

Accountants Contribute To Business Success By Involvement in EIS

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Abstract

This paper investigates the extent to which management accountants have participated in the selection and use of executive information systems (EIS's) in business. A survey was conducted on the role played by management accountants in organisations with EIS's either in use or in development. The results of the survey are presented and discussed with possible explanations for differences between expectations and actual behaviour of management accountants. The results also support the premise that management accountants need to be well informed about senior management's EIS needs and properly trained in systems design and analysis.

1. Introduction

Contemporary organisations are adopting varied practices, such as Total Quality Management (TQM) and Business Process Engineering (BPR), in an endeavour to survive and prosper in the current difficult economic climate. There is general agreement that the alignment of Information Technology (IT) with business strategy is crucial to the successful implementation of these organisational practices. Information is regarded as a critical business resource and senior managers are demanding efficient and effective systems to provide them with appropriate information.

Executives have always made use of information, both internal and external, as a means for making informed strategic decisions. The use of computer technology to support executive decision making has led to the concept of Executive Information Systems (EIS) as a means of coordinating the delivery, presentation and analysis of information for executives. An EIS development should be a team effort with representatives from senior management, IT and other staff of

the organisation (Hasan & Gould 1996). However rarely are accountants mentioned as participants in EIS projects.

This paper addresses the extent to which management accountants have responded to the changes in the management environment, and the availability of sophisticated EIS. A survey was conducted on the role played by management accountants in organisations with EIS either in use or development. The results of the survey will be presented and discussed with possible explanations for the differences between the normative prescriptions and actual behaviour of management accounts in this area.

2. Background

2.1 The Record of Accountants and Strategic IT

Accountants have long been advised by their professional bodies and by the management

and accounting literature to bring accounting information into line with the business decision making processes. In 1966, the American Accounting Association's Statement of Basic Accounting Theory (ASOBAT) stated that the accounting systems of the future should integrate "as far as possible the wide variety of data sources and data uses in order to deal with the multiple characteristics and ramifications of every activity" (Kandelin and Lin, 1992, p 47). Mintzberg (1975), in a special study commissioned by the National Association of Accountants (US) and the Society of Industrial Accountants of Canada entitled "Impediments to the Use of Management Information", notes the limitations of formal information systems and states that the manager is "forced to collect much of his information in ad hoc, informal systems he designs for himself", (Mintzberg, 1975 p. 19). More recently, Coopers & Lybrand concluded that accountants need to be "better informed" about information technology and the changes in the business world (Coopers & Lybrand 1985).

If accountants have been repeatedly advised to change their perspective on the needs of management so that effective information systems will assist managers in their decision making processes, why is it that the literature suggests that this does not seem to happen? According to Cunnington (1983) this comes from the old idea, stemming from manual accounting systems, that managers must be given pre-digested information. He goes on to say that this premise will only be valid where managers do not have the skill to interpret detailed information, or where there is a time benefit of doing it for them. It might have been appropriate in an era where management were operating with what Cunnington (1983, p 184) calls "...a seat of the pants, gut feeling kind of management style". However these conditions are less applicable today. Of the 31,000 executives employed in Australian businesses with more than 50 employees, "...39% have first degrees, 9% have MBA's and a further 10% have other postgraduate degrees" (Research Report, 1995, Volume 1, p. 31).

Kaplan (1993) and Stambough (1992),

both hold the view that the management accounting has not kept up with the changes in the managers' decision making processes due to the fact that management accounting finds its origin in mass-production processes with a high labour content, and from its focus on external reporting using financial indicators. A similar view was given by professor Bill Birkett, Director of the Australian Centre for Management Accounting Development, in that management accountants fulfilled support services that basically related to production processes, cost accounting and budgetary control, (Birkett, 1994). The control role of accounting data and the focus on financial accounting information is also considered to be the major factor of overlooking the need for interfacing with other systems (Lin and Harper, 1987). One of the main reasons for the slow development of systems that will support the need for integrated information, is the lack of an organisational unit specialising in the development of these systems (Neumann 1987).

