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The interrelationship between management control mechanisms and strategy

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Abstract

This paper examines the interrelationship between management control system (MCS) mechanisms and strategy. The traditional view is that the MCS is shaped by organisational strategy. More contemporary viewpoints, however, suggest that there may be a two-way relationship between the two variables. That is, MCS shapes, and is shaped by, strategy.

We develop two research questions that describe the interrelationship between MCS and strategy, and test them using a public sector entity that experienced a strategic change. A retrospective longitudinal study, spanning five years and involving archival data, interviews and a questionnaire, was adopted. The analysis confirms the existence of a two-way relationship between MCS and strategy. We find that the interactive use of MCS mechanisms helps to facilitate a change in strategy, and that MCS mechanisms change to match a change in strategy.

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Keywords: Interactive controls; Management control systems; Strategy; Strategic change

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² This paper is based on research conducted with Byron J. Paul as part of his honours dissertation undertaken at The University of Western Australia. He is now a Project Leader with The Boston Consulting Group in Chicago.

1. Introduction

While prior studies have highlighted the importance of achieving a fit between an organisation's management control system (MCS)³ and its strategy (e.g., see reviews by [Chenhall, 2003](#); [Dent, 1990](#); [Langfield-Smith, 1997](#)), the interrelationship between MCS and strategy is not clear. Traditionally, the relationship between MCS and strategy has been viewed as a passive one, suggesting that the MCS is an outcome of organisational strategy. [Hopwood \(1987\)](#) and [Dent \(1990\)](#), however, speculated that the MCS might take a proactive role in influencing strategy. [Hopwood \(1987\)](#) suggested that management controls implemented for a particular reason could signal new potential, and thus unintentionally aid in the development of new directions. [Macintosh \(1994\)](#) recognised that the association between MCS and strategy could be more than a simple uni-directional relationship, and suggested that there may be a two-way relationship between MCS and strategy. However, while research had examined the one-way relationship, none has explored the more complex two-way association ([Slagmulder, 1997](#)).

To date, the studies that have examined the relationship between MCS and strategy in organisations undergoing change (e.g., [Archer and Otley, 1991](#); [Roberts, 1990](#)) have concentrated on describing the controls utilised at the time of change. Consequently, these studies have described the controls used to achieve the intended strategic change but have not provided insights into the interrelationship between MCS and strategy.

Our paper synthesises, and extends, the extant literature to develop two research questions to explain the interrelationship between strategy and MCS: (1) the interactive use of MCS mechanisms helps to facilitate a change in strategy, and (2) MCS mechanisms change to match a change in strategy. [Chenhall \(2003\)](#) stated that understanding the role of MCS in the strategic change process is important. Our study sheds light on the strategy–MCS relationship, thus enhancing the knowledge of organisational development and organisational change process.

The research questions are tested using The Western Australian Centre for Pathology and Medical Research (known as PathCentre), which is a public sector pathology service provider that changed strategic typology in response to government reforms (i.e., the introduction of new public management (NPM) practices in the Western Australian public sector). What is interesting about this organisation is that its strategic typology evolved beyond what was originally envisaged by PathCentre management as necessary to align the organisation with the NPM reforms. While the NPM reforms created the need to change strategic direction, the reforms in themselves did not create the internal environment that enabled changes to occur. Our study examines the role of internal factors that impacted on the interrelationship between strategy and MCS at PathCentre.

A retrospective longitudinal case study of the organisation's MCS prior to, during and after, its change in strategic typology is undertaken. Our study draws on the descriptive strengths of case study research as outlined by [Ahrens and Dent \(1998\)](#), and a longitudinal case study, in particular, is useful for “teasing out” the interrelationship between MCS and strategy ([Dent, 1990](#)). Furthermore, in the conduct of our study, we adopt between-methods triangulation encompassing documentation reviews, interviews, and a questionnaire. Drawing on the strengths of this mix of quantitative and qualitative methods facilitates a systematic and comprehensive analysis of the interrelationship between MCS and strategy. Specifically, while the questionnaire provides us with an understanding of strategy and the extent of use of MCS

³ MCS refers to the mix of formal and informal procedures and processes used by management to facilitate the attainment of their goals and those of the organisation ([Bisbe and Otley, 2004](#); [Otley, 1980](#); [Otley and Berry, 1994](#); [Ouchi, 1977](#)).

mechanisms, the inclusion of interviews and the review of documents enables us to understand and interpret the interrelationships within a rich and more meaningful context. As lauded by Modell (2005, p. 233), between-methods triangulation offers a “relatively potent means of assessing the degree of convergence as well as elaborating on divergences between results obtained”.

The results reveal support for our research questions suggesting that MCS mechanisms used in an interactive manner help to facilitate a change in strategy and, when a change in strategy occurs, the MCS mechanisms change to match. Taken together, these results show the two-way relationship between MCS and strategy. That is, the MCS both shapes, and is shaped by, strategy.

