THE ROLE OF THE MANAGEMENT ACCOUNTANT IN IMPLEMENTING DECISION-SUPPORT SYSTEMS: SOME EMPIRICAL EVIDENCE

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ABSTRACT

In a previous paper (Currie et al., 1992) we outlined the theoretical basis of a CIMA-sponsored research study into the application of the concept of 'Decision-Support Systems' (DSS) to the work of management accountants. The empirical part of this study (carried out through postal questionnaires and, subsequently, face-to-face interviews) has now been completed. In this paper, we report on some of the research findings.

Most of our findings are supportive of the hypothesis that management accountants do provide meaningful decision-support to senior managers. Management accountants are generally aware of a need to provide more than purely structured modelling and reporting, given the complexity of senior-level decision-making in organisations. Senior managers are generally of the opinion that the management accountants who make the greatest contribution to their organisations are those who have a comprehensive understanding of the complexities of managerial decision-making, and who have the flexibility and business knowledge needed in order to support this decision-making. The management accountants who are ***least*** *highly valued by their managers are those whose activities are limited to implementing traditional periodic reporting systems.*

INTRODUCTION: DECISION-SUPPORT SYSTEMS AND THE MANAGEMENT ACCOUNTANT

In a previous paper (Currie et al., 1992) we outlined the theoretical basis of a CIMA-sponsored research study into the application of the concept of 'Decision-Support Systems' (DSS) to the work of management accountants. The empirical part of this study (carried out through postal questionnaires and, subsequently, face-to-face interviews) has now been completed. The purpose of this paper is to report on some of the research findings. However, we begin with a brief review of the conceptual basis of the study.

It is widely suggested in the literature that, although the traditional 'rationale' for management accounting systems is that they provide information to support managerial decision-making and control, the conventional techniques and standardised reporting formats of management accounting provide very incomplete analyses of unstructured senior management decision situations. On the other hand, the potential benefits of decision-support systems in the context of such decisions are well articulated by Mintzberg (1982):

> What appeals to me about the orientation of the DSS literature, in general, is its sympathy with the needs of the manager and its sensitivity to the findings of descriptive research. It is refreshing to see these computer systems recognised as 'support' and to encounter a part of the management science literature that puts down neither the manager nor his intuition. This provides a healthy basis on which to develop and introduce these systems into organisational decision-making ... Maybe the DSS people, with their managerial orientation, can rediscover what operations research seems to have lost.

Mintzberg's use of the term 'managerial orientation' is important, because it emphasises that a decision-support system is not made up solely of technology. The availability of personal computers and of a wide variety of software make it feasible to implement very flexible information systems, but the key to a successful DSS is that it should be tailored around the decision-maker's detailed requirements. Therefore, it could be said that DSS consists of two essential components:

- *Decision-Support Systems Personnel:* These are the staff within the organisation who support management in addressing the problems facing the organisation. They support management decision-making by providing an analytical capability and acting so as to increase the learning capability of the organisation

- *Decision-Support Systems Technology:* These are the computer-based systems which may be produced by decision-support personnel when they are helping management to make decisions about complex problems.

Murphy (1990) found that, in Irish organisations, 50% of decision-support systems are developed by accountants. One of the first papers to propose the idea that accountants may be well placed to act as DSS personnel was Burchell et al. (1980):

> With clear objectives but uncertain causation ... [decision-makers] need to explore problems, ask questions, explicate presumptions, analyse the analysable and finally resort to judgment ... rather than providing answers, accounting systems might be expected to provide assistance through ... decision-support systems.

Thus, in certain circumstances, the way in which management accountants can best serve senior-level decision-makers is by functioning as 'decision-support personnel'. In our 1992 paper, we suggested that management accountants are *capable* of functioning in this way (given their professional training and orientation). Our subsequent empirical research has been designed to ascertain the extent to which management accountants do, in practice, fulfil the role of DSS personnel.

