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Accounting, Organizations and Society 32 (2007) 601–637

Accounting,
Organizations
and Society

www.elsevier.com/locate/aos

The role of management control systems in planned organizational change: An analysis of two organizations

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Abstract

In the management control literature there is growing interest in the role of management control systems (MCS) in planned organizational change. The existing literature is concerned with either rational, technical change principles or more social and political interpretations of MCS facilitated change. This paper aims to extend this literature by combining technical approaches to MCS facilitated change with a behavioral approach in the study of two similar organizations. Moreover, the paper employs a holistic approach to change to develop a comprehensive understanding of the role of MCS in planned organizational change. A framework by Huy [Huy, Q. N. (2001). Time, temporal capacity, and planned change. *Academy of Management Review* 26(4), 601–623] is used to provide an integrative approach that focuses on both rational, systematic practices and the behavioral processes involved in their implementation. This is achieved by identifying four idealized intervention types: commanding, engineering, teaching and socializing. Understanding the application of these four intervention types requires analysis of the way they interact through time.

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Introduction

The role of management control systems (MCS) within organizational change has become an

important concern for practitioners and researchers in management accounting (Burns & Vaivio, 2001). This paper describes the changes involved in implementing an Activity Based Cost Management (ABCM) program and associated change initiatives in an Australian and a US military organization over comparable time periods from the initial design in 1993 for the Australian

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organization and from 1995 for the US organization until 2004 for both organizations.¹ Until the early 1990s, both organizations followed traditional, operationally focused management with few formal management controls to integrate processes; accounting was used primarily for budgeting, on a cash basis. Planning and control by operational units was guided by military doctrine and evaluated on the effectiveness in achieving military targets. Efficiency, although not totally disregarded, was not a major focus. Decisions on resources were taken at senior levels with resource allocation determined by government; operational management focused on execution.

The opportunity to have access to two organizations similar in mission, size, and management focus that were attempting to implement the same change to their MCS was, in our view, a relatively unique opportunity. The similarities of the organizations created a research environment in which there was a possibility to begin to understand the impact of alternative implementation decisions made during the change process. Comparative case study data could provide the opportunity to compare and contrast experiences, to identify the impact of potential differences in reactions based on differences in internal structures, individual dispositions and processes. Comparative case study data supports a relatively rich analysis of the empirical phenomena (Yin, 1989). Comparing and contrasting experiences would provide a means to evaluate our expectation, drawn from the extant literature, that there is likely to be no one best way to use MCS to facilitate change.

¹ In this paper we use the term ABCM to refer to the specific practice of ABCM which focuses on identifying cost and value drivers within work processes. These practices are embedded within broader MCS that incorporate formal and informal controls. We define MCS broadly to incorporate both financial and non-financial controls, formal and informal controls including subjective data, personal and clan type controls (Chenhall, 2003). While the organizations studied initially identified their change initiatives with ABCM, the scope and implications of the initiatives broadened to incorporate other controls, such as risk management, performance measurement and more informal personal controls. Following the language used in the organizations, in the main, we refer to the change initiative as involving ABCM.

Moreover, the data from the two organizations provided the opportunity to address the extent to which change management problems which appear to be similar when described in terms of the language and processes of an accounting practice, may in fact be different when consideration is given to the different roots, causes and consequence of the change situation. The potential to gain insights from comparing and contrasting the experiences of two similar organizations addressing similar issues concerning MCS facilitated change is illustrated in the studies by Ezzamel, Lilley, and Willmott (2004) and Ezzamel, Willmott, and Worthington (2004). In the former study, MCS were seen as helpful in developing an empowered workforce and relatively harmonious industrial relations, while in contrast, the second study shows how MCS lead to employee hostility and the eventual failure of the MCS.

The direct access to decision makers at multiple levels in the organizations while the changes were being implemented also helped to strengthen the study. For instance, in some cases we were able to observe directly the reactions of managers to the demands of the change initiative. Being present during the everyday activities of managers on and off for a period of about two years helped managers become more relaxed with our presence. This assisted in managers providing us with their candid feelings and actions towards the change initiatives. The direct observation complemented archival and interview data. Given the opportunity offered by the two organizations, positioning our study within the MCS and change theory literature was a critical issue to enable a meaningful investigation of the relatively unique research setting.

Organizational change theory has long been central to studying how organizations transform themselves through time (Colville, Dalton, & Tomkins, 1993; Greiner, 1972; Lewin, 1951; Mintzberg & Westley, 1992). Planned change has been of particular interest to those who are concerned with creating and managing change in ways that enhance organizational performance (Hofer & Schendel, 1978; Kotter & Heskett, 1992; Porras & Robertson, 1992). Recently there has been considerable interest in the relationship between the use of MCS and planned organizational change (see

Burns & Vaivio, 2001; for an overview of the evolving role of MCS including its potential to drive organizational transformations). Burns and Vaivio (2001, pp. 395–396) note that if MCS are seen to take an active part in the processes that fundamentally transform an organization, how can it be focused to expose inertia and outdated practices that should be uprooted? How is MCS argumentation driving the justification of organizational transformation? This paper aims to contribute to an elaboration of these relationships.

Previous research into MCS facilitated organizational change

A variety of perspectives have been used to help inform the role of MCS in planned change ranging from the functional logic of MCS driven change to more political and social concerns that help or hinder the way MCS facilitate change.

Prescriptive approaches

The prescriptive literature abounds with the logic of technical innovation in MCS such as activity-cost-management (Shank & Govindarajan, 1993), target costing (Ansari & Bell, 1997), life cycle costing (Shields & Young, 1991), quality costing (Clark, 1985), and performance management innovation such as EVA (McLaren, 1999), non-financial measures (Ittner & Larcker, 1998) and balanced scorecards (Kaplan & Norton, 1996). They provide a platform to develop and implement new strategies and advanced technologies and new human resource management initiatives. There is an extensive body of literature that has examined how changes in MCS, notably ABCM, should be implemented to achieve desired outcomes which typically involve changes in cost management practices with change outputs related to reengineering to gain cost efficiency, product selection and financial success (Anderson, 1995; Anderson, Hesford, & Young, 2002; Anderson & Young, 1999; Argyris & Kaplan, 1994; Chenhall, 2004; Foster & Swenson, 1997; Kennedy & Affleck-Graves, 2001; Krumwiede, 1998; McGowan & Klammer, 1997; Shields, 1995).

Context and social issues

Empirical evidence examining the effectiveness of MCS practices in assisting in organizational change is equivocal (Burns & Vaivio, 2001). This has prompted researchers to examine how social and political issues affect MCS facilitated change.² These approaches indicate that the effects of the technical aspects of MCS in facilitating change cannot be understood without considering how the systems respond to the social context within which they operate. An important thrust of much of this work is to show how MCS helps integrate the intent of change and the various social and political factors that may inhibit or assist change. For example, in attempting to change from an engineering to a market based strategic focus, what are the implications for the role of MCS of pressure from the organization's external environment, or internal factors derived from the need to adopt advanced manufacturing practices, and the effect of potential change on internal politics and power relationships? The following sections provide selective examples of research that illuminates these themes. We group these studies into four categories to help identify emerging themes in the literature.³ First, a variety of studies examine the external context, often investigating the historical development of the organization as it responds to external contingencies and how MCS are affected by them and, in turn, effect the way organizations change. Second, a selection of studies focus on internal aspects of the organization to show how MCS help integrate the different information needs of managers for change depending on their level in the hierarchy of the organization. Third, we identify studies

² In these approaches change outcomes include the possibility that organizations may drift in indeterminate ways, rather than follow a rational planned sequence of change or the rules, norms or routines related to rational prescriptions, or some institutional conception of organizational reality (Quattrone & Hopper, 2001).

³ The studies could be grouped in other ways. We fully expect other researchers to envision other ways to categorize the research. This grouping is useful from our perspective in that it highlights internal and external roles for MCS in the change process, a theme that is implicit in the analysis of our cases.

that are more concerned with the importance of MCS in developing and supporting networks and managing interdependencies to help diffuse and integrate change across the organization. Finally, the level of analysis moves to the employees involved in change and the extent to which their commitment to change is mobilized by the MCS. These studies consider the individual at an aggregate level using an industrial relations perspective. We review this literature in the following sections.

History and external context

First we examine research that addresses issues related to the role of MCS, over long periods of time, in integrating an organization's reconstituted values and beliefs with particular rationalities, the external environmental, and social and political forces that affect organizational action. [Bhimani \(1993\)](#) showed how MCS may evolve from 'distant antecedents' derived from unanticipated and unplanned, socio-historic incidents, and then develop to integrate the organization's activities with these forces and ultimately have a role in 'affecting and altering organizational possibilities' (p. 37). A case study of Renault showed how MCS evolved as a response to the information needs derived from diverse external forces operating over the long term, involving the implementation of scientific management and statistical thinking and not as a clear, overt response to an immediate organizational need. The study is informative as it indicates the need to understand the broad antecedents to MCS and the way they are implicated in the change of the organization over the long term.

Some studies have shown how MCS assist in changing the strategic orientation of organizations from traditional values embedded in their histories to more economically focused approaches based on commercial principals involving efficiency, quality and a customer focus. The possibility of employing MCS to effect a change in culture has been supported, at least in part, by several studies. [Dent \(1991\)](#) showed how MCS were used in a railway organization to assist in moving from a culture dependent on government management to a business culture focused on new enterprise modes

of organizing, patterns of influence and authority, criteria for action and a move to shorter planning time horizons. [Kurunmäki \(1999\)](#) examined the transition from a planning allocation system to a competitive based resource allocation system in Finnish health care. The introduction of market forces and accompanying financially oriented MCS were introduced to encourage increased cost consciousness and accountability. The MCS assisted in shifting power from health care providers to health care financiers and a general move to economic reasoning. [Llewellyn and Northcott \(2005\)](#) showed how hospitals in the UK have used cost data to provide comparisons of efficiency. However, an outcome of this process has been a tendency to create 'averageness' in practices as the MCS encourages behaviors and practices to be molded into standardized categories, using average costed clinical classifications (HRGs) as benchmarks.

[Ezzamel and Bourn \(1990\)](#) examined a UK university experiencing a financial crisis and showed how a MCS, initially based on financial controls and then later developed to include new formal and informal controls, was used in different ways at different stages of the changes involved in recovery. In the early stages of the crisis the MCS highlighted the political dimensions, assisted in managing uncertainty and conflict and facilitated compromise and helped generate new ideas. In later stages when novel ideas were critical to managing the change the MCS was not helpful as it had no surveillance capabilities and lacked flexibility to respond to uncertainties by means of examining strategic possibilities. [Soin, Seal, and Cullen \(2002\)](#) examined how the introduction of ABC in a UK bank was partially effective in encouraging organizational change to a more entrepreneurial orientation. ABC was successfully institutionalized and demonstrated links between costs and products but did not transform strategic thinking. The later was due to conservatism, and a desire to maintain existing managerial discretion and a lack of technical understanding of the potential of ABC to help change strategy. Using survey-based methods [Henri \(2006\)](#) showed that performance measures can focus organizational attention, support strategic decision making and legitimize

action in organizations with cultures characterized by a dominance of flexibility values over control values. Performance measures were seen to stimulate and guide innovation, creativity, learning and change.

Integrating change between central and operational sub-units

A second line of research has considered the role of MCS to provide for integration between the needs of corporate managers to monitor the financial consequences of decentralized activities with controls to enable both senior and operational managers to keep in touch with the emerging longer term strategic issues that are related to managing successful change. Roberts (1990) describes a situation characterized by change based on an acquisition and the use of profit centered structures and a financially based MCS. To overcome a consequence of a preoccupation with immediate financial results of production activity and a distancing from issues concerning long term innovative strategies, management used conferences as an alternative form of accountability. This helped resolve the tension between myopic financial concerns with strategy issues. Also, conferences helped engage employees in difficult decisions of cuts in production volume and the workforce, and helped develop a sense of interdependence between units and functions within the organization. The author stressed the important role for MCS in change situations to integrate individual action and mutual dependence. Seal (2001) examined a firm changing from diversified products to a more limited set of industries and a move to a more innovative culture. A financially controlled MCS had stultified the old organization and the new identity sought more innovative MCS consistent with innovation and learning. The MCS evolved to integrate the changes by combining a shareholder value approach at head office with more local innovative MCS, although not in any coherent way. While it was not clear that the different types of MCS were effective in implementing the new strategy, the authors conclude that for MCS to help effect change they need to be sensitive to the trade-offs between strategic, financial and operational matters, and inno-

vation and economic viability. Collier (2001) showed how MCS can integrate traditional financial control for external constituencies with more local information needs. This study showed, in a UK Police Force, how decentralized, local financial management, based on budgetary systems, helped encourage changes in financial control for the needs of external regulators while enabling local commanders more freedom of choice over resources to commit to technical policing work. Ideas of loose coupling provided the basis to explain the integration between external and internal users' needs.