This paper is structured as follows. The next section provides a synthesis of the literature. In Section 3, we develop the research questions tested in this paper. Section 4 discusses the research method, and Section 5 provides a description of the organisation used to test the research questions and provides background on the external operating environment. Section 6 presents the results of the study. Section 7 provides the conclusions, as well as discussing the limitations and avenues for future research.

2. Synthesis of prior literature

The traditional view has been that a passive relationship exists between MCS and strategy. That is, the MCS has been viewed as an outcome of organisational strategy. This is not surprising given many contingency studies have been static examinations, focusing on organisations with established strategies. However, Hopwood (1987) suggested that an accounting system could help shape the development of an organisation through time. Through interactions within the organisation and with its environment, the information generated by an accounting system could help facilitate strategic change in a proactive way. Macintosh (1994) recognised that the association between MCS and strategy could be more than a simple uni-directional relationship, and suggested that there may be a two-way relationship between MCS and strategy. That is, the MCS both impacts on, and is affected by, strategy (Kloot, 1997).

The role of the MCS and its impact on strategy in organisations attempting strategic change has been examined in several descriptive studies (Archer and Otley, 1991; Roberts, 1990). However, while these studies provided a narration of events associated with the change period, they did not explicitly consider the interrelationship between strategy and MCS.

Archer and Otley (1991) studied a company that manufactured agricultural products. Faced with a shrinking market, the company had to consider new alternatives. However, the MCS was designed to support the current strategy and primarily ensured co-ordination among the major functions of the business. For example, managers’ committee meetings were concerned with current operations and not on exploring new opportunities. Furthermore, these meetings were restricted to senior managers and communication did not appear to flow through to lower level managers. Similarly, while the company had well developed reporting and budgetary systems, the information flows from these systems were uni-directional. The company did not achieve a change in strategy.

Roberts’ (1990) study detailed the history of a light bulb manufacturing company that, for many years, enjoyed a monopoly position. However, two events occurred that prompted a need for strategic changes. The first event was the entry into the market of a competitor with a “long-life” bulb that eroded the profits and market share of the organisation. During its monopoly years, the organisation had actively pursued a policy of achieving high volume regardless of costs in order to meet customer demand. The entrance of the competitor signalled the need for a change away from a “production culture”. However, the highly

centralised management style persisted during this period of change and the fortunes of the organisation continued to wane.

The second event that triggered a change in the organisation's strategy was its acquisition by a conglomerate. The organisation's prior "production culture" was replaced with one of financial concerns. In response to this change in strategy, changes were made to the MCS of the organisation. In particular, a decentralised accounting information system was introduced, which created greater autonomy and accountability for subordinate managers, and encouraged the discussion of problems and solutions. Furthermore, to widen the consultative process, senior managers were required to discuss issues and generate ideas with their subordinates, which were then presented in what were known as management conferences. Although Roberts provides comments on the negative effects of the conglomerate's strategy upon the organisation, the study does report that a change in strategy was achieved. However, since the MCS–strategy relationship was not the specific focus of Roberts' research, the study does not provide insights on the relationship between MCS and strategy.

What is interesting about Archer and Otley (1991) and Roberts (1990) is that these studies allude to some relationship between MCS and strategy. Simons' (1995) distinction between interactive and diagnostic controls could shed light on the observations by Archer and Otley (1991) and Roberts (1990). Whether a MCS mechanism is considered diagnostic or interactive depends upon how the organisation uses the mechanism. Diagnostic control mechanisms were defined by Simons (1994, pp. 170–171) as "formal feedback used to monitor organisational outcomes", while interactive control mechanisms are formal systems used by managers "to regularly and personally involve themselves in the decision activities of subordinates". For a MCS mechanism to be interactive, Simons (1995) specified that it must exhibit four characteristics:

1. information generated by interactive MCS mechanisms are an important and recurring agenda;
2. information generated by interactive MCS mechanisms demand frequent and regular attention from managers across all levels of the organisation;
3. information generated by interactive MCS mechanisms are interpreted and discussed in face-to-face meetings; and
4. information generated by interactive MCS mechanisms are used to continually challenge and debate the underlying information, assumptions, and action plans.

Both types of controls are necessary within an organisation as they are used for different purposes. Diagnostic controls serve to measure and monitor outputs, and correct deviations from preset measures of performance (Simons, 1995). While diagnostic control systems assisted organisations to pursue intended strategies, such systems did not encourage organisations to consider new opportunities. Interactive controls, on the other hand, focus attention on strategic uncertainties. Simons (1995) observed that these systems encouraged continual dialogue and debate, thus creating competitive pressure within the organisation to innovate and adapt. Consequently, new strategies could emerge.

Simons (1990, 1991, 1994) showed how formal control systems, if used in an interactive manner, could overcome organisational inertia and manage "emergent strategies". The system helped communicate the strategic agenda and direct attention to the uncertainties that arise as a consequence of pursuing a new strategy. The control system also helped organise implementation timetables and targets, while incentive and reward schemes assured the continued attention of senior management to particular areas.

