paper. Despite these restrictions the typology and the premises on which it is founded will be discussed in sufficient detail to allow future research to relate the framework to various contextual factors and develop testable hypotheses.

The paper starts with a brief outline and discussion of the three dimensions in order of presentation above. Thereafter, eight archetypal MCS designs are elaborated through cross-fertilization of the dimensions in three steps to arrive at a framework for further analysis. Finally, implications of application of the framework in future research are discussed in the concluding section of the paper.

THE FEEDBACK/FEEDFORWARD DIMENSION

Management accounting and control systems are often conceptualized as a set of activities linked together by a number of feedback and feedforward loops (e.g., Emmanuel et al., 1990; Flamholtz, 1983; Otley & Berry, 1980). The total MCS typically embodies both *ex-ante* and *ex-post* controls. Traditionally, planning and resource allocation aspects have been in particular focus in ex-ante activities such as goal and standard setting and budgeting, while the ex-post activities of performance measurement, evaluation and rewards have been viewed as the main components of the feedback process (Flamholtz, 1983; Flamholtz et al., 1985).

In other words, feedback systems wait for performance to occur, while feedforward systems are more anticipatory in nature (Ansari, 1977). However, the two types of system may be expected to be interlinked in that feedback on certain events is often the starting point of a feedforward

process leading to enhanced organizational learning. For instance, past results frequently serve as a point of reference when planning ahead. Moreover, ex-post evaluation presupposes an ex-ante activity of establishing targets (Govindarajan, 1984). It may thus be reasonable to assume that some balance between forward- and backward-oriented mechanisms is instrumental for a well-functioning control system, even though situational factors may require some trade-offs between the two types of controls when considering design options. According to recent critics, however, the feedback element has been allowed to dominate contemporary management accounting systems to an inappropriately great extent (Fischer, 1992; Johnson, 1992). More specifically, the emphasis on historical *cost accounting* for control purposes is suggested to have largely overshadowed more forward-oriented control mechanisms, which ideally lead to *cost management*, or continuous process innovation and improvement (Johnson, 1992).

Anthony (1965, 1988) has presented an influential conceptual division between various formal control processes. He separates between strategic planning, management control and task (or operational) control, which display a varying degree of emphasis on planning (ex-ante) and evaluation (ex-post) processes. Strategic planning assigns the greatest relative importance to medium to long-range planning in comparison to evaluative processes. Operational control represents the opposite case, with highly frequent feedback, but limited emphasis on planning. Management control is assigned a relatively balanced mix of planning and evaluative processes. Even though this characterization of the various formal control processes in organizations may seem somewhat crude or over-simplified, it is a useful point of departure for positioning the MCS along the feedback-feedforward dimension and in relation to other formal control systems. As discussed further in the following section, though, Anthony's framework may be losing some of its validity. Focusing on MCS design it would therefore be more appropriate to view this as displaying a varying degree of imports of strategic planning and operational control elements. This is a fundamental thesis underpinning the framework presented in this paper.

THE FINANCIAL/NON-FINANCIAL DIMENSION

As indicated in the introductory part of the paper, another major concern in the current management accounting debate is the extensive reliance on financial information for control. A recurring argument in this context is that traditional financial indicators provide information of a too aggregate, untimely and simplistic nature (Fischer, 1992; Johnson, 1992; Lynch & Cross, 1991). In recent years, several authors have also emphasized the benefits of integrating financial and non-financial measures more closely within the frame of MCSs (Fischer, 1992; Kaplan & Norton, 1992, 1993; Lynch & Cross, 1991).

Returning to the framework developed by Anthony (1965, 1988) some initial insight into the financial/non-financial dimension may be achieved by relating to organizational control processes along his tripartite conceptual division. Strategic planning and control is defined as the process of deciding and evaluating goals of the organization, while management control comprises mechanisms to ensure that the organization's strategy to meet these goals is carried out in an efficient manner. Task control, finally, relates to the performance of specific operational activities. The use of non-financial information has mainly been associated with strategic planning and control (e.g., analysis of long-term market trends and demographic developments) and particularly operational control (e.g., production scheduling, quality control), while management control has ordinarily been viewed as being built around a financial structure (Emmanuel et al., 1990).

Non-financial information may be of either a quantitative or qualitative character in contrast to monetary measures, which are normally quantitative in nature. Our notion of accounting has been shaped by a numerical image of reality (Davies et al., 1982), which may be part of the reasons for the alleged overemphasis on a 'managing it by the numbers' approach among accountants and managers (cf. Johnson, 1992; Johnson & Kaplan, 1987).

A rough division regarding the character of non-financial measures for control can here be made between the strategic and operational levels (King et al., 1991). Strategic goals are frequently expressed in broad, qualitative terms (e.g., mission statements) even if some quantified goals may also exist (e.g., "grow number of outlets by an annual rate of X%"). A significant amount of the information used for strategic decision-making also tends to originate from sources external to the organization. On the other hand, non-financial goals at the operational level are normally dominated by more narrowly specified quantitative measures of internal origin (e.g. scrap rates, delivery reliability measures).

