The role of accounting in managerial work

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ABSTRACT

Despite calls to link management accounting more closely to management (Jonsson, 1998), little advancement in our understanding of the role of accounting in managerial work has been made. This stems partly from a failure to incorporate in research efforts the findings regarding the nature of managerial work that emerged from studies of managerial behaviour, leading much research to assume, rather than question and investigate, the many potential roles for accounting in managerial work. This paper considers how an appreciation of the complexities of the real worlds that managers actually inhabit is a potentially rewarding approach to increasing our understanding of the functioning of accounting in managerial work. The use of vast and varied amounts of information, the non-decisional character of many tasks, and the dominance of verbal communications, are all aspects of managerial work that have important implications for the ways in which accounting information is used by managers as they go about their work activities. It is argued that only through closer integration with the ways that managers actually work can a stronger and more subtle understanding of the roles of accounting in managerial work be developed.

Critiques of management accounting often lament its failure to provide managers with information that is relevant and useful (Johnson and Kaplan, 1987; Fisher, 1995). From this perspective, improvements to management accounting information revolve around making it more relevant and more useful for "managers". However, what seems to be neglected in these discussions is that the problem may stem not from our view of accounting, but rather from our view of management. Despite calls to link management accounting more closely to management (Jonsson, 1998), there is little critical discussion in the management accounting literature of what it is to manage, to be a manager, or of management itself, despite our subject being "management" accounting. Even where management accounting has remained linked to management, it has been more at the level of accounting techniques, rather than at the way managers actually use management accounting information (Otley, 2001).

Management accounting textbooks provide a remarkably consistent view as to the nature of managerial work. For example, managerial work consists of "decision making, directing operational activities, planning and controlling" (Hilton, 2002, p.5), "formulating business strategy, planning and controlling activities, decision making, efficient resource usage" (Horngren, Bhimani, Datar and Foster, 2005, p.5), "planning, directing and controlling" (Weygandt, Kieso and Kimmel, 2005, p.4), "planning, executing, reviewing and reporting" (Needles and Crosson, 2005, p.6), and "decision making, improvement, and control" (Atkinson, Banker, Kaplan and Young, 2001, p.5). These descriptions of managerial work mirror the early conceptions of management provided by classical management theorists such as Gulick (1937), Fayol (1949) and Taylor (1967). For example, Gulick (1937) coined the acronym POSDCORB – planning, organising, staffing, directing, coordinating, reporting and budgeting – to describe managerial work. The image of the manager created in these conceptualisations is someone who plans, controls and makes decisions in a very ordered, rational and scientific manner. The manager has a nicely compartmentalised job, and is responsible for receiving instructions from superiors and passing them on to subordinates and ensuring activities are carried out as planned (Sayles, 1964; Reed, 1989). It seems that much management accounting research has followed these normative conceptions as to the nature of managerial work. The view of managerial work that emerged from studies of actual managerial behaviour is quite different however.

Seminal studies of managerial behaviour include Carlson (1951), Sayles (1964), Stewart (1988), Mintzberg (1973) and Kotter (1982). Rather than adopting a normative approach to prescribe what manages should do, these studies adopted a descriptive approach to find out what managers actually do. Through direct observation of managerial work, they sought to understand management as it is practiced, not as it is prescribed.[1] These studies show that managers do much more than plan, control and make decisions. Rather, managers are involved in a daunting array of activities: acting as figurehead or contact point, monitoring, filtering and disseminating information, developing a network of contacts within and outside the organisation, negotiating with subordinates, superiors, other managers and outsiders, planning and scheduling work, allocating resources, directing, controlling and monitoring the work of subordinates, recruitment, selection, training and appraisal of people, problem-solving and disturbance handling, innovating processes and products, and technical work relating to the managers' professional or functional specialism (Mintzberg, 1973; Kotter, 1982; Hales, 1986; Hales, 1999).[2] One is left breathless just reading this list of activities, let alone undertaking them. The way managers carry out these activities is also at odds with descriptions from management accounting texts. Rather than proceeding in an ordered, scientific manner, managerial activity is characterised by great variety, fragmentation, numerous

[1] For a description of the development of the managerial behaviour approach to studying managerial work, see Noordegraaf and Stewart (2000).

[2] Although these activities are descriptive of managerial work generally, the importance of particular activities to a specific managerial role is likely to vary according to hierarchical level, business function, organisation and environment (Stewart, 1988; Reed, 1989).

interruptions, and encounters with others involving short and disjointed conversations lasting a few minutes or even seconds (Mintzberg, 1973; Kotter, 1982; Hanaway, 1989; Hales, 1999). Managers react and respond to events, problems and requirements of others, as and when they arise, and deal with the exigent, the ad hoc and the unforeseen (Hales, 1999). By its very nature, managerial work is an automatic response to prevailing circumstances (Reed, 1989). Given this, much managerial action is concerned with day-to-day problems rather than long-term strategy formulation. This type of behaviour is not restricted to operations managers, even senior managers spend little time planning, but react to others and are subject to constant interruptions (Hales, 1999). Managers work this way because they need to deal with constant uncertainty. They adopt a reactive, informal and apparently piecemeal approach, not because they are irrational or dislike planning, but because in the context of their work such an approach is efficient and effective (Sayles, 1964; Mintzberg, 1973; Isenberg, 1984; Hales, 1986).

This change in view as to the nature of managerial work is perhaps best summarised in the following quote: "The view that managerial work involves planning, organizing, staffing, coordinating, controlling, and reporting has been replaced by a very different one. Those who have actually observed managers at work have reported consistently that the managers that they studied seem to be frenetically involved in a stream of apparently unrelated activities punctuated by frequent interruptions, often of the manager's own making. Most of the manager's time is spent with other people, and oral communication-either in person or by telephone-dominates all other kinds." (McKinnon and Bruns, 1992, p.105) Simple notions of planning, control and decision-making simply do not fit with observations of managerial work. Yet, the view of managerial work portrayed in contemporary management accounting texts reflects notions of managing that were developed in the early 20th century, pointing to a type of managing that does not really exist, but in a sense has been "made up" (Young, 2006). Whilst a simple view of managerial work is likely to make investigating the role of accounting more straightforward and less complicated, such an approach is unlikely to increase our understanding of the actual ways in which accounting is used by managers in the conduct of their many and varied work activities. As such, "rationalistic models of managerial work need to be rejected in favour of models that adequately reflect the complexities of the social and organisational worlds that real managers actually inhabit" (Reed, 1989). Under this view, rather than assuming that accounting is important and is used by managers in particular ways, investigating whether and how accounting is involved in managerial work is a potentially more fruitful approach. In particular, the complexities of actual managerial work profoundly affect the way that managers acquire and use information, and thus have important implications for understanding the roles of accounting in managerial work. Managers' need for vast amounts of information indicates that accounting is not the only information that managers use, but that it comes to play a role in managerial work along with many other sources of information that managers have at their disposal. Much managerial work concerns searching for and defining problems rather than solving them, suggesting a more prominent role for accounting in the scanning of managerial and organisational activities rather than as an input to help solve problems. And, as managers send and receive most information using verbal forms of communication, it is through talk rather than through written reports that accounting becomes implicated in managerial work. In the following sections this paper explores the implications for the role of accounting in managerial work that derive from an appreciation of the complexities of the real worlds that managers inhabit. It is argued that only through linking accounting to the way in which managers actually work that our understanding of the role of accounting in managerial work may be advanced.