In the case described by Archer and Otley (1991), the MCS mechanisms (e.g., managers' committee meetings, and reporting and budgetary systems) were used primarily in a diagnostic manner and not

in an interactive manner. As such, there was no discourse and exchange of ideas which would have occurred if MCS mechanisms had been used in an interactive manner. Therefore, we speculate that this prevented the organisation from considering alternative strategies. Similarly, in Roberts' (1990) study, the initial attempt at changing strategy was unsuccessful possibly because of the continued use of controls in a diagnostic manner. The centralised management structure, with its top–down approach, removed the need for subordinates to be accountable for their actions, and prohibited an exchange of ideas and discourse. In the second attempt, however, controls were used in an interactive manner which encouraged discussion between senior managers and their subordinates, and facilitated the consideration of new ideas.

Abernethy and Brownell (1999) extended Simons' arguments to suggest that MCS mechanisms used interactively were expensive to implement and would, therefore, be more evident in organisations undergoing a change in strategic typology. Focusing only on the interactive use of budgets, they suggested that budgets used in an interactive manner allowed the exchange of strategic information among the different levels of management which was necessary for the organisation to evolve. Under such circumstances, "the benefits of interactive use will outweigh the costs" (Abernethy and Brownell, 1999, p. 192). To determine if there was a match between the interactive use of budgets and a change in strategic typology, Abernethy and Brownell conducted a cross-sectional analysis of Australian public sector hospitals. While they found that there was a match, their study was not designed to shed light on the interrelationship between MCS and strategy.

3. Research questions

Based on our synthesis of the prior literature, we present two research questions that, taken together, show the two-way relationship between MCS and strategy. In the first research question, we argue that when MCS mechanisms are used in an interactive manner, these mechanisms facilitate a change in strategy. This is consistent with Simons' (1995) assertion that the use of MCS mechanisms in an interactive manner (e.g., inter-hierarchical discussion, dialogue, and debate) leads to the sharing of information and ideas, the search and generation of ideas, and the seeking of new alternatives. Through this interaction, new strategies can arise.

Our second research question reflects the traditional view of the role of MCS. The traditional contingency approach contends that the appropriate MCS for an organisation is dependent on various contextual variables, including strategy. This contingency view suggests a passive relationship between MCS and strategy, such that the MCS is an outcome of organisational strategy (Den Hertog, 1978), and there needs to be a match between strategy and MCS in order to enhance organisational performance (e.g., Fiegenor, 1994; Govindarajan and Shank, 1992; Kober et al., 2003; Miller and Friesen, 1982). Our second research question draws on this contingency literature to suggest that an organisation that undergoes strategic change needs to change its MCS to ensure a match with the new strategy.

This discussion leads to the following two research questions which are tested in this paper:

Research Question 1. *The interactive use of MCS mechanisms helps to facilitate a change in strategy.*

Research Question 2. *MCS mechanisms change to match a change in strategy.*

Research Question 1 indicates how MCS mechanisms can affect strategy, while Research Question 2 examines how a change in strategy affects MCS. Thus, taken together, these two research questions illustrate the interrelationship between MCS and strategy.

4. Research method

To test Research Questions 1 and 2, we adopted a triangulation approach involving documentation reviews, interviews with senior managers, and a questionnaire administered to all personnel with managerial responsibilities. The questionnaire was used to substantiate the changes that occurred in PathCentre's strategy and the level of use of MCS mechanisms over the three time periods. The interviews and documentation reviews provided insights into the manner in which MCS mechanisms were used (i.e., interactively or diagnostically). The primary source of information to examine Research Questions 1 and 2 was the interviews.

The study commenced with a review of documentation⁴ which assisted in establishing a basic understanding of key facets of the organisation. Interview questions were constructed based on the review of documentation and prior literature. Semi-structured interviews with all (nine) senior managers were then conducted.⁵ These senior managers were the CEO, the Financial Controller, the Operations Manager, the Accountant, the Human Resources Manager, and the four Managing Scientists. The interviews, which were of approximately 2 h duration, provided a greater understanding of the events that were occurring at PathCentre and the strategic direction of the organisation. As indicated above, these interviews were the primary source of information on the relationship between MCS and strategy. A questionnaire was then developed and used to seek the opinions of middle and senior managers. The questionnaire enabled us to establish whether strategic changes did in fact occur, and the extent to which the usage of the various MCS mechanisms changed over the time period examined. This three-stage approach enabled a systematic and comprehensive analysis.

While the study covers a five-year time horizon around the change period, we separated the time horizon into three periods. These three time periods were identified based on the documentation review and interviews. They were selected in consultation with staff at the organisation to ensure that they were the most appropriate event windows that captured the major changes in the organisation, and that staff could identify with these time periods. Each of these three periods was of approximately one and a half-year duration:

- Pre-formation (beginning 1994–mid-1995);
- Formation (mid-1995–end 1996); and
- Post-formation (beginning 1997–mid-1998).

Although the time periods were an artificial distinction, it provided a reference point for staff who were completing the questionnaire, and it allowed us to gauge the changes in strategy and the usage of MCS mechanisms over time.