2.2 What about Strategic Management Accounting?

The obvious candidate for involvement in EIS is the strategic management accountant. Strategic management accounting provides information to management that is related to the performance measurement of the economic actions by management to achieve the goals of the organisation (Smith 1995). The benefit of a strategic management accounting system is that the system focuses on the strategic objectives of the organisation and the systems components are constantly evaluated to maintain this focus (Samson et al, 1991). Such systems are able to serve organisations in a changing environment, by providing an early alert about changes and maintain dialogue amongst the participants in the organisation (Hedberg, et al, 1992).

Strategic accounting finds its foundation in Strategic Resource Management (SRM). SRM is concerned with the relationship between the direction of the organisation and the need to (re)define the processes aimed at continuous improvement to achieve the needed outcomes. The

achievements may not be stated solely in monetary representations but also in terms of values assigned by the customers in relation to their level of satisfaction with products and services, and by shareholders and owners in terms of the value of those perceptions. The focus should include concentration on the use of resources, development of performance indicators, and resource related direction setting, as well as being an active participant in the organisational change and design process (Birkett, 1994).

The truth is, that the management accountant needs to take on the strategic view and become involved in processes and technology that will add value to management processes. In other words, accountants need to have a broad knowledge of their organisation's *Mission* so that they may restructure their systems by developing techniques, performance measures and reporting systems to support their organisation's strategy. This view is also held by Samson (et al, 1991), and Abernathy (et al, 1994).

2.3 Management Accounting Practice

In reports of management accounting practice there is little on the role in the provision of information for strategic decision making. Kaplan(1993) reported that in Europe, the management accounting function is provided by its own department separate from strategic and external reporting. Japanese managers believe that management accounting has a subservient role to corporate strategy and that they concentrate on cost factors rather than focusing on the whole range of strategic factors (Morgan et al, 1993). Samson (1991), reports that, in an organisation in the United States, slow changes to the management accounting system led to the development of 'informal' information systems as managers had no faith in the information provided by the existing system.

There are indications that strategic information systems are in demand by management and that these may evolve from "unofficial" sources. Preston (1986) describes a study which found that managers employ different ways to in-

form themselves, one of those is through an "informal" type of information system. The informal network came about through personal interaction between managers, and were thus socially constructed. Managers were also found to be keeping records that the managers had designed themselves (Preston, 1986). Samson, et al (1991) report of an organisation in which a cooperative project between production management and accountants resulted in a new organisational information system. This new system did not only provide information that was useful to the users, but also improved communication between the parties.

2.4 EIS and DSS

The need of management to have information, from all the different systems in existence within an organisation, has led to the development of what is known as an Executive Information Systems (EIS). The idea of EIS was first proposed by Rockart & Treacy (1982) who saw the typical EIS as having a central purpose, a common core of data, two principal methods of use (access and analysis) and a support organisation. They followed the growth of Decision Support Systems (DSS) which combined Management Information Systems (MIS) within the data base management system with a model based management system. The concept has been developed over the last decade with recent research (Watson et al, 1993) suggesting that, as well as the above, an EIS should be data retrieval oriented, provide on-line access, extract, filter and compress critical data both internal and external, be user friendly and present results in graphical, tabular or textual format. In the 1990s the major role of the EIS is said to be improved communication amongst the executives as it presents information from inside and outside the organisation (Turban, 1993). The access of EIS to Electronic Networks can also support the interaction of executives (Wheeler, 1994).

The increasing popularity and application of EIS/DSS systems resulted in a study by The Australian Commonwealth Department of Finance Consultancy Services Unit (CSU) of

DSS/EIS software available on the market. The reason for the study was to provide agencies interested in the purchase of such systems with a detailed evaluation of the capabilities of the software available, and to prevent repetitive analysis expense. The result of the study was published in 1993 under the title "Accessing Better Business Information". The differences noted in the report between DSS and EIS is that the DSS is considered to be a tool for analysis available to middle management whilst the EIS focuses primarily on the strategic issues of an organisation and is designed for the executive user. The report noted that in recent years the two systems have found a much wider use in organisations by combining the two systems, and providing access to a wider range of users. The advantages assigned to the DSS and EIS in the report cover a wide area of managerial objectives such as the "...promotion of business understanding and thinking among all levels of management" and "...to provide the ability to make high value decisions in short time frames" (CSU, 1993, p 19). The importance of "soft data" in decision making is also acknowledged.