Accounting and managers' information set

A key insight from studies of managerial behaviour is that managers use a lot of information. A considerable portion of their time is spent acquiring, processing and disseminating information (Mintzberg, 1973; McKinnon and Bruns, 1992; Hales, 1999). In particular, given the

uncertainties and pressures managers face, there is a constant need to rapidly accumulate and organise information (Hales, 1986). Events and activities of the manager need to be defined and interpreted and then redefined and reinterpreted (Hanaway, 1989). In fact, managers rarely have too much information, but try to use any information they can find. Accounting information from budgets, performance measurement systems and costing systems is likely to be a useful and perhaps complete source of information for those managers who only plan, control and make decisions. However, the majority of managers do not have the luxury of only participating in these activities. For those managers who are engaged in a variety of tasks in complex social and organisational contexts, information needs are likely to be much more diverse and encompass a much wider range of information than that provided by accounting systems.

Much accounting research assumes that accounting information is the most relevant or the only information that managers use (McKinnon and Bruns, 1992). However, the sheer variety of tasks that managers engage with, and the rapid, fragmentary and disjointed way in which they are conducted, necessitates the acquisition of an extensive amount of information from a wide variety of sources. McKinnon and Bruns (1992) found that managers use a vast array of information in performing their jobs, ranging from facts and forecasts to gossip, intuition and 'gut feel'. Although managers described accounting information as indispensable, it formed only one small part of the information they used. Other information besides accounting, particularly observation of physical flows and reports of events and activities from subordinates and peers, were available for managers to consider, evaluate and act often before they were observed by the accounting process. In particular, managers' value gossip and speculation about how other people are thinking and how they might act (Mintzberg, 1975b; Reed, 1989). Other studies provide similar conclusions. Sayles (1964) notes how managers obtained information from personal contacts and observations of work, in addition to review of numerical records. The seminal study of Simon, Kozmetsky, Guetzkow and Tyndall (1954) noted the existence of unofficial reports kept by operating executives, sometimes termed "black books". They were used constantly by operating managers and contained some accounting figures, but consisted mainly of numbers from production reports and other physical data, notes, memos and informal notations. Mintzberg (1973) also notes how managers rarely used formal information systems, such as accounting systems, to obtain information. Rather, managers have a strong preference for verbal communication, favouring contacts with people in meetings, informal discussions, and via the telephone (Kotter, 1982; Hales, 1986; Hanaway, 1989; McKinnon and Bruns, 1992). They develop vast networks of contacts, both within and outside the organisation, which includes subordinates, peers, outsiders, bosses' bosses, subordinates' subordinates, customers, bankers and the press (Kotter, 1982; Whiteley, 1985; Hanaway, 1989).[3] Managers use these verbal contacts to easily bypass formal organisation charts and seek information from those people who have it, rather than wait for information to arrive from formal channels (McKinnon and Bruns, 1992). These networks of contacts help managers to acquire and process information in an extremely efficient manner (Kotter, 1982; Hanaway, 1989). Thus, it appears that managers do not privilege accounting information above other types of information, they use whatever information is available that suits their needs.

Managers have a large information set because no one piece of information can provide managers with a complete picture of their problem or issue. But these information networks serve another purpose; to corroborate the information that managers' receive from formal sources. Accounting textbooks and authoritative pronouncements note that a key characteristic of accounting information is reliability. However, even where accounting information is used by managers, its reliability is not taken for granted, but is actively and consciously verified by managers through the use of corroborating information. For example, McKinnon and Bruns (1992) note how a sales manager may see corroboration in the number of orders received, call reports, competitive prices, inventory levels, and economic news. Similarly, Hopwood (1972) notes how profit conscious

[3] Kotter (1982) found that some general managers had a network of contacts of over 1000 people.

managers probe into the significance and meaning of accounting data, supplementing them with many other sources of information, both formal and informal, which allows for a continued test of the validity of the accounting data. The use of corroborating information is not restricted to those managers concerned with production or operations; even financial managers seek to corroborate accounting information: “I get information about production directly from them, but also from cost accounting. Much of the production data is not accounting data. There are other metrics like on-time delivery to customers, how many vendor schedule changes we have. There are a lot of different metrics we use to assure we have good inventory integrity” (McKinnon and Bruns, 1992, p.201).[4] The use of different information sources to corroborate accounting information is not restricted to managers and internal uses of accounting data. Rather, these descriptions parallel the use accounting numbers in capital markets. Burchell et al. (1980, p.11) note how accounting reports are only one part of the highly competitive market for information on corporate performance: “Investors appraise, question and corroborate accounting information. Rather than being mere passive recipients, they inquire into its significance for the decisions they are taking, bringing to bear their own standards of relevance”. In a similar way, accounting numbers ‘compete’ with other sources of information for managerial attention.

This analysis highlights the wide variety of information that managers engage with in conducting their work activities, of which accounting information is a small and sometimes important part. Although accounting reports are used and can be considered important, they are not always used and are not always considered important. This is in contrast to the assumption in much accounting research that accounting information is the most relevant or the only information managers use (McKinnon and Bruns, 1992). The nature of their work compels managers to obtain information quickly and from the most convenient source. Accounting information is not considered more relevant, useful or reliable than other sources of information; rather, managers develop “knowledge of their milieu” (Mintzberg, 1973) using a wide variety of information from various sources. Observations of work processes and informal reports dominate information from formal systems. Even the reliability of accounting information is not taken as given, but assessed by managers in the context of their work activities using other information that they have at their disposal. The complexities of the worlds that real managers engage with and the ways in which they carry out their work activities indicates that accounting information, however sophisticated, reliable, complete or timely, is not, and probably cannot, be the only source of information that managers use. This is not to suggest that accounting information does not serve an important function for managers, but, to point to the need to reposition the role of accounting information as one part of the extensive information set that managers use in performing their complex and difficult work activities. Thus, accounting comes to play a role in managerial work along with many other sources of information.

Managers’ search for information

Consideration of the nature of managerial work also leads to questioning of the ways in which accounting information can be mobilised by managers in performing their work activities. Much management accounting research focuses on the use of accounting information for control (decision-influencing) and decision making (decision-facilitating) purposes. However, from a managerial perspective, most information is not acquired for these purposes. An important insight from studies of managerial behaviour is that decision-making by managers is a relatively rare occurrence (Sayles, 1964; Kotter, 1982; Isenberg, 1984; Hales, 1986). Asking questions and getting information are the most frequent managerial activities (Jonsson, 1998). As such, a key task for the manager is not to make actual decisions, but to identify and define what decisions need to be made. This task is complicated by the fact that problems do not present themselves to managers in well-defined packages; problem boundaries are typically hazy and unstable (Kotter, 1982; Hanaway,

[4] Statement from a chief financial officer at an engineering software company.