Pre-formation represents the time period from the commencement of plans to amalgamate the three entities until the commencement of operations as a single entity. The next 18 months (Formation) saw a state of flux during which staff migration occurred and structures were finalised. Post-formation represents the 18 months after the Formation period, and reflects a period of relative stability.

⁴ The documentation reviewed included annual reports, monthly division and section budgetary reports, government policy statements, and strategic planning reports and memorandums.

⁵ The three authors were present during the interviews and each took notes of proceedings. Notes were cross-checked by the authors for consistency.

The questionnaire was designed to obtain information for each of the three time periods pertaining to strategy (organisational type) and the components of the MCS.⁶ Respondents were asked to complete only the time periods relevant to their employment period.

Strategy was measured using Miles and Snow's (1978) strategic typology, which identified four different strategy types: defenders, prospectors, analysers, and reactors.⁷ Since archival data suggested that PathCentre could originally have been a reactor, the Snow and Hrebiniak (1980) descriptions of reactor, defender, analyser, and prospector strategies were used in the questionnaire (see Appendix A). Respondents were asked to select the description that most closely described the organisation for each of the three time periods identified.

To gain an understanding of the MCS in use in each of the three time periods, the questionnaire incorporated 27 items on various control system characteristics used in PathCentre (see Appendix B). These items were derived from the instruments used by Miller and Friesen (1982) and Simons (1987). Both instruments focused primarily on formal accounting controls. Given that the literature has expressed the need to consider non-accounting controls (Abernethy and Brownell, 1999) and the need to consider informal controls in addition to formal controls (Archer and Otley, 1991; Roberts, 1990), additional items that measured the strength of culture and the usage of professional controls⁸ were developed and included to broaden the range of controls examined.

The 27 items were comprised of 15 questions which sought respondents' opinions on the extent of use of different MCS mechanisms and 12 statements that sought respondents' extent of agreement in terms of aspects of the MCS. The 15 questions were measured on a five-point scale ranging from "never/seldom" (1) to "always" (5), while agreement with the 12 statements was measured on a seven-point scale ranging from "strongly disagree" (1) to "strongly agree" (7).⁹ The 27 items were categorised into

⁶ This study was part of a larger project that used PathCentre to examine contingency issues. Consequently, the questionnaire included variables concerning: strategic typology, extent of perceived environmental uncertainty, management information system characteristics and requirements, MCS, and performance. A detailed discussion of all variables used in the questionnaire and associated measurement issues can be found in Kober et al. (2003).

⁷ The Miles and Snow (1978) strategic typology was used in the present study for several reasons. First, it provides the richest description of organisational characteristics associated with each strategy (Dent, 1990). It is the only typology "that characterises an organisation as a complete system, especially its strategic orientation" (Snow and Hrebiniak, 1980, p. 318). Second, it is the most commonly used strategic typology and as such would provide the basis for comparison to previous studies (e.g., Abernethy and Brownell, 1999; Abernethy and Guthrie, 1994; Chong and Chong, 1997; Simons, 1987). The typology is "applicable to a wide range of industries and has been subject to considerable psychometric assessment" (Abernethy and Guthrie, 1994, p. 51). Finally, as suggested by Langfield-Smith (1997) other frameworks (e.g., Macintosh, 1994; Miller and Friesen, 1982; Porter, 1980) can be integrated under the Miles and Snow framework.

⁸ Professional controls refer to the values, judgment, and ethics internalised by members of the same profession. This form of control is achieved by hiring professionals who have been through a process that has taught them to internalise the desired values, and embrace the ceremonies, associated with the profession (Abernethy and Brownell, 1997; Abernethy and Stoelwinder, 1995; Comerford and Abernethy, 1999). In this way, professionals are more likely to be committed to the performance of their work and can be given greater autonomy.

Professional control was measured using questions that related to autonomy. We used autonomy as a proxy for professional controls as prior literature suggested that autonomy is associated with professionals in the health-care sector. Professionals in this sector often conduct complex tasks which rely heavily on their professional expertise (Abernethy and Stoelwinder, 1995). As such, the control they have over such tasks (i.e., the production process) sanctions their freedom to operate autonomously (Abernethy and Stoelwinder, 1990).

⁹ This range of values for each scale was used in order to maintain consistency throughout the questionnaire.

