

MACRO-EFFECTS OF THE SOCIOTECHNICAL ACCOUNTING CONTROL SYSTEM ON MANAGERIAL BEHAVIOUR: A SITUATIONAL APPROACH

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Abstract

This paper examines some macro - effects of the sociotechnical accounting control system on managerial orientation and behaviour. The results show that accounting technology and social aspects of accounting control systems measured by managerial use of accounting information and participation in the budgetary process tend to have positive and significant effects on:

1. Managerial orientation toward basic elements of the production function of their units.
2. Managerial attitudes toward inter-unit comparisons within the Organisation and furthermore on managerial motivation to strive for better performance.
3. Managerial attitudes toward accounting function.

The final section of the paper explores the implications of the study results for managerial accounting theory and practice.

1. Introduction

The relationship between accounting control systems and organisational effectiveness is still an unsettled issue in academic community. Despite the early Studies of Argyris (1952), Hofstede (1968), De Coster and Fertakis (1968), Shweringa and Moncur (1972) and the later ones of Hopwood (1974), Otley (1978) and Kennis (1979) which have reported on the effects of budgeting on managerial attitudes and behaviour, subsequent researchers and theorists question this relationship. Burchell et al (1980) report that "Organisational research is starting to question those automatic presumptions of a positive and causal relationship between accounting systems and effective organisational performance which implicitly or explicitly grace accounting texts and the pronouncements of practitioners and consultants". Collins (1982) addressing his role perspective approach to Management accounting described the current state of behavioural accounting as at best fragmented.

Irrespective of the validity of these questions, a deeper investigation in this body of literature reveals the following weaknesses. First, the majority of researchers use as independent variable in their stated or assumed links of accounting and managerial behaviour some social aspects of only one accounting subsystem (budgeting). These social aspects are budget pressure (Decoster and Moncur, 1972), budgetary participation and budgeting style of upper management (Hopwood 1973). Accounting technology is an unexplained variable in their models. By this one means that no allowance is made for the type or quality of the accounting information. The accounting system might or might not affect managerial behaviour according to the perceived quality of its information and not just according to budget pressure or participation. This is so despite the very early warnings of Hofstede (1968) that an accounting and management control system is a socio - technical subsystem of the organisation. To our knowledge there has been no attempt to bring into the same research screen both the technical and social dimensions of accounting.

Second, on the dependent variable side, there is a tendency to use a certain set of psychological or interpersonal variables such as Job - Related Attitudes (e.g. Job Satisfaction, Job Involvement, Job Tension), Budget - Related Attitudes (e.g. Budgetary Motivation, Attitudes towards Budgets). These variables have been used in previous studies without any attempt to select in each one of them, variables situationally determined, contingent to organisational contextual factors and to organisational climate.

Third, the behavioural research on budgeting has mainly focused on the operational or micro effect of budgeting on organisational effectiveness. However Accounting control systems may have some macro effects on managerial orientation, attitude, and behaviour. Accounting systems by increasing visibility of consequences (Becker and Neuhauser, 1975) in the long run are expected to have educational aspects especially in correcting misbeliefs of managers concerning their production function and its environment. Although it is very difficult to measure the micro and macro effects of accounting distinctively even addressing the proposition and attempting to find out tentative empirical data will open new directions to accounting theory and practice. To measure the macro - effects of accounting is a very difficult task. It needs to adopt an exploratory approach and a situation where one can assess the long range effects of accounting in managerial behaviour and the organisation as a whole.

This paper reports the results of a study undertaken to reconcile some fragmented parts of accounting behavioural research and to expand it into new areas of investigation. The structure of the paper is as follows. The research objectives, proposition and design are outlined. This followed by sections dealing with the introductory phase of this research, the hypotheses, the research method and an analysis of the results. Finally, there is a discussion of the implications of the study.

2. Research objectives, proposition and desing

On the basis of the previous analysis the following main objectives for this study are set:

- a. To bring into the same screen of enquiry the technical as well as the social aspects of accounting control system and to study their relationship with organisational performance measured by managerial behaviour.
- b. To identify and focus on managerial behaviour determined in a situational context.
- c. To draw conclusions not from artificial experimental settings but from actual organisational life and by studying accounting in action.

The main proposition set forth in this study is that "both technical and social aspects of accounting control as well as managerial characteristics are related to managerial behaviour and Organisational performance". It is hoped that this proposition will help to provide a unifying theory concerning the effects of managerial accounting on organisational performance.

Operating units (Maintenance, Operations and Marketing) of a large North European Telecommunications Organisation were chosen for study. A single large organisation was considered desirable for a number of reasons. A large organisation is reliant on its formal management control system to a greater extent than a small organisation (Otley, 1976), it also had a large number of operating units which could be compared. In this organisation a nationwide management accounting and control system was used by managers of operating units with very similar operating and social processes and a similar environment and organisation climate. Thus the situation gives

- a particularly good opportunity to investigate on a comparative basis, accounting technology, some social aspects of accounting systems and their effects on managerial behaviour (contingent to the specific Organisation).