Diffusing and integrating change across the organization

A third stream of research has focused on the role of MCS in providing for integration of change participants across the organization. Briners and Chua (2001) showed how an Australian mining company used ABC to gain improvements in the quality of its cost information with a view to ensuring that existing products maintained their market share and new profitable products were constantly developed. Change was sustained by the involvement of networks of parties interested in ABC who reinforced the implementation by using 'boundary objects' such as common data bases for different parties to draw upon, and visionary beliefs as to the usefulness of MCS that all parties could believe in. Dechow and Mouritsen (2005) stress the importance of boundary objects, arguing that ERP systems act by enabling individuals to take into account issues across the organization and demand information, both from ERP and elsewhere, concerning integration of effort across the organization. Quattrone and Hopper (2005) also studied ERP showing how it can provide for different modes of control between corporate and divisional units. It may reproduce conventional accounting controls and be consistent with maintaining the status quo and an incremental process of change. On the other hand it may provide real time information in matrix form, breaking down conventional financial accounting, therefore providing a sense of minimalist control, a system more consistent with more dramatic change. Vaivio (1999)

examined how non-financial performance measures were used in an attempt to integrate customers with the innermost activities of the organization. The author showed how this approach led to a restructuring of an organization, altered patterns of dependency and power and made visible new dimensions of performance which generated negative encounters between management accountants and other managers. Resistance to the new MCS from local operational managers resulted in a struggle with 'the quantified customer' approach. More qualitative approaches based on local knowledge were adopted to account for complexities of the interdependencies between customers and the rest of the organization not captured in performance measurement systems. Nørreklit (2003) argued that balanced scorecards have a role in providing "rhetoric" that is a key management tool that can integrate all interested parties within the network of the organization, keeping them informed and in check (see also, Ezzamel & Bourn, 1990). Euske and Riccaboni (1999) studied the role of MCS in an Italian bank over the long-term including its privatization. MCS were seen to be a flexible tool in managing a series of interdependencies. These interdependencies involved satisfying competing interests such as those of returns to stockholders and regulatory control requirements; the requirements for regulatory information by the State and information on adaptability to meet the evolving competitive environment. The study also showed how a well developed MCS helped the bank make the transition to the private sector.

In a similar vein, several studies have shown how MCS can integrate the need for financial or social legitimacy with local operational needs. Llewellyn (1998) used ideas of organizational boundaries to help explain how welfare professionals could use costing information to make value for money assessments while maintaining boundaries between their new financial roles and a caring culture. Likewise, Modell (2001) examined how MCS can be used in public sector reforms to provide for social legitimacy as predicted by new institutional theory, and to achieve efficiency gains, following traditional functionalist

perspectives. A case study of a hospital indicated the proactive use of MCS, such as DRG based performance measures, provided legitimacy but also helped managers strengthen financial control. Ansari and Euske (1987) showed that while an improved costing system in a US Defence organization did not result in efficiency gains, it did provide for legitimacy, caused managers to develop concern with providing better accounting systems, changed the nature of dialogue and led to conferences where costing was discussed. Abernethy and Chua (1996) studied the introduction of costing and budgetary systems in an Australian hospital that had been through a process of a change from values based on physicians to ones that included a stronger emphasis on managerial values. While the MCS did not generate efficiency gains they were of symbolic value supporting strategies of resource management. While this was important to satisfy the concerns of funding bodies the MCS was seen to go beyond this and was important in supporting the new resource management culture that became the way of managing the hospital.

Gaining employee commitment to change

The fourth set of studies recognizes that change facilitated by MCS will involve an integration between technical concerns with MCS practices and the extent to which employees embrace the MCS and the change initiatives. In the main these approaches have considered employees at an aggregate level, taking an industrial relations perspective. Bougen (1989) examined how an MCS was used to create a profit sharing scheme with employee collaboration that was central to the industrial relations in a UK engineering company. This was successful in facilitating improvements in efficiency and competitive position. However, the scheme was not as successful in the process of joint consultations between employees and management, with employees being critical of the reliability of the accounting data, and more importantly accounting was seen by employees as providing management with dominant power over the interactions focused on the rights and privileges of different classes of organizational participants, with specific consequences that labour

believed that it did not receive its fair share of economic benefits. The scheme terminated after nine years with the case organization merging with another company. Research by [Chenhall and Langfield-Smith \(2003\)](#), also, investigated the role of a gainsharing scheme in encouraging change in an Australian manufacturer. This scheme was successful in improving work practices within conventional structures but when the organization introduced self-managed teams as part of its human relations initiatives, the gainsharing system with its individual self-gain focus, was incompatible with the high level of cooperative effort and trusting behavior necessary to develop mature teams. [Miller and O’Leary \(1994\)](#) considered the role of MCS, as an important body of expertise, in making possible the changes involved in ‘advanced, flexible, customer focused manufacturing’ with its emphasis on a ‘new economic citizenship’ based on process improvements driven by an empowered work force. [Ezzamel et al. \(2004\)](#) also report the positive role of performance measures to regulate and transform organizational practices. New performance measures (inscriptions) were used to facilitate change in a manufacturing firm from a cost-plus defence regime to one focused on cost, quality and delivery. The important role of MCS in effecting change through team-based structures was emphasized with the work practices involved in the change being designed by ‘empowered’ workers. The MCS helped define the organization’s mission and moved centers of power away from engineers to a financially centered complex that promoted cost awareness and the ‘new commercial agenda’ (see also, [Ezzamel & Bourn, 1990](#); [Abernethy & Chua, 1996](#)). While not entirely embraced by the work force, the case indicates that the pressures for survival muted any significant resistance. In a contrasting study, [Ezzamel et al. \(2004\)](#) examined the role of MCS in a UK manufacturer undergoing changes involving new manufacturing over a 20 year period. The case identifies difficulties with labour relations as central to developing employee suspicion and resistance towards new ABC type systems and inhibiting their effective implementation and potential facilitating role in the change situation. The case showed that a well entrenched

cooperative culture of ‘unplanned responsible autonomy’ hindered management’s efforts to introduce new methods of centralized control based on ABC.

Summary of previous research

The research summarized above provides examples which stress that for MCS to help effect organizational change users need to be sensitive to the way their organization relates to the changing environmental context and the implications to changing the culture of the entity. Additionally, the research has identified that MCS can assist users in managing change by providing different information that is relevant to the needs of managers at various levels in the hierarchy. Also, MCS can be implicated in the development of user networks and of boundary objects within the organization. Finally, effective change involves employee commitment and the literature has shown how this may be assisted or hindered by the role of MCS within the context of industrial relations. To understand these issues the existing literature has, in the main, adopted an aggregate level of analysis drawing on approaches that incorporate a number of perspectives such as institutional theory, actor network theory and boundary objects, and theories from multiple disciplines including economics, operations management and human relations.

From this review we identify two gaps in the literature. First, while the studies employ a broad range of theories they do not explicitly consider theories of change. Much can be learned about MCS facilitated change by considering what is involved in various dimensions of change as organizations transform themselves through time. Second, while individuals are considered in existing approaches, with many studies noting the importance of concepts such as employee empowerment, there is little analysis of how and why individuals respond differently to the various aspects of organizational change and how this may evolve through time. We aim to illuminate the topic of MCS facilitated change by employing a holistic model of change, as developed by [Huy \(2001\)](#), which focuses on both technical and behavioral

issues as they evolve through time.⁴ We believe that this approach is important as it provides a basis to show how seemingly similar ways of thinking about MCS facilitated change will have varying effectiveness depending on how the tangible attributes of the MCS combine with requisite behavioral changes. Our study aims to show how technical and behavioral aspects have to be combined to suit the particular circumstances of the organization.

In summary, the current study aims to complement existing research and to extend the scope of the investigation by integrating the technical approach to MCS with a behavioral approach that focuses on how individual users respond to MCS facilitated change. We sought to study change over a relatively long period of time as we wished to understand the more gradual and non-linear change processes that involve irregular and sporadic responses of individuals to change initiatives and the longer term implications for the organization. Moreover, our approach considers a theory that explicitly examines different modes of organizational change, rather than discussing change through the lens of more general social theories, as employed in the above literature. Consequently, we are able to develop the theme of integrating various elements of MCS facilitated change but do so with a specific theoretical focus of integrating MCS with individual user's reaction to change, and do so by considering various modes of change and the way they interact.

In the next section we present the theoretical framework used in the paper. We then provide an overview of the research sites and the organizational environment. This is followed by a description of our research method. Next we describe the role of the MCS in the change process in each organization using a framework developed by Huy (2001). In the following section, we interpret the findings from the two organizations involved

in our study in terms of Huy's theoretical framework to provide a more informed presentation of the change process. We close with a brief concluding discussion.

Theoretical framework

Responding to a proliferation of change theories, several commentators have attempted to integrate theoretical perspectives into more comprehensive frameworks to explain how and why change unfolds (e.g., Dunphy, 1996; Rajagopalan & Spreitzer, 1996; Van de Ven & Poole, 1995; Weick & Quinn, 1999). An important concern in bringing together theories of planned change is the combination of prescriptions that stress purposive interventions in technical and social systems employing highly rational change management techniques with approaches that are more concerned with understanding how behavioral interactions between individuals will lead to changed cognitions and belief structures. More holistic approaches attempt to understand why the effects of purposive interventions may be enhanced, or hindered, by a match, or mismatch, between assumed and actual cognitions (Rajagopalan & Spreitzer, 1996, pp. 64–68). Given our goal was to find a theory that effectively addressed both rational and behavioral dimensions of the change process, the holistic theories are more applicable to this study. However, as Tolbert and Zucker (1996) noted different theories can be used to explain the same phenomena in an organization. So within the set of holistic theories we sought one that would particularly inform the discussion of the relationship between MCS change and the way an organization responds to both technical and behavioral concerns through time.

Examination of theories of change indicates that there are many aspects of change (Greenwood & Hinings, 1996), but certain aspects may be particularly significant in examining technical and behavioral concerns. These are the technical content of the MCS facilitated change and how well individual users respond to this content over time. While content issues are well established in most

⁴ Rational issues involve purposive change in the design of MCS and other structural and work-related initiatives. Behavioral concerns involve the actions of individuals and include consideration of the cognitions or the knowledge structures, core beliefs and schemas that influence the way individuals respond to change initiatives (Walsh, 1995).

theories of change, time tends to be treated implicitly in change theories with its implications largely unexamined (Mosakowski & Earley, 2000; Quattrone & Hopper, 2005). The interrelationship between content and time provides a powerful basis to understand technical and behavioral issues involved in change. Some technical aspects of planned change can be changed faster than others, depending on the extent to which individuals embrace the element of change. Most notably formal structures can be changed more quickly than changes from traditional, historically grounded values to new and different beliefs and values (Bartunek, 1984). Two aspects of time become important to its explicit treatment in change theories. These are conceptions of time as quantitative or qualitative (McGrath & Rotchford, 1983; Sztompka, 1993). Quantitative time refers to clock time that is linear and can be precisely measured in ways that are common to all individuals. This form of time is typically applied to effecting the content aspects of change, such as formal planning and budgeting. Qualitative time is particularly important to understanding behavioral issues associated with organizational change. It can flow in different and indeterminate ways depending on the interpretations given to events by individuals. Qualitative time presents challenges to change processes as it cannot be measured or managed easily. Huy (2001) provides a framework that satisfies our criterion for an approach to change that incorporates technical content issues of MCS facilitated change and the extent to which these affect individuals response to change through time.