Table 1

MCS groupings and components of each grouping

<p><i>Results monitoring</i>: these controls focus on outputs. Pre-defined standards for outputs are set and performance is measured against these standards (Ouchi, 1977)</p> <ol style="list-style-type: none"> 1. Formal reports 2. Outputs related to inputs consumed 3. Evaluation of performance relative to competitors 4. Written explanations in budget reports for changes between periods 5. Trends between periods closely monitored
<p><i>Cost controls</i>: these refer to the financial measures used to ensure the efficient and effective execution of operations</p> <ol style="list-style-type: none"> 1. Cost centres 2. Variance analysis 3. Tight budget goals
<p><i>Bureaucratic controls</i>: these involve the monitoring of subordinates, the setting of standard operating procedures and rules, and establishing lines of authority within the organisational hierarchy (Ouchi, 1979)</p> <ol style="list-style-type: none"> 1. Procedure manuals 2. Formal appraisal of personnel 3. Internal financial audit 4. Internal quality audits 5. External quality audits
<p><i>Communications/integrative mechanisms</i>: these refer to the horizontal and vertical communications that can be either formal or informal</p> <ol style="list-style-type: none"> 1. Importance of informal communications 2. Interdisciplinary meetings 3. Vertical communications 4. Horizontal communications
<p><i>Resource sharing</i>: these refer to the control resulting from the working relationships with other divisions/sections</p> <ol style="list-style-type: none"> 1. Interdisciplinary workgroups 2. Resource sharing
<p><i>Tightness of controls</i>: these refer to the level of monitoring exerted over operations</p> <ol style="list-style-type: none"> 1. Adherence to rules, policies, and plans 2. Virtually all activities monitored by management control systems
<p><i>Professional controls</i>: these refer to the values, judgment, and ethics internalised by members of the same profession</p> <ol style="list-style-type: none"> 1. Managers have high degree of autonomy/discretion 2. Lower level personnel have high level of autonomy
<p><i>Organisational culture</i>: these refer to informal social structures that support the other control mechanisms in the organisation (Ouchi, 1979)</p> <ol style="list-style-type: none"> 1. Shared values, beliefs, and norms 2. Committed to organisation's objectives and values
<p><i>Tailoring of controls to specific user needs</i>: these refer to the presentation and information content tailored to meet division/section requirements</p> <ol style="list-style-type: none"> 1. Detailed control reports 2. High tailoring of management control systems

Based on Table 5 in Kober et al. (2003).

nine control groupings representing different categories of MCS mechanisms. The nine groupings and the MCS mechanisms that form each grouping are described in [Table 1](#).

Although the categorisation of the 27 items into the nine grouping was intuitively done, a principal axis factor analysis, with varimax rotation was conducted to substantiate these groupings. Sixty-eight percent of the correlations in the correlation matrix exceeded 0.300, the Bartlett test of sphericity was significant ($\chi^2 = 2265.03, p \leq 0.001$), and the Kaiser–Meyer–Okin measure of sampling was greater than 0.6 (KMO = 0.878), indicating that it was possible to conduct a factor analysis on the sample. As shown in [Table 2](#), 21 of the 27 items (78%) factored into the specified groupings, suggesting it was suitable to use the nine groupings described in [Table 1](#).

The questionnaire was distributed to all (93) personnel with managerial responsibilities.¹⁰ These personnel included the senior managers interviewed, as well as Clinical Directors and middle-level managers such as Heads of Branches and Sections. Respondents were asked to only respond for the time periods during which they were employed. Sixty-four useable¹¹ questionnaires were received. This represented a 69% response rate.¹² The majority (57) of respondents had been with PathCentre across all three time periods. Two of the respondents joined during the Formation period, and five in the Post-Formation period. On average, the respondents had been with PathCentre for 17 years, with a mean of approximately 11 years of managerial experience. The respondents had been in their current position for an average 6.5 years.

5. History of the organisation

The organisation selected for study in this paper, PathCentre, is a public sector provider of pathology services established in 1995. PathCentre was formed by the amalgamation of the laboratories of three public sector component entities (the pathology department of a large teaching hospital; the pathology services of the state health department; and the pathology service elements of a university laboratory). The organisation's primary goal was to provide cost-effective, high-quality services to the community, while maintaining its commitment to teaching and research. Its mission statement was as follows:

“PathCentre is committed to providing the highest quality, cost effective pathology service supported by excellence in teaching and research, to improve the health of the community.”

The formation of PathCentre as an entity in its own right was the result of the election of the Liberal premier, Richard Court, for the state of Western Australia.¹³ Part of Premier Court's election pledge was to introduce NPM practices into the Western Australian public sector. The perceived need for such practices was driven, in part, by ideological beliefs ([Guthrie et al., 2003](#)) and also by the perception that

¹⁰ Prior to dissemination, the questionnaire was pre-tested for relevance, clarity, and understandability by several academics and two senior managers from PathCentre.

¹¹ Two questionnaires were excluded from the sample as these respondents provided responses for time periods prior to their employment at PathCentre.

¹² The first mail-out resulted in a response rate of 52%. A follow-up questionnaire was distributed to those who did not respond and this resulted in a further 17%. Tests for non-response bias were conducted. Mann–Whitney *U*-tests revealed no significant differences.

¹³ The Liberal Party is the conservative party in Australian politics, similar to the Tory Party in the U.K. and the Republican Party in the U.S.

