

THE CONTINGENCY THEORY OF MANAGEMENT ACCOUNTING: ACHIEVEMENT AND PROGNOSIS*

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Abstract

Contingency theories of management accounting have become a current vogue but have produced few significant new results. By surveying the development and content of these theories it is argued that they have been based on an inadequate and insufficiently articulated model. An improved model, based on ideas of organisational control and effectiveness, is put forward which suggests appropriate directions for future work that will be both perceptive and cumulative.

The use of a contingency framework for the analysis of management accounting information systems is a recent vogue. Although contingency formulations were developed in the organisation theory literature in the early to mid-1960's there was no reference to contingency theory in the accounting literature before the mid-1970's. However, during the past five years it has come to dominate the published work on the behavioural and organisational aspects of management accounting. This rapid rise and apparently widespread acceptance of a new theoretical framework requires examination to establish whether it represents an important advance in understanding or is merely a passing fad.

In this paper the contribution made by contingency approaches is reviewed and assessed by reference to what is considered to be a minimally necessary framework for the construction of a true contingency theory. It is argued that the contingency approach is an important development in the theory of management accounting, but that it requires both improved conceptual clarity and the use of different research methodologies to those commonly reported. Firstly, the main features of the contingency approach and its application to accounting control systems are examined by considering some situations where contingency theories have

emerged from the interpretation of research data. Secondly, the content of current contingency theories of management accounting, both empirical and theoretical, is outlined and assessed by reference to a framework for evaluation based on an organisational control perspective. Finally, the implications of this perspective for research are discussed.

THE CONTINGENCY APPROACH

The contingency approach to management accounting is based on the premise that there is no universally appropriate accounting system which applies equally to all organisations in all circumstances. Rather, it is suggested that particular features of an appropriate accounting system will depend upon the specific circumstances in which an organisation finds itself. Thus a contingency theory must identify *specific aspects* of an accounting system which are associated with certain *defined circumstances* and demonstrate an *appropriate matching*.

Although the contingency framework is new, management accounting has long recognised its inter-relationship with organisational and behavioural factors, as is exemplified by Horngren's (1972) exhortation to the effect that

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the design of a (management accounting) system and the design of an organisational structure are really inseparable and interdependent.

Unfortunately he gives no practical guidelines as to how this joint design task should be undertaken. A more recent text by Dermer (1977) explicitly adopts a contingency framework emphasising that:

the design of any planning and control system is situationally specific. The intent of this text is not to tell a system designer what should be done; rather, it is to convey the fact that there are a number of possibilities that might be done in any particular situation. . . . This text squarely faces the uncertain and contingent application of most of the activities and techniques which make up the planning and control system.

But although relevant contingencies are specified and some of their implications explored, few practical guidelines are given as to their impact on accounting system design. The contingency approach is invoked, so it seems, in order to cover up some of the embarrassing ambiguities that exist in the universalist approach.

Neither is the research literature of greater help. Although empirical studies exist they are vague as to the links between specified contingencies and appropriate accounting systems design, as is demonstrated later. The radical change in emphasis observed over the past five years is thus disturbing in that the insights obtained do not appear to be capable of conversion into practical design guidelines. The idea that "it all depends" tends to be used as a means of avoiding rather than addressing design implications. The contingency approach, thus, has the appearance of being an influential but ephemeral fashion and it is particularly insidious because it occurs in a relatively immature field.

Two main lines of development can be distinguished. On the one hand, there are studies which have not explicitly attempted to use a contingency framework, but where contingent results have emerged either within the study itself or when its results have been interpreted in conjunction with those of other comparable work. On the other hand, some studies have begun with a contingency framework in mind and have explicitly attempted to assess the impact of various hypothesised contingent factors, either theoretically or by empirical testing. The first type of study will be examined in the next section, which will also serve to provide illustrations of the nature of contingency theories, whereas discussion

of the second type of study will be deferred until the following section.

THE EMERGENCE OF CONTINGENCY FORMULATIONS

It might be thought that the justification for adopting a contingency theory of management accounting is that it emerged as a necessary means of interpreting the results of empirical research. This is true to a limited extent and the work reviewed in this section gives an insight into the types of hypothesis that have been put forward to explain apparently contradictory findings. However, it is also argued that this type of work does not by itself account for the rapid rise of contingency formulations; and that it is necessary to look to parallel developments in organisation theory to develop an adequate explanation.

The influence of empirical results

Conflicting results which could not satisfactorily be resolved within a universal framework, have been one source of stimulus for the development of contingency formulations. Concepts such as technology, organisation structure and environment have been invoked to explain why accounting systems have been found to differ from one situation to another. The studies discussed here are intended to illustrate the piecemeal way in which the need for a contingency theory has become established.