Huy (2001) argues that there are four ideal types of planned change: commanding (formal structures), engineering (work processes), teaching (beliefs) and socializing (social interrelationships). Each type is described by identifying specific practices and the nature of the implementation procedures, including leadership and the pacing of change. Planned change involves combining these ideal types, deciding on the sequencing of the types and the timing of this sequencing. The effectiveness of change depends on matching these ideal types to suit the context of the organization and the dispositions of individuals involved in change. Table 1 presents the assumptions underlying the change

intervention types. We use the framework to examine the role of ABCM as a platform to induce a planned change from a military to a more business like, managerial orientation. In this section, we outline the essential practices and procedures of each ideal type.

The approach developed by Huy has distinct temporal assumptions associated with each planned intervention mode. As temporal assumptions differ between modes of change, it becomes important to examine the effective sequencing, timing and the pace of change when considering how multiple intervention modes are sequenced or act in combination. As indicated above, other theoretical perspectives could be used (Van de Ven & Poole, 1995). However, the explicit consideration of the different intervention modes and the multiple conceptualizations of time make the Huy framework particularly attractive for the analysis of the role of MCS as a basis for change, when studying change over a relatively long period of time (McGrath & Rotchford, 1983).

The commanding intervention follows the approaches taken in formal strategic planning involving examination of the external and internal situations, applying analytical frameworks to make changes in tangible organizational attributes such as introducing formal structures, acquisition or divestment of people, assets and systems. Leadership is by a top management team who employs a power-coercive style and is assisted, typically, by external consultants. There are clear orders and sanctions to ensure compliance. Preferred changes are paced in a rapid way to prevent resistance developing momentum. The outcomes of change are near-term and progress towards these is measured in linear, clock-time, which is the same for individuals at both higher and lower levels in the organization. While this intervention aims to achieve highly visible outcomes in tangible factors, it is unlikely that a command intervention will foster long-term changes in basic beliefs and values.

The engineering intervention is concerned with analyzing, understanding, and redesigning work processes to improve the quality and speed of work. Approaches such as TQM, quality circles and process reengineering typify this type. Change leadership is managed by skilled work process

Table 1
Assumptions of change intervention ideal types

Assumptions	Commanding intervention	Engineering intervention	Teaching intervention	Socializing intervention
Metaphor of organization	Top management as operators of a tightly coupled organization	A machine organization with thinkers and doers	Guided learning culture	Organic open system
Conception of time	Quantitative	Quantitative	Qualitative (inner time)	Qualitative (social time)
Entrainment factors	Outside the organization	Inside the organization (logic of work processes)	Inside the organization (individual psychology)	Inside the organization (interpersonal relationships; shared norms)
Time perspective	Near term	Medium term	Moderately long-term	Long term
Pacing	Abrupt, rapid	Moderately fast	Gradual	Gradual
Ideal organizational state or goal	Portfolio of organizational units positioned to achieve superior performance	Highly-productive, efficient work processes to achieve superior performance	Community of responsible, adaptive individuals	Democratic community of semi-autonomous workgroups
Intervention theory	Competitive analysis; top-down driven change	Work-process analysis	Exposing tacit and taken-for-granted beliefs and assumptions	Participative experiential learning
Role of change agents	Commander	Analyst	Teacher	Facilitator, role-model
Typical change actions	Demand strict compliance	Analyze, design work processes and develop task-based skills	Probe, reveal, teach	Facilitate, empathize, self-monitor
Change tactic	Power coercive	Normative reeducative	Empirical rational	Empirical normative
Typical identity of main change agents	Top executives with consultant support	Work design analysts and external consultants to transfer knowledge	Outside process consultants	Ordinary organizational members

Adapted from Huy (2001).

analysts who guide and develop employees' technical skills. Time is clock-time but is paced to the overall logic of the work processes. As processes and skills take time to understand and develop, pacing is somewhat slower than in the commanding intervention with the type favoring medium-term pacing. Success is based on employees' acceptance and use of new work practices.

The teaching intervention involves a formal analytical and guided learning approach in which individuals collaborate with a change agent to change their own personal fundamental beliefs. The approach uses outside intervention agents to undertake cognitive diagnoses as a prelude to change in behaviors that will enable individuals to learn freely and to accept new values and beliefs. Because individuals will be involved in comparing the changing situation with their past, the change initiative recognizes an individual's 'inner time'. Inner time is subjective with different events seeming to be passing more or less rapidly. Accommodating inner time requires change agents to be patient and avoid generating too much personal distress by 'rushing' events. This mode entails a moderately long time period involving a gradual and voluntary process that can rarely be imposed by pure power.

The socializing intervention focuses on the quality of social relationships among organizational members and involves issues of individual emotions, power and politics. As such, this ideal type is more concerned with behavioral factors associated with the process of change. Changes in behavioral interactions are seen as a prelude to changes in beliefs (unlike learning that sees changes in beliefs leading to changes in behavior). Leadership is provided by change agents who are often self-motivated employees. These employees have accepted and believe in the change. They attempt to engage in experiential learning with others. The concept of time is qualitative social time that is defined by meaningful events involved in social processes, such as bonding. The pace of change therefore depends on when meaningful events occur that enhance social bonds. Change occurs through the process of personal, open and imaginative conversations. People respond based on the nature of the relationship between them-

selves and others. Socializers differ from teachers because the former need to change themselves while the latter are outside or transient to the social systems. The phasing of this type is gradual and long term with change in relational behavior preceding changes in values. Change agents guide the change process in a cooperative mode with individuals taking time to decide if the proposed change improves their welfare and is not just opportunistic.

Overview of the organizational environment and the research sites

In this section we provide a brief general description of the organizational environments and of the two research sites. The following sections develop a more detailed description of the environments and research sites.

Organizational environment

In the early 1990s, both organizations studied in this research faced political pressure to improve efficiency, to identify the resources associated with different levels of readiness and to become more accountable for the use of public resources.⁵ This is consistent with a trend in many Western countries for the entire public sector to be more accountable for public resources and to move from a 'bureaucratic' mentality to a more 'business oriented' approach to management (Wanna, Jensen, & de Vries, 2003). These pressures extended to defence with the governments causing the armed forces to justify costs and, more generally, demonstrate concern with delivering outcomes in effective and efficient ways. Innovative MCS, based on ABCM, were seen as a way to map activities to different capabilities and to associate costs with these activities. On the basis of working with this

⁵ *Australian Case*, Organization Planning Committee ABCM-Implementation Strategy, November 1994, p. 2; *US Case*, General Accounting Office Study, 1993. Government documents that are cited are not listed in the references. The citations are by design not complete to maintain the anonymity of the organizations.

activity and cost information both formal documentation and the senior management claimed that they expected that the organizations' operational management would move from the traditional military effectiveness focus to an orientation that focused on efficiency fostering a cost consciousness. This would enhance understanding of the costs and benefits of different capabilities associated with varying degrees of readiness.⁶ In particular for the Australian organization, senior management recognized that they would be in a position to develop other MCS practices such as performance measurement systems and use the information for innovative decision tools such as risk management and outsourcing decisions. This would satisfy political pressure for more accountability and better equip senior management to argue for new resources or indicate the resource and capability implications of budget cut-backs. More generally, for both organizations, it was expected that the MCS would provide a basis for improved understanding of processes with a view to enhancing effectiveness and efficiency.

At the outset of the project the sponsors of the Australian ABCM application believed that the systems would provide near-term improvements in data for resource management while developing in parallel an embedded ABCM that would support a more managerial culture.⁷ However, they recognized that this would be unlikely to be unproblematic. In a 1994 document that formed the basis for a Roundtable involving senior management and members of a professional accounting group the following areas were seen to provide 'organizational constraints':⁸ lack of a clear and concise planning process which exposes the relationship between resources, activities, outputs and outcomes; the structure based on 'Defence Program Management and Budgeting'

generates artificial boundaries that inhibits drawing links between activities, outputs and outcomes; the existing accounting culture, supported by financial systems, do not allow for assigning costs to levels of preparedness; information systems involve in excess of 150 applications including 30 logistic systems with their 42 associated interfaces present challenges to move to a more integrated data base to serve ABCM; and change initiatives are considered as threats by some managers. It is noteworthy that these potential technical and social problems were identified at the outset. The implementation strategy was to involve "...addressing the organizational constraints, adopting a cautious, phased implementation, and engendering a high level of *organization-wide* commitment to the success of the undertaking".⁹ Notwithstanding such expectations the organization still had great difficulties in overcoming both technical and social problems during the initial stages of the change program.

Research sites

Facing the same type of pressure from their respective governments to become more accountable in the use of resources and for their efficiency and effectiveness in delivering outcomes, both organizations decided to adopt ABCM as a way of helping to move the administration of the organizations towards more modern managerial principles. Both went through periods of embracing ABCM, a period where the ABCM atrophied and a renewal phase. The organizations developed reputations for being innovative in the application of MCS to drive change. In the Australian case, a presentation was developed for use by a US defense organization (not the US organization that is part of this study) to present how the MCS was used to refocus on the issue of capability management.¹⁰ In the US case, the organization was identified by the General Accounting Office as one of the leaders in the federal government in the imple-

⁶ *Australian Case*, ABCM Project Deliverables, Attachment B, Statement of Requirements, p. B1, B4, March, 1995; *US Case*, Activity-Based Cost Management at the US Organization: A view from the Top, Undated.

⁷ *Australian Case*: Strategic Advisory Committee Paper, 1994.

⁸ Expected Outcomes of ABCM: How do we action it, develop and sustain this network and gain value, 1994, pp. 3–4.

⁹ Expected Outcomes of ABCM: How do we action it, develop and sustain this network and gain value', 1994, p. 4.

¹⁰ Presentation developed by the US Government to understand the Australian organization's use of MCS, 1998.

Table 2
List of individuals interviewed

	Headquarters staff	Operational staff
Australian organization	Chief Financial Officer Director of Accounting Practices Acting Director Budgeting and Plans Initial ABCM Project Leader Second ABCM Project Leader ABCM Analyst 1 ABCM Analyst 2 ABCM Software Design Team Leader ABCM Software Design Team Member 1 ABCM Software Design Team Member 2 Lead Training Consultant	Command A: Business Manager Command B: Business Manager Command B: Systems Trainee Command C: Business Manager Command C: Director Performance Measurement Systems Command D: Business Manager Command D: IT Systems Officer Command D: Systems Trainee
US organization	Deputy Chief of Staff Manager of Financial Systems Director of Risk Management ABCM Project Coordinator Lead Pilot Project Consultant	Commanding Officer Command A Chief Financial Officer Command A Comptroller Command A Manager Command B Manager Command C Manager Command D ABCM Implementer Command D Manager Command E ABCM Implementer Command E Comptroller Command F Comptroller Command G

mentation and use of advanced MCS to increase accountability and refocus the organization on performance management.¹¹ Additionally, the organizations have similarities in recent histories that involved considerable pressure for change derived from government pressure to identify potential areas for resource cut-backs and to assess the efficiency of the organizations.¹²

Research method

In this section we discuss the sources of our data, the data collection procedures and the method of analysis.

Data sources and collection

This study examines MCS change in the two organizations over the period 1993 until the end

of 2004. The researchers had contact with the organizations from the early 1990s primarily by way of the organizations' involvement in professional management accounting groups to which the researchers belonged.¹³ Most of the data for this study were collected over a two-year period between January 2003 and December 2004. Four types of data were gathered: interview, archival, public and official documents and observation of administrative processes. Because of the militarily sensitive nature of some of the administrative procedures, the analysis relies mainly on interviews, archival and public records. Thirty-five individuals were interviewed using a semi-structured approach. See Table 2 for a listing of the individuals and job titles. On average the interviews lasted

¹¹ *US Case*, General Accounting Office Study, 1996.

¹² *Australian Case*, Wanna and Bartos, 2003; *US Case*, General Accounting Office Document, 1990.