Table 2
Factor loadings for MCS groupings

Item		Factor loadings
Results monitoring		
RM 3	Evaluation of performance relative to competitors	0.768
RM 4	Written explanations in budget reports for changes between periods	0.655
RS 2	Resource sharing	0.613
RM 2	Outputs related to inputs consumed	0.562
CIM 2	Interdisciplinary meetings	0.499
Cost controls		
CC 2	Variance analysis	0.798
CC 1	Cost centres	0.732
Bureaucratic controls		
BC 5	External quality audits	0.739
BC 4	Internal quality audits	0.625
BC 3	Internal financial audit	0.581
BC 2	Formal appraisal of personnel	0.500
BC 1	Procedure manuals	0.403
Communications/integrative mechanisms		
CIM 1	Importance of informal communications	0.704
TCS 2	High tailoring of management control systems	0.527
CIM 3	Vertical communications	0.491
CIM 4	Horizontal communications	0.419 ^a
RM 1	Formal reports	0.401
Resource sharing		
RS 1	Interdisciplinary workgroups	0.400 ^a
Tightness of controls		
TC 1	Adherence to rules, policies, and plans	0.764
TC 2	Virtually all activities monitored by management control systems	0.703
RM 5	Trends between periods closely monitored	0.657
CC 3	Tight budget controls	0.485
Professional controls		
PC 2	Lower level personnel have high level of autonomy	0.672
PC 1	Mangers have high degree of autonomy/discretion	0.630
Organisational culture		
OC 1	Shared values, beliefs, and norms	0.872
OC 2	Committed to the organisation's objectives and values	0.802
Tailoring of controls to specific user needs		
TCS 1	Detailed control reports	0.539

Abbreviations: BC, bureaucratic controls; CC, cost controls; CIM, communications/integrative mechanisms; OC, organisational culture; PC, professional controls; RM, results monitoring; RS, resource sharing; TC, tightness of controls. *Note:* Item numbers relate to item numbers from Table 1.

^a This item loaded on two factors. It is placed in this factor on the basis of theoretical support (Hair et al., 1995).

NPM practices had improved the efficiency, effectiveness, and accountability of public sector operations in other Australian states.¹⁴

The NPM philosophy encapsulates certain principles, such as the adoption of private sector management methods, the separation of purchaser and provider to end government monopolies and thus enhance efficiency in service delivery in the public sector, and a shift in emphasis from inputs and outputs to outcomes (Gurd and Thorne, 2003). In Western Australia, these principles were applied to all state and local government entities. For example, the provision of bus services, and the construction and maintenance of roads and related infrastructure were contracted out; there was a separation of local government services into purchaser and provider departments with compulsory tendering; and within health services, some public hospitals were administered by private companies.

Within pathology services, in particular, the newly elected Liberal Government believed that the opportunity existed “to improve substantially the cost-effective provision of pathology services in Western Australia by applying commercial practices and fostering a price-competitive market within the public and private sectors” (Government of Western Australia, 1994, p. 4). By making pathology services contestable and by deregulating the market, the Government perceived that price competition would be encouraged, and result in improved efficiencies and service levels that would benefit the community (Government of Western Australia, 1994).

The following discussion documents the creation and history of PathCentre, commencing with an account of the situation prior to its creation, and followed by discussions of the formation of PathCentre and of its subsequent evolution. These descriptions are based on documentary evidence and interview comments. In our discussion of each time period, we also incorporate the questionnaire results to provide quantitative evidence of changes that occurred in PathCentre’s strategy and in the level of usage of MCS mechanisms over the three time periods.

5.1. Pre-formation (beginning 1994–mid-1995)

Prior to its formation, the “organisation” comprised laboratories from the three component entities mentioned previously. In what was known as the “combined operations”, the three entities worked inter-dependently. Managerial responsibilities were undertaken by senior medical staff. The largest component entity was the state health services, which comprised 25 branch laboratories and eight collection centres located across metropolitan and country areas of Western Australia. The branches provided on-site routine services in biochemistry, haematology, and microbiology. In addition, the state health services operated laboratories at the teaching hospital site. Tests not available in the branches were referred to the laboratories at the hospital site.

The interviews suggested that the Pre-formation period was one that lacked external competition and the primary focus of the “combined operations” was one of “survival”. The organisation provided services which were not catered for by private providers. Furthermore, there was a general reluctance to make decisions within the organisation, and any responses to external forces were made out of necessity. These characteristics are consistent with a reactor strategy. As stated in the interviews:

“Neither [sic] of the constituents were [sic] competitive. The [state health] labs and . . . [the teaching hospital] were disorganised and had no sense of enterprise.”

¹⁴ Prior to the election of Richard Court, newly elected Liberal premiers in New South Wales, Tasmania, and Victoria had introduced NPM practices into their state public sectors.