(a) *The effect of technology.* The simplest and longest established contingent variable used in management accounting is perhaps that of production technology. The distinction between different types of production technique [e.g. unit production, small batch, large batch, mass production and process production as defined by Woodward (1965)] is a factor that has long been recognised as influencing the design of internal accounting systems although it should be noted that it emerged in Woodward's study as a means of explaining contradictory results in what was originally intended to be an empirical confirmation of classical organisation theory. The nature of the production process determines the amount of cost allocation rather than cost apportionment that takes place. In job-order costing the measure of production is well-defined and only limited allocation and averaging are required because a

large proportion of total costs can be directly associated with particular jobs; in contrast, the polar extreme of process costing requires extensive allocation and averaging because the bulk of total costs are incurred jointly by a mix of final products. Thus the level of detail and accuracy that is possible in costing unit and small batch production cannot be carried over into process production, although it should be noted that "process" type methods may be adequate and appropriate for some "job" situations where accurate costing of individual products is of minor importance. Production technology thus has an important effect on the type of accounting information that *can* be provided and more recent work has distinguished other aspects of technology that have an effect on the information that *should* be provided for effective performance. For example, Piper (1978) demonstrates that the complexity of the task faced by an organisation is relevant to defining an appropriate financial control structure and Daft & MacIntosh (1978) identify task variety and task knowledge as factors which affect the design of an appropriate management information system.

(b) *The effect of organisation structure.* There is evidence to suggest that the structure of the organisation affects the manner in which budgetary information is best used. Hopwood (1972) distinguished between a Budget-Constrained (B.C.) use of accounting information (where meeting the budget was the single most important factor in a superior's evaluation of his subordinates) and a Profit-Conscious (P.C.) style (where longer-run effectiveness was also considered). His study indicated that a rigid B.C. style was associated with high degrees of job-related tension, poor relationships with both peers and subordinates and dysfunctional behaviour such as the manipulation of accounting data, whereas the more flexible P.C. style had no such associations. He therefore concluded that the flexible style of budget use was likely to lead to more effective organisational performance (a universal result). However a subsequent study by Otley (1978), using comparable measures, yielded no such associations and appeared to suggest that the rigid style was more likely to lead to better performance than the more flexible style¹ (a contradictory universal result). But comparison of

the two studies indicates an important situational difference which is suggestive of a contingent explanation.

Hopwood's study was based on responsibility (cost) centres in an integrated steel works which had extensive inter-dependence with each other. Otley's study involved responsibility (profit) centres in the coal mining industry which were, for all practical purposes, independent of each other. As Baulmer's (1971) earlier work indicated, the rigid use of defined performance measures is inappropriate where there is extensive inter-dependence. The (contingent) explanation that an appropriate style of budget use depends upon the degree of interdependence that exists between responsibility centres may thus be put forward. Because budgetary measures of performance become less appropriate as the degree of interdependence increases, managers tend to use budgetary information in a more flexible manner. The degree of interdependence that exists is a function of both technology and the organisational structure that is adopted, the organisational structure itself being influenced but not determined by technology (Child, 1972). Organisational structure and technology may thus be seen to have an important effect upon the way in which an accounting system functions.

(c) *The effect of environment.* Environmental factors have also been invoked to explain differences in the use made of accounting information. Khandwalla (1972) examined the effect that the type of competition faced by a firm had on its use of management controls and concluded that the sophistication of accounting and control systems was influenced by the intensity of the competition it faced. Moreover, different types of competition, for example price, marketing or product competition, had very different impacts on the use made of accounting controls in manufacturing organisations. A similar conclusion was arrived at by Otley (1978) who studied the effect of differences in the environments faced by unit managers within a single firm. By distinguishing between a tough operating environment (in which it was difficult for a unit manager to show accounting profits) and a liberal operating environment (in which it was relatively easy to maintain profitable operations) he showed that senior managers used budgetary information

¹ It should be noted that Otley's study also suggested that style of budget use is not an independent variable, but is itself influenced by environmental and economic factors.

to evaluate managerial performance in very different ways in the two situations. If budget accuracy is considered to be a desirable feature of an accounting system² different styles of budget use are necessary to achieve accurate budgets in the two operating environments.

The influence of organisation theory

The three preceding examples give an indication of some of the variables that have been put forward as affecting the design and use of an accounting system. The three general contingent variables of technology, organisational structure and environment were used as illustrative examples because they have been prominent in the theoretical development of contingency theories of management accounting. This movement from a universalistic approach [perhaps best exemplified by Hofstede's (1968) study of budgetary control] to a contingent approach in management accounting has been a feature of the 1970's, partly influenced by the necessity of explaining otherwise contradictory observations. But the recent popularity of the approach cannot be explained solely by the pressure of empirical findings in search of explanatory theories. The other major factor which influenced the development of the contingency theory of management accounting was the prior development of the contingency theory of organisations.

During the 1960's organisation theory underwent a major upheaval which led to the construction of a thorough-going contingency theory. This stemmed initially from the pioneering work of Burns & Stalker (1961) and was reinforced by the work of Woodward (1965), but was perhaps most strongly influenced by the stream of work that emanated from the Aston School which is summarised in the series edited by Pugh *et al.* (1976a, 1976b, 1977). In addition work by corporate strategists such as Chandler (1962) was emphasising the relationship between the strategy an organisation selected in order to achieve its goals and the organisational structure that was most appropriate for it to adopt. By early 1970 contingency theory was firmly established as the dominant approach in organisation theory (Child, 1977) although it has subsequently become subject to increasing criticism (Wood, 1979).

Simultaneously, although quite independently, the late 1960's and early 1970's saw the realisation by accounting academics that the organisational context of an accounting system was of fundamental importance to its effectiveness. This had been previously recognised to a limited extent, but accounting systems had been designed on the implicit assumption that the classical theory of organisations was an adequate representation of the circumstances in which they were used. Although behavioural research had been in progress from before 1960 it had focussed upon the impact of accounting information upon individuals rather than upon the organisation as a whole. It was not until around 1974 that these two movements came together. Accounting was tentatively developing contingency ideas and realising the importance of organisation structure;³ organisation theory had just developed its own contingency formulation. The result was a minor avalanche of literature including Bruns & Waterhouse (1975), Sathe (1975), Watson (1975), Gordon & Miller (1976), Ansari (1977), Hayes (1977), Daft & MacIntosh (1978), Hopwood (1978), Piper (1978), Sathe (1978) and Waterhouse & Tiessen (1978).