¹³ It was the continuing involvement of the researchers with the two organizations that made them aware of the use of MCS in the change process. Once, the researchers realized that this was a relatively unique opportunity to study the use of the same type of MCS in implementing planned change in two similar organizations, they approached senior management in the two organizations and requested access.

about 90 min. Interviews were undertaken over the 24 months of the study. Initial interviews took place with two researchers present. Given the possibility of militarily sensitive information being discussed, meetings were not tape recorded. However, notes were taken and debriefing between the interviewers was undertaken after all sessions. Subsequently, detailed notes were written up. Over the period of the study, we interviewed most of the key participants who had been involved in the implementation of the MCS at some time over the studied period. In some instances, these individuals were still within the defense forces, others had moved to other occupations. Interviews focused on the experiences of the participants with the development of the MCS and the planned transition from the military-styled administration to a more managerial focused approach. Key participants were re-interviewed, some multiple times, as the change programs evolved. Follow-up interviews were conducted with either one or two researchers present. There were nine follow-up interviews in the Australian organization and 11 in the US organization. In addition to the interviews and follow-up interviews the researchers had 25 meetings with members of the Australian and US organizations, 10 and 15, respectively. The additional meetings were at formal and informal gatherings. The more formal meetings allowed us to see participants fulfilling their official roles throughout the various parts of the organization as they interacted in response to the MCS. The more informal meetings, often after work hours in casual settings, provided a rich source of somewhat more 'confidential', 'behind the scenes' information, as well as a sense of the attitudes of many to the changing managerial orientation and their inherent beliefs to the changes confronting them. In some cases the informal meetings approximated formal interviews in terms of the form and content of data collection. However, if two researchers were not present the interaction was not counted as an interview.

Other sources of data were internal archival material and public records:

- We were allowed supervised access to a wide array of internal documents that related to the early design stages and the pilot stage, roll out of the systems and the 'in-service' stage followed by atrophy, and the renewal period.
- We were given access to documents that related more broadly to the objectives of change, training sessions and activities that were connected with both technical and organizational aspects of the change initiatives.
- We visited operational sites to observe documents and procedures used by managers that related to both the MCS initiatives and other administrative matters.
- A wide variety of documents related to official government policy were examined.
- Given the innovative nature of the MCS initiatives, there were press releases and professional accounting and management conference presentations from defence personnel that were pertinent to the study.

Finally, there was some limited information gained from attending management meetings, forums and change management sessions. Most of this material involved militarily sensitive information and is reported only in general terms. We also took the opportunity during site visits to observe managers' actions related to how they were responding to the demands of the change initiatives.

Data analysis

Data were analyzed following methods recommended by Eisenhardt (1989) and as recently employed by Ahrens and Chapman (2004). This approach uses an iterative process involving validation of data, identification of emerging themes and interpreting our data in terms of the holistic change model. Interview data from all sources were organized around the historical record of the change initiative. Areas of agreement and disagreement were noted with contrasting views identified. Archival records were linked to the historical events and provided a source to clarify or raise questions about points of contention from interviews. Public documents and the record of seminars and press interviews often provided a useful basis to prompt those interviewed as to critical events impacting the change initiatives. This

provided a series of documents of the historical record. We used the documents as the basis for discussion with key participants to assess the accuracy of our research into events over the change period. Also, the information in these working documents was used to discuss with key participants the strengths and weaknesses of the change initiatives. This provided a valuable source for them to reflect on the overall progress of the two organizations' change initiatives, highlighting points of similarity and differences. We organized several meetings where these reflections were shared. This process provided the basis to identify, discuss and investigate emerging themes. Finally, we used these working reports to investigate whether the events could usefully be described in terms of Huy's (2001) modes of planned change.

Discussion and findings

In this section we present our findings and discuss those findings using Huy's model.

Australian organization

In Australia, early in the 1990s government pressure resulted in what headquarters and operational managers in the field said was a surprise closure of several facilities in the Australian organization. As a consequence, senior defence management recognized it needed to convince government that it understood the resources required to deliver on agreed defence policy. Importantly, management sought to demonstrate that it was alert to the costs of conducting defence operations and that it could provide evidence of the pitfalls of resource cutbacks.¹⁴ A common theme in the interviews was that existing budgeting and other accounting systems did not provide relevant information to manage resources and costs, nor was there confidence in the accuracy and validity of the existing information systems. ABCM had gained popularity in the private sector and was identified as a MCS technique to identify resources

associated with the activities of delivering agreed defence outputs. ABCM was seen as providing a platform to change from a military to a managerial styled administration. At the time the Australian organization was seen as being on the cutting edge of bringing ABCM into the government sector. The original project leader and other senior members of the ABCM team were active in making presentations at professional accounting and management conferences and workshops. During the early stage of the implementation, the project leader was considered at the forefront of public sector applications of ABCM, being a keynote speaker at the 1994 National Conference of an Australian management accounting professional group and presented regularly at workshops over the period 1994–96. The change process within the Australian organization involved three distinct stages: (1) initial researching, defining, and pilot testing, (2) roll-out of the system culminating in atrophy of the system, and (3) renewal. By atrophy we mean a decline in interest in the initiative and a wasting away of effort. Table 3 presents the stages and their timing.

First stage – Defining

Given the novelty of ABCM to defence, an initial stage involved a four-year period (1993–97) of researching, defining and pilot testing the systems. During this stage, it was important to plan for change that would have highly visible activities and outcomes and to demonstrate them quickly. This was significant given the context of considerable pressure from government to demonstrate a movement away from the military styled administration to a managerial orientation with an initial emphasis on developing cost consciousness. The director of the project stated that he believed that *ABCM would provide the technical basis for change*.¹⁵ Given the urgency to justify the investment made in ABCM there was time pressure on the designers of the systems to develop, test and hand over operational systems that could be used

¹⁴ Australian Case Roundtable, 12 December 1994, p. 2.

¹⁵ The interviews were not recorded. However, comments captured in the interview notes of both researchers and used in the text are in italics.

Table 3
Stages of the implementation

Australian		US	
1993–1997	Researching, defining, pilot testing the systems	1995–1996	Researching
1998–2000	Roll-out	1997–2000	Pilot-testing
2001–2004	Renewal	2001–2004	Renewal

for the purposes of effecting change. Both the staff working on the project, and the engaged consultants, said that *there was a real sense of urgency to produce results*. The technical nature of the ABCM required a comprehensive change in the formal structuring of data collection and methodology applied to MCS systems design. External consultants were employed to assist in defining issues related to designing and implementing the systems and positioning them within a change management strategy. As the project was being scoped, managers who would be involved were consulted and made aware of developments. However, this process did not engage potential users in discussions as to how the systems would help them manage their operations. Nor was it clear to these managers how the systems would be integrated with a change management strategy. The manager of the largest facility noted *it was not clear to me that these new systems would help me manage this operation. It might be useful for Canberra (Head Quarters) but not for me*. At this stage there was much activity with extensive resources being applied to researching the requirements related to data and design issues. The systems design involved a broad scoping, high levels of detail and considerable complexity.

For ABCM, understanding work processes is an essential part of the analytical practice of relating costs to activities and processes. Again, external consultants lead the analysis of work processes, data mapping and activity analysis. Teams of task analysts were sent to operational facilities and took responsibility for analyzing work processes and designing systems. Because of the complexity of the task and the highly detailed level of analysis, the effort extended over four years.

Operational staff explained that *the work process analysis was undertaken at an extremely*

detailed level and that they did not fully understand the purpose of the initiative, or how it related to their work. A senior member of the work-process team indicated *that the teams did not see that they should, or could, assess managers' capabilities to use the systems*. He also confirmed that *there was little support for managers in how to use the cost systems*. The intervention progressed at a relatively slow pace without visible results. Notably, it could not be demonstrated that ABCM was being effective in leading the organization towards a more managerial orientation. Early participants in the ABCM initiative claimed *that with more tightly specified deliverables, the project would have had checks to control for the scope creep that resulted in some drift in the content and timing of the initiative*. Examples of the scope creep included work done that related to improving human resource activities such as remuneration and in improving scheduling of parts and services. When interviewed in 2003, the manager of the initial phase of the ABCM initiative commented that *the only way ABCM would (and could) have been effective is if the imperative involved coercion*. He stated that *his efforts to employ non-coercive leadership had been a key to lack of take up of the systems and final atrophy*. External consultants involved in ABCM design and other consultants engaged to facilitate training confirmed that a lack of coercion inhibited managerial take-up of the ABCM initiative by the operational managers. According to the manager of the initial phase of the initiative, *while top management provided verbal support for the initiatives, there was no active and visible support by way of them indicating an interest in when and how they might use the systems, or in how the systems were being used by others*.

There was a growing urgency to demonstrate benefits as the time period for design became somewhat protracted. A pilot study was completed

successfully and the systems rolled out over the period from late 1997 until early 1998. The systems were deemed to be ‘in-service’ early in 1998. Several individuals from the design team stated that *‘roll out’ was premature as the systems were still prototypes but were being offered as fully functional systems.*

In terms of Huy’s (2001) framework the initial change effort was an organization-wide commanding intervention complemented with an engineering intervention. Huy’s theory of planned change stresses the importance to effective implementation of combining and sequencing different intervention modes. Like the commanding intervention, the engineering intervention has a focus on rationally inducing tangible elements of change. The commanding intervention involves the overall plan for change and focuses on structures and systems, while the engineering intervention focuses on analyzing work processes. Arguments for engineering interventions to be combined or precede commanding interventions center on the belief that engineering sensitizes individuals to think about processes and costs. Given this preparation, it is more likely that there will be an unambiguous understanding of the purpose of change between operational managers and senior change leadership. With this coupling of meaning, the commanding intervention can force the pace of change and operational managers can see how improvements in work processes relate to the objectives of the commanding mode. However, in the Australian case the commanding mode did not produce fast improvements, did not achieve near-term change outcomes, was not entrained by outside factors, and was not monitored in quantitative clock time. As predicted by Huy, the commanding mode was not effective in implementing the ABCM-based change initiative with the development taking three years. Even then the resulting product was not complete, being based on a prototype. The work process analysis had the characteristics of an engineering intervention as described in Table 1. However, it was apparent that the engineering intervention was not successful in sensitizing operational managers to how costing related to work processes, nor how work processes related to the aims of the commanding

mode. The work-process analysis was highly complex and protracted. The work process teams did not attempt to relate the analysis to operational managers’ work. Moreover, scope creep resulted in a drift of the project from its original aims to move the organization to a more cost conscious capability that would assist managers in justifying their resource requirement. Given the complexity of the engineering intervention, it seems, with hindsight, that the process analysis would be protracted.

Our data indicate that a consequence of combining an imperfect commanding and a complex engineering intervention was the rapid domination by the engineering intervention. By emphasizing an engineering intervention, the change managers could demonstrate that the organization was busy analyzing and understanding work processes. This produced a series of engineering-based outcomes. For a period of time there was less pressure from senior management, who had a focus on the commanding intervention, to demand evidence of progress towards the organization-wide changes to a more managerial organization. However, eventually it was apparent that the initial expectations of the commanding intervention were not being effected. There was virtually no take up of the systems, and the change initiative atrophied. This observation supports Huy’s (2001) claim that the application of multiple intervention types generates potential pacing difficulties as different modes have different rhythms. Our data suggest that the slower pacing required for the highly complex engineering intervention did not match the faster pacing required for the commanding intervention. This mismatch in the phasing and the delays caused by the time consuming process of collecting information from the engineering intervention resulted in a number of negative outcomes. Importantly, the organization was not able to deliver the fast paced, highly visible outcomes necessary for an effective commanding intervention. Additionally, given the long period of time involved in the engineering intervention, some individuals who were part of the early commanding and engineering interventions were moved to other positions. This resulted in new personnel being confronted with the ABCM change initiative who had no

experience with the early commanding mode. Consistent with the Huy model, this appears to have resulted in increased resentment and resistance by those who were affected by the engineering intervention but had no experience with the expectations of the earlier commanding mode.

Second stage – Roll-out

The roll-out initiated the second stage. At roll-out external training consultants were engaged to encourage acceptance of the technical systems. They lead workshops and training sessions aimed at changing the fundamental beliefs of managers towards accepting a managerial orientation, based on the ABCM systems. However, the consultants leading the work process analysis and those doing the training did not coordinate. Without this coordination those teaching could not relate their efforts to the work situation and had to use hypothetical examples in an attempt to move managers cognitively from their military orientation to a managerial focus. None of the interviewees indicated that these initiatives changed attitudes and values of personnel. One manager's comments capture their frustration with the teaching activities, *the training programs were a waste of time as we could not see their relevance to anything that we were doing...looking at change management in a commercial airline was not very instructive*. The effort was discontinued after six months. The work process analysis continued during the period of the workshops and training sessions.