It can be said that recent trends in the 'professional' management accounting literature represent a shift towards a decision-support orientation in the accountant's training. For example, one conceptual strength of the strategic management accounting literature is that, in general, it can truly be said to centre on managerial decisions. For example, a strategic management accounting textbook by Ward (1992) begins by explaining in some detail what corporate strategy is and how strategy is formulated and applied in organisations, before the textbook makes *any* detailed references to accounting. This approach of discussing managerial problems prior to discussing accounting 'solutions' is maintained within individual chapters later in the book. Thus, the reader is forced to think rigorously about strategic managers' requirements for information, before considering how management accountants may help to support the strategic management process. This reduces the temptation to fit some of the 'square pegs' of accounting techniques into the 'round holes' of business decisions. Thus, the strategic management accounting literature has a truly 'business focus', instead of a focus on accounting techniques *per se*. This is very consistent with the philosophy of decision- support systems, because the accountant learns to evaluate accounting methods by reference to their potential value in supporting the strategic management process.

Some of the more conventional accounting literature (for example, on tactical capital budgeting decisions) could be said to centre primarily on accounting techniques, rather than on business decision-making. By contrast, the strategic management accounting literature has a strong business focus, and seems to provide the management accountant with much of the business knowledge which will enable him or her to become involved in the development of decision-support systems for strategic management.

SAMPLE AND METHODOLOGY

The first phase of our empirical work was a 'current status assessment', carried out by means of a postal questionnaire survey of the 400 largest firms in the United Kingdom (as identified by a Dun & Bradstreet database) and the 400 largest firms in the Republic of Ireland (as identified by the *Business and Finance* database). Each firm received two questionnaires (hence, a total of 1,600 questionnaires were dispatched). One was directed at the most senior management accountant in the firm, and was primarily designed to ascertain the management accountant's views about the nature of decision-making in the organisation and the types of information and decision-support provided by the management accounting function to the rest of the organisation. The other questionnaire was directed at 'senior managers' and was designed to ascertain each manager's perceptions of decision-support activities in his firm, with particular reference to the management accounting function's role in this regard. The response rates are detailed in **Table 1(a)**. (For purposes of the empirical study, 'senior' managers were defined as those managers who had full or partial responsibility for making some decisions which were likely to have a significant impact on the long-term future of their organisations. For example, all of the managers interviewed were members of their firms' Executive Boards or were the immediate subordinates of the members of such boards).

The next phase consisted of face-to-face interviews in 25 companies, consisting of 22 companies which had responded to both of the questionnaires and 3 companies which had not. These 25 companies were selected to provide a diverse range in terms of size, industry sector and geographical location, and another criterion was that in each company both the management accountant and the senior manager had indicated a willingness to participate. Structured questionnaires were used as the basis for face-to-face interviews, but the questions were deliberately open-ended so that points of particular interest or concern could be ex-

Table 1(a): Responses to Postal Survey

Questionnaires sent to management accountants:

	Number sent	Responses	Response rate %
Rep. of Ireland	400	75	19%
United Kingdom	400	62	16%

Questionnaires sent to senior managers:

	Number sent	Responses	Response rate %
Rep. of Ireland	400	79	20%
United Kingdom	400	63	16%

plored as appropriate in each case. In each firm, at least one manager and one management accountant were interviewed. (These interviews were conducted separately, in the hope that each interviewee would feel free to speak independent of the other where applicable). The 25 companies are listed in **Table 1(b)**.

Table 1(b): Companies Involved in Face-to-face Interviews

A.P. Lockheed	An Post	Akzo
Apple	BP Chemicals	Bord Gais Eireann
Cable & Wireless	C.R. Bard	C.V. Carpets
Cork Examiner	Electricity Supply Board	Essilor
Gesst	Irish Distillers Group	IRG
London Electricity	Masterfoods	Midland Bank
Rolls Royce	Short Brothers	Thermo King Europe
Thomas Cook Group	Thorn Ericson	W.H. Smith
Yves Rocher		

RESULTS

In this section, we discuss the results of the postal survey (as documented in **Tables 2** to **13**), in parallel with further insights provided from the interviews in individual companies.