1989). To further complicate matters, the complex and varied nature of managerial work means that managers typically do not deal with one or two problems. Rather, managers deal with portfolios of problems, where it is unclear how problems are related or how small problems may relate to or be indicative of something more serious (Isenberg, 1984; Hanaway, 1989). The problem-defining rather than problem-solving nature of much managerial activity has important implications for the ways in which managers acquire information, and thus for the ways that accounting information may become implicated in managerial work.

As most managerial activity is concerned with identifying problems rather than making decisions, most of the information that managers gather is not for decision-making purposes (Feldman and March, 1981). Rather, managers acquire information to identify problems and opportunities and to build mental models of the business (Mintzberg, 1975b). Information is used by managers to tell them where, when, and toward what their attention should be directed and to help them formulate or define organisational problems (Vandenbosch and Huff, 1997). Managers monitor the environment for surprises, or reassurances there are none, where surprises may be new alternatives, preferences, or significant changes (Feldman and March, 1981). Thus, much of managers information gathering relates to identifying problems rather than collecting information for specific decision making purposes.

Information search theories indicate that managers' search for information using two general processes; scanning and focused search (Aguilar, 1967; Huber, 1991; Vandenbosch and Huff, 1997).[5] Scanning involves searching through information without a particular problem to solve or a question to answer (Aguilar, 1967; Huber, 1991). Managers search data in order to understand or sharpen their general understanding of the business (Vandenbosch and Huff, 1997), and to develop interpretations, raise their curiosity, and draw new insights (Vandenbosch, 1999). Scanning varies in intensity from high vigilance, active scanning, to routine scanning or maintenance of a state of alertness for non-routine but relevant information (Huber, 1991). Scanning behaviour is analogous to the scorekeeping and attention-directing roles formulated by Simon et al. (1954). Managers use accounting data as a scorecard for the overall appraisal of an operating unit and to direct attention to problems that need to be solved.[6]

It is only once managers have a more concrete image of a particular problem that they seek out more specific information to help them to develop solutions. Focused search involves a deliberate effort to find specific pieces of information related to a particular problem (Huber, 1991; Vandenbosch and Huff, 1997). This is analogous to the problem-solving and decision-facilitating roles of accounting information (Simon et al., 1954; Sprinkle, 2003). However, consistent with the preceding analysis, there is a general reluctance on the behalf of managers to conduct a specific search unless it is clearly necessary (Vandenbosch and Huff, 1997). "Not until the element of novelty in a problem situation has become clearly explicit will a...search begin for alternatives to the habitual response. Then and only then does a more or less conscious and deliberate decision-making process get initiated" {Reitzel (1958) quoted in Huber (1991), p.98}. Thus, it is only once managers have determined that a problem exists, and have sufficient information to determine the boundaries of that problem, that they investigate further to develop potential solutions.

[5] Huber (1991) also identifies a third category of information search, performance monitoring. Performance monitoring is both focused and wide-ranging sensing of the organisation's effectiveness in fulfilling its goals (Huber, 1991), and thus can concern both scanning and/or focused-search, depending on how it is undertaken (Huber, 1991; Vandenbosch and Huff, 1997). As such, following Vandenbosch and Higgins (1997), performance monitoring is not examined as a separate information search process, but rather subsumed within the scanning and focused-search categories.
[6] Although Simon et al. (1954) present scorekeeping and attention-directing roles as separate categories, they note that in practice the boundaries between these two roles becomes blurred. "The same item of information may be an attention director for one executive but primarily a score card for others, or it may have both score-card and attention-directing utility for the same person"(p.23). Thus, these two roles are considered to be part of the general information search process that occurs when managers do not have well-defined problems or questions to answer.

The two general information search processes, scanning and focused search, provide a framework within which to consider some of the ways that accounting information is mobilised in the conduct of managerial work.[7] The analysis indicates that most information acquisition by managers is likely to concern scanning of the organisation and environment rather than the gathering of information for particular decision purposes, reflecting the non-decisional nature of much managerial work. This implies a different role for accounting in managerial work than one focused on providing inputs to resolve specific problems. Rather, accounting can come to play a role in helping managers to define problems, to determine what is important and what needs their attention, and to sharpen their understanding of their work area, organisation and environment.

Accounting and scanning

The role of accounting information in scanning is considered at both a micro and a macro level. Scanning at the micro level involves the individual manager as the unit of analysis, whereas scanning at the macro level involves the organisation or department as the unit of analysis (Huber, 1991). At the micro-level, managers can draw on accounting information to identify problems, focus their attention and improve their understanding of their own work activities. At the macro-level, accounting information is used in organisational systems to monitor the activities of the organisation. Whilst these two levels of scanning are likely to occur simultaneously (and indeed overlap), they provide a useful framework for considering the roles that accounting play in the scanning of managerial and organisational activities.

Accounting and scanning at the managerial (micro) level

The broad role of accounting data in scanning at the managerial level is linked to managers contact with, or "closeness" to, operations. Managers who are close to operations use observations of physical processes and informal reports from subordinates and peers as their primary means of obtaining information for scanning. Simon et al. (1954) found that a large part of operating managers knowledge is derived from direct observation and informal reports; accounting reports were only one source of information, and often not very important. Similarly, van der Veeken and Wouters (2002) reported that operating managers found little use for accounting data on budgeted versus actual project costs, but obtained information from observation of project activities and a few key non-financial metrics. However, accounting information fulfils a limited but important role for operating managers by identifying matters that are not visible from day-to-day supervision, and by directing attention to trends, drifts and underlying causes of day-to-day problems (Simon et al., 1954). "The significance of..(accounting) reports lies in their *reminding* the operating executives of things they already know, and placing those things in proper quantitative perspective, rather than hinting to them things they never suspected"(Simon et al., 1954, p.28) (italics in original). As a manager's "closeness" to operations recedes, accounting information comes to play a much more important role in scanning. Managers with little contact with operations devote considerable attention to accounting reports. This is because they have limited opportunities for picking up information from actual observations of work being conducted. For these managers, accounting data provides an independent check on the activities of operations and helps managers to "know what is going on" (Simon et al., 1954, p.28). van der Veeken and Wouters (2002) found that budgeted versus actual cost information was crucial for senior managers in managing projects. These managers were responsible for many projects and had limited opportunities for observing actual

[7] The distinction between scanning and focused-search is designed to help organise the analysis of the role of accounting in managerial work. It is not to suggest that a clear and observable distinction always exists between these two roles. Rather, in practice, the boundaries between the roles are likely to sometimes be blurred, with managers moving from scanning to focused-search and back again in an iterative fashion.

project work. Thus, they needed up-to-date information on allowable versus actual costs to determine which projects needed their attention.