Both empirical necessity and the availability of a ready-made theory can thus be seen to have contributed towards the sudden popularity of contingency approaches to the design of accounting information systems. It is now necessary to examine the content of these theories in more detail so as to be able to evaluate their contribution to management accounting.

THE CONTENT OF CONTINGENCY THEORIES OF MANAGEMENT ACCOUNTING

As has been shown in the preceding section, a substantial body of opinion holds that there is no universally "best" design for a management accounting information system, but that "it all depends" upon situational factors. However assent to such a general proposition does not produce consensus on what specific contingencies should result in particular configurations on accounting information. Indeed, a great variety of suggestions

² It is appreciated that in some circumstances other features will be of greater importance than budget accuracy, and that accuracy may well be sacrificed in order to gain other benefits.

³ Although this latter development can be traced back to Caplan (1966) he did not include the contingency framework in his outline of modern organisational theory.

are available, some stemming from empirical work and others from theoretical speculation based on the results of work in organisation theory. In this section the content of the main contingent formulations that have been proposed is reviewed.

Empirical studies

There are few empirical studies in the accounting area that have explicitly adopted a contingency approach prior to collecting data. Further, two of the major studies [Bruns & Waterhouse (1975) and Hayes (1977)] use a factor analytic methodology which gives rise to problems in interpretation and comparison. Interpretation is difficult because the factors derived from the original variables can be related to underlying theoretical concepts only by an intuitive leap made by the researcher. Indeed, quite small differences in random errors in measurement may result in very different factors being obtained, making comparison of different studies next to impossible. Thus, although factor analysis may be a useful method of generating underlying "basic" dimensions [but see Armstrong's (1967) critique] it is of limited use in the accumulation of further knowledge.

Bruns & Waterhouse (1975) argue that a manager's "budget-related behaviour is contingent upon various aspects of organisational structure such as centralisation, autonomy and the degree to which activities are structured". This leads them to conclude that different control strategies are appropriate in different kinds of organisation. For example, they suggest that "a decentralised and structured organisation operating in a stable organisational environment seems particularly well suited to the use of budgetary control". Their analysis culminates in the description of two modes of control strategy, administrative and interpersonal, which are associated with different kinds of organisational arrangements.

Hayes (1977) suggests three major contingencies which are hypothesised to affect the performance of sub-units within an organisation; namely sub-unit interdependence, environmental relationships and factors internal to the sub-unit of interest. Sub-unit interdependence is examined in terms of Thompson's (1967) categorisation of

pooled, sequential and reciprocal interdependence; environmental relationships in terms of his stable-dynamic and homogeneous-heterogeneous dimensions; and internal factors include the nature of the tasks performed, types of people, interpersonal relationships and the ability to measure and quantify functions. Hayes concludes that his data supports the hypothesis that the effectiveness of different types of sub-unit (i.e. production, marketing and research and development) is explained by the different combinations of these contingent variables.⁴

In both the above studies a large number of potentially relevant variables were measured by interview and/or questionnaire methods and the researchers were compelled to reduce the variety of data gathered by factor analysis. Piper's (1978) study stands in stark contrast to them as it is based on intensive study of just four multiple retail organisations. By an inductive methodology he concludes that the financial control structure of an organisation is affected by the complexity of the task it faces (as defined by, for example, the range of products sold, the diversity of the range, seasonal variations, and variations in type of outlet) and that task complexity affects financial control structure *via* the intervening variable of organisational structure.

Technology is specifically introduced as a major explanatory variable of an effective accounting information system by Daft & MacIntosh (1978). Following Perrow (1967), two explicit dimensions to measure work-unit technology are identified, namely the number of exceptions that arise in the conversion process and the search procedures used when exceptions arise. Together they define four categories of technology which are hypothesised to be associated with four categories of information system style. Their empirical study, based on questionnaires sent to 253 individuals in 24 different work units produced quite high correlations between technology and information system style, although it should be noted that the effectiveness of the information system is not assessed.

These empirical studies give less than clear-cut results for a number of reasons. Firstly, a wide variety of independent and dependent variables are

⁴ Hayes' (1977) study has been extensively criticised by Tiessen & Waterhouse (1978) to the effect that his data does not substantiate his hypothesis. This criticism, together with Hayes' (1978) reply is worthy of close study as it indicates many of the conceptual and empirical problems which are involved in attempting to justify a contingent approach. Interestingly, the only point of agreement between the protagonists is that different methods of factor analysis would likely have produced quite different results!

hypothesised, with only general similarities between studies. Secondly the operationalisation of the variables is problematic, with the first two studies described measuring a large number of potentially relevant variables and reducing them by statistical means. Such statistical techniques do not in general, allow cumulative research results to be generated. Finally only the association between contingent variables and accounting system type is reported; no attempt is made to measure the effectiveness of the accounting system [except by Hayes (1977) and his measure is strongly criticised by Tiessen & Waterhouse (1978)]. All that can be concluded is that there is some degree of association between some hypothesised contingent variables and the existence of certain features of an accounting system. The general case for a contingency theory is thus supported, but specific findings are sparse.