The main requirement for the research design was to bring the researcher as close as possible to the real situation of management control for organisational units. There is strong criticism in the literature (Mintzberg 1979, Tinker, 1976) for research projects conducted from "the distance". As Mintzberg (1979) States: "what the researcher gets is answers in the form of data that can be plugged into the computer. What he does not get is any idea of the relationship between the perceptions he has measured and the reality they purport to describe".

To meet the research requirement a two phase study was developed which consisted of an introductory phase for studying in depth the organisation's management control system and detecting managerial behaviour contingent to this organisation, and a subsequent main interview phase to provide more structured explanatory evidence.

3. The introductory phase

The basic interest during the introductory phase of the study was first to obtain a good understanding of the environment, technology, corporate goals and organisational structure of the corporate setting in order to gain some detailed insight into the design and the state of the accounting control subsystem within the superstructure of Management Control System and, second, to discover situationally determined aspects of managerial behaviour on which to trace the effect of Accounting control. With the above interests in mind the researcher spent 12 weeks of full - time work spread over a period of 5 months in the organisation. He has entitled to receive any confidential information in the area of accounting and management control.

a. Accounting Control Technology

The main thread of the global (nationwide) accounting system of Telecommunications was found to be the operating budget. In an attempt to strengthen financial control and improve profitability, this organisation had introduced additional Financial control subsystems namely Accounting control of Investment, Accounting for Contribution centres and Expense centres. The remaining Subsets of Accounting technology were the Costing System, an Accounting Reporting and Financial Performance Measures system and a system of Inter — Unit comparisons. In addition to this accounting control technology which was used nationally the inquiry revealed two "provincial" control subsystems which were designed to serve local control needs at 8 out of the 21 Area Divisions (Operating Units) where the research were located. These provincial control subsystems strengthened accounting technology of these units in a number of aspects. They extended the nationwide accounting system to cover the main activities of each area division, since the former system did not provide analytical information for each activity, although these activities were characterized by different degree of task uncertainly. Moreover provincial subsystems provided a sound financial base which was of great assistance to line managers in utilizing the great stream of non - financial information that they received.

With the main research objective being to explore the dynamics of accounting control technology in action and it's effect on managerial behaviour the situation gave a particularly good opportunity to investigate these themes on a comparative basis. Thus instead of attempting to classify accounting control systems according to specific characteristics of technical perfection this study used the existing natural classification of two levels of sophistication, "Ordinary" accounting technology for those who used the nationwide accounting system and "Advanced" accounting technology for those

who used the nationwide system supplemented by a "provincial" control system. This approach keeps the researcher's bias resulting from any preset classification at the minimum level possible.

b. Managerial Behaviour

The main premise of this study being to examine accounting systems in a specific context, required the search for aspects of managerial behaviour of great importance for the efficient performance of this service organisation. After reviewing the literature of service organisations and observations of the organisation, it was decided that the following three dependent variables could be used in the investigation of the possible effects of the accounting system on the organisation's performance.

(1) Managerial orientation towards basic elements of the production function

Costs and quality of service are basic elements of the production function of service units. Accounting commentators in the field of service organisations report that, contrary to popular opinion, low efficiency is caused neither by incompetence nor by a deterioration of work ethic. Managerial orientation towards cost and service quality is found to contribute to low efficiency. Marcussen (1977), on the basis of his audits of several public utilities in USA, proposes two tentative causes of low efficiency.

- (i) The noticeable lack of urgency by managers to control cost of operations,
- (ii) The temptation which is frequently found in public utilities to staff at high levels in peak and valley operations to ensure the higher level of customer service.

Marcussen concluded that "utilities simply have not fully appreciated that costs can be lowered without compromising traditional obligations to customers, and that lowering of operating costs is an obligation in itself". A closer examination of the situation reveals a "service syndrome" which may have dominated managerial orientation in regard to the operational cost and service quality relationship. Managers with "service Syndrome" tend to look upon service quality as being the only goal and acted as it actually was the goal, although this is a fail - safe method of earning customer satisfaction. If these propositions are empirically supported from the actual life of public utilities, then this must be a major issue for the accounting community and the designers of management control systems. However, managerial favourable orientation towards a statement which supports that "costs cannot be lowered without compromising service quality to customers" tend to result in low efficiency. In view

of the close relationship between such managerial orientation and organisational performance, we considered this orientation as a dependent variable.

(2) Managerial motivation from inter - unit comparisons

The majority of academic researchers e.g. Hofstede (1968), Brown (1978) traced the effects of accounting control tools on organisational performance by measuring the motivation of managers by budgets. The budgetary system, however, was the main control device in the companies where research was located. For service organisations, academic scholars and practitioners (Dermer, 1977, Newman, 1975) have suggested certain control modes like ZBB, PPS and "deadly parallel" control systems as more applicable to the characteristics of these organisations.