Management accountants' interviews

Computer utilisation

Computer utilisation among management accountants is almost univer-

sal. **Table 2** shows that 97% of management accountants regularly receive computerised reports, and that management accountants have a strong tendency to request special-purpose computerised reports on an *ad hoc* basis, in addition to the periodic reports which accounting systems routinely generate. To a significant degree, management accountants are involved in the generation of computer output as well as its use: 91% of management accountants use computers on a hands-on basis, including 87% of management accountants who do so on a daily basis.

Table 2: Use of Computers by Management Accountants

Percentage of management accountants who ...	
Regularly receive computerised reports	97%
Use computers 'hands-on'	91%
Use computers 'hands-on' on a daily basis	87%
Frequency of requests from management accountants for *ad hoc* special-purpose reports (Likert scale: 1 = 'always'; 5 = 'never'):	
Mean:	2.139
Standard deviation:	0.815

Of course, a management accountant is not a 'decision-support' person merely because he or she uses a computer. Nevertheless, DSS are computer-based, so one might deem computer literacy to be a necessary (but not sufficient) condition for a management accountant to be able to provide decision-support to managers.

In almost all of the companies where we conducted interviews, management expressed very little interest in the specific type of technology used to support them. In this study, we found that the IT/IS departments were not providing decision-support. These departments are primarily engaged in technical work. Their failure to provide a DSS facility is in many instances being capitalised upon by the management accountants. This in turn can lead to tensions between the two departments. In most of the organisations interviewed, the relationship between the two departments was described as 'cordial at best'. The information systems department is seen by the accounting function within most organisations as being inflexible and slow to respond to requests. In some organisations particularly where large organisational systems exist on the mainframe –

for example, point of sale systems – the information systems department has remained organisationally powerful. The clearest case of this was in one organisation involved in the interview phase of our research, where the information systems department had managed to get a microcomputer-based accounting spreadsheet migrated back onto the mainframe. The main reasons given by the information systems department for this apparently regressive move were the instability of the microcomputer platform, lack of security, and its slow speed. However, in the words of the management accountant:

> Moving the system onto the mainframe is not the best move for the organisation as it decreases the flexibility to change the system, which is the main purpose of this decision-support system.

However, as regards the specific IS skills and abilities of management accountants, there are mixed findings. In some cases management accountants are expected to act as catalysts for transferring IT skills across the organisation; at the other extreme some managers look for only a general level of computer literacy, believing that training in specific aspects of spreadsheets and financial modelling could be obtained as required. For those engaged in information preparation, and in particular those developing monthly reports, an in-depth understanding of spreadsheets and other commonly used microcomputer software was seen as essential.

From an accounting perspective, it is significant that in many companies, the strategic decisions relating to information systems are increasingly being taken outside the IS department. In one of the companies interviewed, the major decision-making authority concerning information systems development has been assigned to the financial controller by the CEO. The main reason given by the CEO for this change in formal responsibility was:

> I wanted an objective person to have responsibility for setting IT strategy: someone with no vested interests.

Management accounting techniques

We have argued that an essential feature of decision-support is that the management accountant needs to be skilled in much more than simply applying the conventional management accounting techniques (Currie et al., 1992). In relation to the unstructured decisions facing senior managers, a management accountant often needs not merely to apply conventional techniques, but also to support management in dealing with the limitations of this form of analysis. In other words, the management accountant needs to be able to suggest means of overcoming the mis-

match between the structured nature of many accounting models and the actual complexity. Hence, one aspect of this study was to identify use of traditional techniques and then study the extent to which management accountants 'go beyond' this to provide meaningful decision-support.

Table 3 shows that conventional techniques like variance analysis, CVP and capital budgeting models are used by the majority of firms Interestingly, management science techniques are not widely used; for example, only 9% use linear programming. Simulation was slightly more popular (16%), perhaps because it is not deterministic and is not directed at the generation of a single answer; hence, it is more applicable to poorly structured decision-making. In our interviews, no manager expressed an interest in having management accountants carry out analysis using mathematically enhanced versions of accounting techniques – contrary to the focus of an earlier generation of management accounting research (Currie et al., 1992).