While stating that the three control processes discussed above shade into each other, Anthony et al. (1989) emphasize the importance of maintaining a sharp distinction between them as far as control systems design and analysis are concerned. However, some recent critics of Anthony's framework and contemporary theoretical and practical advances provide arguments for abandoning the strict conceptual division embodied in it. First, and in line with the criticism highlighted earlier in this section, it has been suggested that the framework assigns too much weight to financial information for management control purposes (Emmanuel et al., 1990). The rise to prominence of new techniques, such as *strategic management accounting*, has also revealed important benefits of using accounting information for strategic decision-making as well as integrating non-financial measures into the MCS (Bromwich, 1990; Simmonds, 1983; Shank & Govindarajan, 1993). Moreover, the increasing emphasis on integration of quality management and management control requires closer links between the MCS and strategic and operational control systems (Kaplan & Norton, 1992, 1993; Lynch & Cross, 1991). At the empirical level, students of Japanese management accounting practices have emphasized their close integration with strategic objectives and extensive use of non-financial indicators (e.g., Hiromoto, 1988). Second, the empirical observation of Berry et al. (1991) that managers exercise control across the boundaries of Anthony's framework, led them to question its appropriateness for analyzing interdependencies between the various

control processes. Third, and related to the issue of interdependency, the rapid information technology development is likely to offer new opportunities for further integration between various types of controls, with the aid of for instance integrated database solutions (Johnson, 1992; King et al., 1991; Macintosh, 1985). However, Schneider et al. (1995) have recently expressed concerns regarding the impediments created by accounting artifacts, such as double-entry bookkeeping, in this context. Last but not least, I would argue that if the ultimate aim of control is to encourage organizational members to apply a holistic view of the organization, erecting water-tight barriers between control processes at various hierarchical levels makes little sense as it may be detrimental to communication between managers and subordinates.

THE FORMAL-INFORMAL DIMENSION

It is sometimes suggested that many of the problems surrounding management accounting and control emanate from an unduly high degree of formalization of control (Preston, 1991b) and that managers and accountants frequently nurture an illusion of managerial control and its merits (Dermer & Lucas, 1986). Hence, it might be interesting to position the MCS in relation to the formal/informal dimension as a complement to the other two dimensions outlined in the foregoing.

Starting with Dalton's (1971) broad classification between *organizational, social* and *self-controls*, a framework is derived where operationalizations of the first of these include what we generally relate to as formal means for controlling behavior (e.g., budgets, standard costs, sales targets). The latter two control types, however, are based on elements which are generally not part of any officially sanctioned control system. Social controls are administered by informal groups and originate from a mutual commitment to ideals, with group norms setting the standards for control. Peer approval and social membership are important elements of this type of control. Self-controls, finally, relate to individual goals and

self-expectations directing a person's behavior. Perceived impending failure in relation to these aspirations triggers corrective actions at the individual level.

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However, it can be argued that Dalton's (1971) widely cited framework makes a too crude distinction between formal and informal controls, whereby it fails to cover a number of intermediary control types. *Informal accounting and information systems* (Clancy & Collins, 1979; Earl & Hopwood, 1980) are examples of control mechanisms administered by individuals or groups on an unofficial basis, although they are sometimes of a highly elaborate and sophisticated character (Macintosh, 1985). They can also be said to be formalized in a sense that they are used on a recurring basis and are built around some systematized computational model (cf. Macintosh, 1985). They may be useful complements to formal control systems providing information of a too aggregate, general and untimely character (Mintzberg, 1974).

A similar category of information systems are so called *grapevine systems* (Earl & Hopwood, 1980). These systems are visualized as informal communication between people joining the grapevine. Information of a mainly qualitative character is transmitted at business lunches, encounters in the hall and other social events (Earl & Hopwood, 1980). This type of system represents yet another intermediary form of control, not explicitly

accounted for in Dalton's (1971) framework. Indeed, grapevine systems embody means for conveying social norms or corrective cues for individual behavior, but at the same time they fulfill an important function of transmitting factual information, facilitating achievement of organizational goals. Still, they represent a less formalized and systematized type of control than the keeping of informal records and the use of financial and other quantitative measures and rules of thumb to assess the efficiency of operations on an unofficial basis. In this capacity, they can be expected to constitute means for managers to deal with complexity and convey nuances in information (Earl & Hopwood, 1980; Macintosh, 1985).

Consequently, we need to consider a number of intermediary types of controls to overcome the crudeness of the classification between formal and informal controls. Perhaps the term intermediary control types is somewhat misleading in this context. A more appropriate conceptualization might be to classify informal accounting and information systems and grapevine systems as *semi-formal* types of controls, in that they display a varying degree of formality or systematization, while not being part of the official control system. Moreover, they embody explicit functions aiming at facilitating achievement of (formal) organizational goals (e.g., breaking down budgetary goals on an unofficial basis, dissemination of nuances in formal information). In this capacity they are distinct from informal types of controls like 'pure' social and self-controls, which are largely based on group norms and self-expectations, respectively.

Coming full circle, we also need to consider the role of *organizational culture* in a control context. The importance of achieving consonance between the design of control systems and the prevailing organizational culture has been stressed by a number of authors (e.g., Flamholtz, 1983; Markus & Pfeffer, 1983), while culture may also be viewed as a powerful control mechanism per se (Jaworski, 1988; Ouchi, 1979). In this context, some authors include organizational culture as a form of social control or largely equate the two concepts (e.g., Flamholtz et al., 1985), while others separate cultural control from social and self-control (e.g., Jaworski, 1988;

Merchant, 1985; Wakefield, 1991). Drawing on the more fine-grained continuum between the formal and informal extremes outlined above we can reconcile this conceptual ambiguity by viewing organizational culture as yet another intermediary type of control. Cultural control mechanisms facilitate the socialization process between individuals by reinforcing a normative pattern of behavior within an entire organization (Ouchi, 1979). In this regard, culture can be seen as a means of rendering legitimacy to (formal) organizational goals, while suppressing individual and group goals which are inconsistent with these. However, its intangible and often subtle character qualifies cultural control to be grouped towards the informal end of the control continuum (cf. Jaworski, 1988; Wakefield, 1991).