The "inter-unit" comparison system (deadly parallel system) has been emphatically proposed as an effective control device for service units. Newman (1975) reported that "the deadly parallel" concept is a powerful control among the twelve Federal Reserve Banks, the Bell telephone companies, community school systems and in many other situations. As Newman (1975) asserts "a competitive pride leads each manager to try to look good relative to his peers".

This competition appears to motivate managers to strive and achieve better performance.

The investigation during the introductory phase revealed the operation of an inter-unit comparison system in the Telecommunication setting. The divisional performance criteria of each operating unit were publicized in the same document which was intended to be used as a league-table. Thus, it was decided to trace the effect of the accounting system on organisational performance of service units by measuring the motivation of managers by the inter-unit comparison system.

(3) Managerial attitude towards the accounting function

The voluminous literature of management accounting is based on the consulting role of the accounting mission within organisations, and its contribution to the organisation success. Moreover, the utilization of accounting expertise within organisations depends on the stereotypes that line managers have about accountants.

Therefore, the higher the assistance that a manager gets from the accounting function and the better the managerial attitudes towards accountants the more likely

is there to be a better utilization of the accounting function and hence better organisation performance. Thus it was decided to trace the effect of the accounting system on organisational performance by measuring the effect of the accounting system on the managerial attitude towards the accounting mission. The choice of this relationship made for two additional reasons. First the organisation in question (Telecommunications) was among the very few public organisations in its country which had invested vast amount of money in improving its accounting system. Second, empirical research (Simon et al 1954, Hofstede 1968) so far has stressed the importance of good communication between line managers and accountants for the success of accounting mission. Inter - organisational differences in accounting technology is part of the unexplained, variables in their model.

4. Hypotheses

From this initial analysis, the research proposition can be stated in the following three main (M) and one surrogate (S) hypotheses:

- M1. Managerial Orientation towards basic elements of the production function of service units is likely to be affected by the technical and social aspects of accounting control systems.
- M2. Managerial Motivation stemming from inter - manager comparisons is likely to be affected by the technical and social aspects of accounting control systems.
- M3. Managerial attitudes towards the accounting function is likely to be affected by the technical and social aspects of accounting control systems.
- S1. Managerial Orientation towards basic elements of the production function, Managerial motivation stemming from inter - unit comparisons and managerial attitudes towards the accounting function is likely to be affected by managers personal style and perceived autonomy.

The above relationships are illustrated in Figure 1.

5. Method

Twenty one managers of line area divisions (Maintenance, Operating, and Marketing) employing over 500 persons each agreed to participate in this study.

The average age of the respondents line managers was 49,6 years, the average period with present organisation was 29 years and the average tenure in their current position was 4,9 years.

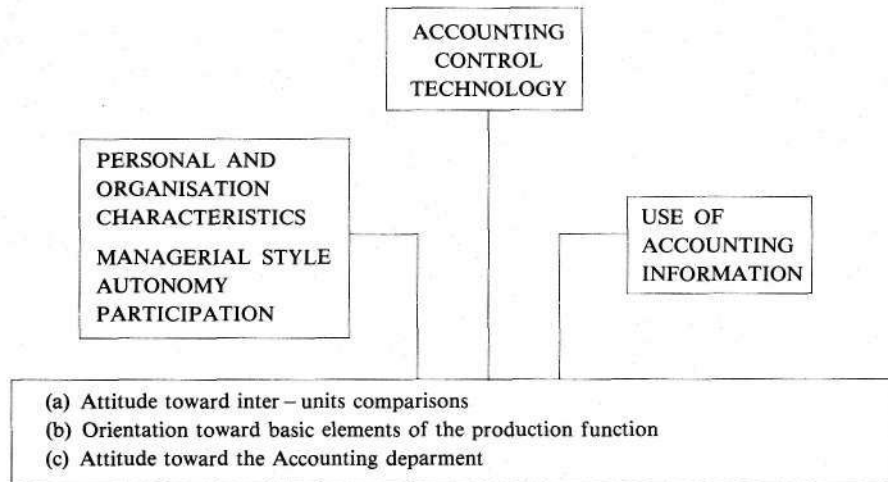


Figure 1. Hypothesized relationships between variables.

In addition to division managers the study included other significant participants of the management control proces, their "line" superiors (seven Area General Managers), their "function" superiors (seven Headquarters staff managers) and seven Heads of Area Accounting divisions. These other persons not only provided their own perceptions on selected issues of concern but also helped in building the picture of accounting control systems in action. A main interview phase who used to elicit the required information. Each interview was designed to include two sections. In the first, which was designed to be administered in about two hours, a variety of open-ended questions were asked, exploring the areas of interest. In the second section, the interviewees were asked to complete a questionnaire. While the interviewees filled out the questionnaire, the researcher was ready to give any explanation of questionnaire questions required, and hence to reduce the possibility of faulty answers by respondents, due to misunderstanding of the questions. The interviews were tape recorded to avoid loss of information. Four managers were unwilling to give permission for such recording for which adequate notes were taken.