One key indicator of the extent to which management accountants act as DSS personnel lies in the accountants' attitudes to these conventional accounting techniques (see **Table 4**). Although management accountants are roughly equally divided as to whether these techniques provide a 'complete approach' to the analysis of the problems facing managers (**4A**), there is reasonably strong agreement that the techniques *per se* need to be augmented by additional forms of analysis and modelling (**4B**). In other words, while accountants believe in the basic validity of accounting techniques, they recognise that they do not capture all of the elements of semi-structured decision-problems.

Practical decision-support by management accountants

What do management accountants do, in a roughly 'technical' sense, to supplement the traditional techniques? **Table 5** provides some answers. There is a strong tendency for management accountants to be involved in development of significant databases (**5A**) and to make significant use of computer-based modelling techniques (**5B**). Many accountants also provide management with scenario analyses, that is, information which allows them to consider a large number of alternative courses of action (**5C**). Thus the management accounting function in most cases does not seem to act merely as an 'answer machine' (Burchell et al., 1980), offering single solutions based on conventional techniques like NPV or EV which absorb uncertainty. By developing databases and model bases, which form the basis of the *ad hoc* analysis capabilities which managers require from a decision-support system, and by facilitating scenario analysis, management accountants support the decision-making

TABLE 3: Use of Management Accounting Techniques

Short-term Decision-Making:	
Cost-volume-profit analysis	73%
Linear programming models	9%
Regression analysis	7%
Management Control:	
Price and volume variances	80%
Efficiency and spending variances	74%
Production mix and yield variances	45%
Productivity ratios	58%
Capital Budgeting:	
Payback analysis	72%
Accounting rates of return	56%
Discounted cash flows	71%
Simulation	16%
Divisional Performance Measurement:	
Return on investment	73%
Residual income	21%
Strategic Planning:	
Activity based costing	32%
Other strategic modelling techniques	45%

process, which must ultimately remain within the control of management. Indeed, when management ask their accountants for help with a problem, about one-sixth of accountants' time is spent on giving advice which will lead to the development of a computer-based system, as opposed to time spent on deriving a single answer or even a set of scenarios (**5D**). A further indication of this is that most management accountants have an involvement in the provision of non-financial information to management (**5E**), although a detailed probing of the extent of this involvement was outside the scope of the postal questionnaire phase of this study.

Some of the evidence from the face-to-face interviews also helps to further illustrate the issues raised by the data in **Table 5**:
Company A: Since 1986, the accounting function of the organisation has

Table 4: Management Accountants' Attitudes to Traditional Techniques

(A) 'Management accounting techniques provide a complete approach to the analysis of the management accounting problems typically faced by senior managers' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	3.1
Standard deviation:	0.9
(B)'Management accounting techniques need to be augmented by additional analysis and modelling' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	2.1
Standard deviation:	0.8

devoted an increasing proportion of its time and resources to activities other than routine transaction processing. This came about because of a change in management style and the increased automation of routine processing. Senior management believed that the most useful role fulfilled by their management accountants were:

- Providing an analytical service to increase the relevance of standard accounting reports for the managing director and his assistants, by providing forecasts and unsolicited exception reports
- Construction of 'what if' type models for use by managers themselves, most notably a spreadsheet-based model which enables management to explore likely outcomes for the current financial year, making use of results for the year-to-date and manipulation of variables.

Company B: Senior management stated that management accountants added significant value to the organisation through their development of decision-support models for managers at both senior and middle management levels of the organisation. A specific feature of these decision-support models was that they allow a basic data set to be analysed in a number of different ways, and this flexibility has greatly increased managers' awareness of the implications of their decisions. Previously, managers had tended to analyse decision situations only by reference to a few criteria which related to their own subunit of the organisation. Flexible modelling has widened their horizons substantially. In general, modelling capability in the organisation has increased greatly thanks to the management accountants, and some models which were originally developed for a once-off decision situation have become permanent com-

Table 5: Management Accounting 'Activities' which Supplement Traditional Techniques

(A) 'We develop significant data bases within the Management Accounting Function' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	2.0
Standard deviation:	0.9
(B) 'Management accountants need to make significant use of computer-based modelling techniques' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	1.8
Standard deviation:	0.8
(C) 'Information supplied by the Management Accounting Function enables management to consider a large number of alternatives in decision-making' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	2.4
Standard deviation:	0.8
(D) Percentage of management accountants' time which is spent on giving advice which will result in development of a computer-based system:	
Mean:	17%
(E) Frequency with which management accountants give non-financial information to management (Likert scale: 1 = 'always'; 5 = 'never'):	
Mean:	2.1
Standard deviation:	0.9

ponents of the model base.