Ideally, a teaching intervention involves external change agents uncovering past beliefs and reconstituting these within the preferred change initiative, through retrospective sense-making (Weick, 1979). Such a process requires teaching programs to uncover the past and current work processes and practices. Combining an engineering intervention, that exposes the way work is done and should be done, with a teaching intervention provides an ideal way of engaging in retrospective sense-making. This did not occur because the external engineering and teaching change agents did not coordinate or engage in a common approach to the change initiatives. The use of the hypothetical examples in the teaching intervention did not provide the local relevance to support the

process of learning that involves individuals going back and forth between their own experiences and those required by the change initiative. Huy (2001, p. 608) notes the teaching intervention involves reliving the past and pre-living the future in the present. This process involves a pace of change that is individualized and gradual. A lack of symbiotic interaction between teaching and engineering interventions inhibited the teaching from effectively engaging managers in learning to change values and beliefs in ways that made sense to them.

After two years the initiatives suffered unexpected atrophy. This led to a view expressed by managers at headquarters and at the operational commands *that the ABCM initiative was not of use to managers, culminating in a recognition at headquarters that the systems were ineffective as a platform for change*. Over the period 1998 until 2001, the work process analysis continued but in terms of special projects including the development of performance measurement systems. There was some training aimed at providing managers with technical understanding of the ABCM. Over this period, managers typically questioned training in terms of relevance for their jobs. Most business managers stressed that they could not see the relevance of ABCM to them, often stating *“What's in it for me?”* The initial project leader confirmed that this type of response was common during the implementation. Managers also spoke of *the extensive time required to respond to the requests for data from the ABCM team and training programs with little focus on the potential usefulness of the systems for their work*. Given that many managers originally involved in the earlier stages had been redeployed, new managers were dealing with the ABCM initiative with no experience of the previous implementation efforts. At this stage most managers were confused as to how the new systems would assist them. One of the operational managers stated *he suffered stress and conflict as he tried to match his own way of managing while reluctantly and passively cooperating with the requirements of the change initiatives*. Others said they were *simply able to ignore the initiative*.

A notable experience was the success of ABCM in one operational command of the organization,

which we identify as Command A. According to the Command A manager of the ABCM effort the group faced the *situation where it had to spend more on logistics support than they received in annual funding*. This was confirmed by managers at headquarters. It was clear to the group's managers that the funding short-fall would compromise the unit's ability to perform effectively. An individual who had been on the broader organization's ABCM design team was seconded to the group to lead an analysis of the work process. The Command A manager and the ABCM expert said that they *believed that through social interactions within their group changes in the way of doing business were being achieved*. The Command A manager and his expert were already committed to work process changes. Other interviewees reported that *the Command A manager and the ABCM expert were seen as having a commitment to learning how ABCM could help the managers of Command A manage more effectively*. A manager at Command A noted that *as a consequence of applying ABCM they were able to appropriately support their capability, gaining an increase in baseline logistic funding of 20–25%*. A consequence of this success was that this unit championed the cause of ABCM and demonstrated a significant change to a more cost conscious, managerial type of organization. However, the project leader stated that it was the view of managers at other operational commands within the organization that *ABCM was relevant to this unit as it was different*. The difference appears to have been in the pressure facing the unit not to be able to provide logistic support and the positive dispositions of the Command A manager and ABCM expert to the new systems. The interview data indicated that it was not obvious to the work process and training consultants or the ABCM team that Command A's activities were different in any systematic way to make ABCM more or less appropriate. We came to the same conclusion.

The effort by Command A to address the external budget pressure can be characterized as a socializing intervention. Socializing is an important intervention mode in Huy's model. Socializing is distinguished from the other modes as it addresses, directly, personal interrelationships

between organizational members, involving changes in relational behaviors as a precursor to changing values. In a sense, it is often the least planned of the interventions requiring organic social facilitation, often by organizational members, rather than external consultants. The success of the socializing mode in Command A attests to the effectiveness of this approach. In this case the socializing intervention preceded and facilitated the engineering and teaching modes within the unit. A central factor in the success was the positive dispositions and close working relationship between the Command A manager and the individual advising on the engineering intervention of analyzing the work processes. Without these positive dispositions among other managers throughout the entire organization, the effectiveness of this combination of intervention modes was not transferable to other parts of the organization. Other operating managers, the ABCM project leader, and members of the ABCM project team all alluded to the positive disposition of the Command A manager.

It is instructive to reflect on how the socializing intervention worked within a situation of extreme pressure from budgetary constraints and the consequent emphasis on quantitative time pressure to respond to budgetary cut backs. Given the positive predispositions and the expertise of the change group, their qualitative time to change values and beliefs to a managerial orientation was sufficiently short to enable them to satisfy the clock time requirements for developing and implementing the ABCM systems. This enabled them to respond rapidly with convincing arguments to gain additional resources in a setting of budgetary coercion.

Third stage – Renewal

By 2001, ABCM had effectively atrophied in terms of its original aims. To many in the organization it appeared that ABCM had been abandoned. The organization faced a decision to disband the ABCM initiative. A new manager of a reduced ABCM team was appointed by senior management and instructed to evaluate the systems with a view to recommending whether or not to continue with the system. At about the same time a new chief financial officer (CFO) was

appointed who had experience with change management and costing in another arm of the defence forces. In a special report to his superiors, the new ABCM manager outlined the problems that had occurred with implementation and some of the issues associated with data and design complexity.¹⁶ However, he recommended that the original objectives of the ABCM system could be achieved. This would need considerable effort to convince operating managers of the benefits to them of the ABCM systems. With the strong support of the CFO and approval from senior management, the new ABCM manager sought to revive the effort. The new ABCM manager was respected widely by both uniformed and civilian personnel, due to his military background (he was a uniformed officer), his recent training in management by way of an MBA and his persuasive personality, energy and enthusiasm. According to one of the operational managers *there were high levels of innate trust between the new, uniformed ABCM manager and operational personnel*. This observation was supported by the comments of the other operational managers.

During the renewal stage the new ABCM manager spent a considerable amount of time in the field listening to the concerns of operational managers and discussing how the systems could be of benefit to the managers. He estimated that he spent about 40% of his time on this effort. A distinctive aspect of these interactions was the close relationship between the ABCM manager and operational managers. This was based, in part, on the perspective of the ABCM manager derived from his empathy with the culture of the organization, his understanding of the history of the ABCM implementation and his belief in the potential benefits of ABCM. These close attachments enabled the ABCM manager to develop an understanding of which managers would likely have difficulty in accepting the more managerial values embedded within the ABCM application. He said his attempts *to convince these managers involved considerable effort, always targeted specifically on*

the work in their areas. This did slow the renewal phase as some managers required considerable time to accept the new values. While the extensive cooperative process of engaging with operational managers appears to have been effective for most managers there was a minority who remained recalcitrant.

Senior management expressed that they believed that by the later part of 2004 considerable progress had been made in engaging operational managers in discussion and discourse as to the potential benefits of ABCM. Members of the ABCM team and the CFO stated that *they believed that most managers had been convinced as to the potential for ABCM to assist them, at least on special projects*. Training was revived with national workshops to highlight progress and further engage managers in the potential benefits of ABCM. Importantly, these sessions focused on the activities of the operational managers. At the same time the ABCM team was making progress in simplifying the basic methodology, matching data to the methodology and validating the model. Members of the ABCM team expressed the idea that progress in these areas was essential to a comprehensive take-up of the systems. A member of the team stated that *from prior experiences they saw that overly complex systems with unreliable data can seriously undermine perceptions as to the usefulness of ABCM, even given positive attitudes to the systems*.

While progress had been made over the renewal stage in developing a discourse about the benefits of ABCM with many managers indicating enthusiasm for ABCM, it was still unclear if the organization was committed to ABCM as the basis for change. Certainly, it was a considerable challenge to move the failed systems to a rejuvenated effort. At the close of the research period a senior operational appointment was made of an individual who rapidly claimed ownership of ABCM. He might help effect the rejuvenation of the systems, as he was requiring all reports and resource applications to be based on ABCM.

The new ABCM manager had initiated a socializing intervention. The process of the socializing intervention demonstrated how personal values could be changed by paying attention to social

¹⁶ An evaluation of the ABCM initiative: Final Report, June 2001.

interactions, supported by a well entrenched, if somewhat simplified, engineering intervention. The required social bonding for socializing interventions to be effective was accomplished by way of close personal communication and support. During the early period of this stage, socializing was the dominant form of intervention. After about 18 months, socializing was complemented with teaching and engineering interventions that were refocused on the objectives of the change program to move towards a managerial orientation. The combination of teaching and engineering appeared to assist in helping drive the socializing intervention. It particularly helped the ABCM manager socialize with managers who were critical of the prior attempts at engineering and teaching. Also, after a period of socializing operational managers were more committed to expending their resources to provide data to the work-process individuals. Progress on socializing and engineering appeared to have synergistic effects on acceptance of the ABCM program. One manager who had been negative in his comments of the early ABCM initiative claimed that *the new simplified ABCM approach made sense and he was looking forward to working with the systems, given the data used by the system would be compatible with the formal reporting requirements*. Importantly, this combined intervention was given sufficient time to be effected. The timing of these interventions was very much dependant on an assessment of how effective the socializing had been at various points across the organization. During this stage a commanding intervention was not employed. However, the recent appointment of a senior manager at a key operational installation who was committed to ABCM may provide elements of a commanding intervention to the change initiative.

US organization

In the US organization, a number of government improvement initiatives and statutes, such as the Chief Financial Officers Act (1990), Government Performance and Results Act (1993), the Government Management and Reform Act (1994), and the Clinger-Cohen Act (1996) helped to focus the US organization on providing

accountability in terms of costs related to performance outcomes. As in the Australian organization, three stages were identified (see Table 3).

First stage – Researching

In 1995, motivated by strong external forces, notably legislated mandates and external budgeting requirements, one of the senior managers described *how he initiated an effort to address the inability of the existing program budgeting model to provide meaningful costs*. As in the Australian case, the growing popularity of ABCM and its potential to help understand costs was recognized by senior management. One of the senior managers in charge of budgeting was a leader in an international professional accounting society with thousands of predominately private sector members. The society was actively involved in various ABCM educational and research efforts. He said he saw the value in improving the tracking of costs through the use of ABCM but he *could not sell it to the organization as pure cost measurement*. However, the requirements of GPR (Government Performance and Results Act), *increasing missions, and declining budgets provided a reason to implement ABCM*. The senior manager directed the reexamination of the efficacy of program budgeting and the potential of ABCM to improve understanding of costs. At that time another senior operational manager, located at headquarters, was actively seeking to address the decline in resources and the need to develop better cost information to meaningfully implement the Government Performance and Results Act. The senior manager in the operational segment said that he *had learned about ABCM through studying the Baldrige Award criteria to meet GPR requirements*. Their combined efforts in sponsoring the project, with the support of another senior headquarters manager, culminated in a decision to adopt ABCM in a segment of the organization that accounted for about 30% of the organization's costs.

The US organization used a focused commanding intervention driven by strong environmental imperatives. It did not have a blended or combined intervention during the researching stage. The intervention produced fast, visible and near-term outcomes identified in terms of quantitative time.

These outcomes involving a decision to implement the pilot study at two sites and to engage a consulting firm to help with the implementation occurred, quickly.

Second stage – Pilot-testing

In 1997 the second stage started with the initiation of an ABCM implementation. A largely in-house implementation was designed to be executed on a well-defined schedule. External consultants were used to assist in the implementation process. These consultants surveyed all of the relevant commands in an attempt to capture the activities related to work processes and developed an activity dictionary for the commands. According to the consultant who led the effort and the three senior managers, *the effort was complicated as the work processes were not standard across or within the studied segments*. Moreover, the consultant said that *in addition to this process variability, knowledge of the resources needed to accomplish specific activities was based on the professional judgment of the local managers* (i.e., managers in the operational segment of the organization not at headquarters). These local managers had high levels of autonomy and were accustomed to adjusting their schedules to adapt to these situations and trying to balance the demands on their time. The local managers agreed with the consultant's comments. One of the local managers said that *each mission is basically unique and the officer in charge of a mission has to make decisions as events occurred*. The situation of high task complexity and structural autonomy presented challenges to effect the process analysis.