Measurement of variables

a. The Independent Variables

(1) Accounting Control Technology

The level of sophistication of the accounting control system used by line managers was measured on a two point scale. Rank 1 was given to the "ordinary" accounting

systems and Rank 2 to the "advanced" ones. As explained earlier this classification is not based on any subjective list of technical characteristics which underline the first or the second group of accounting systems. Instead it represents the existing natural classification of two groups of systems which emerged during the first phase of our research.

(2) Managerial use of Accounting information

To measure line managers use of accounting information we employed a direct rating of a 5 point scale varying from "no use" to "a very great deal of use". In order to moderate or exclude the possible bias which could arise by the questions creating a temporary "use" itself, we measured the managerial use of accounting information not in isolation but with the measurement of the use of other information sub - sets within the organisation (Functional, Operational, Informal etc.). Thus over fifteen questionnaire items were developed for each line manager to measure the use made of accounting and non - accounting information. These questions provided some sort of cross-check to managerial responses.

(3) Participation in setting the budgetary level of performance

Participation was measured with a similar form of questions to those used by Otley (1976). It was felt that considering the budgetary procedures as they have been laid down, it was difficult to distinguish true participation from what Argyris (1952) called "pseudo" participation. Thus each of the three participants in the budgetary process were asked to rate a) the influence that he and the participants of the other hierarchical levels had on the setting of budgeted level of performance for line division; and (b) whether they thought they ought to have more or less influence in the same process.

(4) Managerial personal style

This was measured by Becker and Neuhauser's (1975) four item index which has been extensively used in previous studies of Service Organisations. The respondents were asked to rank in order of importance four characteristics with respect to what they consider an efficient manager. Managers with a high degree of instrumentality scored 20 points while managers with economic orientation scored 31 points.

(5) Managerial Autonomy

Perceived autonomy or specification of production procedures was measured by an index based on three questions adapted from Georgopoulos and Mann (1962), and Aiken and Hage (1966). This scale has been extensively used to measure the specification of production procedures of department heads (e.g. dietetics, pharmaceutical, personnel) in previous studies of service institutions (e.g. hospitals, insurance companies). This is a continuous but truncated variable with a potential range of 3 to 14. The mean for the line managers was 7.8.

b. The dependent variables

(1) Managerial orientation

Managerial orientation concerning basic elements of the production function of their service divisions were measured by two questionnaire items developed on the basis of Marcussen's (1977) propositions. Each line manager was asked to indicate his agreement to the following two statements (i) Costs cannot be reduced without sacrificing quality of service to the customer and (ii). There is a temptation in the organisation to staff at high levels in both peak and trough operations to ensure the highest level of customer service.

(2) Managerial motivation

To measure managerial motivation stemming from inter - unit comparisons, each line manager was asked to rate (i) the extent he takes into account the performance of other similar divisions when setting the budgetary levels of performance for his division and (ii) whether the performance of other divisions should be taken into account when the performance of one division is assessed.

(3) Attitudes towards the Accounting function

Two questionnaire items obtained from Hofstede's (1968) "Attitude survey Form" and adjusted to the needs of this study were used to measure managerial attitudes towards the accounting function. Actually each division manager was asked to rate (i) the extent to which he felt that the people from the accounting division have a lack of understanding of Operational problems; and (ii) the help that the accounting division provide to line managers in the planning and control process.

6. Results

a. Accounting control and Managerial Orientation

(i) The Service syndrome

The questionnaire results revealed that 62 per cent of Division managers agreed that Costs cannot be reduced without sacrificing quality of service to the customers, and 52 per cent that there is a temptation in their organisation to staff at high levels in both peak and trough operations to ensure the highest level of customer's service.

Although the central corporate objective of the Organisation was found to be the provision of the best service at the lowest cost, the research revealed that the emphasis on customer's satisfaction appears to have overshadowed the other managerial objective of "achieving the lower cost of operations". However, the general picture which emerged from the interview phase was more vivid.

The majority of line managers, while fully concerned with service quality, paid insufficient regard to cost of operations. As one line manager commented "Good service and good productivity are two opposite variables of the same equation. If you gain in one you lose in the other. Now, I always feel that quality of service should be my first aim".

Another line manager visualised improvements in costs only as a surrogate of improvements in service quality. "My main objective is to get the right quality of service and frequently by doing so, I get my cost right. It sounds silly but often poor quality of service brings in its tray high costs. So if I can get good quality of service I can then probably, as a bonus, get low costs". However, some managers observed service quality and cost in a rational way. As one line manager explained, "service quality and costs have common bounds. But it is absolutely wrong to say that costs cannot be lowered without compromising service quality to customers. You can improve costs by more efficient deployment of your staff, utilization of equipment, system modernization etc. with the same service quality or even better". The results reveal what might be called the "service fallacy". Customer's satisfaction is considered by line managers so much a prevailing issue, as they could not think of any of the numerous ways by which costs could be lowered without sacrificing the level of services to customers. Two decades ago Hekimian (1965) discovered a "volume surrogate fallacy" among branch managers of the insurance companies which he investigated.