Not surprisingly, management accountants are held in very high regard by senior management in this company. One manager described them as 'business analysts, who work closely with business managers'. Their brief extends to explaining any distortions which are implicit in formal performance measures, and to using accounting information themselves to identify significant areas of underperformance. Several management accounting staff members are part of an 'Executive Reporting Team',

which also includes several managers. This team regularly prepares a 'Briefing Book' for top management, which presents current information about the levels of key performance indicators (financial and otherwise). In addition, the group financial controller has a business evaluation unit which looks at possible new ventures and makes recommendations.

Much of the management accountants' questionnaire was directed at exploring aspects of the accountants' perception of their relationship with senior managers and of their role in the management process. None of the aforementioned 'supplementary tasks' would be useful in the absence of some concept as to how they support decision-making. **Table 6** presents some key findings in this area as to *how* management accountants support senior managers. In most cases the management accounting group makes formal presentations and/or reports to senior management on what they (accountants) perceive to be the main aspects of *ad hoc* problems (**6A**). However, **Table 6** also shows that the decision-support which management accountants provide includes:

- Advising management as to what information they require to solve problems, that is, acting as information gate-keepers (**6B**)
- Fulfilling management requests for *ad hoc* analysis, in the form of special-purpose models of a decision situation (**6C**) or scenario analysis (**6D**)
- In a significant minority of companies (**6E**), management accountants are proactive, that is, the accountants initiate proposals without waiting for managers to ask them.

Two of the companies where we conducted interviews help to illustrate these issues:
Company C: Senior management stated that management accountants had responded to the challenges presented by the recent privatisation of the company, and had greatly increased their own importance as a result. Management perceive their accountants as 'key decision influencers', because of their excellent interpersonal and analytical skills, which enable the accountants to identify and provide the type of decision-support which managers need.

In general, their DSS caters for sensitivity analysis and the desire to explore scenarios on a 'what-if' basis. These model-based systems are not complex in any technical sense but their strength derives from the management accountants' ability to structure the models in ways which are highly relevant to the specific nature of the company's business. The management accountants understand the key factors which are critical

Table 6: How Management Accountants Support Senior Managers

(A) 'I make formal presentations and/or reports to management on what I consider to be the main aspects of an *ad hoc* problem' (Likert scale: 1 = 'always'; 5 = 'never'):

Mean:	2.1
Standard deviation:	1.0

(B) 'I advise management on the information that they require' (Likert scale: 1 = 'always'; 5 = 'never'):

Mean:	1.9
Standard deviation:	0.8

(C) 'Management often ask me to develop models of a problem which they are addressing' (Likert scale:1 = 'strongly agree'; 5 = 'strongly disagree'):

Mean:	2.4
Standard deviation:	0.8

(D) 'Management often ask me to provide analysis of different scenarios when they are addressing a problem' (Likert scale: 1 = 'always'; 5 = 'never'):

Mean:	2.1
Standard deviation:	0.8

(E) Percentage of management accountants whose main role is to initiate decision-making, by making a proposal to management:

Mean:	27%

to the company's success and this understanding forms the basis for their decision-support activities. One example is the management accountants' recent development of a DSS to support management in the design and implementation of a staff reduction programme. The DSS provides managers with the ability to quantify the effects of different variables which are likely to affect the financial implications of the programme, for example, the take-up rates for a voluntary redundancy package.

Company D: The senior management accountant in this company took the view that the automation of routine data processing had given him

and his staff 'the opportunity to concentrate on the business'. In particular, he was proud of the fact that he had established a reputation for being able to respond quickly to management requests for *ad hoc* analysis (usually within a few days), and that two-thirds of the *ad hoc* analysis which he provided to management was unsolicited. He felt that he was accepted as an integral part of the management team as a result.