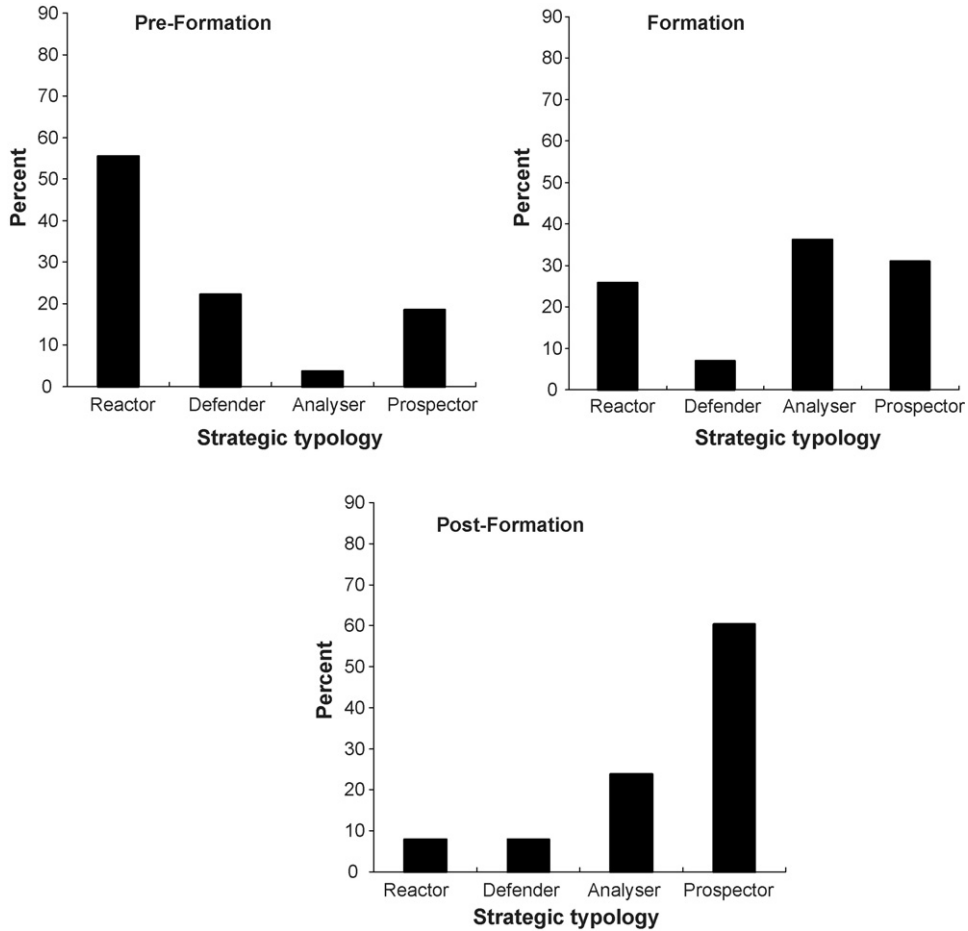


Fig. 1. Strategic typologies across time periods.

The questionnaire responses confirmed the existence of this strategy. Fig. 1 presents, by time period, respondents' beliefs of the strategy being pursued.¹⁵ For the Pre-formation period, the majority of respondents (56%; $\chi^2 = 31.037$, $p < 0.001$) indicated that the "organisation" had a reactor strategy.

During the Pre-formation period, limited formal controls were in place. The Government of Western Australia also noted this by commenting on the lack of adequate management control systems and accounting procedures (Government of Western Australia, 1994). These poor systems are not surprising given that there were three separate employers and most employees operated on what management referred to as a "gentlemen's agreement". As stated in an interview:

"You could have three people working next to each other, but reporting to different employers."

¹⁵ In analysing the questionnaire responses for each time period, the strategy type that was selected most frequently was deemed to represent the organisation's strategy for that period and a strategic change was therefore viewed as a shift from one typology to another. For each time period, a Chi-square test was used to identify whether a dominant strategy existed. The Chi-square test was used as data were non-normally distributed.

This system of operation was said to have resulted in a high level of wastage, inefficiency, and some conflict. The conflict inherent in the system was succinctly captured by a manager, who described this period as consisting of “a loose association of warring tribes”.

Such an arrangement resulted in sluggish decision making and a lack of control. Additionally, no proper lines of authority were defined. Employees would go from one manager to another if a request was turned down. This arrangement was described in interviews as follows:

“Under the old structure, nobody made any decisions about anything. Most decisions kept being passed on to someone else in the hierarchy.”

“Where you have management by committee, you have no management.”

“[the management culture] is laissez-faire at best.”

These sentiments were reflected in a policy statement released by the [Government of Western Australia \(1994\)](#) which noted problems of administrative complexity, duplication, and management culture.

An observation here is that there were professional controls in place (such as hiring of staff with higher academic degrees and who were research and teaching focused, the emphasis on scientific research and academic publication, a commitment to aiding in university teaching programmes, attendance at scientific conferences and professional training programmes). The professional controls and the organisational culture were seen to be acting to reinforce the research and teaching orientation, which had always been a strong point of the “combined operations”.

The “combined operations” were block grant funded from the state health department. They were allocated a fixed amount of funds each year and were required to provide pathology services to hospitals and to the community based on this fixed budget. Changes in the volume of services provided were not taken into account. There were some financial controls, but these were mainly labour-related input costs, and reporting was carried out on a cash basis. Furthermore, although there were budgets, these were used primarily to ensure that the funds received were expended by the end of the financial year.