Accepting that the formal control system can play a pro-active role, influencing individual behavior (Collins, 1982), we may expect organizational culture to interact with both formal and other informal controls in a complex web of interdependencies. Drawing on Wakefield (1991) cultural control can be viewed as an ideology, acted out by organizational members and hence influencing the design of formal controls. Formal controls in turn, foster self-control in that they are intended to effect individual behavior. Then, individuals acting out their commonly held values, reinforced by self-controls, influence the organizational culture. For instance, accounting systems can be used to prescribe normative role behavior to organizational members (Collins, 1982), whereby specific cultural phenomena may be reinforced.

TOWARDS A TYPOLOGICAL FRAMEWORK

Drawing on the discussion above we can now synthesize the three dimensions presented and expand the discussion to the development of a typological framework. This emerges from positioning the MCS along the three dimensions, which are cross-fertilized in three steps. Hereby we arrive at an eight-headed typology. It should be emphasized that the system in focus throughout the discussion below is the *formal* MCS built around

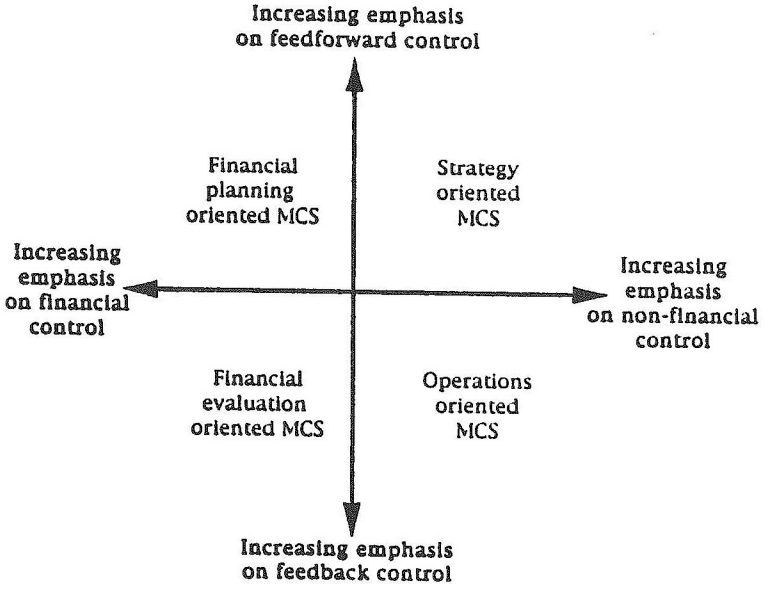
a core of financial information processing, even though this is positioned in relation to other formal control systems as well as informal systems. It should also be noted that the types presented signify ideal and extreme forms, which are not mutually exclusive. One control system may embody characteristics of more than one type. However, features of one type or the other are likely to dominate and render the system its overall character and it is in this capacity the typology can be a useful vehicle for analyzing systems design.

The first set of MCS types is derived from cross-fertilizing the feedback/feedforward and the financial/non-financial dimensions (see Figure 1). It should be noted that all four of these types mainly rely on formalized control processes and pay limited attention to informal control mechanisms. They can be expected to be found in organizations where management stresses the need for formal control and responsibility and tends to play down the use and legitimacy of informal controls. In other words, a formal control paradigm is likely to prevail.

Characteristics of the four types presented in Figure 1 are discussed below. The first two of these, which are positioned at the left hand side of Figure 1, would be most akin to the traditional view of MCSs in the accounting literature, as they are primarily built around a financial structure (cf. Anthony et al., 1989).

Figure 1

MCS Types Derived From Cross-Fertilization Of The Feedback/Feedforward And The Financial/Non-Financial Dimentions.



The Financial Planning Oriented MCS

This type of system assigns primary importance to feedforward control mechanisms. This can be expected to encompass elaborate capital investment calculation and product costing systems. These would in turn display a high level of integration with the formal planning system, which constitutes the central control mechanism. This would be associated with elaborate budgeting procedures, where particular weight is assigned to the allocation of financial responsibility. However, the main role of the budget would be as a planning device, rather than using it for motivational purposes. Rewards would tend to be linked to long-term financial performance (e.g., over several years), rather than achievement of short-term budgetary goals.

The paramount interest guiding the control process is the striving for financial precision. The extreme type of control system in this category would aim at financial programming, with extensive use of simulation techniques for decision-making. Hence, we may expect organizations relying on these types of systems to be confronted with relatively few but major decisions affecting the financial position of the organization over long time periods (e.g., extensive capital investment projects). A long-term managerial view is crucial, hence the need to retain managers and reward a long-term focus and their extended loyalty to the organization. However, the external environment can be expected to be stable, or fairly predictable (cf. Govindarajan, 1984). Further, we may envisage organizations relying on this type of system to employ relatively well-known or routine technology, which is indicative of low uncertainty regarding task design (cf. Hayes, 1977; Mia & Chenhall, 1994). In other words, both the external environment and the technology are largely given, perhaps due to regulated market conditions and/or application of commodity technology. For instance, research and development efforts are likely to have relatively low priority and technological break-throughs with a fundamental impact on competitive conditions in the industry are probably rare. As a consequence of these contextual factors, the financial outcome of various

alternatives can be predicted with fairly high accuracy. In combination with the far-reaching consequences of investment decisions, this makes financial planning a meaningful control mechanism.