> We have to clean up the data and make sure it's consistent. We also act as a filter between the task force and management to ensure that a balanced, wider perspective is taken by the task force and then interpret its findings for management.

The nature of management accounting information

Management accountants seem to be reasonably (but not overwhelmingly) confident as to the quality and usefulness of their role in supporting managers, according to the findings in **Table 7**. Accountants have some tendency to believe that management accounting information is the most important type of information which senior management receive (**7A**). Furthermore, there is an even stronger perception that the management accounting function provides information about the critical activities within the organisation (**7B**) (although, of course, *external* information may be at least as important in strategic management).

Table 8 reports some findings on what we might broadly describe as the 'flexibility' of management accounting systems. Most management accounting reporting is in standardised formats (**8A**) and, in general, management accounting systems are not frequently changed. Nevertheless, management accountants believe that it is not particularly difficult to provide management with *ad hoc* information (**8B**). From our face-to-face interviews with managers and accountants, it became clear to us that a major exception consisted of the set of Irish or UK subsidiaries of North American parent companies. In those cases, management accounting systems were generally structured in accordance with centralised reporting procedures dictated by the parent companies, and lacked the flexibility to provide *ad hoc* management reports.

The case of Company E highlights the crucial importance of flexibility in accounting systems:

Company E: The relatively high standing of management accountants in this organisation derives from their ability to apply business acumen to financial numbers. Specifically, management accountants add value to this organisation principally by providing *ad hoc* decision-support systems in response to senior management's requests for assistance in analysing once-off problems. Managers' information needs in this organi-

Table 7: Management Accountants' Perceptions of the Importance of Management Accounting Information

(A) 'Management accounting information is the most important type of information for senior managers' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	2.6
Standard deviation:	1.0
(B) 'Management accounting information provides management with the information on the critical activities within the organisation' (Likert scale: 1 = `strongly agree'; 5 = `strongly disagree'):	
Mean:	2.0
Standard deviation:	0.9

Table 8: Flexibility and Change in Accounting Systems

(A) 'Most management accounting information presented to senior managers is in standard report formats' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	2.2
Standard deviation:	1.0
(B) 'Much of the information and analysis that senior managers need is not available through existing accounting systems' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	3.1
Standard deviation:	1.2

sation change very quickly, so each *ad hoc* system is normally used only once.

Management has laid down a clear rule that the decision-support models must be easy to use, clearly understandable, and capable of being used by more than one person. This helps to:

- Reduce the organisation's dependency on individual members of the management team
- Foster a 'team' approach to decision-making, which is a central element of this organisation's culture

- Avoid the high costs of preparing and using detailed systems documentation.

Of course, because of the fact that the DSS in this company are specifically designed to be very easy for managers to understand and apply, senior management do not need to involve management accountants in the decision-making process once a DSS is in place. One senior manager stated: 'at the end of the day, the [management accountant] function is not the decision-maker'.

SENIOR MANAGERS' INTERVIEWS

Current use of accounting information by senior managers
Interestingly, accountants seem to *under-rate* the importance to management of management accounting information. **Table 9** shows that senior managers regard management accounting as highly important to their decision-making (**9A**), and tend to regard it as the most important source of information (**9B**). Managers seem to hold these views rather more strongly than do accountants (compare **Table 9** with **Table 7**). Senior managers generally believe that management accounting information helps them significantly to do their jobs better (**9C**).

However, it would be wrong to suggest that senior managers perceive that existing management accounting systems provide them with all of the decision-support which they need. For example, we have identified strategic management as one area which the management accounting profession should increasingly seek to support in order to maintain and enhance the profession's importance and status in organisations (Murphy et al., forthcoming). **Table 10** indicates that senior managers are *not* universally agreed that management accounting provides them with information about all of the critical success factors for the organisation (**10A**). The fact that management accounting information is strongly regarded as being of a primarily internal character is inconsistent with a strong 'strategic thrust' in management accounting: a strategic thrust requires accounting systems to provide and analyse external information (**10B**). However, management accounting information is fairly widely used to consider new ways of measuring degrees of achievement of critical success factors (**10C**).