3 The Survey

Arising out of the issues raised above, a survey was conducted to establish the involvement of management accountants in the use of EIS. Organisations were chosen from those who had previously replied to a survey of IT managers that they had or were developing an EIS. The questionnaires were designed to complement the IT questionnaires but were sent specifically to the Chief Management Accountant.

Specific questions relating to the involvement of the accountant before and after the installation of the EIS were asked. The profile of the organisation with respect to the affirmation of the organisation's mission was also considered an important factor. It is argued that if an organisation publicly declares its mission, it is reasonable to assume that the management accountant is aware of this, and is thus able to assist management in the setting of Key Performance Indicators (KPIs). A question relating to the existence

of variance reporting was asked so as to complete the organisation's profile, as it would be possible for organisations not to have a mission statement but still have an EIS.

The participants were given the following definition of EIS:

"EIS: This survey is concerned with any computerised system that exists in your organisation to serve the information needs of Senior Management. The term EIS (Executive Information Systems) will be used in this context."

All organisations were known to have such a system but some were not actually referred to as an EIS.

4 Survey Results

| | |
|--|--------|
| Total number of organisations surveyed | 48 |
| Total number of responses received | 22 |
| Response rate | 45.83% |

One questionnaire was only partially completed and hence that response was not used in the analysis

| | Usable Responses |
|------------------------|------------------|
| Organisations Surveyed | |
| Public Companies | 8 |
| Banking Institutions | 3 |
| Public Utilities | 3 |
| Local Government | 3 |
| State Government | 1 |
| Federal Government | 3 |
| Total | 21 |

4.1 Profile of the Respondents

Although questionnaire was addressed to the Management Accountant in each of the organisations surveyed it was interesting to find out, through telephone contact by the respondents to the researcher, that some of the questionnaires ended up on the systems administrator's desk. The questionnaires were clearly marked for the attention of the management accountant, but it was assumed by the accountants that did receive it, that since the topic was ad-

addressing the use of the Executive Information System (EIS), it must be the systems administrator who should provide the details. The telephone contact resulted in the return of the survey to the management accountant.

The tertiary qualifications of the respondents is listed in Table 1 and the corresponding positions held by the respondents are listed in Table 2.

It should be noted in Table 1 that some of the respondents hold more than one qualification, one respondent holds a formal accounting qualification as well as a Graduate Diploma in Computing. One other respondents holds a Bachelor of Business Degree with a major in computing. In such a degree it is normal to study formal accounting subjects.

Six of the positions held by the respondents are indicative of systems involvement (see Table 2), ranging from manager reporting and

analysis, manager EIS support, to Principal adviser Executive Support System. These respondents are thus accountants that have become involved in systems. Fifteen of the other respondents' positions are in accounting or in finance.

4.2 Profile of the Organisations

The following is a summary of the responses to specific questions on the strategic management processes in the organisations.

4.2.1 Mission Statement

A total of twenty of the organisations surveyed had a Mission Statement which were translated into goals, whilst seventeen of those organisations quantified the goals into Performance Measures. One organisation did not have a Mission Statement.

The goal setting process in the organisations surveyed had taken place predominantly in

Table 1
Tertiary qualifications of the respondents

| | Qualifications held | Public Companies | Banking Institutions | Public Utilities | Local Gov't | State Gov't Depts | Federal Gov't Depts |
|------|---|------------------|----------------------|------------------|-------------|-------------------|---------------------|
| (a) | Bachelor degree with a major in Accounting | 3 | 3 | 2 | 2 | 2 | 2 |
| (b) | Associate Society of Certified Practising Accountants (ASCPA) | 1 | 2 | | 1 | | |
| (c) | Certified Practising Accountants (CPA) | 3 | 1 | 3 | 2 | 1 | |
| | Associate Chartered Accountant (ACA) | 1 | | | | | 2 |
| (e) | Member National Institute Accountants (MNIA) | 1 | | | | | |
| (f) | Any other Accounting Qualification not listed above: | 1 | | | | | |
| (i) | Graduate Diploma Accounting & ACMA London | 1 | | | | | |
| (ii) | Graduate Diploma Computing | | | 1 | | | |
| | Bachelor Business Degree (Major in Computing) | | | | | | 1 |