Research is also indicative of the specific contexts in which financial and non-financial numbers are used for scanning. One factor related to the use of financial and non-financial numbers is time horizon. McKinnon and Bruns (1992) found that non-financial numbers are much more useful for scanning of day-to-day activities, whereas financial numbers play a more prominent role as the time horizon lengthens. At the day-to-day level, operational control is most efficiently achieved by focusing on non-financial numbers. This is because such information is expressed in a language that relates directly to the underlying production task, and is usually available immediately without delay. In contrast, events and transactions take too long to go through the reporting system for the output to be actionable; by the time the data is available, new events and transactions are already underway. In addition, the aggregations required for the production of financial numbers can obscure details that are important for managers in the scanning of daily operations. For example, an injury to an employee becomes aggregated with other costs and is thus obscured from the manager's view (McKinnon and Bruns, 1992). These problems reflect traditional limitations of financial performance measures (Hopwood, 1973; Fisher, 1995; Neely, Gregory and Platts, 1995). Consistent with these limitations, McKinnon and Bruns (1992) found that financial numbers were not used in any of the 12 organizations they studied as a key daily production indicator: all managers used non-financial numbers. Financial numbers, like costs, revenues and profits, become more important however as the time horizon lengthens. The reduced pressure for immediate action allows managers to adopt a more analytical and reflective approach compared to that required for day-to-day management. In this situation, financial numbers are important as overall measures of production effectiveness and managerial performance. Financial numbers "smooth out" the multitude of managerial activities, which helps managers to determine the meaning and significance of all the frenetic day-to-day management activity. Reviewing financial numbers helps managers to better understand, solidify and reinforce the links between operational activities and financial outcomes, and to develop a sense of the big picture (McKinnon and Bruns, 1992). Another factor that also influences the role of financial and non-financial numbers is the diversity of inputs and outputs. Financial numbers are likely to be more useful when input and output diversity are high, whereas non-financial numbers are likely to more useful when input and output diversity are low (Galbraith, 1973). Van der Veeken and Wouters (2002) found that when input and output diversity are low, managers can translate financial targets into a few key non-financial measures, which, along with direct observations, provide adequate information for managerial scanning. In contrast, when input and output diversity are high, the ability to translate financial targets into non-financial measures is limited. In this situation, financial numbers operate to translate a set of diverse factors into a common financial dimension, which allows for an overall assessment of the net effect of all kinds of disturbances and actions that have taken place (vanderVeeken and Wouters, 2002).

Some tentative conclusions can be drawn from the preceding analysis. Managers who are "close" to operations rely primarily on observations of work and informal reports, with accounting serving to remind managers of things they already know. In contrast, accounting information plays a much larger role in scanning for managers who are further removed from day-to-day operations. Non-financial numbers are used more frequently for monitoring day-to-day operations, whereas financial numbers are useful as overall measures of effectiveness as the time horizon under consideration lengthens. Financial (non-financial) numbers have a more prominent role in managerial scanning when the diversity of inputs and outputs is high (low). Independent of the role of particular numbers in specific settings, accounting plays a role in the scanning of managerial activities in conjunction with other sources of information and, importantly, with managers' experience and knowledge of the business.

Accounting and scanning at the organisational (macro) level

Accounting information, when mobilised as part of an organisational system, has the potential to influence the scanning activities of managers throughout the organisation. One of the earliest examples of the role of accounting in organisational scanning is provided by Simon et al. (1954). Simon et al. (1954) note a case where production managers frequently and regularly commented on a monthly variance report and required explanations of variances from a factory manager. Not only did the factory managers seek to provide these explanations in discussions with superiors, but he was using the same practice with his department heads, and the department heads with their foreman. As such, the effect of the variance report was felt at least two stages down in the operating chain of command. Other examples show how production quota reports and operating reports were used to similar effect.

Perhaps the best known example of an organisational scanning system is Simon's interactive control system (ICS). ICS are the information systems that top managers use to monitor and intervene in the ongoing decision activities of subordinates (Simons, 1990, 1995). This involvement consists of interpersonal interactions among managers where information from formal systems provides the basis for debates and discussions over underlying data, assumptions and action plans. Similar to the example from Simon et al. (1954), ICS demand regular attention from operating subordinates at all levels of the organisation. ICS assist with organisational scanning by signalling to organisational members where to look for surprises and what type of intelligence information to gather (Simons, 1990).[8]

Simons identifies a variety of systems that may be used interactively: program management systems, profit planning systems, brand revenue budgets, intelligence systems, and human development systems (Simons, 1991). As formalisation is limited in the types of uncertainty it can handle (Galbraith, 1973; Chapman, 1997), some interactive systems involve accounting and some do not. For example, organisations use accounting data from interactive profit planning systems (planned and actual revenues and profits for each major business by revenue and cost-category) to revise and discuss how changes in products and markets are likely to affect profit commitments. In contrast, where uncertainties relate to changes in the 'rules of the game', organisations use interactive intelligence systems (industry data, intelligence and lobbying reports, briefs of meetings, speeches, journals and annual reports) to collect information about social, political and technical environments (Simons, 1991, 1995). Thus, accounting information is not always used in organisational scanning. Rather, it appears that accounting is used for organisational scanning only when the uncertainties facing the organisation are amenable to expression via an accounting language.

Ahrens and Chapman (2006a) provide further illustrations of the role of accounting in organisational scanning in their study of a UK restaurant chain. At the operational level, restaurant and area managers reviewed restaurant operations in weekly business development meetings. In these meetings, diverse pieces of information, including accounting information such as margins and profitability, were used to identify areas of off-standard performance. For example, a below-average food margin prompted questioning from the area manager as to its potential causes, which initiated a discussion centering on several likely explanations, such as burnt steaks or over-portioning of dishes. Thus, we see how an accounting number was used to direct attention to

[8] Most attention in the accounting literature has focused on the organisational-level effects from the interactive use of particular accounting systems, such as budgets and performance measurement systems (Abernethy and Brownell, 1999; Bisbe and Otley, 2004; Henri, 2006a). This research has predominately used the descriptions and characteristics of ICS as described by Simons (Bisbe, Batista-Foguet and Chenhall, 2006), rather than investigate the exact nature of the interactive control process itself. Thus, knowledge of the way in which accounting information is actually used in interactive control systems is limited.

potential operational problems and to aid in the subsequent development of concrete suggestions for improving restaurant performance (e.g., a specification check with kitchen staff). At the strategic level, senior managers sought to influence the organisational scanning process by communicating head office strategic priorities using a list of specific measures known as the "13 key tasks". Their concern was not the communication of a concise business model, but the creation of a general awareness of strategic priorities among restaurant managers as a way to influence local activities. Thus, the role of the "13 key tasks" was to direct restaurant managers' attention to particular questions that related directly to the organisation's growth strategy. This was not merely an exercise in informing restaurant managers about strategic priorities, but a proactive way to stimulate the search for opportunities. For example, the Human resources director related how communicating the key task of acquisitions could help restaurant managers to be on the lookout for possible sites for new restaurant outlets.