What managers want from their management accountants
In identifying the characteristics of management accountants who are successful in a decision-support role, several important considerations

Table 9: Senior Managers' Perceptions of the Importance of Management Accounting Information

(A) Perceived importance of management accounting information in senior level decision-making (Likert scale: 1 = 'very important'; 5 = 'not important'):	
Mean:	1.7
Standard deviation:	0.7
(B) Perceived importance of management accounting information *vis-a-vis* other information sources: (Likert scale: 1 = 'much more relevant'; 5 = 'much less relevant'):	
Mean:	2.5
Standard deviation:	0.7
(C) 'In addressing major problems, management accounting information significantly helps management to perform its job better' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	1.8
Standard deviation:	0.7

emerge. In almost all cases, senior managers are looking for DSS personnel who can provide value added analysis and interpretation. Specifically, senior managers in the 25 companies where interviews were conducted, cited the following as the characteristics of their management accountants which they value most highly:

- Business understanding (13 managers)
- Communications ability (7)
- Interpersonal skills (7)
- Analytical skills (7)
- Computer skills (7)
- Ability to challenge prevailing norms (4)
- Ability to identify and source information (4)
- Proactivity (3).

An interesting example is the case of Company F:

Company F: Managers in this divisionalised company were very enthusiastic about their management accountants' contribution to decision-making and control. In particular, management accountants had *reduced* the level of detail in divisional performance measurement reports, without reducing the number of key performance measures. The net result was that senior management of the overall company more fully

Table 10: Accounting Information and Strategic Management

(A) 'The Management Accounting Function provides management with information *re* all critical success factors of the organisation' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	2.6
Standard deviation:	1.0
(B) 'Most management accounting information which senior management receive relates to activities within the organisation' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	1.9
Standard deviation:	0.9
(C) 'The management accounting information which I receive leads us to consider alternative ways of measuring performance *re* our critical success factors' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):	
Mean:	2.4
Standard deviation:	0.8

understood the performance of each division. This enhanced the quality of resource allocation decisions. Managers' time horizons in decision-making were lengthened. The net result was substantial improvements in the corporate planning and control process.

It is not surprising that the management accountants in these companies stated that they had experienced 'exponential growth' in requests for *ad hoc* decision-support from management. The management accounting group's own innovations consisted primarily of experimentation with new subunit performance measures, which were often introduced on a trial basis. The more sophisticated measures are ultimately not successful because management cannot understand them and therefore do not trust them.

Senior managers' views on analysis and presentation of accounting information

From our face-to-face interviews, it became clear that managers expect their accountants to take care of facilitating the production of the infor-

mation; that is, the 'technical' issues of choosing hardware and software were not ones in which management were willing to become involved. However, **Table 11** indicates that senior managers perceive that management accountants use a significant degree of computer-based modelling in preparing and analysing information (**11A**), and that managers believe that *more* such analysis should be performed (**11B**). However, on the general question as to whether management accounting information needs to be analysed to a greater degree before being presented to management, opinion was roughly equally divided (**11C**). Part of the philosophy of decision-support systems is that managers should have the facility to easily carry out their own forms of data analysis as they see fit in particular circumstances, so it is not surprising that some managers do *not* want the accountants to perform the analysis for them. Our interview evidence indicates that, in some companies, managers were highly dissatisfied with the *form of presentation*. In particular, some managers expressed a preference for graphical presentations but said that it was difficult to convince their accountants to supply anything other than tabular hard-copy output. This was not universal: across the entire sample of companies, managerial opinion was equally divided as to whether or not standards of presentation needed to be improved (**11D**).

From our interviews with management accountants, it is apparent that some favour the provision of reports to management in hard copy (paper) format rather than in online mode. A number of managers complained of the high volume of printed reports that they were expected to read. However, there is evidence of a change of practice in this regard. For example, in one firm, the accounting staff encourage the use of an online summary report, in which managers can (if they wish) request more online detail of particular items in the report. This is very consistent with the philosophy of Executive Information Systems, and encourages managers to be their own information gate-keepers to some degree. In this context, the Director of Production in one firm stated that the accounting function was becoming increasingly data-oriented rather than information-oriented, and in general he favoured this trend. His decision-support system enabled him to analyse the data in whichever way he found most suitable.