Table 2
Positions held by the respondents

| Position held in your organisation | Public Companies | Banking Institutions | Public Utilities | Local Gov't | State Gov't Depts | Federal Gov't Depts |
|--|------------------|----------------------|------------------|-------------|-------------------|---------------------|
| Principal adviser (Executive Support System) | | | | | 1 | |
| Chief Accountant | 1 | | | | | 2 |
| Director-Information Resource Management | | | | | | 1 |
| Finance Manager/Director | 1 | | 2 | 1 | | |
| Group Accountant /Chief Accountant | 1 | | 1 | | | |
| Budget Coordinator | | | | 1 | | |
| Expenditure Accountant | | | | 1 | | |
| Controller Financial Development | | 1 | | | | |
| Manager Management Accounting | | 1 | | | | |
| Manager EIS Support | | 1 | | | | |
| Manager, Financial Analysis | 1 | | | | | |
| Corporate Reporting Manager | 1 | | | | | |
| National Business Systems Accountant | 1 | | | | | |
| Manager Reporting & Analysis | 1 | | | | | |
| System Project Manager | 1 | | | | | |

consultation with other executives, and in nine organisations middle and lower management were also involved. Eight of all the organisations surveyed developed goals at the top and then passed them down the hierarchy. Fourteen organisations developed their goals in consultation with other executives, and nine organisations used executives as well as middle and lower management for goal development. Some organisations also had more than one of the methods specified, depending on the types of goals and at what level of management the goals are set. One of the Federal Government Departments developed goals through a team of people from all levels of the department. These goals were then circulated to all staff for comment and endorsement by the department's management.

4.2.2 Exception Reporting

From the total of twenty-one organisa-

tions surveyed, thirteen had a standard for exception reporting, eight organisations that did not have a standard, five did not use exception reporting at all while the other three use exception reporting but had no organisation wide standard. A question relating to the level of management at which the standards were determined showed that management at supervisory level were not much involved, and as expected, the higher levels of management were involved in the standard setting process (see Table 3).

Some of the organisations specifies more than one level of management being responsible for the setting of the standard. Of the sixteen organisations that used exception reporting, seven organisations highlighted deviations at all levels and nine highlighted deviations at a specific level. The range of variations where highlighting started was from 5% to 10% or as per specification by the level of management responsible.

In one of the public companies, variations were usually highlighted at 10 % level, but the EIS user had the option to vary this at will. This is in contrast to some of the more traditional reporting systems where the variation level needs to be specified before the reports are run.

annually 4, annually 9, seasonally 0, and as required 2.

Some organisations had different time frames for the various indicators and also had more than one indicator.

Table 3
Management levels at which standards are set

| | Supervisory | Middle | Executive | Director |
|----------------------|-------------|--------|-----------|----------|
| Public Companies | 3 | 6 | 6 | 3 |
| Banking Institutions | 2 | 3 | 3 | 2 |
| Public Utilities | | 2 | 1 | |
| Local Government | | 2 | 1 | 2 |
| State Government | | | 1 | 1 |
| Federal Government | 1 | 1 | 2 | 2 |

Five organisations reported an increase in information being collected and distributed due to exception reporting. One public Company reported a 20% increase whilst another Company reports a 50% increase, and yet another reports a "noticeable" increase. Four other organisations reported no increase at all, while another found that this is unknown, and two others found it difficult to measure. A total of nine respondents did not answer the question. These were mainly from the commercial sector. This may be due to the fact that in this sector exception reporting has been used for a long time.

4.2.3 Performance Indicators

Performance indicators to monitor the goals of the organisation may be set at a variety of levels. The most common level of management to set the performance indicators is senior management. The next most common method used is where the department involved is consulted. None of the organisations surveyed used one specific method, most used a combination of methods.

Twenty of the organisations surveyed reviewed the performance indicators regularly. The time frame for review was as follows: daily 1, weekly 4, monthly 10, quarterly 5, semi-

4.3 Meaningful information

This question asked the respondent's personal opinion as to what is considered to be meaningful information. A total of 32 different answers were received, these are summarised in Table 5.

Some of the respondents added comments here relating to the ability of the EIS to download information to spreadsheets and DSS to perform "what if" analysis and other simulations or modeling, and to the ability of the system to communicate the outcomes to other executives in the organisations via e-mail.