The orientation of line managers, however, can be better assessed and interpreted, if it could be studied in the light of the orientation of other managers in the

organisation. As can be seen from table 1 the identified "service fallacy" is localised between line managers. Staff managers and especially accountants express an attitude which reflected the need to consider trade offs between cost and service quality.

Table 1
Average scores of the orientation of three groups of managers

Variable	Average scores			Significance of paired Comparisons*
	Line Division Managers (LD)	Staff Managers (SM)	Accounting Divis. Manag. (AM)	
Cost – Service relationship	2.52	3.12	4	LDVAD < 0.01
Staffing at the high level of demand	2.62	3.3	3.5	

* Significance tests are based on T – test.

By this stage, the empirical evidence has demonstrated the existence of basic elements of "service syndrome" between line managers. But yet again the important questions relate to the factors, examined below, with which it may be associated.

(ii) Factors associated with "service syndrome"

The relationships between the hypothesised dimensions of accounting control system and discovered managerial service syndrome can be assessed from Kendall's correlation coefficients presented in Table 2.

Accounting control technology is significantly correlated with managerial attitudes towards cost - quality relationship which suggest that managers operated advanced accounting system demonstrate less the service syndrome than managers operated ordinary accounting system.

Of the total managers who operated advanced accounting control systems, only 38 per cent agreed that costs cannot be reduced without sacrificing quality of service to customers, compared with 77 per cent of the managers who used less advanced accounting technology.

Table 2 also shows that managerial use of accounting information is significantly correlated with managerial orientation. This finding appears to indicate that a high use of accounting information influences the cost—service consequences of line

Table 2
Results of Correlation (Kendall's t): Hypothesis Test M1

Main Independent Variables	Dependent Variable	Managerial Orientation towards:		
		Cost – Service relationship	the staffing approach	Composite criterion
A. Accountin Control Technology		– .40**	– .18	– .29*
B. Social aspects of Accounting				
1. Managerial use of accounting information		– .47***	– .46***	– .52***
.Use of financial indices		– .44***	– .45***	– .50***
.Use of budget		– .46***	– .40**	– .47***
2. Budgetary Participation		– .24*	– .40**	– .38**

* Significant at $p < 0.10$

** Significant at $p < 0.05$

*** Signigicant at $p < 0.01$

managers and confirms Hofstede's (1968) results. He observed that "While financial information may not have much decision – making value to the first – line managers, a good dose of it will influence his attitude to economic problems and his general cost consciousness". This tends to suggest that the lack of cost consciousness found in Telecommunications may constitute an implication of the extensive use of non – monetary information produced by the functional (non accounting) information systems. As can be seen from Table 2, managerial participation in the budgetary process is significantly correlated with all three measures of managerial orientation, which appears to indicate that managers with high participation are less appreciating the "service fallacy".

b. Accounting control and managerial Motivation

The first findings of the inquiry have shown clearly that when inter-units comparisons were used in the planning and control process, it appeared to motivate line managers to strive for better performance. As one line manager noted: "The comparisons with other divisions does encourages us to achieve a reasonable amount of improvement year by year".

Another manager explained, "What we try to do in making comparisons is to try to identify another division of the same size and the same layout and to say, why they are getting a better performance on this particular ratio than we do? In many

cases we visit then and look closely at what they are doing and how they achieve those figures. Our performance has increased from these comparisons".

However, the larger number of line managers were found to oppose inter - unit comparisons although they didn't deny their motivational effects. "I am not interested in what the other divisions are doing" said a line manager, while, another noted "I think the argument really is that the output figure of this year is a personal figure and you must match this output against last year's figure and not against anybody else's figure".

The questionnaire results however revealed a more accurate picture. Only 14 per cent of line managers reported a favourable attitude towards inter - unit comparisons, while 57 per cent reported little or no use of such comparisons when setting their budget and 67 per cent little or no use of inter - unit comparisons in evaluating performance.

To facilitate a more accurate assessment of the function of the comparisons control made within the organisation, the three different types of managers towards inter - unit comparisons were measured and are presented in Table 3. This table shows a significant gap between the attitudes of line managers and their staff counterparts at Headquarter departments and accounting divisions.

Table 3
Average scores of managerial attitudes towards inter – unit comparisons

Variable Significance of paired comparisons* of paired	Average scores for:			
	Line Division Managers (LD)	Staff Managers (SM)	Accounting Division Managers (AD)	
Inter – unit comparisons in setting the budget +	2.38	3.25	3.16	LD Y SM < 0.07
Inter – unit comparisons in evaluating performance +	2.19	3.0	3.0	LD Y SM < 0.07 LD Y AD < 0.10

* Significance tests are based on the T – test

+ The index has a possible range of 1 to 5

Before, however, we turn our attention to the exploration of the factors with which managerial attitudes were associated the overall emerging picture needs particular consideration.