Through this analysis we see how accounting is mobilised to influence the scanning activities of managers throughout the organisation. When uncertainties are not amenable to expression via accounting numbers, accounting has a limited role to play in organisational scanning. In contrast, where uncertainties can be expressed via numbers, accounting can play an important role in signalling to managers where they should look for surprises and opportunities. But, more importantly, accounting is used as an anchor to frame and prompt discussions between managers about potential problems and issues facing the organisation. The role for accounting in discussions is consistent with the finding from McKinnon and Bruns (1992) that information transmitted through verbal interactions is not limited to gossip, intuition or qualitative items, rather, most numerical data appeared to be passed by word of mouth *first*; formal reports serve merely to corroborate or remind managers of what was transmitted orally. The oral transmission of numerical data is hardly surprising given that managers spend most of their time in verbal communications, whether in meetings, informal discussions, or on the telephone (Kotter, 1982; Hales, 1986; Hanaway, 1989). It also corresponds to Ahren's (1997) notion of "talking accounting", in which accounting becomes implicated in organisational action through talk rather than reports. Similarly, Jonsson (1998) notes how managers working in real-time are likely to use accounting information in conversations with others. Thus, it is likely that accounting comes to play a role in organisational scanning primarily through its use in verbal interactions.

Research also points to the types of numbers that are likely to be used in organisational scanning. Simons (1991) notes that accounting-based numbers are particularly useful where organisations have complex value chains. Accounting-based measures provide indicators of threats and opportunities by highlighting the effects on the overall business from changing combinations of variables. In contrast, organisations with well-understood value chains have fewer trade-offs to manage, and can use simpler input and output measures, such as brand volume and market share.[9] Interestingly, the accuracy of numbers is not an overriding concern. Ahrens and Chapman (2006a) note how increasing the representational faithfulness of accounting systems was not a managerial priority. Similarly, other studies find that reports do not need to be elegant, complete or accurate to be useful for scanning (Simon et al., 1954; McKinnon and Bruns, 1992; Simons, 1995). In fact, what is particularly important is that numbers are easily comprehended by managers and that they have confidence in their understanding of the underlying data (McKinnon and Bruns, 1992; Simons, 1995). Further, and perhaps most importantly, numbers used in organisational scanning provide a prompt for action, a signal that something must be looked into more carefully (Simons, 1995). This mirrors Mintzberg's (1975a) finding that managers require information that provides triggers for action – tangible information that prompts activity. These findings suggest a need to be cautious about the role for ever-more sophisticated measurement systems in organisational scanning. Techniques such as the balanced scorecard (Kaplan and Norton, 1996b), causal performance

[9] This is analogous to the role of financial and non-financial numbers in the scanning of managerial activities under high and low levels of input and output diversity.

maps (Abernethy, Horne, Lillis, Malina and Selto, 2005), and performance pyramids (Lynch and Cross, 1992) provide more elaborate, detailed and comprehensive data, particularly as advancements in information technology lower the cost of information provision. However, this approach can prove dangerous as such systems can reduce or camouflage the very uncertainties that managers need to be aware of (Earl and Hopwood, 1980). Thus, what may be required is a different kind of sophistication, one that links more closely with the types of information that managers actually use, rather than with some technical imperative to 'improve' accounting. Managers use their own standards of relevance for determining the useful characteristics of numbers and measurements systems, such as whether they prompt action, and do not seem to value abstract technical features (e.g., reliability, cause-and-effect) of accounting information that are meant to demand its use.

This analysis highlights some of the ways in which accounting information is used in scanning processes at the managerial (micro) and organisational (macro) level. Accounting plays an important role in helping managers to identify problems, in increasing understanding of the business by rendering certain operational activities and events visible, and by framing and directing discussions about potential problems and issues, pointing to a key role for "accounting talk" (Ahrens, 1997) in scanning activities. Although some studies have examined the use of accounting in scanning activities, knowledge of the ways in which accounting is used by managers to identify problems and to increase business understanding is limited. It is argued that this is primarily due to a dominant focus on the use of accounting for decision-making rather than on its use in scanning activities. This is of particular concern given that most information gathering is directed towards identifying problems rather than acquiring information for specific decisions (Feldman and March, 1981). Thus, to enhance our understanding of the role of accounting in managerial work, an increased focus on the use of accounting data in scanning activities appears necessary.

Accounting and managerial decision making

The role of accounting in managerial decision making involves a deliberate effort to find specific pieces of information to help solve a problem (Huber, 1991; Vandenbosch and Huff, 1997). Accounting information, in the form of periodic reports or special analyses, is often a source of information for making decisions, including pricing, production levels and product mix, outsourcing, inventory policy, customer servicing, labour negotiations, and capital investments (Sprinkle, 2003; Horngren et al., 2005).[10] Research shows that accounting information has a significant effect on the quality of decisions in the organisation by increasing managers' knowledge and therefore their ability to make organisationally desirable judgements and decisions (Sprinkle, 2003). Accounting comes to play a role in decision making in a variety of ways. It can sometimes be used to provide answers to problems and to facilitate managerial judgements. In other situations managers use accounting information to justify decisions and to influence the outcomes of group decision-making processes.

In decision contexts where there is little uncertainty, algorithms, formulae and rules can be used to determine optimal actions through a process of calculation (Burchell et al., 1980; Chapman, 1997). In this role, accounting is used as an answer machine to provide information to support analytical processes (Simon et al., 1954; Henri, 2006b). This type of use of accounting information features prominently in management accounting texts, where the results of an accounting analysis are used to determine optimal actions. However, it is suggested that the answering machine role for accounting in managerial decision making is limited. The reactive, fragmented, and ambiguous nature of managerial work indicates that the opportunity to solve managerial problems through

[10] Providing a comprehensive review of the use of accounting information in decision-making is beyond the scope of this paper. Excellent reviews can be found in Sprinkle (2003) and Luft and Shields (2003).

computation is reduced. The ever-increasing flows of information that managers' receive become difficult to filter using a process of calculation (Ahrens and Chapman, 2006b). As such, when solving problems managers often combine gut-feel with systematic analysis, quantifiable information and thoughtfulness (Kotter, 1982; Isenberg, 1984; Mintzberg and Westley, 2001). Managers often bypass computational processes altogether (Isenberg, 1984), and even where calculation practices are used, they are often delegated to administrative units for production of special analyses rather than be prepared by managers themselves (Simon et al., 1954; Jonsson, 1998). This indicates that managerial experience and knowledge, mixed with formal and informal information, are likely to provide a more effective basis for managerial decision-making. In this case, rather than provide answers, accounting can be seen to act as a facilitator of managerial judgements (Burchell et al., 1980).