Theoretical formulations

In addition to empirically based work there has also been theoretical speculation as to the nature of a contingency theory of accounting information systems. Gordon & Miller (1976) attempt to provide a comprehensive framework for the design of accounting information systems (AIS) which considers the specific needs of the organisation by drawing on the literature of organisation theory, management policy and accounting to identify variables which are critical to organisational performance. Environment, organisational characteristics and decision-making style are suggested to be the main classes of contingent variable; each contingency identified is matched with appropriate conditions of AIS variables, although the question of AIS design when faced by environmental, organisational and decision-making style conditions that yield conflicting recommendations is avoided by noting that three "archetypal" firms, representing typical agglomerations of contingent variables appear to exist. However two of these archetypes ("running blind" and "stagnant bureaucracy") have undesirable characteristics which, it is suggested, can be ameliorated by utilising an appropriate AIS. There is no explicit consideration of organisational objectives and effectiveness and the recommendations appear to be made on the basis of "common-sense" rather than being derived from

requirements of various organisational types and their management accounting system implications. Two main classes of contingent variables are suggested: environment and technology. Environment is seen as having two important dimensions, the simple-complex and the static-dynamic which may both be mapped into the single dimension of predictability. The definition of technology follows that of Perrow (1967) (i.e. number of exceptional cases and the search procedure to be followed when exceptions are found), but is also reduced to the single dimension of degree of routineness. Organisational sub-units are seen as having either predominantly operational functions [defined similarly to Anthony's (1965) operational control] or managerial functions (which includes Anthony's management control and some of his strategic planning activities). It is suggested that managerial functions can be best understood by focussing on the environmental variable whereas the structure and processes of operating units will be more directly related to the technological variable. The management accounting system is thus viewed as one type of control mechanism and will be dependent upon the control needs of an organisational sub-unit, itself dependent on organisational structure which, in turn, is contingent on technology and environment. The study concludes by noting that the evidence linking organisational and managerial variables with effectiveness is weak, definitions of important contextual variables are often unclear, and that progress may be made by the development of taxonomic schemes. The authors also concur with Hopwood's (1978) comment that "the critical role played by accounting and information systems in organisations is now being more generally recognised and studied by scholars of organisational behaviour", by noting that "research on management accounting system variables may be a means of conceptualising and observing more abstract processes such as goal formation, power attempts or conflict resolution".

Amigoni (1978) develops a different framework in which the appropriateness of various accounting control tools, ranging from financial accounting and ratio analysis to financial simulation models, responsibility accounting and strategic planning, is assessed. He identifies two major contingent variables, namely the degree of structural com-

that increasing structural complexity can be adapted to by adding new accounting tools to those currently in use, which still retain their function, whereas increasing environmental discontinuity will often require the replacement of old tools, which have become obsolete, by new. He also notes a shortage of techniques that are useful when high degrees of complexity are combined with high levels of environmental discontinuity and suggests that the development of new tools in this area is a research priority. Thus, although organisational structure is not directly considered, the underlying variable of structural complexity is seen as explaining both the accounting control tools used and the organisational form adopted.

A further approach is that of Dermer (1977) which is somewhat different in nature as it is written as an advanced undergraduate or graduate text on management planning and control systems. No prescriptions are given; rather an approach to systems design is recommended and various contingencies identified. It is argued that the design of any planning and control system (PCS) is situationally specific in that it depends upon:

- (a) the specific objectives to be achieved by the PCS in the context of organisational objectives;
- (b) the particular form of differentiation and degree of decentralisation chosen (i.e. organisational structure);
- (c) the nature and mix of the processes being controlled within any sub-unit, and the degree to which these are structured or unstructured (i.e. type of technology);
- (d) the type of managerial style used by senior managers.

These factors are superimposed upon a three-cycle planning process closely related to Anthony's (1965) three-fold distinction of strategic planning, management control and operational control. Although not explicitly building on recent work in organisation theory, Dermer's book gives the most specific guidelines for PCS design of the theoretical work reviewed, but it relies predominantly on a "common-sense" approach rather than following from a coherent theoretical structure.

To summarise, the bulk of the empirical and theoretical work reviewed here relies heavily on a few common sources in the literature of organisation theory. Environment and technology (however defined) are seen as affecting organisational structure which in turn affects the design of an accounting information system [Sathe (1978) reviews this literature]. It is therefore not surprising that the defects of organisation theory are also incorporated into this contingency theory. In particular, contingent variables are ill-defined, the dimensions of organisational structure (and process) considered differ from study to study and the link with organisational effectiveness is largely unproven.⁵ The tendency of accounting researchers to take such tentative theories at face value and to extend them into the accounting area with so little apparent awareness of their defects and weaknesses is disturbing. In addition the research methodologies used are inadequate for the task demanded of them, almost invariably being arms-length questionnaire-based techniques from which reliable results are expected to emerge by statistical analysis.

A FRAMEWORK FOR THE EVALUATION OF CONTINGENCY THEORIES OF MANAGEMENT ACCOUNTING

It is now possible to examine and evaluate the underlying model on which current contingency theories of management accounting have been based. It will be argued that all the work reviewed has implicitly utilised an inappropriately simple model and a more comprehensive model is therefore put forward.