The Telecommunication's organisation introduced to all its line divisions an inter - unit comparisons system with exactly the same design and process for all the divisions, aiming to increase managerial motivation and performance. Staff managers systematically tried to persuade line managers to take advantage of the system. "In all my discussions and meetings with line managers", stated a staff manager, "I always refer to the performance of other similar divisions". The inquiry revealed two groups of managers, those who incorporated in their managerial life inter-unit comparisons and the majority who opposed any idea of comparisons. Which are the factors associated with the identified behaviour?

Table 4
Results of Correlation (Kendall's τ): Hypothesis Test M2

Main Independent Variables	Dependent Variable	Managerial attitudes toward interunit comparisons in:		
		Setting the Budget	Performance Evaluation	Composite criterion
A. Accounting Control Technology		-.40**	-.23	-.38*
B. Social aspects of Accounting				
1. Managerial use of accounting information		-.55***	-.31***	-.46***
. Use of financial indices		-.55***	-.39***	-.53***
. Use of budget		-.53***	-.22	-.39**
2. Budgetary Participation		-.36**	-.24*	-.31**

* Significant at $p < 0.10$

** Significant at $p < 0.05$

*** Significant at $p < 0.01$

Accounting control technology, as can be seen from Table 4 found to be significantly correlated with both measures of managerial attitudes. This appears to indicate that managers who operated advanced accounting system show more positive attitudes toward inter-unit comparisons than those managers who operated an "ordinary" accounting system, 69 and 77 per cent reported negative attitude toward inter - unit comparisons in setting the budget and evaluating performance respectively, compared with 38 and 25 per cent of managers operating "advanced" accounting systems.

Table 4 also reveals a significant correlation between all measured social aspects of accounting control and managerial attitude towards inter-unit comparisons. A high use of financial ratios in the control process found to be associated with a more

positive managerial attitude toward inter - unit comparisons. The fact that financial ratios are in many cases more comparable than non - financial factors is a possible explanation to the above relationship. High use of budgetary information was also found associated with a positive attitude toward inter - unit comparisons. A possible explanation of the identified relationship is that, since the budget is a main tool of conveying planning messages, then the positive attitude of staff managers toward inter-unit comparisons has affected the attitudes of their subordinates. However, it may be interesting to note the difference on the impact that the use of budgetary information found to have on managerial attitude toward inter - unit comparisons in setting the budget ($r = -.55$; $\rho = 0.01$) and in evaluating performance ($r = -.22$). Equally important, as in the two previous relationships, it seems to be the significant correlation between managerial participation in the budgetary process and attitudes toward inter-unit comparisons shown in Table 4.

The findings of this section bring us to a position to claim support of M2. The study, however, has concentrated its investigation on a limited number of selected independent variables. During the interview phase of this study two independent variables emerged which appear to broaden the discussed issue and hence to be worth considering by future researchers. The organisation's reward system and organizational climate were blamed by few managers as not motivating enough them to make use of inter-unit comparisons.

As one line manager noted: "If I was in IBM then I would have to worry about what my colleagues do in similar divisions. Here the nature of the industry is asking me not to care too much on this basis". Nevertheless, the two variables do not deny the effects of accounting control on managerial attitudes and hence on organisation's performance.

c. Accounting Control and Managerial attitudes

During the interview phase, line managers while commenting positively, in regard to their contacts with accountants and the general atmosphere of co - operation, were very critical in regard to the role of accountants in the management control process. One manager gave a vivid and bitter description of the role of accountants:

"It is the responsibility of the finance people to collate all the statistics and indices of performance. There are however, basic weaknesses in doing that. First, they are doing it without knowing what the statistics are telling them. Second they are doing it without knowing if the individual units are presenting the right picture, all they

are doing is the mechanics of adding them up. I personally think that it is a waste of time adding something up which you can't understand or which may be wrong to begin with".

In regard to the assistance that accounting division provides to line divisions, one line manager commented:

"I don't really think that they do anything for us apart from administering the budget. They have their own job to do".

It was increasingly apparent from the interviews and was confirmed by the questionnaire responses that the majority of line managers had no positive attitudes towards accounting expertise. Of total line managers 57 per cent agreed that accountants have a lack of understanding of operational problems and that accounting divisions provide limited assistance to line divisions. Only 14 per cent of line managers perceived that accounting divisions are of substantial assistance to them. The mistrust in the competence of accounting division is illustrated by the following comment of one line manager. "They (accountants) cannot cost it better than we do" he said, explaining why he used to cost the activities of his division by using his staff. Nevertheless, taking into account the weaknesses of accounting control system of this service Organisation one would suggest that the overall not advanced accounting technology has affected the competence and status of the accounting department and consequently has affected the attitudes of line managers.

(1) Factors associated with managerial attitudes

The relationships between the hypothesised aspects of the accounting control system and managerial attitudes towards the accounting function of the organisation can be assessed from Kendall's correlation coefficients presented in Table 5.