Rather than provide answers, accounting can be used by managers to understand better the dimensions of a problem. Accounting is particularly useful in those decision situations where known factors can take on unknown values (Galbraith, 1973; Wouters and Verdaasdonk, 2002). In these situations, accounting acts as a learning machine by providing inputs for ad hoc analyses, simulation models, and sensitivity analyses (Burchell et al., 1980; Earl and Hopwood, 1980). Accounting plays a role in this process by using a single unit of measurement to quantify the financial impact of the various dimensions of a decision (Galbraith, 1973; Wouters and Verdaasdonk, 2002). This can particularly help managers where they have little experience with trading off the relevant dimensions of a decision.[11] Accounting information is useful because the quantification process translates each dimension of the decision into a common financial dimension, thus making new, unfamiliar or complex trade-offs easier to assess. Accounting also allows managers to explain decision consequences via a common financial language, rather than in operational language that managers in different functions or locations may not understand (Wouters and Verdaasdonk, 2002).

Wouters and Verdaasdonk (2002) relate how the use of cost information in a simulation model helped managers with different preferences and experiences to evaluate different options for the sorting and transportation of mail in a postal organisation. Importantly, managers' judgements were based on not only the costing simulation, but also on other factors such as timeliness, quality, volume and risk. Similarly, Ahrens and Chapman (2006a) note how a marketing planning manager developed a simulation model consisting of dish margins, expected order volumes, and product mix to help achieve an overall target food margin for a menu. As with the previous example, the financial model was implicated in managerial decision making along with other considerations, such as price, value for money, branding and logistics. These examples show how the quantification of problem dimensions via accounting can assist managers in assessing what are often very complex tradeoffs involved in a decision. We also see how an accounting language can be used to facilitate discussions amongst managers with different knowledge and experiences. Importantly, managers' use their own experience and intuition to provide a check on the results of computational analyses (Isenberg, 1984; Mintzberg and Westley, 2001). As such, accounting does not provide answers, but provides inputs, along with operational and strategic information, to facilitate managerial judgements.

In other contexts accounting is likely to provide only limited input to managerial decision making. This is because formalisation via accounting is limited in the types of uncertainty it can handle (Galbraith, 1973; Chapman, 1997). If the important dimensions of a problem are not known, it is impossible to even begin quantifying their effects with accounting numbers. Further, even where dimensions of a problem are known, accounting may not be useful because it is an abstract and incomplete translation of operational processes and problems into numerical form (Chapman,

[11] This can arise when managers are faced with new or relatively rare decisions, or the need to incorporate a new dimension into a familiar decision (Wouters and Verdaasdonk, 2002).

1997; Wouters and Verdaasdonk, 2002). Certain dimensions of a problem may not be reducible to accounting numbers. As Chapman (1997, p.202) argues, “decisions can no longer be taken and actions can no longer be chosen at a distance via the abstract language of numbers. Operational considerations must to some extent be involved in the decision process, not coded, but in their original form”. As such, using accounting to compare and communicate the various dimensions of a decision is only viable when the important dimensions of a problem are known and amenable to expression via an accounting language. Outside of this context, the role for accounting is limited, and technical, business and organisational knowledge is likely to play a dominant role in managerial decision making.

This analysis indicates that accounting is unlikely to provide the sole input to managerial decision making, but be combined with other sources of information and managers’ existing knowledge and experience. Accounting is particularly useful for facilitating managerial judgements where the dimensions of a problem are known and are amenable to expression via an accounting language. However, where dimensions are not known and are not easily quantifiable, the role for accounting in managerial decision making is reduced. In these cases, operational concerns are expressed not via numbers, but in their original form. This illustrates a role for accounting in managerial decision making up to the point where managers make decisions. But managers do not always have time to search for information prior to making a decision. This is because a manager is a doer, someone who has to react to problems as they arise, think on his/her feet, and make decisions in the moment (Hales, 1986). Further, managers often know what to do before they can think and explain it, hence they often act first and think later (Isenberg, 1984; Mintzberg and Westley, 2001). As such, managers may not actually acquire much information in the process of making a decision. However, in organisations, decisions, once made, need to be justified, legitimized and rationalized (Burchell et al., 1980). As a consequence, managers spend a lot of time accounting for and explaining their actions to others (Hales, 1986).

The use of information is a primary means by which managers seek to rationalise and legitimize previous actions and decisions. Having information signals managerial competence, regardless of whether that information was actually used in the determination of decisions (Feldman and March, 1981; Markus and Pfeffer, 1983; Hanaway, 1989). Justifying decisions in terms of information is viewed as a way for managers to symbolise that their decision making process is rational, and, consequently, that they are good decision makers (Feldman and March, 1981). Accounting is one source of information that managers may search for to legitimise their decisions. In this role, accounting acts as a rationalization machine to justify and legitimize actions that have already been decided upon (Burchell et al., 1980; Henri, 2006b).

Several factors render accounting useful in justifying decisions. First, unlike other potential sources of information, accounting information is usually already produced and available. Thus, managers can draw on existing accounting information rather than search for and produce other types of information. Second, the nature of accounting information makes it an ideal tool for use in rationalising past decisions because it provides a historical record of past actions and events in a common, financial language (Henri, 2006b). In this way, accounting not only provides a ready-made record of the outcomes of decisions, but a common language that can be mobilised by managers to explain those decisions to a diverse range of audiences who may not be familiar with the specific decision context, but are likely to understand explanations expressed in accounting terms. Third, accounting plays a role due to its symbolic power. Accounting is generally perceived as reliable, neutral and objective and thus provides a sound basis from which to justify decisions. Accounting measurements lend credibility to managerial decisions due to their association with notions of precision, objectivity and rationality (Power, 2004). In this way, accounting embodies the ideology of rational decision making and thus helps to confer legitimacy on decisions that managers have made (Feldman and March, 1981). Thus, not only is accounting information implicated in the

making of managerial decisions, but it also serves a useful role in the process of justifying decisions.

A further feature of managerial work that is likely to effect the role of accounting is the group rather than individual nature of decision making in organisations. Managers seldom make decisions on their own. Rather, much decision making in organisations is the result of groups of individuals interacting over time (Sayles, 1964; Sprinkle, 2003). Group decision making is frequently characterised by conflict among members due to different beliefs, opinions and ideas regarding appropriate courses of action (Sprinkle, 2003). From a functionalist perspective, accounting can facilitate group decision making by providing information to enable group members to improve coordination and ultimately reach agreement (Sprinkle, 2003). Other perspectives view group decision making as an inherently political process. Decision making in groups entails an intricate process of brokerage and resolution of conflicts involving individuals inside and outside the organisation who feel affected by or can contribute to the decision at hand (Sayles, 1964). The need to negotiate a viable route through these conflicts reflects the inherently political character of much managerial activity (Reed, 1989). The role for accounting in this political process departs markedly from that which views accounting as a tool for improving group decision making. Rather, accounting becomes a source of power with which managers can wield to ensure particular outcomes are chosen over others. Information is a source of power in organisations because it provides access to situations in which decisions are made and influence over those decisions (Markus and Pfeffer, 1983; Hanaway, 1989). In particular, accounting, by influencing the accepted language of negotiation and debate in group decision making, can help shape what group members regard as problematic, what they deem a credible solution, and the criteria which they use in making decisions (Burchell et al., 1980). In this way, managers can search for and use accounting information not to necessarily ‘improve’ decision making, but to ensure decisions are directed toward particularly solutions or options that they regard as important.