Two sites were chosen to test the ABCM model. Given the tradition of relatively autonomous local management, individuals who were at the sites told us that they *had initial concerns that the new system would both impinge on their freedom to execute their function properly and that the systems would facilitate micro-management of the field sites by senior management*. The implementation had clear directions and an emphasis on timely and visible deliverables. The ABCM model required changes in the formal structure of data collection. Officers who were stationed at the sites at the time of testing the model said that *the system involved manag-*

ers at the field sites spending a considerable amount of time on data tracking and entry. One of the officers gave the example of the *considerable amount of additional time spent to validate labor use and hours against a number of different activities*. Notwithstanding the potential for this work to delay implementation, managers and their staff responded and the implementation was able to show timely, highly visible results related to understanding work processes and building activity dictionaries. Training sessions on how to input data were provided by consultants. These sessions assisted managers to develop an understanding of the ABCM system. However, training on uses of the data and the overall purposes of the ABCM change initiative was not provided.

The initial outcomes of the second stage were mixed. According to one of the senior sponsoring managers, *during the testing period at the two commands, the ABCM system did prove to be beneficial to local managers, particularly in helping them to provide, for the first time, meaningful responses to questions from headquarters and other sources on resource allocation and use*. However, according to the managers who were stationed at the test sites, the feeling at the local level appeared to be that the system was not only conceived by headquarters but it was only of value to headquarters. One of these managers stated that *headquarters apparently saw value in the system and may have gotten some value out of it. That value was never translated to the operational level*. In 1999, after the models had been in use for about a year, the three senior managers at headquarters, who were promoting the new MCS, were transferred from headquarters into the field. Without their direction and their ability to encourage and direct managers to work with ABCM, the system atrophied by early 2000.

In terms of Huy's framework, the commanding intervention was continued from the researching stage into the pilot-testing stage. The implementation model for ABCM was developed by the three senior headquarters managers who were advocates for the new MCS. The new MCS was rapidly deployed and quickly used at the two test sites. This satisfied the commanding intervention's requirements for fast, visible and near-term out-

comes identified in terms of quantitative time. The commanding intervention suffered a serious interruption as the three key senior personnel were transferred to other duties before they had time to convince other managers to continue with the commanding intervention. An engineering intervention to identify activities and processes supported the commanding intervention. The US organization employed a strong commanding intervention that provided a context for a focused engineering application for the new MCS. This facilitated a pacing for the engineering intervention that was sufficiently rapid to match the needs of the commanding intervention for fast, visible outcomes.

It is possible that the command driven implementation would have been a success if key personnel had remained in place for a sufficient period of time to provide clear benefits to those who were actively using the system. Additionally, the implementation may have succeeded if the three senior sponsoring managers had convinced other senior headquarters managers to continue the commanding intervention. That support could have set the stage for a socializing intervention to follow, with the aim of changing the underlying beliefs given the new behaviors based on the commanding intervention. However, with a change in key leadership the sequencing did not occur.

Third stage – Renewal

The third stage was initiated early in 2001 when two of the three senior managers who promoted the initial ABCM effort were reassigned to headquarters. The third returned to headquarters in 2002. One returned as chief of staff, one was in charge of financial systems, and the third was in charge of risk management for the organization. Risk management was an initiative to develop an organization-wide approach to plan for readiness and evaluate consequent costs.

The continuing impact of legislation, such as the Government Performance Review Act (1993), increasing missions and decreasing resources provided the motivation for the three senior managers to reintroduce ABCM. As a group, these senior managers remained convinced that ABCM provided a means to relate resources to actual out-

comes and, in turn, identify the resources needed for desired outcomes.¹⁷ These senior managers indicated that they saw ABCM as particularly relevant to assist the change necessary for the organization-wide, risk management initiative. However, they had learned from their first attempt to implement ABCM. One of the senior managers said that *they had learnt that if field personnel do not perceive benefits coming from a new accounting system, it would only survive as long as it was enforced by headquarters*. They also realized that while the three of them provided strong top management leadership a much broader base of acceptance was required to entrench the change program. According to the senior managers, it was clear that they had to develop a broad support base for the effort. Additionally, they stated that a reorganization of the financial functions at headquarters meant that successful implementation would require commitment from other leaders at headquarters.

The senior managers consciously sought to reintroduce the ABCM initiative by developing a change strategy that focused on the longer term. The intention was to encourage a change in values and a commitment among managers at headquarters and in the field to a more managerial and cost conscious approach. One of the senior managers stressed that *while local managers generally were well intentioned in their efforts at improving efficiency, they were using inappropriate models that were inconsistent with an organization-wide perspective*. The local or field managers' focus was on maximizing effectiveness, given the level of resources for a specific task or mission, rather than taking a cross-functional approach to maximize effectiveness across the tasks of the entire organization, given total resources. Managers in the field discussed with us their managerial approach to achieve the specific missions assigned. In their view their role was *to do the best job they could to meet specific mission requirements*. When asked by us they said that *there had been little attention paid to the relative efficiencies across mission categories*.

¹⁷ We interviewed two of the three senior managers. The third reviewed our written results and agreed with what was stated in the paper.

One local manager's comment captured the impact of the narrow mission focus by observing that *our functional orientation is an obstacle to working from a multi-mission perspective*. ABCM combined with risk management was seen by the three senior managers as a technique that could help foster the acceptance of a model that balanced resource planning with efficiency trade-offs across mission areas to support overall organizational effectiveness. At a meeting with two of the three senior managers, the managers used the CAM-I Cross to demonstrate the usefulness of ABCM. Fig. 1 depicts the CAM-I cross. The vertical axis provided the cost tracking while the horizontal axis provided a means to match resources with processes and outputs.

Initial implementation efforts sought to instruct managers in the preferred organizational-wide managerial orientation. However, the senior managers stated that they recognized that achieving long-term success would require new attitudes to be entrenched at the local level. The senior managers said that *change agents at the local level would be required to shift attitudes away from the entrenched local mission focus to the preferred organization-wide approach*. Junior officers specializing in financial management, who had recently received their MBAs, or a similar degree, were identified as the individuals who would be developed as the change agents. Their education provided them with the appropriate cognitive models

and analytic training to both understand the logic of the change effort and the potential usefulness of ABCM in the overall effort. Based on the researchers' observations of and discussion with the junior officers over a two year period and the statements of the three senior managers, it appears that each junior officer had a strong disposition to learn about enhanced MCS modeling and a proclivity to change her or his management style to a more managerial, cost conscious orientation.

As one senior officer pointed out, *there was additional motivation for these managers to embrace the new initiatives. For their part, the junior officers became part of a project that could fundamentally change their organization and offered them an opportunity to have exposure to and influence the most senior managers of the service*. In informal conversations with several of the junior officers, they concurred that their individual efforts on the initiative were highly visible to the organizations senior leaders and that the initiative could have a very real impact on the organization and their individual careers. As the effort progressed the group became known inside the organization as the 'MBAs with attitude'.

The junior officers had assignments at various installations across the US. In an attempt to bring some cohesion and focus to this geographically dispersed group, the manager of financial systems from the senior team described how he used both regular financial management meetings within the organization and professional meetings as forums for discussion and debate around ABCM concepts and implementation. To develop a coherent ABCM focus, the senior manager brought the junior officers to the quarterly meetings of a leading research consortium that focuses on cost management issues. As a group, the members of the research consortium had decades of experience in designing and implementing ABCM and other cost management techniques. These meetings became recurring rituals that provided the time for the junior officers to build a shared understanding of ABCM, to identify what it could mean to their organization and how it could be implemented. According to one of the senior managers, *the meetings were not only helping the junior officers develop a common understanding of ABCM but had*

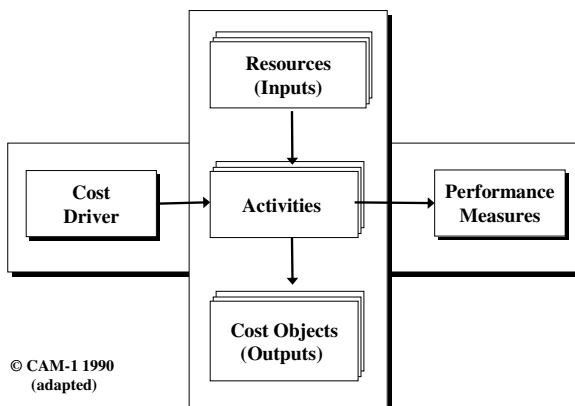


Fig. 1. CAM-I cross.

the additional benefit of exposing the future senior financial managers of the organization to how managers from the private sector deal with issues of efficiency and effectiveness. From the perspective of one junior officer, *the regular meetings (with the other junior officers) made it easier to understand how ABCM applied to us.* Another commented that the research consortium meetings *exposed me to ideas that are not very common in my environment.*

As the initiative evolved with its decentralized focus, a number of relatively small and unique models were developed within various differentiated organizational segments. One junior officer stationed at a field site noted that *more direction from headquarters would be useful but without it we (the junior officers) have more freedom to operate.* Rather than try to force a coordinated approach by mandating the adoption of a centralized model, the senior managers sought to achieve co-ordination in an incremental way by encouraging managers to learn from each other. One of the junior officers (i.e., an MBA with attitude) was stationed at headquarters. One of his assigned tasks was to help the other junior officers at the field commands in developing their models. The goal was to develop relatively simple, local models to whet the appetite of the users so that they would ask for more from the models thereby supporting and encouraging their development. These models were discussed at regular meetings of personnel with a consequence of a sharing of ideas and the gradual emergence of a relatively common model. These models, in effect, became the means for other personnel across the organization to discuss and debate the merits of the new systems and to identify their taken for granted assumptions and understand the logic of the organizational effectiveness model. With this understanding, the models themselves then began to spread across the organization. As this diffusion progressed, there was an increasing need to ensure compatibility among the models if effectiveness of the ABCM initiative across all segments of the organization was to be assessed. Given the development of a relatively common focus among the different developers of the models and the support of the junior officer at headquarters, the challenge of dis-

seminating the change initiative in an integrated way was likely to be less than if a number of truly independent implementations had occurred.

The role of the junior officers evolved during the implementation. Initially, they were used to help the members of the organization to understand the ABCM initiative. Later, they were, in effect, acting as process consultants and action researchers, elsewhere in their organizational segments, to implement ABCM models. This, in part, provided the energy and continuing motivation to work to change beliefs at the local level. Illustrative of their commitment is that the junior officers at the local level said that their efforts in implementing ABCM, were almost totally over and above their regular duties. As one of the junior officers stated *there is my normal monthly production that is required. Anything I do to advance this project is over and above those requirements.* Another commented that *anything I do on this project is out of hide.* A third commented that *all of us (the junior officers) have day jobs, anything we do on the ABCM project is in addition to our normal assignments.*

At the renewal stage a combined socializing and teaching intervention was evident. The use of training sessions and conferences to encourage socialization during this stage was largely effective among the junior officers because of the strong dispositions of the senior managers and the junior officers towards the new values embedded in the move to a more managerial way of administering the organization. These dispositions were derived from the educational background of the individuals and their enthusiasm for new initiatives. An additional motivation was for the junior officers to be perceived as part of a group that were up to date with modern management, for promotion purposes. The training sessions and conferences also involved a teaching intervention in which senior managers guided junior managers towards changed values.

In both organizations the motivation to employ MCS to help effect a change from a military to a managerial orientation derived from external political pressure for the organizations to be more accountable and more professional in their use of resources. The growing popularity of ABCM in

the private sector persuaded senior managers to employ this technique to help effect change. While this initial adoption may be explained in terms of fashion, senior managers did not appear to have lost faith, over the 10 years of the study, in the potential of the technique to assist in providing valuable information critical to their change initiatives. The key issue over the duration of the project had been how to implement the systems to gain buy-in by operational managers.

Comparative analysis and conclusions

In the previous section we presented the findings regarding the role of MCS in the change process within the two military organizations and analyzed it from the perspective of Huy's model. A summary of the findings is presented in Table 4. In this section, we continue the discussion of the implementation process using Huy's model. We use the data from both organizations to draw some conclusions on the ways in which the four intervention modes were combined and sequenced. In doing so, we examine relevant assumptions, both temporal and non-temporal, of the intervention types. Also, we show how Huy's framework of effective planned change requires consideration of situational factors such as the extent of pressure from the external environment, the extensiveness of the change (organizational or local initiatives), the complexity of the work situation, the level of structural autonomy and personal dispositions to change. These factors evolved through time.