The underlying model upon which the work described in previous sections can be seen to be based is shown in Fig. 1. The various propositions follow from each other in a simple linear fashion: some supposedly contingent variables are defined and measured; these are hypothesised to affect the structure (or perhaps the processes) of an organisation; for each type of organisation so defined it is possible to identify commonalities in their AIS which are associated (or are assumed to

⁵See Karpik (1978) for a number of articles which are critical of the current status of organisation theory; also Pennings (1975) for a review of the relevance of the structural contingency model in organisational effectiveness. Cooper (1980) reviews many of the criticisms and applies them to the accounting context and Burchell *et al.* (1980) expressly consider the problem of goals.

be associated) with effective performance. However it should be noted that no single study combines all four stages in the sequence, as is shown by the summary in Table 1. In particular, only one study (Hayes, 1977) attempts to measure effectiveness, and its methods have been seriously criticised. Yet the mere existence of particular AIS's associated with certain contingent variables is a weak basis on which to prescribe AIS design; evidently some assessment of effectiveness is highly desirable. In addition some authors (i.e. Daft & MacIntosh; Hayes; Khandwalla; Waterhouse & Tiessen) indicate direct links between contingent variables and the AIS without explicitly considering whether the intervening variable of organisational design is necessary. It is also evident that the AIS comprises only one part

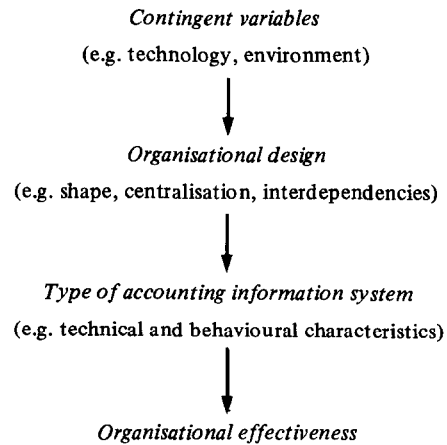


Fig. 1. A simple linear framework for AIS design.

TABLE 1. Comparison of major studies with simple linear model

Study	Contingent variables	Organisational design	Type of accounting information system	Organisational effectiveness
Bruns & Waterhouse	Organisational context (origin, size, technology, dependence)	Structuring of activities Concentration of authority	Control system complexity and perceived control leading to budget-related behaviour; interpersonal and administrative control strategies	
Daft & MacIntosh	Technology (task variety; search procedures)		I.S. style (amount, focus and use of data)	
Dermer	Organisational objectives Technology Managerial style	Decentralisation Differentiation	Choice of A.I.S. or M.C.S. techniques	
Gordon & Miller	Environment (dynamism, heterogeneity and hostility)	Decentralisation Bureaucratisation Resource availability	Technical characteristics of accounting I.S.	
Hayes	Environmental factors Inter-dependency factors Internal factors		Appropriate performance evaluation techniques	Departmental effectiveness
Khandwalla	Type of competition faced		Sophistication of accounting controls	
Piper	Task complexity (product range and diversity variability between units)	Decentralisation of decision-making	Financial control structure (e.g. use of financial planning models; frequency of reports)	
Waterhouse & Tiessen	Environmental predictability Technological routineness	Nature of sub-units – operational or managerial	Management accounting system design	

of the control structure of an organisation. An organisational control strategy will involve organisational design considerations, the provision of other management information, and planning and control systems additional to the AIS. Indeed these may be seen as partial substitutes for each other as indicated by the often expressed sentiment of industrial managers that the particular AIS used by their company is intended to cope with known weaknesses in organisational design. The "mix" of such components is probably not determined, but several different combinations may give equally good results, indicating that a wider perspective is necessary to yield a useful contingency theory for AIS design. Thus the AIS must be seen as part of a wider management information system, itself part of a management planning and control system, and all of which are but part of an overall organisational control package.

The folly of attempting to construct a contingency theory of the AIS outside of the context of an overall organisation control package is thus apparent. Firstly, what constitutes an appropriate AIS will be influenced both by what the organisation is attempting to achieve and by

the other control processes that are complementary to the AIS. Secondly, there are a whole range of factors that will affect organisational performance other than its control strategy such as the entrepreneurial flair of its managers, the structure and state of its product-markets, and inter-organisational arrangements. The effect of the AIS is thus likely to be relatively small and will require carefully controlled research for it to be measured. Finally, it must be noted that what constitutes effective organisational performance must be determined, in part, by the objectives of the organisation itself rather than by an externally imposed standard. There are substantial difficulties in the measurement of organisational effectiveness (Steers, 1977) and, although it is vital for such measures to be constructed in developing a true contingency theory, it may be sensible as an interim measure to be content with the measurement of intervening variables, that is, variables which are thought to pre-dispose an organisation towards effective rather than ineffective operation.