The Financial Evaluation Oriented MCS

This type of system emphasizes the feedback element of the control process rather than financial planning aspects. There is lesser concern with financial precision, but speed of reporting is considered more vital. Compared to control systems focusing on financial planning, reporting and evaluation become more frequent. Feedback is received over shorter time spans (e.g., months, quarters) and revenues and costs are broken down to reflect short-term financial performance of organizational sub-units to a significant extent. Timeliness rather than accuracy of reporting is emphasized. It is more important for managers to receive quick feedback than to make correct long-term estimates of the consequences of future events. The system aims at promoting financial flexibility, rather than providing a robust planning tool. As a consequence, the planning techniques in use will be less sophisticated than what is the case of financial planning oriented systems. The budget is viewed more as a means of promoting communication and creating managerial motivation and commitment than a planning tool (cf. Arwidi & Samuelson, 1991). Hence, participation in the budgetary process may be expected to be extended to managers at a greater number of organizational levels and rewards are closely linked to performance in relation to short-term budgetary targets or other pre-defined financial standards.

An important cause for reliance on more frequent reporting and feedback would be increasing environmental dynamism, or uncertainty (Gordon & Miller, 1976). Rapidly and unpredictably changing environmental conditions are also likely to drive enhanced participation in budgeting (Waterhouse & Tiessen, 1978). However, the technology (or task environment) may still be expected to be of a routine character, since managers are likely to consider feedback based on accounting information

to be more credible under such conditions, than if technology is complex and non-routine (Hayes, 1977; Luckett & Eggleton, 1991). This factor might also impede the extent of decentralization and participatory budgeting somewhat (Waterhouse & Tiessen, 1978). The need to delegate authority to the technical core is limited as it is not vital to seek the involvement of lower level employees to determine the financial outcome of operations. Consequently, decentralization can be expected to be only moderate (e.g., formal delegation of responsibility stops with middle-managers). Since the technology applied is relatively well-known and simple, there is also likely to be little need for management to closely monitor tasks by the aid of operational measures. They can instead rely on short-term financial measures (e.g., standard cost deviance) to evaluate subordinates.

Partly drawing on the new directions in management control research discussed in the foregoing, the traditional approach can be complemented by two additional types of systems, which are found at the right hand side of Figure 1.

The Strategy Oriented MCS

This type of system, like the financial planning oriented MCS, takes a long-term view of the organization. However, the scope of the system would be broader, with a greater number of non-financial parameters being considered in the planning and control process. These can in turn be expected to be of a quantitative as well as qualitative character and be closely linked to the strategic objectives of the organization. Significant attention is directed to external factors (e.g., competition, company's position in industry) and these are directly linked to the control system with the aim of inducing managerial actions to support the long-term strategy of the organization. Further, financial and non-financial measures are closely integrated in the control system (cf. Kaplan & Norton, 1992, 1993; Lynch & Cross, 1991).

Significant weight is assigned to the planning process, but the relatively one-sided focus on budgeting is exchanged for a wider set of planning techniques. Forecasts reflecting market trends and other external factors are likely to be in extensive use. Control devices with a primarily internal focus, such as product costing systems may still be important, but the primary interest is shifted to the use of measures reflecting strategic key success factors linked to events over which the organization has only partial if any control. These measures are frequently of a non-financial character (e.g., reflecting image and customer reputation). Rewards are linked to both financial and non-financial evaluation criteria, reflecting performance in relation to key success factors of strategic importance.

A major force driving organizations to broaden the scope of the planning process to include non-financial factors would be increasing environmental uncertainty (Chenhall & Morris, 1986; Fischer, 1992; Gordon & Miller, 1976; Govindarajan, 1984). For instance, growing competition, deregulation and technological break-through with a profound impact on an industry represent factors which conventional accounting information reflects poorly if ever. In addition, higher environmental uncertainty was found by Govindarajan (1984) to be positively related to enhanced reliance on subjective performance appraisal styles, with extensive use of qualitative evaluation criteria. This would support the assumption of qualitative measures being increasingly emphasized in the planning and control process.

The Operations Oriented MCS

This type of system emphasizes the feedback and evaluation component of the control system, but like the strategy oriented MCS it broadens the scope to include several non-financial indicators as a complement to financial measures. At first sight it may be difficult to distinguish between operations oriented and strategy oriented MCSs. As discussed in the foregoing, the inclusion of non-financial measures in the control process

is often seen as a means of tailoring control systems more closely to business strategy (cf. Fischer, 1992; Hiromoto, 1988; Johnson & Kaplan, 1987; Kaplan & Norton, 1992, 1993; Lynch & Cross, 1991). However, it will still make sense to separate between the two types of systems for analytical purposes. Operations oriented MCSs are characterized by greater concern with measures directly indicating the effects of actionable steps at the operational level. Strategy oriented MCSs on the other hand primarily focus on monitoring changes in the external environment even though some internal factors might also be considered.