In essence, Huy proposes that large-scale change involves the enactment of multiple ideal intervention types: commanding, engineering, teaching and socializing. The effectiveness of applying these ideal types depends largely on which modes are combined, the timing of the interventions, and the pace of change. We found that while each organization aimed to effect change by implementing ABCM, they combined and sequenced the interventions in different ways. Huy (2001, p. 610) stresses that it is the effectiveness of combining and sequencing interventions that provides organizations with a 'temporal capacity' to manage the process of change. Tem-

poral capacity provides for an effective integration of the different pacing requirements embedded within the different modes. For example, temporal capacity is evident when the fast pacing of a commanding mode is effectively combined with the engineering mode that is constrained by the time required to understand and diagnose work processes. Both of our research sites provide evidence of the importance of developing effective temporal capacity at various times over the ten years of the study. Perhaps the clearest example of difficulties with developing temporal capacity in the Australian case was the inconsistency in managing the clock time requirements of the commanding intervention with the combination of a slower clock time for the engineering intervention and qualitative time for teaching and socializing interventions. Managers were not given sufficient time to buy into the ABCM initiative. In the US case, considerable flexibility in providing qualitative time was evident by way of the individualized pacing of the development of the local models. Each manager was given the qualitative time necessary to accept the initial change and then request more until he or she was fully committed.

Initial commanding intervention

The commanding intervention was the first type applied by both organizations. Our data indicate that both organizations had an initial intention of implementing a commanding intervention. The Australian case was an organization-wide application, while the US case involved two test site applications within decentralized units. The essential difference relates to the extent of change, with the Australian case involving a much larger scale. It is in large-scale change that the comprehensiveness of the commanding intervention becomes particularly important to ensure organization-wide take up of change programs (Huy, 2001, p. 605). Our data from both of the organizations supports Huy's proposition that the commanding mode is unlikely to be effective unless there is close supervision and the mode delivers fast, highly visible and regular outcomes.

One of the non-temporal assumptions for the commanding intervention is that top management

Table 4
Australian findings (panel A) and US findings (panel B)

	Commanding	Engineering	Teaching	Socializing
<i>Panel A</i>				
Stage one				
Activity	External pressure to become managerial Lack of cohesive leadership No external pacing	External consultants Complex work analysis Lack of support for operational managers Pressure to provide tangible output and deliver in-service systems, prematurely (prototype)	None at this stage	None at this stage
Outcome	Unchecked scope drift Lack of visible outcomes Time pressure from above	Lack of managerial engagement and support Too complex and detailed Lack of deliverables Inconsistency with time assumptions of commanding		
Stage two				
Activity	Lack of cohesive leadership No external pacing Lack of active interest of senior managers	Continuation of work process analysis but focused on special projects and performance measurement Technical training	External consultants engage behavioral teaching intervention	Socialization in Command A
Outcome	Scope creep Atrophy	Frustration from users as to relevance to them and time spent on data collection and training	Endeavors failed due to lack of integration between engineering and teaching intentions	Successful socialization in a committed section Not transferable to broader organization because of poor dispositions, distrust in systems and perceived lack of relevance
Stage three				
Activity	New committed CFO Ownership of systems by a new operational senior manager	More focused, less complex analysis More effective engagement with managers	Teaching reintroduced after socializing	Strong socializing influence of new ABCM manager
Outcome	Use by senior CFO of ABCM data Commitment to project by some senior HQ managers	Enhanced confidence in models and data Compatibility between data bases	Clearer links to strategy and work processes (due to clarification of strategic priorities and links between ABCM and work)	Set up context for socialization between managers

(continued on next page)

Table 4 (continued)

	Commanding	Engineering	Teaching	Socializing
<i>Panel B</i>				
Stage one				
Activity	Strong commanding with scheduled deliverables	None at this stage	None at this stage	None at this stage
Outcome	Visible, timely deliverables			
Stage two				
Activity	Maintenance of strong commanding mode Visible, timely deliverables Transfer of ABCM senior managers	External consultants Attempt to capture work processes Extensive work at sites on data tracking	Teaching on technical data input practices Lack of behavioral teaching intervention	None at this stage
Outcome	Commanding intervention ceased with transfer of senior change managers Atrophy	Some local benefits but seen as of value mainly to HQ As an organizational intervention, difficulties due to variation in process variables managed by autonomous managers (technically difficult and behavioral resistance)	Not effective in developing values or ability to use systems	
Stage three				
Activity	Relocation of senior commanding personnel New focus on risk management (move away from local to organization-wide objectives)	Delegated to operational level, to be done in local time	Strong emphasis on teaching In-house teaching and association with think-tank Adoption by junior managers of change agent role	Strong emphasis on setting context for socializing Links between teaching and socialization
Outcome	Recognize need for broader leadership base Need for commitment from others in HQ	Restricted to service areas Still a decentralized effort Plans to use engineering to integrate local efforts (risk management to play a role) Managers committed to ABCM doing work in their own time	Effective development of networks between segments Exposure to non-military management procedures Support idea of 'elite' management group	Local managers with strong dispositions, committed engagement with initiatives

is in control and will drive the commanding intervention with “the use of clear orders and implacable sanctions to deter disobedience” (Huy, 2001, p. 605). In different ways, both organizations demonstrated how violating this assumption during their initial implementations led to ineffective outcomes. The Australian organization did not create a set of clear orders to use the new system nor were there sanctions for those who did not do so. Moreover, indifference from senior management meant that there was no close personal monitoring to provide clear orders and sanctions. The US organization also had not formalized the commanding intervention by way of clear orders and sanctions. While senior managers were strongly committed, without this level of formality, their effectiveness was lost when they were transferred. Thus, it is apparent that leadership within the commanding intervention was important in both organizations. A lack of a strong coercive leadership style in the Australian case and the movement to other duties of the senior managers of the US case resulted in a lack of effective entrainment to pace the MCS implementation.

Combining commanding and engineering interventions

Huy’s theory of planned change stresses the importance to effective implementation of combining and sequencing different intervention modes. Both organizations provide evidence on the difficulties of combining modes, derived from incompatibilities in the timing and pacing of the modes. In the Australian case, an explanation for the ineffectiveness of combining commanding and engineering modes lies in the complexity of the task which caused the engineering intervention to take more ‘quantitative’ time than is usual in commanding interventions. This disjunction in the time dimensions of the commanding and engineering intervention types helps explain why the change initiative did not progress in ways to satisfy the requirements of the commanding intervention for fast improvements. That is, the commanding intervention needed rapid results but the engineering intervention was constrained by the complexity of the work.

In the US organization, once the decision was made to implement a new MCS in the second (pilot-testing) stage, the commanding intervention was supported with an engineering intervention to identify activities and processes. The engineering intervention was able to provide highly visible results within the time constraints dictated by the commanding mode. It is important to note that this engineering mode was less complex and more focused than was the case in the Australian organization.

The experiences of both organizations show that combining commanding and engineering interventions requires the pacing of the engineering intervention to be sufficiently rapid to satisfy the requirements of the commanding intervention. It also suggests that a strong commanding intervention can help to ensure that the engineering intervention avoids problems of scope creep and lack of focus with the objectives of the change initiative. Nevertheless, in Huy’s model, the commanding and engineering interventions tend not to lead to institutionalizing the change, or in Huy’s terminology to ‘deep change’. It is this ‘deep change’ that is required to ensure that change initiatives are diffused and sustained. Our data support the contention that without a change in managers’ values such ‘deep change’ is unlikely to occur. In the Australian case, in the main, the managers were able to ignore the change initiative. Attempts to change managers’ values to encourage take up of the new initiatives were attempted unsuccessfully by implementing a teaching intervention at the second stage (roll-out).

Role of teaching interventions

It seems clear that the teaching intervention in stage two (roll-out) of the Australian case failed because of incompatibility with the engineering intervention. It may be speculated that an approach that aligned the sequencing and pacing of teaching with engineering may have had beneficial outcomes and saved the initiative from atrophy. Indeed, positive experiences of combining a teaching with an engineering intervention in the third stage (renewal) of the project suggest that this is possible.

In the US case the combined commanding and engineering intervention in stage two (pilot testing) was effective in implementing the pilot program. However, the managers at the local level did not adopt values consistent with the change strategy. It is possible, as in the Australian case, that combining the commanding-engineering intervention with a teaching intervention could have afforded the opportunity for the members of the organization in the field, and at headquarters, to accept the new mental managerial model implicit in the system.

Consideration of our data related to the teaching intervention provides evidence to reflect on the process of phasing the pacing of different intervention modes. As noted above, the sequencing of the teaching intervention after the initial commanding and engineering intervention, during stage two (roll-out) in the Australian organization was an attempt to help managers develop the mental models appropriate for the new decision environment. As Huy (2001) indicates, the slower pacing of the teaching intervention helps to create a less stressful rhythm for the organization, following the commanding and engineering interventions that typically involve rapid and stressful change. However, an assumption for the teaching intervention is the sharing of tacit assumptions and taken-for-granted cause-effect relationships. This helps provide the background for the retrospective sense-making to understanding the current change. Although the external change agents implementing the teaching intervention could help the members of the organization reveal their tacit assumptions and taken-for-granted cause-effect-relationships they could not effectively relate those to the new environment because of a lack of coordination between themselves and the external consultants used for the commanding and engineering intervention. Although not expressly discussed by Huy (2001) the coordination among different external change agents involved in sequenced or combined intervention types is implicit in the model. Nevertheless, our data suggest that it may be beneficial to make this obvious point explicit, thereby helping avoid potential problems in executing multiple interventions.

It is noteworthy that reintroducing the teaching intervention in the Australian organization during

stage three (renewal) was effective due to the lessons drawn from the earlier disconnect between engineering and teaching consultants. Much had been learnt from the prolonged engineering intervention about what had to be changed in terms of work processes. Using this information, the teaching intervention was highly focused and pertinent to managers' day-to-day activities.

Socializing interventions

Our data suggest that the ease with which Huy's socializing intervention can be implemented is highly dependent on personal predispositions to the change initiative. However, as indicated previously, the predispositions for change can be supported by other interventions and initiatives in the organization. For instance, in the US organization, the risk management initiative and the associated teaching intervention provided a strong technical basis to focus on the new organizational-wide, managerial-like approach. It also provided a basis to assist in developing further the socializing intervention. The idea of teaching individuals to focus on total organizational effectiveness, that is minimizing risk and maximizing readiness, provided in operational terms the catalyst for members of the organization to question their fundamental beliefs and taken-for-granted assumptions. From a socializing perspective, the senior risk manager stated that he placed particular emphasis on what Huy would describe as socializing interactions with his peers and superiors. Importantly, the senior risk manager facilitated the socializing intervention by arranging for the junior officers to be placed in situations that encouraged active discussion and discourse about ABCM.

Central role of combining interventions

Our study of the role of ABCM within two military organizations undergoing change from a military to managerial styled administration indicates how multiple modes of intervention, as identified by Huy (2001), can help explain the change processes involving innovations in MCS. We found that different modes of intervention were used to

attend to change in both formal structures and work processes, and values and behaviors. The data from the two research sites show how the intervention types are sequenced and combined. In some instances, it appears that one intervention type is dependent on the preceding application of another. Importantly, it appears that the ideal types have requisite internal requirements and lack of attention to these requirements can jeopardize the change initiatives.

Our data indicate that combining intervention types becomes complex. The way that the different modes are sequenced and combined appeared to be dependent not only on characteristics of the modes but also on the dispositions of individuals, which evolve through time. One example of this is the different scheduling of the engineering mode in each organization. In the US case, personal dispositions towards the ABCM initiative were positive in stage three (renewal). The combined teaching-socializing intervention was effective at the local level. An engineering intervention then became important to promote compatibility among the various decentralized ABCM models. In the Australian case, negative dispositions towards the ABCM initiative were apparent. So while the intent at stage two (roll-out) was to employ an engineering-teaching intervention for organization-wide change, negative dispositions lead to a lack of take-up of the systems. It was not until a socializing mode was employed, with its focus on changing values to overcome negative dispositions, that the benefits of a teaching-engineering intervention were effected.

Pacing

It is important to emphasize the central role of pacing to Huy's model. Huy notes that significant change usually requires managers, at all levels, to accept and adopt new conceptual models. This requires a gradual pacing that is appropriate for each individual decision maker. From a financial and managerial point of view the new models in the two organizations generated potential conflict for managers as the models eroded, or at least altered, the ability of the managers to place current and future decisions in the same sense-making

context. Consequently, it was necessary to accept that change would come at a pace acceptable to the individual, not by some prearranged schedule.