These comments suggest that a rather more complex form of contingency framework is necessary in studying AIS design, and the minimal model required is shown in Fig. 2. Here the

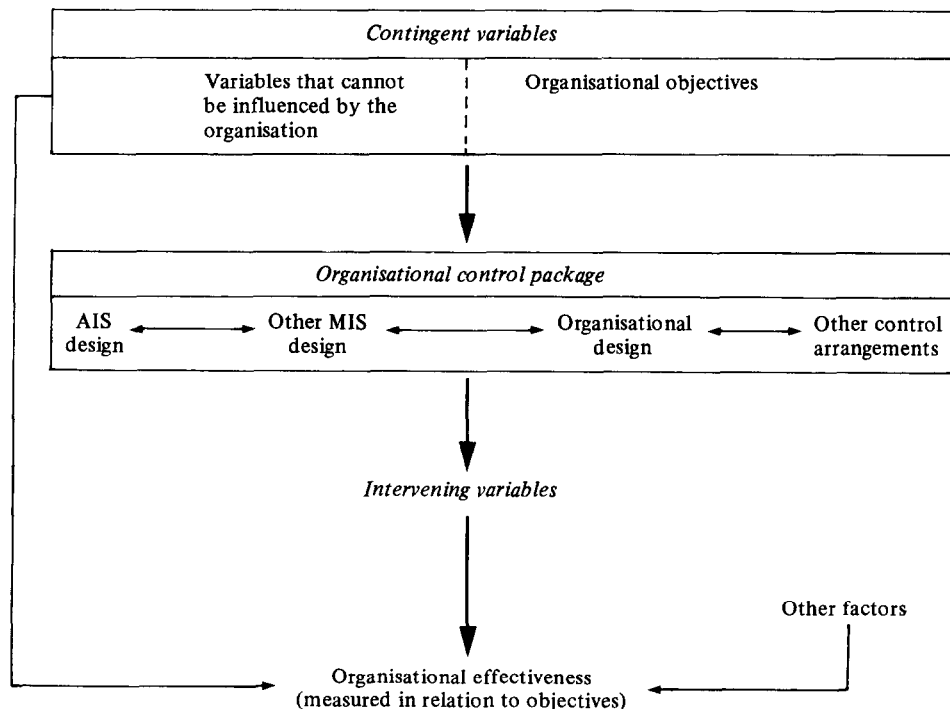


Fig. 2. The minimum necessary contingency framework.

contingent variables are considered to be outside of the control of the organisation, although it is recognised that organisations may try to influence some such supposedly exogenous variables (e.g. governmental regulations). Those variables believed to be controllable by the organisation are not considered to be contingent variables, but rather part of the package of organisational controls selected for use. The one exception is the use of organisational objectives as a contingent variable, because of their special nature as a criterion by which organisational effectiveness will be assessed. The organisation adapts to the contingencies it faces by arranging the factors it can control into an appropriate configuration that it hopes will lead to effective performance. It is, however, important to note that the level of performance potentially possible is also affected by those environmental variables that are also contingent variables for the control package. In addition, there are also a range of other factors that are likely to have an equal or more pronounced effect on effectiveness.

It is explicitly recognised that AIS design, MIS design, organisational design and the other control arrangements of the organisation (such as collective agreements, personnel selection, promotion and reward systems and external lobbying) form a package which can only be evaluated as a whole. In particular, there are extensive interdependencies between AIS design and each of the other components of the package. Organisational objectives are also explicitly incorporated, for although in certain circumstances basic similarities in objectives may be assumed (e.g. when studying firms in a single industry; but even here preferences for stability versus growth, conservatism versus innovation etc. may affect comparisons), these appear to represent a fundamental contingency so far omitted from this literature (except by Dermer).

No doubt this framework is still over-simple. Part of an organisation's control strategy may well be to influence its environment; little consideration has been given to the pattern of dependence of an organisation on important external resources and its interdependence upon other organisations. For example, Pfeffer & Salancik (1978) argue that the key to organisational survival is the ability to acquire and maintain resources, both physical and

human, and the management of boundary relationships. It has also been suggested that a likely reverse loop may operate between organisational performance and objectives [Child (1972); Cyert & March (1963)]; in addition the accounting system may affect the objectives that are being used to explain its form [Burchell *et al.* (1980)].

However, it should be noted that the proposed framework takes ends as given and is concerned with the most effective means of achieving them. It is suggested that this is an entirely appropriate task for a contingency theory,⁶ but that no particular ends should be *assumed* to be of predominant importance. Thus different control arrangements may well be appropriate in organisations seeking, for example, to optimise client service than in those which are seeking to maximise returns to shareholders or to create an enriching working environment for their employees.

Although the model does not seek to give a comprehensive explanation of the development of accounting information systems [see Chandler & Daems (1979) for one such attempt] it is perhaps wide enough to stimulate the development of a broad enough perspective within which assessments of the appropriateness of an AIS can properly be made. That is, it recognises that because accounting systems are an important part of the fabric of organisational life, they need to be evaluated in their wider managerial, organisational and environmental context.

IMPLICATIONS FOR RESEARCH

Accounting as part of a control system

The study of the effectiveness of management accounting information systems is intimately bound up with the study of all of the many kinds of control mechanisms used by organisations in attempting to influence the behaviour of their members and their relationships with the external world.⁷ It is often impossible to separate the effect of an AIS from other controls; they act as a package and must be assessed jointly. This fact immediately widens the scope of any investigation; an indication of the range of control activities is

⁶ See Otley's (1980) comments on Cooper (1980).

⁷ A review of the mechanisms of organisational control from different perspectives can be found in Lawler (1976) and Salaman (1979).

given by Westerlund & Sjöstrand's (1979) list of formalised controls, shown in Table 2, although reward systems are a notable omission. In addition, different types of control can be used to achieve different purposes as Ouchi & Maguire (1975) and Ouchi (1977) have shown. The simultaneous use of a wide range of control mechanisms serving multiple purposes makes it difficult, if not impossible, to isolate the effect of any specific means of control. Perhaps an initial research strategy would be to attempt to identify those combinations of controls that appear to be particularly suited to certain circumstances.