4.4 Accounting Department Involvement in EIS.

The following is a summary of the responses to specific questions on the involvement of Accounting Department in the organisation's EIS.

4.4.1 The input of the Accounting Department as to the choice of the EIS

It can be seen from Table 6 that there is little involvement from the Accounting Departments with respect to the choice of the EIS, despite the fact that information produced by the EIS is largely concerned with information originating in the accounting departments. Only two of the respondents were totally involved with respect to the choice of the EIS. Seven respondents had some involvement, whilst the other

Table 4

| | Performance Indicators | Public Companies | Banking Institutions | Public Utilities | Local Gov't | State Gov't Depts | Federal Gov't Depts |
|-----|--|------------------|----------------------|------------------|-------------|-------------------|---------------------|
| (a) | Some performance indicators by senior management | 6 | 2 | 3 | 3 | 1 | 2 |
| (b) | Locally determined, divisional ROI | 4 | 2 | 2 | 1 | | |
| (c) | Industry specific standards adopted by the organisation | 3 | | 2 | 2 | | |
| (d) | Within department itself | 4 | | 3 | 1 | 1 | |
| (e) | By the immediate controlling executive | 4 | 2 | 2 | 2 | | |
| (f) | At a level higher than the immediate controlling executive | 3 | 2 | 2 | 2 | | |
| (g) | In consultation with the department involved | 4 | 1 | 2 | 2 | 1 | 1 |
| (h) | None of the above. Please explain | | (i) (ii) | | | | |

- (i) A special Business Planning Unit was formed to look at the performance and measurement function. Techniques under review are the Kaplan/Norton Balanced Score Card approach and ABC.
- (ii) One bank noted that the exception reporting with the pre-set percentage and dollar amount is "The Golden Rule". As this organisation also reported on Key Performance Indicators, it was implied that there is more emphasis on variances

eleven had little or no involvement at all with the choice of the EIS.

The involvement of the Management Accountant in the current EIS' systems design, operation, review, and use, showed a different picture (see Table 7) It can be seen that there was a large increase in the involvement by the Management Accountant after the installation of the EIS.

4.4.2 The first information to be displayed on the EIS

Thirteen of the organisations had financial information displayed first, two other started with all the management information systems and

for one of these organisations the financial information is now the dominant type. Five other organisations had specific strategically important information displayed first, and one organisation started with the scanned in picture of the CEO.

4.5 Internal Auditor's involvement

The internal auditors involvement at the Planning/Design stage, Data Integrity testing and Internal Control was very low. Ten of the organisations had no internal auditor's involvement at all in the above mentioned stages, and two participants did not answer this question. One organisation qualified the non involvement by remarking that there was no internal audit function.

Table 5

| Type of meaningful information | Totals |
|---|--------|
| Performance analysis- KPI/corporate goals/Exception reports | 10 |
| Trading/Production/Financial/Cash flows | 7 |
| Ratios/Margins/Market share | 6 |
| Forecasting/Trends | 6 |
| External | 1 |
| Economy | 1 |
| Compliance | 1 |

Table 6

| Involvement from the Accounting Department as to the choice of the EIS | Not at all | Little | Some | Totally | Don't Know |
|--|------------|--------|------|---------|------------|
| Public Companies | 2 | 3 | 1 | 2 | |
| Banking Institutions | | 1 | 1 | | 1 |
| Public Utilities | 1 | 1 | 1 | | |
| Local Government | | | 3 | | |
| State Government Department | | 1* | | | |
| Federal Government Department | 2 | | 1 | | |
| Total | 5 | 6 | 7 | 2 | 1 |

* Choice was made by executives following a demonstration

Table 7

| Current Involvement by the Management Accountant | Systems Design | Systems Operation | Systems review | Systems Use |
|--|----------------|-------------------|----------------|-------------|
| Not | 4 | 11 | 4 | 4 |
| Moderately | 8 | 6 | 10 | 7 |
| Intensely | 9 | 4 | 7 | 9 |

The organisations that did have involvement by the internal auditors, did so in more than one of the stages. Five involvements were in the Planning and Design, three in Data Integrity Testing, and five in Internal Control. Ongoing involvement by the internal auditors was also very low. Fifteen organisations had no ongoing involvement by the internal auditors and five had ongoing involvement. In one organisation the internal audit "conducts its normal periodic detailed review of the EIS in the same way as for all the company's systems, and is consulted on all matters where it is believed that their input might increase the system's quality".