In summary, an answer machine role for accounting in managerial decision making is limited. Accounting is more likely to help facilitate managerial judgements and decisions, along with other sources of information, and managers’ own knowledge and experience. In addition, the nature of managerial decision making indicates a significant role for accounting in legitimising previous decisions and as a tool with much symbolic power with which managers can attempt to influence the outcomes of group decision making processes. Thus, even though the role of accounting in managerial decision making is likely to occur less frequently than scanning activities, the roles for accounting in this process are many and varied, and imply a more nuanced and sophisticated role for accounting information in managerial decision making than as a simple input to a rational decision process.

Discussion and implications

This essay has examined the many and varied roles for accounting in managerial work. These roles were considered in relation to two types of managers’ information search patterns, scanning and focused search. Whilst the role for accounting in managerial decision making is important, it is argued that a stronger focus on the role of accounting in scanning activities is necessary. This is because research on managerial behaviour indicates that managers typically search for information not to solve specific problems, but to help them identify and define problems, direct their attention and build improved mental models of the business (Sayles, 1964; Mintzberg, 1975b; Kotter, 1982; Hales, 1986). These processes are particularly important as the success of managers and their organisations depends heavily on their ability to identify surprises and opportunities, particularly in more rapidly changing industries and environments (Bartlett and Ghoshal, 2003). Accounting information can play a key role in these scanning processes by highlighting trends and drifts in operations, and in framing and directing discussions about potential problem areas and

opportunities through an accounting language. Future research can examine how aspects of managerial work, such as closeness to operations, time horizon and task characteristics, combine with properties of accounting information, such as timeliness, aggregation and formalisation (Galbraith, 1973; Chenhall and Morris, 1986), to influence the use (or non-use) of accounting in scanning activities. This may help us to understand how and how well accounting information helps managers to identify surprises and opportunities.

From a decision making perspective, the complexities of managerial work suggest that accounting can rarely provide answers to managerial problems. Rather, accounting is likely to be combined with other information and managers' own knowledge of the business to help facilitate managerial judgements. The close linkage of accounting with other forms of operational knowledge appears critical as sustainable competitive advantage requires a capability to relate calculations to management processes and organisational sense-making more generally (Ahrens and Chapman, 2006b). As Ahrens and Chapman's (2002; 2004; 2006a) work indicates, the value of accounting may come not from the development of more sophisticated and complete measurement systems, but from improved integration of accounting with the characteristics and processes of actual managerial work. The role for accounting in decision making moves beyond facilitating decisions however. The need to explain their actions (Hales, 1986) and to negotiate conflicts and resolve disputes (Sayles, 1964; Reed, 1989) indicates that managers may draw on accounting information in a variety of ways. Features of accounting information (e.g., availability, historical record, symbolic power) render it particularly useful in helping managers to justify decisions made under conditions of uncertainty. Given the frequency with which managers are required to explain their actions, the use of accounting to justify rather than make managerial decisions represents a fertile area for future research (Henri, 2006b). Furthermore, managers do not often make decisions on their own, but are involved with groups of individuals that make decisions over time (Sayles, 1964; Sprinkle, 2003); a feature of decision making that may become even more prominent due to the rise of teams as an important structural feature of many organisations (Cohen, 1993). As managers are important disseminators of information in organisations (Mintzberg, 1973; Hales, 1986; McKinnon and Bruns, 1992), they are likely to influence strongly the nature and outcomes of group decision-making processes. In particular, the position of manager provides access to and control over information, including accounting, that other group members may not have. Due to political concerns, managers may ignore, distort and use information to help them and their coalition if not necessarily the organisation (Mintzberg, 1975a). Access and control over information provides managers with considerable power in being able to choose what, how, and how much information to disseminate to others, which can shape the nature of group negotiations and also the criteria upon which decisions are made (Burchell et al., 1980; Markus and Pfeffer, 1983). In this way, not only can managers use accounting information to help facilitate group decision making (Sprinkle, 2003), but also as a vehicle to ensure their own preferences and ideas take precedence.

Within the context of both scanning and decision-making uses of accounting information, the close linkage of accounting with others sources of information suggests a repositioning of the role of accounting as one part of managers' information set. Just as researchers have been encouraged to examine accounting systems within the context of a wider control package (Otley, 1999), it seems necessary to examine how the use of accounting information influences and is influenced by the other forms of information that managers have at their disposal. In particular, managers are not blank slates. The information that they need is not simply a function of the particular issue at hand, but of their existing stock of information. To paraphrase Galbraith (1973), uncertainty for a manager relates to the difference between the amount of information he/she requires to perform a task and the amount of information that he/she already possesses. This suggests that the impetus to acquire and use accounting information is dependent not only on the tasks that managers' perform, but on the nature and extent of their existing information set. As different managers are likely to have different information sets, the demand for and use of accounting information is likely to differ

across managers, even if they are faced with the same decision and task environments. Thus, different uses of and responses to accounting information by managers in similar work situations might be inevitable (Chapman, 1997). Investigating the role of accounting in managerial work therefore depends critically on consideration of the nature and extent of managers' existing information set.

In relation to other sources of information within managers' information set, several properties of accounting information render it particularly useful in the conduct of managerial work. Accounting information is often criticised as being too aggregated to be useful for managing day-to-day operations (Fisher, 1995; Neely et al., 1995; Kaplan and Norton, 1996a). This may be. However, the aggregation process inherent in the accounting system serves to provide information to managers not generally available from other sources. Because the accounting process assigns financial numbers to a diversity of operational factors, these factors can be combined and thus compared through a process of aggregation. In this way we see how accounting information is useful in helping managers to identify what all the frenetic operational activities add up to and in assessing trade-offs among different factors that are relevant to a decision (Simon et al., 1954; vanderVeeken and Wouters, 2002; Wouters and Verdaasdonk, 2002). Other information available to managers, such as informal reports and even non-financial information, generally do not have these properties as they are not expressed using the same basis of measurement and thus are not easily combined and compared.[12] As such, although aggregation may limit the usefulness of accounting for daily management concerns, it becomes a strength in situations that require consideration of longer time horizons and when a diversity of disparate factors need to be compared. Although there are limits to this role as not all operational factors are amenable to expression in financial terms (Galbraith, 1973; Chapman, 1997), the aggregated nature of accounting information can be seen to help rather than hinder the conduct of particular aspects of managerial work.