TABLE 2. Examples of more formalized controls in an organisation [from Westerlund and Sjöstrand (1979)]

<u>Means of control for long-range activity</u>
Laws, rules and regulations
Collective agreements
Product and Market planning and research and development
Plans for recruitment and training
Personnel selection and promotion plans
Economic planning
Investment plans
Job descriptions
Raw materials planning
Housing plans
<u>Means of control for short-range activity</u>
Delegation of decision
Regulations
Accounting system
Budgets
Resource allocation
Directions, instructions
"Check lists"
Standards (consumption, price etc.)
Work flow plans
Work resources
Job descriptions

It is evident that the same contingent variables that are relevant to organisational design are likely to be important in management accounting. Unfortunately the precise nature of such variables has as yet defied definition, for although vague classes of variable have been suggested different researchers have used such disparate definitions as to make comparison between studies virtually impossible. One way forward to greater conceptual clarification lies in the utilisation of a control systems framework. Although simple mechanical models of control cannot be directly applied to

organisations, Otley & Berry (1980) have identified four characteristics of controlled processes that are necessary for effective organisational control. These are:

- (a) the specification of an objective;
- (b) a measure of the degree of attainment of that objective;
- (c) a predictive model of the likely outcomes of control actions;
- (d) the ability and motivation to act.

Use of this model helps to ensure that all stages of the control process are considered. For example, although management accounting systems have traditionally been concerned with the first two characteristics of control, they have tended to neglect the development of predictive models. Such predictive models are necessary in order to determine the reasons for inadequate performance and to evaluate the likely outcomes of proposed control actions. Effective *organisational* control is possible only with adequate *organisational-level* predictive models, for as Argyris & Schon (1978) have pointed out, organisational learning is not the same as individual learning and there are many cases in which organisations appear to know less than their individual members. It is thus important to ascertain the nature and locus of organisational predictive models if the organisation is to learn how to become more effective.

It is noteworthy that, of all the contingent variables proposed, one in particular stands out, namely unpredictability (variously referred to as uncertainty, non-routineness, dynamism etc.). Even complexity and size may be important, at least in part, because of the unpredictability associated with them. Again the control framework is an aid; it is the unpredictability of those factors that are important in determining organisational success that is crucial and these factors may well differ from organisation to organisation. Thus a general theoretical framework must identify the major factors casually related to organisational effectiveness and use the unpredictability of such factors as major contingent variables.

Organisational effectiveness

The use of a control framework also reinforces the central role of organisational effectiveness and focuses attention on the nature of organisational objectives. Objectives are an essential part of a contingency framework not only because they are themselves one contingent variable that is likely to

affect the nature of the accounting system but also, and more importantly, because they form the criterion against which the effects of different configurations of controls must be evaluated. That is, in order to progress beyond the mere association of particular contingencies and accounting systems, a judgement has to be made about the impact of the accounting system in aiding organisational performance.

However the terms "objectives", "performance", and "effectiveness" tend to be used as smoke-screens to hide a lack of conceptual clarity. It is necessary to question the nature of organisational objectives and study the processes by which they are arrived at and by whom they are influenced. The pre-eminence of a particular interest group cannot be assumed and it must be asked for what and for whom an organisational action is deemed effective. These are basically political questions concerning the relationships and relative powers of those involved in organisational functioning.

The empirical literature on effectiveness is of only limited assistance. Price's (1968) inventory of findings in the area notes that "most of the studies (surveyed) do not demonstrate what they assert"; indeed many do not even attempt to measure effectiveness. The problem is basically at a conceptual level rather than at an empirical level as Evan (1976) points out:

One of the underlying causes of this state of affairs is the striking neglect – almost systematic – of the problem of conceptualising and measuring organisational performance or organisational effectiveness.

This issue is also noted by Steers (1977) in his unsuccessful attempt to derive agreed criteria of effectiveness from a review of previous research. Such problems indicate that different organisations will be effective in different ways and also that effectiveness will be perceived differently by various interest groups connected with them. Indeed the question of organisational ideologies and their effect on control arrangements also requires explicit attention. For example, Salaman (1979) argues that technologies and organisational structures are chosen for what are regarded as their control functions and benefits, and for their role in advancing class interests and conflicts. Developments in organisational control technology mean that considerable choice exists in control system design and use, although Banbury & Nahapiet (1979) observe that the majority of systems in use

have been developed "in support of the more bureaucratic elements of organisations, reflecting the more mechanistic models of man and of organisations".

The evaluation of the appropriateness of particular varieties of accounting control systems must therefore take place by comparison with a range of measures of effectiveness, at both an organisational and an individual level of analysis. For example, at an organisational level of analysis, different organisations may choose to act differently because they have their own preferences regarding the distribution and timing of benefits and the levels of risk they are willing to accept. At an individual or group level of analysis an AIS may provide information that allows some groups to further their own purposes more adequately, but which is of little or no use to other groups. It is therefore important that in developing a contingency theory of accounting information systems the effect of the information on a number of dimensions of effectiveness is measured rather than an arbitrary choice of a single dimension or the issue being left implicit. A true contingency theory can only be developed as progress is made on this fundamental issue.