Another major division line is the time horizon involved. Operations oriented MCSs integrate frequent feedback on short-term operational measures into the financial reporting system, so that the links between activities and their subsequent financial outcome are more clearly visible. In contrast, strategy oriented MCSs focus on the ability to plan ahead with for instance changing industry trends in mind and mainly reflect altered environmental conditions with a long-term impact on the organization. In the operations oriented MCS, performance measures may be linked to issues of vital importance for the long-term competitiveness of the organization, but these are likely to require a high level of continuous attention (e.g., quality, delivery reliability). As opposed to strategy oriented MCSs, the non-financial measures in use in the operations oriented MCS will almost exclusively be of a quantitative and internal character (e.g., response time to fill orders or lead time for new products development). Temporal measures are likely to be in extensive use, as time might be a scarce resource constraining operations (Munro & Hatherly, 1993). In contrast to the financial evaluation oriented MCS, the budget is regarded more as a loose guideline and rewards are linked to a broader frame of objectives to avoid dysfunctions of focusing too narrowly on financial performance. Evaluation criteria would reflect performance in relation to several non-financial measures in combination with budgetary targets (cf. Merchant, 1989).

The simultaneous need for broad scope (i.e., inclusion of several non-financial indicators) and timely information (i.e., frequent feedback) would be associated with significant environmental uncertainty (Chenhall & Morris, 1986; Gordon & Miller, 1976; Waterhouse & Tiessen, 1978). Again, flexibility rather than long-range planning excellence would be sought. However, the nature of environmental uncertainty may be expected to differ from the forces driving MCS design towards the strategy oriented type. It can be expected to be related to factors with a more immediate impact on the organization and which therefore require quick adjustment. In addition to the uncertain external environment, the technology applied can be expected to be of a non-routine character. Support for this can be gathered from Hayes' (1977) study which indicates that financial measures are poor indicators of performance in departments with non-routine activities such as marketing and R&D, but are more compatible with less complex and routine technologies in production departments. Similar results were presented by Mia and Chenhall (1994), suggesting that a broader scope of MCSs (i.e., inclusion of several non-financial indicators) is more functional under conditions of high task uncertainty. To summarize these arguments, increasing technological uncertainty may be expected to drive MCS design towards the operations oriented rather than the financial evaluation or strategy oriented types.

Further, the interaction effect between significant environmental and technological uncertainty is likely to have a profound impact on MCS design. For instance, it may be crucial for the organization to be able to respond quickly to technological shifts in the industry and promote initiatives aiming at rapid product development from employees at all levels. Hence, the organization would tend to be highly decentralized (Waterhouse & Tiessen, 1976) and place significant emphasis on widespread participation in the budgetary process (Brownell & Dunk, 1991). Feedback would not stop with middle-management, but be provided in a formalized manner to employees throughout the organization. Incentive schemes for non-managerial staff can be expected to be fairly elaborate, linking rewards to performance on key measures reflecting what

constitutes vital issues to attend to at various task levels. Rewards may also be designed to promote a holistic view of the organization (e.g., bonuses linked to both individual, group and/or organizational performance).

Exchanging the financial/non-financial dimension for the formal/informal dimension a new set of MCS types emerges (see Figure 2). The four MCS types relying on a predominantly formal control paradigm, which have been outlined above are positioned at the left hand side of Figure 2. At the right hand side, two types of MCS's displaying an increasing emphasis on informal control mechanisms appear. These are termed selection oriented and socialization oriented MCSs and are discussed below.

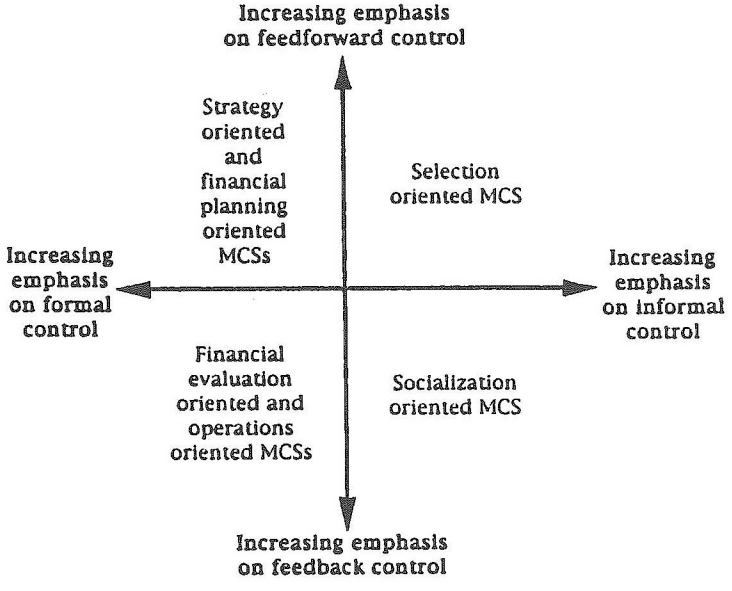
The Selection Oriented MCS

This is a mainly feedforward-based system, which integrates behavioral control largely exercised through elaborate selection procedures into the MCS (cf. Emmanuel et al., 1990; 58). The recruitment procedure and the establishment of long-term career and compensation plans can be expected to be important control mechanisms and are closely interlinked with the formal MCS, while informal control mechanisms are extensively relied upon. Career paths would tend to be hierarchic, with a number of predetermined steps linked to formal competence and continuous training, although individual performance differences often have an impact on the speed of advancement or size of rewards (cf. Maister, 1982). The major part of the socialization process has often taken place before individuals join the organization, through extensive formal training (cf. Ouchi, 1979). Thus, the type of organization where selection oriented MCSs would be most clearly visible probably have a high proportion of professional employees (e.g., university teachers, architects, medical doctors, lawyers).