The translation of operational activities into financial numbers also serves another function: to act as a common language with which managers inside and outside of the organisation can communicate. As a common language, accounting can be used as an anchor to frame and prompt discussions amongst managers (Simons, 1990; Ahrens and Chapman, 2006a). This is critical as structuring and framing of issues and decisions in a common language helps to produce meaning (Tversky and Kahneman, 1981; Simons, 1990). If information is not uniformly framed, common interpretations are unlikely (Chenhall, 2005), and managers may thus find it more difficult to communicate with each other. This suggests that the use of accounting information depends not necessarily on its ability to depict operational processes accurately or completely, but on its functioning as a medium through which seemingly diverse operational considerations are rendered communicable through a common language. An accounting language permits communication between managers with different backgrounds and functional experience, and may also be important in communicating with managers outside the organisation, particularly as new forms of inter-organisational relationships become more prevalent (Dekker, 2004). When viewed as a medium of communication, accuracy of accounting data is not a top priority. Rather, ensuring that accounting information is understood and perceived as valid by managers is most important in determining whether it is useful for managers in communicating with each other (McKinnon and Bruns, 1992; Simons, 1995; Ahrens and Chapman, 2006a). Thus, where new, more sophisticated measurement systems are not well understood or too complicated, they are likely to play only a limited role in helping to frame and prompt discussions amongst managers. This is because managers operate under severe time constraints and thus have limited time and attention to devote towards understanding complex data (Simons, 1990). They are more likely to ignore such complexities and switch to other data that is simpler and provides triggers for action (Mintzberg, 1973, 1975a). Thus, accounting's role in managerial work may be more appropriately considered as

[12] In particular, linking non-financial measures to each other and to financial measures is particularly problematic (Ittner and Larcker, 2003).

a medium to facilitate managerial communication as much as it is concerned with representing economic and business phenomena faithfully.

The functioning of accounting as a language of managerial communication speaks more generally to the way in which its role in managerial work primarily derives from its use in verbal communications. Although the focus of much research typically concerns the design and dissemination of the "products" of accounting systems; namely written documentation in the form of reports and analyses, the significance of accounting and the spaces and spheres in which it comes to have meaning is likely to depend upon whether and how managers "talk accounting". In this way, the functioning of accounting in managerial work depends not only upon its physical product, but, crucially, on its role in talk (Ahrens, 1997; Jonsson, 1998). A focus on accounting talk appears all the more necessary given the dominance of verbal interactions in managerial work. Managers receive and disseminate accounting information primarily through talk, with reports serving to corroborate and remind managers of what they have already talked about (McKinnon and Bruns, 1992). Talking accounting is not just a verbal exchange of information however, but a process through which accounting information becomes intertwined with other forms of organisational knowledge and is related to specific managerial problems or issues (Ahrens, 1997). It is through talk that accounting is related to other sources of information in managers' information set, functions as a common language to frame and direct discussions over problems and opportunities, and becomes implicated in the negotiations and discussions that characterise group decision making processes. Thus, following Ahrens (1997), a focus on accounting talk appears critical in understanding the multiple roles for accounting information in managerial work.

Examining the roles of accounting in scanning, decision making and verbal interactions suggests a stronger focus on managers as the unit of analysis in management accounting research. Recent research has argued that studies at the organisational level of analysis remain somewhat limited because they are based upon assumptions about, rather than a detailed investigation of, individual work behaviour (Covaleski, Evans, Luft and Shields, 2003; Hall, 2007). Under this perspective, the characteristics of managers and managerial work become important for understanding the functioning of accounting systems. Prior research shows how managers' background and experience can affect their use of and preference for accounting information (Simon et al., 1954; Aguilar, 1967; Mintzberg, 1975a; McKinnon and Bruns, 1992).[13] Although there are commonalities across managerial jobs, managerial work is not homogenous across managers. Rather, there exist wide variations in the nature of managerial work due to different functions, hierarchical levels, personalities, task and business environments (Mintzberg, 1973; Kotter, 1982; Hales, 1986; Stewart, 1988), which are likely to affect the way that managers search for and use accounting information. Changes in information technology also signify that a stronger focus on managers as the unit of analysis is appropriate. Advancements in the technologies that organise and deliver accounting information, particularly enterprise resource planning systems (Chapman, 2005) and executive support systems (Vandenbosch and Huff, 1997; Vandenbosch, 1999), are likely to lower not only the costs of providing information, but also enable the development and provision of customised information sets for managers. This may render the concept of an 'organisational' accounting system less relevant, with the focus shifting to how individual managers retrieve and use specific pieces of accounting information from a wider database of accounting numbers. In this way, the characteristics of managerial work, managers' background and experience, and the way that

[13] A focus on managers' background and experience is consistent with Sprinkle's (2003) suggestion for a greater use of the "expertise" paradigm in management accounting research. Prior studies show that prior experience in an accounting role or function, and a greater ability or proficiency in dealing with numbers and data, are linked to greater use of accounting information (Simon et al., 1954; McKinnon and Bruns, 1992). However, more generally, little is known about how knowledge, ability, and experience affect how and how well managers use management accounting information (Sprinkle, 2003).

managers' acquire information, may become more salient to the study of accounting systems than existing contingency variables, such as strategy, structure and environment (Chenhall, 2003).

Greater engagement with relevant literatures, methods and research questions are several ways in which our understanding of the role of accounting in managerial work can be advanced. The schism between notions of managing in much management accounting research and those that emerge from studies of actual managerial behaviour points to a lack of engagement with other relevant fields of study. Studies of managerial behaviour are not new; Hales's (1986) review of managerial behaviour research is 20 years old, with many studies dating from the mid-20th century (Carlson, 1951; Sayles, 1964). Whilst some of these studies have been subject to criticism (Willmott, 1987), their main insights concerning the nature of managerial work remain relatively unquestioned. Greater insights into the role of accounting in managerial work are likely to arise from closer integration with research on managerial behaviour, as well as the information search (Huber, 1991; Vandenbosch and Huff, 1997) and managerial decision making ((Isenberg, 1984; Mintzberg and Westley, 2001) literatures. It is not only the findings from the managerial behaviour approach that are relevant however, but also its methods. The managerial behaviour approach argues that it is only through examining what management is actually like that an adequate and realistic conception of managerial work can be developed (Noordegraaf and Stewart, 2000). This parallels the recent emphasis on understanding management accounting as it is practiced (Ahrens and Chapman, 2006a). This points to a need to focus more closely on the spheres of activity where accounting is actually used (or not used) in the conduct of managerial work. Such an approach requires methods capable of investigating such spheres of activity, such as direct observations of managerial work and accounting in action, which, although demanding and difficult, appear necessary. Independent of the methods used, the nature of the questions investigated appears most critical to advancing our understanding of the roles of accounting in managerial work. A key feature of the seminal studies on the role of accounting in managerial work is that rather than assume a particular role for accounting, these studies sought to investigate *if* a role exists and what it might be. For example, Simon et al. (1954, p.22) examined the "use (or non-use) of accounting data by operating executives and supervisors". Similarly, McKinnon and Bruns (1992, p.2) asked "under what circumstances *is* information that we think of as accounting information actually used by managers?" (italics in original). These questions indicate that the researchers at least considered the possibility that managers may not use accounting information, or that its role may be limited. In these two studies there are few assumptions regarding the ways in which managers may use accounting information; the studies themselves are an attempt to find out what these roles, if any, may be. These types of research questions appear infrequently however. Hopwood's (1976) comment that the work of Simon et al. (1954) is frequently cited but rarely pursued remains relevant today. It seems that only through investigating, rather than assuming, the roles for accounting in managerial work can progress in our understanding be made.

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