As can be seen from this table, accounting technology and managerial feelings in regard to the assistance they get from accountants are significantly correlated. This finding appears to indicate that the more advanced the accounting technology, the higher the assistance that line managers get from the accounting function. This finding also validates the following comment of Burchell et al (1980) "With the aid of management accounting control techniques (the accountant) provides assistance in the process of organisational planning and control". Table 5 also reveals that the correlation of accounting technology and managerial feelings of communication with accountants is in the expected direction but not statistically significant. The signs of all the correlations of accounting technology point in the predicted direction. However

the findings appear to indicate that advancements in accounting technology may improve the assistance that accountants provide to line managers to a greater extent than the communication between accountants and line managers.

Table 5
Results of Correlation (kendall's t): Hypothesis M3

Main Independent Variables	Dependent Variable	Managerial Attitude toward the Accounting mission		
		Lack of understanding	Limited assistance	Composite criterion
A. Accountin Control Technology		-.10	-.28*	-.19
B. Social aspects of Accounting				
1. Managerial use of accounting information		-.51***	-.50***	-.49***
.Use of financial indices		-.36**	-.37**	-.35**
.Use of budget		-.64***	-.62***	-.62***
2. Budgetary Participation		-.44**	-.53***	-.50***

* Significant at $p < 0.10$

** Significant at $p < 0.05$

*** Signigicant at $p < 0.01$

Table 5 reveals that all measured social aspects of accounting control systems are significantly correlated with all measures of managerial attitudes toward the accounting function. The manager's use of the budget as a main control device, gave the most significant results. The findings tend to suggest that a high importance and use of accounting information is associated with better communication and higher respect to the contribution of the accounting function. A possible explanation is that managers using the products of the accounting function are more able to appreciate their expertise and their contribution to the success of the organisation.

The significant correlation of budgetary participation with managerial attitudes, shown in table 5 appears to indicate that the higher the managerial participation to budgetary process the more positive his attitude toward the accounting division. The implied co - operation and communication between line managers and accountants, which may also involve interchange of ideas or direct assistance by accountants in solving problems, appears to have a great effect on line managers' attitude in regard to the perceived impracticality and assistance of the accounting department.

Looking more closely at the identified relationships between accounting system's dimensions and managerial perceptions in regard to the accounting function, some

important results are instantly apparent. As can be seen from Figure 2 the level of communication between line managers and accountants is positively correlated ($r = .80$; $p = 0.001$) with the perceived assistance that line managers get from accounting function. Moreover both items are significantly correlated with managerial use of accounting information. This emerging picture is consistent with Simon's (1954) and Hofstede's (1968) findings that active channels of communication between accountants and line managers is a very important factor influencing the effectiveness of the accounting system. It may be interesting to note, however, that a state of mutual interdependence seems more applicable between the variables rather than to assume a cause-effect relationship. Accounting technology, managerial use of accounting information, accountant-line manager communication, and the role of the accounting function in the management control process were found in Telecommunications to be mutually interdependent variables. This tends to indicate that any change in one variable may also affect the other variables.

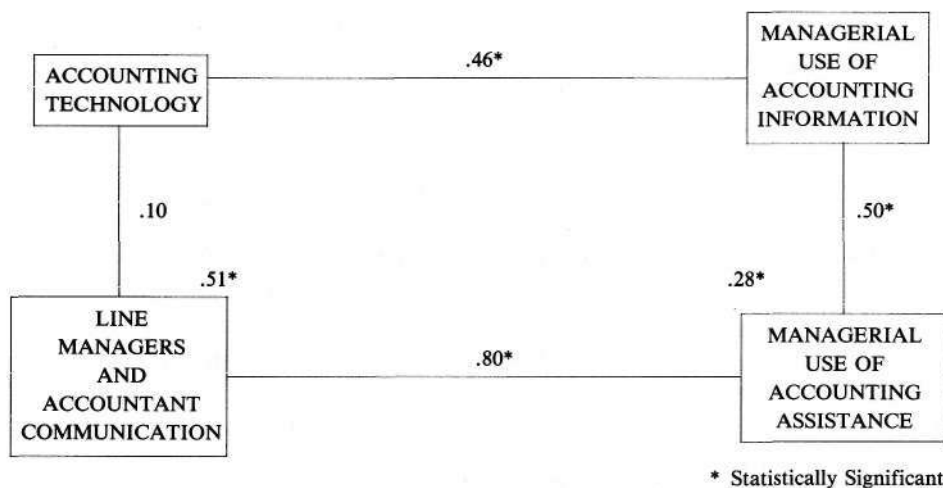


Figure 2. Accounting Technology, managerial use of accounting information and accounting function.

d. Personal characteristics and managerial behaviour

(1) Managerial style

As can be seen from Table 6 managerial style is positively correlated with managerial orientation. This finding appears to indicate that managers with instrumental personal style tend to show signs of the "service Syndrome". Managers' personal style found also positively associated with managerial attitudes toward

inter – unit comparisons. This finding indicates that managers whose personal style is to ask the question "whether the desired results are obtained with the least necessary expenditure of resources" before any decision, show a more positive attitude toward inter – unit comparison. This finding indicates that managers with the previous style apart from different alternative courses of action that they might consider in order to obtain the best results with the less resources, keep an eye on the performance of similar units too. Finally, managerial style has apparently negligible effect on managerial attitude toward the accounting mission.