Management of professionals frequently implies extensive reliance on social and self-control, rather than formal accounting-based controls

Figure 2

MCS Types Derived From Cross-Fertilization Of The Feedback/Feedforward And The Formal/Informal Dimentions.



(Abernethy & Stoelwinder, 1995). In addition, professional values may in some cases induce a "club mentality" (e.g., among lawyers and chartered public accountants), contributing to the establishment of formal sets of rules governing a particular profession or industry. Such regulatory frameworks generally constitute powerful control mechanisms in terms of behavioral outcome and might therefore reduce the importance of the accounting component of the MCS for evaluative purposes even further. However, while professionals are often suggested to strive for extensive self-regulation, there are indications that they may become more amenable to some accounting-based controls if properly implemented (Abernethy & Stoelwinder, 1990, 1995; Paulsson, 1993). This illustrates the pivotal challenge embedded in designing a MCS which is in tune with and reinforces the cultural traits fostering efficiency in professional organizations.

As it is crucial to retain the expertise of the technical core to stay competitive, we may expect a principal aim of the MCS to be promotion of long-term loyalty to the organization. However, relatively limited attention can be expected to be paid to accounting information for evaluative purposes (McDonald & Stromberger, 1969), even though the speed of advancement in some professional service firms may partly hinge on the ability to generate revenue (Maister, 1982). The predominant evaluation criteria can be expected to be linked to competence-based measures. The role of accounting information is likely to be largely restricted to financial planning and control purposes and financial measures for performance evaluation, if any, are often of a fairly simple construction (McDonald & Stromberger, 1969). The possibilities to change the organizational culture through the use of formal control mechanisms can be expected to be limited, as the value system is largely ingrained in the long established professional culture (cf. Abernethy & Stoelwinder, 1995). Therefore, it becomes crucial to rely on feedforward control through careful selection of organizational members. In other words, it is of vital importance to do things right the first time and the emphasis placed on the recruitment procedure is analogous to the sophisticated techniques for

assessing long-term financial effects of investment decisions of financial planning oriented MCSs.

The technology of professional service organizations is typically complex or of a craft nature (Maister, 1982; Mintzberg, 1979). The character of the external environment, however, can be expected to vary from stable and regulated (e.g., public health care in countries with strong governmental control of this sector and little competition) to highly dynamic and uncertain (e.g., management consultancy with fierce competition for both clients and professional expertise). Particularly under the latter types of conditions can appropriately balanced reward systems be expected to be a vital factor for sustained competitiveness. Reward systems become more than just simple contribution-inducement models. They must also be considered as potential strategic advantages in their capacity to attract resources (expertise) to the organization (cf. Maister, 1982).

The Socialization Oriented MCS

This type of system primarily aims at reinforcing the socialization process by relying on feedback mechanisms which indicate to individuals what constitutes desirable behavior. Contrary to professional organizations with selection oriented MCSs, inherited value systems among organizational members do not play any major role and do not form prerequisites for acceptance into the organization. Instead, socialization mainly takes place *within* the organization and the socializing effect of prevailing management control practices therefore becomes a point of central interest. The recruitment procedure primarily aims at spotting individuals who are likely to adapt well to the organizational culture in existence.

We may expect this type of control system to be most easily detectable in organizations with strong organizational cultures, which serve as powerful control mechanisms per se (cf. Ouchi, 1979; Jaworski, 1988). In this capacity, culture is sometimes suggested to be a more powerful

behavioral determinant than formal control systems (Wakefield, 1991). However, if the prevailing culture induces dysfunctional employee behavior from an organizational perspective, management may have strong incentives to use the MCS to attempt to effect cultural change (cf. Collins, 1982). In any case, the MCS is likely to make extensive use of relatively frequent feedback to reinforce the desired behavioral pattern. The ability of the MCS to change behavior is probably greater than in organizations using selection oriented MCSs, as professional value systems and affiliations would tend to be relatively weak. Reward systems are likely to be a central component of socialization oriented MCSs. Contrary to selection oriented MCSs, rewards would tend to be linked to relatively short-term performance measures, since *ceteris paribus* the effectiveness of feedback can be expected to be positively related to the frequency with which it occurs (cf. Luckett & Eggleton, 1991).

The feedback message and the measures used for performance evaluation are likely to vary with the objectives of the socialization process, or in other words what behavior is considered to be the desirable outcome. Consequently, performance evaluation criteria can be linked to financial as well as non-financial measures, depending on what functions or tasks are given priority. Participative budgeting may be used extensively in its commitment instilling capacity (Arwidi & Samuelson, 1991; Waterhouse & Tiessen, 1978), while rationalistic planning aspects are likely to be of less concern. Rewards may be material in nature, but can also consist of mainly social acceptance cues (e.g., inducing a "family atmosphere"). A notable example of the latter is the multinational furniture distribution chain IKEA, which is famous for its pronounced reliance on socialization, partly achieved through for instance systematized job rotation and delegation of responsibility from an early stage of employment, while pecuniary rewards are not of primary concern, relatively speaking. The extreme socialization oriented MCS may have a tendency to reward loyalty rather than competence. While this is likely to be dysfunctional in complex task environments requiring a highly skilled workforce, it may be better fitted to more simple technologies. However, systems inducing a strong

organizational culture are often suitable for dealing with environmental uncertainty as it decreases the need to motivate people through long-winding rationalistic decision processes (e.g., planning). Thereby, organizational action is facilitated and organizations become more flexible and adaptable to environmental changes (Brunsson, 1985).