Some of the organisations that said that there was no ongoing involvement by the auditors qualified their answers. One organisation noted that the EIS was on the auditors program but with very low priority. A government organisation "presumed since it was a government delivered package that audit of integrity was done before selection of the system".

5 Discussion

Before the days of computerised EIS, management accountants were the custodians of the simple manual "executive information sys-

tems" in most organisations. However with the professionalisation of the "computer scientist" and the increasing sophistication of other members of the management team, the right of the management accountants to control the flow of information to executives has become uncertain. The results of our survey suggest that many management accountants feel that this is not their concern even when the organisations is actively developing an EIS. They have either lost interests in maintaining their pre-eminence in the design and development of EIS, or alternatively, have not been able to maintain the authority in the face of counter claims by other professionals. This was illustrated in our research by the number of phone calls from respondents suggesting that perhaps the systems personnel would be more qualified to respond to the questionnaire.

The relationship between EIS and accountants, in particular management accountants, must now be examined. Changing organisational structures with a flatter middle management, together with developments in information technologies with respect to faster data collection and manipulation have been some of the aspects that have led to increased demand for information by executives. Stambough and Floyd (1992) observe that the management accountant is in a position to become a knowledgeable ally to management, by being a champion or sponsor of an EIS. The management accountant has a good knowledge of the transaction processes and the sources of information that should be provided to executives. Cunnington (1983) contends that the management accountant should be prepared to become an information broker with a wide knowledge of computer technology and be able to ensure that data integrity is maintained, as well as assist users in the development of their information for decision making.

The management accountant must recognise that the needs of organisation are changing, and these changes require a management accounting system that will rapidly evolve or be flexible enough to adapt to the rapidly changing needs of management. In this type of system the control function is passed to management and the man-

agement accountant will take on the role of facilitator, a role which is important to the realisation of strategic plans. To enable this to occur, continuous communication between management and the management accountant is necessary (Samson, et al, 1991).

The information produced by such systems may come from a wide variety of sources some of which may not be accounting information. The different types of information needed by managers to make decisions may come from accounting, financial and non-financial, internal qualitative as well as quantitative and from external systems. Non-accounting information is becoming increasingly important, although control information such as that from budgeting, variance analysis, capital management and other internal control information such as that from inventory control systems still takes an important place in the decision process (Samson, et al, 1991). For a detailed discussion on non-accounting indicators see Kaplan (1993), and Smith (1995). Whatever the systems that are used to inform management, they need to be relevant to be effective. They need to be based on the different processes of the organisation and provide information appropriate for support and reporting (Smith, 1995).

It must constantly be noted that organisational information systems be developed in support of business goals. Lin and Harper (1987) propose that an effective management accounting system in addition to providing continuous data gathering and processing, must be integrated with organisational planning and control. It is important that this be done at the highest strategic level where EIS are most effective.

The increasing rate of change in the environment created by global competition, rapidly changing technology, and increased availability of information in society, creates a turbulent environment. EIS must recognise that and be both flexible and adaptable. In such an environment even traditional detailed planning may become problematic. In many organisations directional planning is more appropriate and management

accountants are yet to come to grips with the implications for information system design (McCCasey, 1974). Creative solutions are required in a response to a more complex and competitive environment and EIS should encompass innovation and creativity in addition to the traditional control processes (Borthick et al, 1990). Finally, Lawrence (1995), provides a view of the management accountant of the near future as a facilitator of learning and of change processes where interpersonal skills will be as important as technical skills.

6. Conclusion

The above discussion of management accounting practice and the changing needs of management supports the premise that management accountants need to better informed about senior management's needs and actively participate in executive information system's design processes. This is not just another isolated computer system but one that may be crucial to the success of the business. Management accountants must understand that information is regarded as a critical business resource and are eminently suited to the task of facilitating efficient and effective systems to provide executive decision makers with appropriate information.

7. Implications For Future Research

It is recommended that further research be undertaken into the future role of management accountants, auditors and other accountants in the design and implementation of EIS. At the same time we should investigate how adequate accounting education is in relation to systems design and analysis in preparing accountants for their participation in these roles. □

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