Ad hoc managerial reports

Table 12 reports on managers' perceptions as to the ability of their accounting systems to meet their *ad hoc* reporting needs. They are broadly in agreement with their management accountants that it is not particularly difficult to obtain *ad hoc* reports (**12A**) from the accounting system, and there is certainly no *general* belief that management account-

Table 11: Managers' Attitudes to Analysis and Presentation of Management Accounting Information

(A) 'The Management Accounting Function in this organisation uses computer-based models extensively in preparing and analysing information for senior management' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):

Mean:	2.1
Standard deviation:	1.0

(B) 'The Management Accounting Function in this organisation should make *more* use of computer-based models extensively in preparing and analysing information for senior management' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):

Mean:	2.0
Standard deviation:	0.9

(C) 'The management accounting information which I receive should be analysed more before I receive it' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):

Mean:	2.8
Standard deviation:	1.1

(D) 'The management accounting information which I receive should be significantly better presented' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):

Mean:	3.0
Standard deviation:	1.0

ing information is in too standard formats (**12B**). As mentioned above, a significant exception is the group of North American subsidiaries in Ireland and the UK, whose accounting systems are primarily consolidation-driven. Our interviews with managers of these subsidiaries revealed a high level of frustration at being unable to obtain non-standard reports.

CONCLUSIONS

Most of our findings are supportive of the hypothesis that management

Table 12: Managers' Views on *ad hoc* Reporting

(A) 'It is difficult to get *ad hoc* management accounting information' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):

Mean:	3.4
Standard deviation:	1.1

(B) 'Too much of the management accounting information which senior managers receive is in standard formats' (Likert scale: 1 = 'strongly agree'; 5 = 'strongly disagree'):

Mean:	3.2
Standard deviation:	1.0

accountants do provide meaningful decision-support to senior managers. Management accountants are generally aware of a need to provide more than purely structured modelling and reporting, given the significant complexity of senior-level decision-making in organisations.

One senior manager who was interviewed for this study said that he regarded technical accounting skills as a 'commodity' which could be fairly readily bought and sold. In his view, the truly valuable management accountant is one who has a proper understanding of managerial decision-making in the organisation, and who has the flexibility and business knowledge needed in order to support this decision-making. This view seems to be typical of senior managers in general, as the results in **Table 13** indicate. More than three-quarters of all senior managers regard either 'analytical capability' or 'ability to help improve decision-making' as the most important contribution of a management accountant.

In a minority of the 25 companies where we conducted interviews, senior management did not view their management accountants as effective providers of decision-support. This was because the management accountants were perceived as lacking a strong business orientation. Some accountants were regarded as excessively numbers oriented and as not focusing on the key business issues. One manager said of his management accountants:

> They are more interested in control than in growth or business analysis. They are comfortable with numbers but uncomfortable with business issues that call for an alternative way of looking at the numbers.

Table 13: The Contribution of Management Accountants to Organisations

In senior managers' opinions, the single most important contribution of management accountants to their organisations comes from:

• Ability to analyse and interpret information	36.2%
• Management skills	3.4%
• Ability to help senior management to improve decision-making	40.9%
• Financial expertise	11.4%
• Performance measurement expertise	8.1%
	100 %

Another exasperated senior manager stated:

> Management accountants are in a good position to drive change but they are temperamentally not suited to do so.

In most organisations, management accounting personnel carry out a range of activities which are more in the nature of 'providing decision-support' rather than applying traditional techniques or generating routine periodic reports. Management accountants add value to their organisations by developing DSS for use by functional and strategic managers. In particular, senior managers particularly value accountants' ability to carry out *ad hoc* analysis and to facilitate the analysis of a wide range of scenarios. The management accountants who are *most* highly valued are those who adopt a 'business perspective' and who are proactive. By contrast, the management accountants who are *least* highly valued by their managers are those whose activities are limited to implementing traditional periodic reporting systems. A more detailed explanation and discussion of the implications of these issues will be contained in the forthcoming CIMA research report on this project.

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