We now arrive at the final set of MCS types, by cross-fertilizing the financial/non-financial and the formal/informal dimensions (see Figure 3). Again, we find the four MCS types primarily relying on a formal control paradigm at the left hand side. At the right hand side, two types of systems placing more emphasis on the informal side of control emerge. These are termed decoupled accounting oriented and grapevine oriented MCSs and are discussed below.

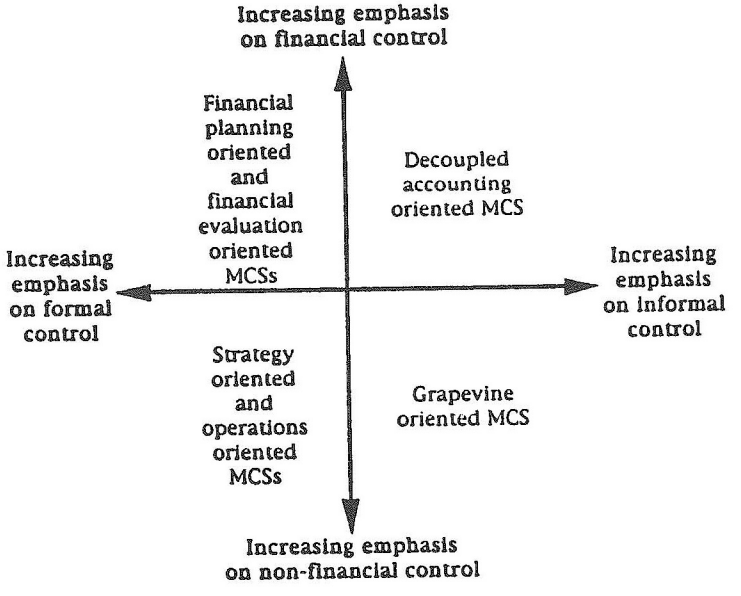
The Decoupled Accounting Oriented MCS

This type of system focuses on the financial side of management control. However, the formal accounting system is complemented by extensive use of informal accounting systems (Clancy & Collins, 1979). The latter may have accrued and are maintained on a more or less spontaneous basis by line managers and other employees with non-accounting functions. The use of informal accounting systems is encouraged by top management and the controller's department. It can also be facilitated by access to data generated for formal reporting purposes or which are accessible through central databases. This way, the formal and informal accounting systems may have a mutually supporting effect on each other.

An ongoing research project (Modell, forthcoming) provides evidence of how this may work in practice. As part of a process of increasing delegation of responsibility, top management of the studied organization has strived to instill a greater degree of financial awareness at the

Figure 3

MCS Types Derived From Cross-Fertilization Of The Financial/Non-Financial And The Formal/Informal Dimentions.



operational level. One means of accomplishing this has been to direct more attention to participation in the planning and budgeting process and linking rewards more closely to financial performance. This has in turn resulted in increasing informal use of financial information by line managers for calculation and continuous monitoring of costs. This is endorsed and supported though not officially imposed by top management and the central accounting staff. Even though the use of financial information by line managers is still voluntary, its necessity is becoming increasingly apparent to many of them. Interestingly, similar empirical observations to the ones outlined above have been made by Berry et al. (1991) in their study of management control practices in a financial services company.

The term decoupled accounting is an accurate label of the type of MCS encountered here, since the use of formal accounting information for control is not restricted to accountants but dispersed throughout the organization. The system is also decoupled in a sense that even though there are important links between the formal and informal uses of accounting information they are clearly separate. However, little conflict is caused by the disparate use of accounting information at various organizational levels and the formal control paradigm is somewhat relaxed.

Compared to MCSs emphasizing formal financial structures, controllees may have greater possibilities to explain and motivate deviances from targets as they have access to analytical tools to meet this end. This might mute superiors' strict focus on pre-set performance targets for evaluation. Formal evaluation procedures can therefore be more dynamic and motivational contracts are sometimes adjusted in hindsight with respect to uncontrollable events (cf. Merchant, 1989). The possibility to construct accounting systems of ones own can also be an important motivational factor in its own right, which leads to enhanced understanding and acceptance of accounting information.

Decoupled accounting oriented MCSs would appear suitable for organizations employing complex technologies, where operational realities

are ill-reflected by aggregate formal accounting information and accountants have limited insight into the process of transforming input into output (cf. Fischer, 1992). Furthermore, the effective use of decoupled accounting oriented MCSs requires some degree of delegation of responsibility, and empowerment of employees throughout the organization. Hence, we may expect this type of system to be suitable in decentralized organizations, operating under relatively uncertain environmental conditions (Waterhouse & Tiessen, 1978).

The Grapevine Oriented MCS

This type of system, like the decoupled accounting oriented MCS, incorporates an increasing number of informal control mechanisms. However, the control process is less concerned with exclusively financial measures. Significant weight is assigned to the exchange of qualitative information, even though some informal non-financial records may be kept by managers or individual employees for control purposes. The grapevine oriented MCS encompasses less systematized control processes than the decoupled accounting oriented type. A central element of the control process may be the concept of management by walking around (MBWA). Control problems are frequently dealt with on an ad-hoc basis, where the use of formal accounting information may provide a general background to the issues at stake, but the epicenter of the control process is a less systematized exchange of information.