Table 6
Results of Correlation (Kendall's t): Hypothesis S1

Dependent Variables	Surogate Independent Variables	Managerial Style	Autotomy
A. Managerial Orientation towards		.36**	.32**
.Cost – Service		.23	.48**
.Staffing at high levels		.36**	.16
B. Managerial attitudes toward inter – unit comparison in:		.27*	– .32**
.Setting the budget		.23	– .30**
.Performance Evaluation		– .27*	– .30**
C. Managerial attitudes toward accounting		.09	– .09
.Lack of understanding		.07	.07
.Limited assistance		.06	– .15

* Significant at $p < 0.10$

** Significant at $p < 0.05$

*** Significant at $p < 0.01$

(2) Autotomy

Perceived managerial autonomy or specification of production procedures found to be significantly correlated with managerial orientation (table 6). This finding suggest that high specification of production procedures which leaves little autonomy to line managers to set the work path of their units was associated with positive scores to the two statements measuring orientation. One possible explanation of the above finding is that, on the assumption that the overall organisational climate is one of a fail - safe method of earning customer satisfaction, managers with low autonomy are reflecting this overall climate.

Table 6 also reveals significant correlation between perceived autonomy and managerial attitudes toward inter-unit comparisons. The higher the perceived autonomy of a line manager, the more positive his attitude towards inter-unit comparison. Becker and Neuhauser's (1975) research can shed some light into this finding. Measuring managerial autonomy with the same index used in this study, they found significant correlation between autonomy - specification of production procedure and organisational efficiency. On the assumption that inter-unit comparisons increase visibility of consequences and hence efficiency, our findings are in line with those of Becker and Neuhauser (1975). Perceived autonomy found to have very little association with managerial attitudes toward accounting mission. Finally it must be noted that the correlation coefficient between the last two surrogate independent variables found very low ($r = -.03$).

7. Implications

The findings of the study emphasize that the effectiveness with which an accounting system satisfies both its own immediate objectives as well as the organisation's wider goals depends upon the technical perfection of the information which it provides but also upon human and social factors.

Therefore, accountants should recognise the need for technical improvements and for an understanding of the wider human and social factors which influence the role of accounting systems in complex organisations.

The general picture emerging from the findings of this study is of profound importance in our attempt to study the accounting system of a service organisation in action.

Commencing with the accounting technology we discovered that it was not consistent with the organisational context. Yet non-accounting systems were developed and operated by line managers attempting to satisfy information needs. The first implication of the non-advanced accounting technology was that managers use of accounting information was relatively low.

The majority of line managers reported also little or no use of inter-unit comparisons.

In spite of the support of inter-unit comparisons by higher management, line managers were reluctant to accept, even in principle, this control mode. The

development and use, however, of more "advanced" technology was found to get out of the regular routines the line managers.

This results tend to indicate that further improvements of the accounting system would have favourable effects on managerial use of inter-unit comparisons. Therefore, there appears to be a need for the designers of accounting systems to develop more comparable indices of performance. Accounting technology which will separate managerial from non - managerial responsibility of units performance, use a combination of financial and non-monetary information in measuring performance, incorporate inter—unit comparisons in its process, seems to have a positive effect on managerial attitude and hence on organisation performance.

Most line managers have not appreciated that costs can be lowered without compromising service quality to customers.

However, line managers who used financial information and/or received performance information not only concerning the output of the division but also the production function, reported a pragmatic orientation in regard to the costs and service quality relationship. This finding appears to direct us to the design of accounting systems which will communicate information, not only in regard to the end results of the division's performance, but also in regard to the internal key success factors of the production function.

Looking at the effects of the non - advanced accounting system on the role of the accounting mission and the assistance accounts provide to line managers, one quickly realises the dynamics of the accountants of the accounting technology. Accounting divisions were not perceived by line managers as a source of assistance in the planning and control process. The use by line managers of the functional, operational and other non - accounting control systems seems to have reduced the involvement of accountants in the planning and control process. Again, the findings suggested that, as the technology of the accounting and management control systems improved, the status and the contribution of accountants to the planning and control process also increased. The managerial attitude towards the accounting function does not arise out of a vacuum. Direct communication and a good relationship between accountants and line managers is a major step for the built - up of good managerial attitudes towards the accounting mission.

The results of this study seem to indicate that the accounting technology and the status of the accounting function in regard to the information they provide to line managers is a powerful determinant of the managerial attitude and of the actual role of the accounting mission within organisations.

Concluding this study a word of caution is considered necessary. The obtained results represent the long - term effects of the accounting and management control technology on organisational performance. This means that the results reflect the effects of the technology and the tradition or norms associated with the use of this accounting technology on managerial behaviour.

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