Research methodology

It is evident that the contingency approach is dealing with a highly inter-connected structure of control devices, of which the AIS is but one, that form an organisational control package. In particular, many of the variables which are hypothesised to affect AIS design are the same as those which are believed to explain differences in organisational structure. In these circumstances it is unrealistic to expect purely statistical methods of analysis to unravel a complex pattern of inter-action; the researcher must have a closer involvement and develop hypotheses as to likely relationships as he explores the organisations he is investigating. In addition, as causal relationships are of much greater interest than associations, longitudinal studies, where the interaction of variables over time may be observed, are of more value than cross-sectional studies. Longitudinal studies are also able to illuminate the processes by which an accounting system develops and is changed in response to organisational pressures.

However, being concerned with such fundamental organisational processes brings its own difficulties; power structures are notably difficult to observe reliably, particularly when the

researcher is dependent upon one interest group (senior management) for access to individuals and information. It will usually require a considerable period of involvement for the researcher to be confident that his observations are representative and reliable (and, if not free from bias, at least containing a variety of biases).

These considerations suggest methodologies that are more anthropological in nature than the methods that have traditionally been used in accounting research, as Gambling (1978) has recommended. Such approaches require a close contact between the organisation and the researcher and the validity of the findings will be enhanced where findings are fed back to research subjects and attempts made to introduce and monitor changes based on those findings, as suggested by Argyris (1976). A multi-disciplinary approach also seems to be highly desirable as those trained in particular fields will inevitably tend to interpret their observations according to their previous experience. However multi-disciplinary research is not a panacea and the management of such research teams raises issues about the social control processes involved that are worthy of study in their own right (Tomkins, 1980). Such research methods are intended to be illuminative rather than being concerned with the rigorous testing of pre-determined hypotheses; it is however necessary for appropriate standards for this type of work to be developed to help ensure that it produces results that are both valid and cumulative (Stenhouse, 1979). There is no universal standard against which a research methodology can be judged, rather it must be evaluated in terms of its ability to produce the type of results being sought (Mitroff & Kilman, 1978). Thus Campbell (1976) draws some object lessons from previous research on organisational effectiveness and concludes that

Firstly, it is probably counter-productive to follow the multivariate approach in the development of effectiveness measures . . . Secondly, searching for so-called objective measures of organisational effectiveness is a thankless task and virtually pre-ordained to fail in the end . . . Third, at this stage, it probably is a mistake to concentrate scarce research resources on attempts to develop results-oriented measures, that is, measures of the more technical outcomes of organisational functioning, such as return on investment, productivity and the like.

These comments strongly support the idea of "case studies" in the sense used by Hägg & Hedlund (1979) which involve a small number of organisations, carefully selected so as to give a range of values on chosen contingent variables

whilst controlling for other variables as far as possible, and the close involvement of the researcher with the organisations over a period of time. There is an obvious conflict between this type of intensive investigation which necessarily can include only a few cases with the development of a contingency theory which requires a large number of cases to give it validity. However the disappointing results of large-scale surveys indicate that more insight is likely to be gained from the former type of study at this, essentially exploratory, stage of research.

CONCLUSIONS

A contingency theory of management accounting has a great deal of appeal. It is in accord with practical wisdom and appears to afford a potential explanation for the bewildering variety of management accounting systems actually observed in practice. In addition, the relevance of organisation theory to management accounting is being increasingly recognised and contingency formulations have been prominent in organisation theory. There thus appears to be a *prima facie* case for the development of a contingency framework for management accounting.

However, despite the strong arguments for pursuing this line of research, a number of reservations need to be expressed. Firstly, the nature of appropriate contingent variables has not yet been elucidated and requires greater theoretical, as well as empirical, attention. It is suggested that a control-based approach provides a suitable theoretical starting point. The control perspective focusses attention on the unpredictability of variables crucial to organisational success as central contingent variables. Secondly, explicit consideration of organisational effectiveness is a vital part of a true contingency theory of control system design. This has been a much neglected topic from a theoretical stance and its development is urgently needed. Thirdly, the contingency theory of organisational design is weaker than some of its own literature suggests, its links with organisational effectiveness being, at best, tentative. As the same contingent variables are likely to affect both organisational structure and accounting system design, it appears unwise to use structure as the sole intervening variable between contingent variables and the choice of the accounting information system. Finally, the highly inter-

connected nature of the components that make up an organisational control package suggests that the management accounting information system cannot be studied in isolation from its wider context.

These considerations have implications for the selection of appropriate research methodologies. Initially an exploratory mode of research is necessary, possibly involving the careful observation of the operation of organisational control systems over a period of time, with the objective of inducing the major contingencies and mapping their interconnections with all parts of the organisational control package. For example the study by Murray (1970) is a very early example having many features of such an approach. Multivariate analysis based on brief questionnaire and interview surveys is unlikely to yield great insight. Because of the intensive nature of such

research and its close relationship with many of the central internal policies of organisations, attention also needs to be paid to methods of securing the degree of co-operation with subject organisations necessary to yield valid observations.

The development of a theory of management accounting which explains how it is affected by various contingencies and how it is integrated into its wider context of organisational control mechanisms is an important research task. However, despite superficial indications that it is well under way, it has in fact yet to begin in earnest. Neither will it be quickly achieved for it requires painstaking work over considerable periods of time. It is therefore all the more important that such work that is attempted makes explicit the part of the theory that it is designed to illuminate and uses methods that allow cumulative knowledge to be built up.

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