The reasons for this may vary, but one plausible explanation may be that operations are of a character which requires a significant degree of mutual adjustment between organizational members (Mintzberg, 1979). Relying exclusively on accounting information therefore becomes inadequate. Formal accounting information may require some further specifications and additional information to clarify complex issues, explain deviances and so forth. This is done through face-to-face encounters and other less systematized means, rather than relying on formal channels of

communication, such as budgetary and operational reports. Again, the budget may primarily be regarded as a loose guideline and the budgetary procedure is unlikely to be very elaborate or participative. A common justification for this may be that the involvement of line managers and operational staff in budgetary work should be kept to a minimum, since their time is constrained and too valuable for being spent on administrative tasks.

The budget may have some legitimacy for financial planning and control, but its use for motivational purposes is limited. Formal objectives are often vague and perhaps ambiguous and rewards are only linked to formal financial measures to a limited extent. Instead, performance appraisal is likely to be of a subjective and perhaps interactive character (e.g., personal career development discussions), with the impact of situational factors and differences in individual ability being taken into account to a great extent.

The grapevine oriented MCS is probably an effective means for dealing with environmental uncertainty and ambiguity, as it transmits information quickly and enables the organization to be responsive to change (cf. Earl & Hopwood, 1980; Mintzberg, 1979). As noted in the foregoing, significant environmental uncertainty may also be expected to be positively related to the subjective style of performance appraisal and control (Govindarajan, 1984). Furthermore, the ad-hoc style of decision-making that the use of this type of system implies is suitable for complex task environments, where control situations are often of a unique character and the benefits of standardization are small (Mintzberg, 1979).

CONCLUDING DISCUSSION

This paper has addressed the issue of MCS design, by focusing on three distinct descriptive dimensions of control. By cross-fertilizing these dimensions in three steps and applying a considerably broadened view of management control in organizations, eight alternative though not mutually exclusive archetypes of formal MCS design were developed. The broad perspective on management control in this paper can partly be justified by a need to address various issues raised by the contemporary critical debate on management accounting and control. In a sense, the proposed typology can be seen as an extension of some implications of this critique. It is hoped that the framework may constitute a platform for generation of new theoretical perspectives on management accounting and control.

Implications of a contingency perspective on the eight MCS types have been discussed briefly, leading to some tentative suggestions for future research to assess. In this respect, the contextual factors with a potential influence on systems design mainly emanate from the external environment of the organization, the kind of technology employed (or the task environment) and from the notion of organizational culture as a determinant of systems design as well as a control mechanism per se. While it has not been the aim of this paper to provide a comprehensive theory of how the proposed typology relates to a wider set of contextual variables, it is hoped that it can serve as a starting point for more holistically oriented research into how management control relates to the context in which it operates. Some other contingencies worth examining in relation to the proposed typology include organizational structure (e.g., Bruns & Waterhouse, 1975; Gordon & Miller, 1976; Waterhouse & Tiessen, 1978), size (e.g., Bruns & Waterhouse, 1975) and interdependencies (e.g., Chenhall & Morris, 1986; Fischer, 1994; Hayes, 1977; Wakefield, 1991).

"The wider behavioral impact of providing accounting feedback has not been sufficiently explored."

Focusing on business strategy, which is receiving increasing attention in contingency oriented management control research, may also provide interesting perspectives on the proposed typology. A relevant research question in this context is whether MCS design should be viewed as primarily contingent upon business strategy (Govindarajan & Gupta, 1985) or to what extent it can pro-actively effect strategic change (Dent, 1990; Dermer, 1990) and play a role in the creation of competitive advantage (Simons, 1990).

A third contingency perspective accrues from the insight that the effectiveness of evaluative feedback varies with differences in individual characteristics such as ability and self-esteem (Sorensen & Franks, 1972). This can in turn be related to how human information processing and cognition influence and constrain MCS design (Driver & Mock, 1975). Focusing on individual differences along these lines would present an opportunity to extend the use of the proposed typology to an analysis of what type(s) of MCS will be most suitable for different types of decision-makers under various situational conditions. Combining different levels and units of analysis may in turn support the evolution of a more comprehensive contingency theory of management control, spanning over how MCS design relates to individual features as well as the larger whole (environment) that both individuals and the control system are part of.

"Despite the importance of the service sector in most industrialized societies of today, no specific theory of service accounting and management control has yet evolved."

Finally, the inclusion of selection and socialization oriented MCSs stresses that a close link between management control and human resource management may be envisaged in some types of organizations. While this theoretical intersection has been observed in research focusing on the role of accounting information in performance appraisal and reward systems (e.g., Merchant, 1989), the wider behavioral impact of providing accounting feedback has not been sufficiently explored (Luckett & Eggleton, 1991). As indicated in the discussion of selection oriented MCSs, this would be particularly relevant for management control research in human resource intensive service organizations. Despite the importance of the service sector in most industrialized societies of today, no specific theory of service accounting and management control has yet evolved (Lowry, 1993; Modell, 1995). Closer integration between management control and human resource management theory may be one way of helping matters in this respect. It is hoped that the proposed typology will be a useful guide to a multifaceted and holistic view of the MCS in this context as well.

NOTES

1. The management accounting system is often regarded as a component of the management control system (Anthony et al., 1989; Paulsson 1993). In this paper, a wide definition of the management control system as built up by a number of interdependent subsystems is used. Apart from accounting systems, this initially includes budget, product costing and reward systems, but also structural features such as the allocation of financial responsibility (cf. Paulsson, 1993). As discussed later on in the paper this view is broadened to account for new perspectives on management control.

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