When both organizations combined intervention modes it was apparent that temporal incompatibility between intervention types caused implementation problems. In the Australian case, combining a commanding intervention with a complex engineering intervention resulted in a protracted implementation that eroded the ability of the change agent to deliver the fast paced outcomes necessary for effective commanding interventions. In the US, the combination of teaching and socializing required recognition of the relatively long pacing of the interventions. Both have qualitative time perspectives that necessitate a relatively long-term approach allowing for change to happen at its own pace. The key leaders of the effort facilitated an environment that focused on the relatively long term allowing the gradual pacing necessary for success. Additionally, one output of the socializing approach was the development of change agents from that group who internalized the new set of behaviors. They exposed diverse elements of the organization to the new beliefs helping to reveal taken-for-granted-assumptions of resource generation and use.

Importance of context and structure

Huy stresses that the context of the organization is important to understand how change should be planned. Thus far, we have noted the importance of the extensiveness of the planned change, the complexity in understanding the work processes underlying the engineering intervention and the role of personal dispositions to acceptance of the initiatives. The nature of the organizational structure also appears to be important.

In the US organization, the change initiative was implemented within a relatively decentralized structure. The initial failure of the top-down commanding intervention made clear to the senior team of advocates that successful implementation was not an issue of only meeting centrally determined time schedules but rather one of shifting mental models and norms of behavior of the autonomous managers at the local level. With the renewal of the

MCS project, the objective was to develop acceptance of a new way of thinking and acting at the local level. The senior team of advocates chose a combined teaching-socializing approach to accomplish this end. This lent itself to a more decentralized effort than would have a commanding or engineering approach that would have involved a loss of autonomy for the decentralized managers.

Consistent with the decentralized structure, the ABCM models were developed at the local level during the third stage (renewal). This provided a way to support a combined teaching-socializing intervention at the local level. The models were relatively simple and focused. The expressed intention was to stimulate the local managers' appetites with readily usable and understandable data so the managers would request more or different data from the model. In other words, it was intended to create initial information that was readily usable by the local managers, presuming that they would ask for more. The intervention relied on a pull implementation strategy rather than a push strategy, based on changing the values of the managers to acceptance of the ABCM-based change initiative. From the perspective of the combined teaching-socialization intervention, the readily usable data lead the managers to new behaviors and provided opportunities to questioning the decision models they employed. Given that the managers were in effect driving the revisions to the ABCM models through their requests, they were provided the temporal space to adjust their personal decision models according to their own inner time.

In the Australian case, local managers tended to restrict their administrative work to centrally determined processes and procedures. The development of localized procedures and processes was not encouraged. It might be expected that in such a situation it would be relatively easier than in the US organization to introduce a new initiative that would be common to all segments and allow for a close integration between segment applications. Within Huy's model, it is the commanding intervention that is most clearly compatible with a centralized approach. Several members of the original ABCM team indicated that they thought the initial implementation should have used the centralized structure to force individuals

to adopt and use the new systems. However, the temporal incompatibility of the commanding and engineering interventions did not lead to success. Nevertheless, it seems from our data drawn from both organizations that it is likely that the commanding, engineering and teaching innovations with their unambiguous practices can be employed readily in either centralized or decentralized structures.

The question arises if the centralized structure is an impediment to developing the less directional and organic orientation of the socializing mode. Our data from the Australian case suggest that this is not necessarily the case. Given an enthusiastic change agent and support from senior management, encouraging a socializing mode within segments of a centralized organization is possible. It may be necessary for the change agent to be provided sufficient flexibility to encourage dialogue and debate about existing and new processes and systems at the local level. However, this may be effective even if the processes cut across existing centralized lines of authority.

Finally, given the aspirations of both organizations to use MCS to facilitate a change from a military to a managerial culture, how did this initiative developed with other change initiatives and what were the wider organizational implications of ABCM related change? Within the Australian organization, at about the same time as the ABCM initiative the broader military was restructured with assets such as facilities and materials, that were originally managed by the separate areas of the armed forces, being placed within a new division. Given the interdependencies between this new unit and operational areas, there were clear implications for developing a comprehensive ABCM model. It was, however, decided not to involve the new division in the initiative. While an initial explanation for this involves rivalries and territorial claims it is pertinent that the new 'resources' division has recently initiated an ABCM exercise and has elicited the assistance of the ABCM team from the case organization. It is also of interest that other arms of the defence force have developed their own costing models independently of each other. There is, however, considerable cross fertilization of ideas as the Chief

Finance Officers tend to be transferred every two years to different arms of the defence force. Thus, in a somewhat indirect way the lessons learned from the ABCM initiative in the case organization have had broader effects elsewhere within that organization and within the defence force at large. As is often the case in large public sector organizations these processes are somewhat slower than might be found in commercial organizations.

In the US case, the enthusiastic adoption of the ABCM by the ‘MBAs with attitude’ has meant that the ABCM has had broader effects on change as these managers are relocated throughout the organization and in effect carry the language of change with them. The risk management initiative was targeted on broader organization change and has begun to encourage an organizational wide focus, although this is not without difficulties. During the period of the study additional efforts were made to identify barriers to change in the organization. Past initiatives were reviewed to identify the persistent strengths and weaknesses of the organization that related to its ability to operate effectively and efficiently in a changing environment. The focus continues to be on both structural and behavioral characteristics.

Concluding remarks

In the introduction to this paper we endeavored to classify a selection of representative research related to MCS facilitated change into four main areas that included how MCS are implicated in the history and context of the organization and its evolution to a changed culture, concerns with satisfying the needs of users at different levels in the hierarchy, the role of networks and boundary objects, and individual commitment from an industrial relations perspective. Each of these approaches could help inform on the role of MCS in the changes sought in our case examples. Our aim was to complement these expositions with an approach that focused more on how users responded to different modes of change as identified within a holistic model of planned change that focused on both technical and behavioral aspects of change, as change evolved through time.

One stream of studies has shown the way organizations faced with external pressure employ MCS to respond strategically. These studies involve consideration of changing managerial cultures from those historically based on non-commercial goals to more market-based approaches. In the current study both organizations sought to move from cultures embedded in their histories based on military doctrine to a more managerial focus. Our research confirms the view of some prior studies that an appreciation of the role of MCS and change requires a study of the long-term (e.g. Bhimani, 1993; Dent, 1991). By adopting a long-term approach we were able to show that the same MCS, ABCM, can experience a life-cycle that involves an initial birth stage, where it is embraced enthusiastically by designers, then the systems can suffer atrophy due to lack of benefits to users but still survive in an elemental form, and finally undergo a renewal stage. A challenge for the case organizations was to learn from these experiences. Our analysis helps explain the evolution of MCS through this life-cycle by drawing on Huy’s framework. This showed that the effectiveness of using MCS as a platform for change can be explained by considering the extent to which the organization develops temporal capacity that is required to manage the alignment of different modes of change.

The second line of accounting change literature identified in our review involves considering how MCS can deliver information down to operating managers to enable them to take more effective decisions related to resources and capabilities, while providing a way for top management to integrate operations with strategic priorities. In both organizations ABCM was identified as a way of delivering information down to operating managers to enable them to take more effective decisions related to resources and capabilities, while providing a way for top management to integrate operations with strategic priorities. Our study demonstrates that impediments to induce change by providing relevant information to operating managers include systems design difficulties, such as overly complex design, scope creep or lack of compatibility between local systems. In both our cases it was difficult for the organizations to align

the systems with the needs of senior strategic managers. This was, in part, due to an ineffective commanding mode of change which was characterized in the Australian case by a lack of deliverables from the systems in a timely way and a lack of commitment of senior managers to demand information from the systems. While approaches such as risk management in the US case attempted to address this issue, our study suggests that providing information to help facilitate change at the operational level and the provision of information to senior strategic decision makers can be a difficult task.

The third theme of accounting change research involves considering MCS as a unifying language and a way of thinking that assists in developing networks across the organization and of identifying and managing potential interdependencies between parts of the organization. In the case organizations the ABCM systems sought, with varying success, to create boundary objects to bring together information from many sources. The systems sought to provide a single data base with a common language and to give it a focus related to effective resource management. Our study shows that in the case organizations, both of which had strong historical cultures, changing ways of thinking is difficult, at least when providing ABCM as a language to focus on cost consciousness. Huy's framework shows that to effectively employ MCS to develop networks it is necessary to pay attention to the training and socializing modes of change that are essential in shifting managers' mindsets. Our cases confirm that without attention to these modes, the use of ABCM to assist in developing networks would appear to be problematic.

The fourth body of research involves identifying how a lack of attention to industrial relations issues can be an impediment to employing MCS to effect change. Our study addresses the issue of individual commitment to MCS facilitated change by considering these issues in a more micro behavioral approach. This adds a dimension to the existing literature which has examined employee commitment at an aggregate level. By following Huy's approach we were able to show that it is critical to consider that an individual's commit-

ment to MCS, that aim to facilitate change, involves a period of sense-making and that this will be guided by emotional rather than clock time. It was also clear that individual motivation is influenced by an individual's dispositions to MCS which may involve prior education and perceived longer-term personal benefits, such as career prospects. Both cases demonstrated the central importance of the socializing mode wherein the focus is on the quality of social relationships among organizational members and involves issues of individual emotions, power and politics. Change agents guide the change process in a cooperative mode with individuals taking time to accept the relevance of the proposed change to the organization and themselves.

Our findings that understanding effective change requires consideration of how individuals respond to change, together with the technical aspects of change is not novel, it was recognized in the early socio-technical approaches to organizational change (see for example, [Emery & Trist, 1960](#)). However, by building on this and by employing a comprehensive model that combines, through time, both rational and behaviorally oriented explanations of change we have shown that understanding the application of MCS to effect changes in managerial orientation requires consideration of how managers sequence different intervention types, and how they time and pace the interventions. To undertake such an investigation involving consideration of the different ways that individuals conceptualize time, it was necessary to study change over a relatively long period of time. By drawing on and elaborating upon Huy's model of commanding, engineering, teaching and socializing modes of planned change, we have presented a conceptual integrating framework. The model and the supporting empirical evidence make obvious that there is no one best way to combine or sequence the intervention modes. The combining and sequencing and the relevant pacing appear, at least based on our evidence, to depend on considerations such as whether the change initiative is comprehensive, organization wide or partial within segments, levels of managerial autonomy, complexity of work processes and individual's dispositions to accepting the new MCS. Temporal capacity is a key factor in

managing change. Temporal capacity helps balance the tensions that derive from the use of multiple modes of intervention. Without balance, change may generate high levels of confusion and stress resulting in resistance to change and atrophy of the change initiative. The world of change is one of paradoxes where seemingly incompatible intervention modes must often be combined to successfully effect planned change.

Finally, the role of serendipity must be respected. The arrival of managers with the appropriate dispositions to implement the new MCS to help change the organization at the appropriate time is difficult to attribute to rational decision making processes in either of the two organizations studied.

The study has certain implications for guidance on how to study MCS facilitated change. Huy's framework as applied in this paper, with its explicit change taxonomy, has been useful in studying change in two military organizations. It could be applied more generally by researchers to study other aspects of MCS, such as balanced scorecards or target costing, in facilitating change in both public and private sectors. The study's focus on how managers use MCS will be influenced by the components of the intervention modes and how they interact through time. This approach is particularly pertinent to researchers wishing to study how change initiatives can lead to managerial acceptance and use of MCS. The framework provides a rich approach to understanding how different aspects of change are sequenced and paced. It is this sequencing and pacing with its concern for different notions of time that provides researchers with a way of examining the likelihood that effective MCS change will be dependent on how long individuals take to embrace the change initiatives.

From a method viewpoint, we have shown that when studying change, particularly where the focus is on both technical change and individual's changing values, it is important to study events over a relatively long period of time. This enables the sporadic nature of change to be incorporated in the study and how individuals' responses may evolve during time. The study also highlights the benefits of examining two similar organizations over the same period of time to compare and con-

trast ways of using the same type of MCS to help effect the same type of organizational change. This provides the opportunity to demonstrate how MCS facilitated change, based on the same accounting practices, can differ markedly depending on factors such as the size and complexity of the initiative, structural arrangements and personal dispositions.

Acknowledgement

Our thanks to Matt Beekman, Frank Barrett, Jake Birnbeg, Steve Salterio, the Australian Research Council, CAM-I, RGS Associates, Inc., and members of the case organizations who participated in the study. In particular, we thank the two anonymous reviewers for their insightful suggestions.

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