[Table 3](#), which presents the questionnaire results pertaining to the nine control groupings, supports the above description of controls used in the Pre-formation period.¹⁶

It can be seen from [Table 3](#) that, in the Pre-formation period, most control categories were clustered around the “2” rating, indicating that they were only used occasionally. The three groups of controls that were used most frequently in this Pre-formation period were: (1) culture, (2) cost controls, and (3) professional controls. The use of culture and professional controls are consistent with the interviewees’ impression of a lack of formal controls, whereby employees were required to carry out their responsibilities largely of their own accord. The professional controls and the organisational culture reinforced the research and teaching orientation of the organisation. From the interviews, it was apparent that cost controls were

¹⁶ The results for each grouping, reported using a five-point scale, represent a composite value derived by equally weighting the items in each grouping. It was not possible to use a single scale to measure all individual MCS components because of the nature of some of the questions. Consequently, two separate measurement scales were required. One scale ranged from 1 (never) to 5 (always) to indicate the extent to which an item was used, while the other ranged from 1 (strongly disagree with statement) to 7 (strongly agree with statement). As stated previously, the range of values for each scale was used in order to maintain consistency throughout the questionnaire. It is acknowledged that the scales are not directly comparable but it was necessary to standardise the scales to obtain an aggregate value for each MCS grouping.

Table 3
Changes in MCS groupings across time periods

	Results monitoring	Cost controls	Bureaucratic controls	Communications	Resource sharing	Control tightness	Professional controls	Culture	Tailoring
Pre-Formation									
Mean	1.85	2.67	2.15	2.28	1.75	2.34	2.61	2.70	2.05
S.D.	0.55	0.97	0.70	0.77	0.71	0.82	0.94	1.14	0.81
Formation									
Mean	2.33	3.35	2.48	2.62	2.32	2.82	2.98	2.56	2.48
S.D.	0.66	0.85	0.78	0.77	0.80	0.74	0.79	0.93	0.74
Post-formation									
Mean	2.96	3.92	3.43	3.13	2.88	3.37	3.54	3.17	3.15
S.D.	0.84	0.89	1.00	0.81	0.93	0.78	0.83	0.83	0.85
Wilcoxon Signed Ranks Test									
Pre-Formation–Formation, z	4.494 ^{***}	4.526 ^{***}	4.369 ^{***}	2.471 [*]	4.642 ^{***}	5.176 ^{***}	2.588 ^{**}	0.234	3.374 ^{***}
Formation–Post-formation, z	5.846 ^{***}	5.289 ^{***}	6.460 ^{***}	5.240 ^{***}	5.123 ^{***}	5.211 ^{***}	5.506 ^{***}	4.682 ^{***}	5.740 ^{***}

* Significant at $p < 0.05$.

** Significant at $p < 0.01$.

*** Significant at $p < 0.001$.

primarily used in the Pre-formation period as a means of ensuring that the organisation spent the funds that it received from the government.

Early in 1994, plans were made to amalgamate the staff and services of the three previously inter-dependent entities commenced. This was the consequence of political intervention as part of the State Government's drive to cut costs and increase efficiency in the public sector. As stated in the "Policy for Pathology Services in Western Australia" (Government of Western Australia, 1994), the specific aims of the amalgamation were: to simplify management, to ensure that the community obtained the best possible return on its funds, and to ensure there was no reduction (or adverse effect) in teaching, research, or community services.

A Project Team, comprising of the Interim Chief Executive Officer and staff of the State Health Department, was installed immediately to conduct an assessment of operations. Several changes were instituted as a consequence. These included the rationalisation of laboratory space and physical relocation of laboratories at the teaching hospital, the formation of a plan for the migration of staff to the new organisation, the introduction of a voluntary severance programme, and improving services to clients. A permanent Chief Executive Officer and several key personnel were appointed in early 1995, followed by the withdrawal of the Project Team.

5.2. *Formation (mid-1995–end 1996)*

PathCentre properly commenced operations in mid-1995. The newly operational PathCentre was organised along the lines of nine departments. These nine departments were: Anatomical Pathology, Biochemistry, Forensic Pathology and Biology, Haematology, Immunology, Microbiology, Pharmacology and Toxicology, Public Health, and Branch Laboratories. Each had a Head of Department. A manager of Business Services headed all matters involving financial services and other central administrative functions. This arrangement was essentially an amalgamation of the previous disciplines that operated under the "combined operations".

Once the structure was decided, the hiring of personnel commenced on a top-down basis, with staff having to re-apply and compete for positions with external applicants. A concerted effort was made to employ staff who had external experience, which resulted in the appointment of several new key personnel (e.g., the Financial Controller). However, on-going industrial disputes meant that the re-hiring of staff to the new organisation was not completed until April 1996, at which time PathCentre had just in excess of 600 employees.¹⁷

Further restructuring took place at the end of 1995. This restructuring was aimed at flattening the organisational structure and decentralising decision making, "to make people take responsibility for their decisions". The restructuring resulted in the creation of four divisions (Microbiology, Tissue Pathology, Clinical Pathology, and Branches). Each division was further comprised of several sections. A Corporate Services Division was also created, encompassing all administrative and financial functions, human resources, information technology, and purchasing and stores. A partial organisational chart of the new structure is presented in Fig. 2.

The restructuring was also designed to relieve senior medical staff (the former Heads of Departments) of immediate managerial and administrative duties, as it was perceived that, in order

¹⁷ Prior to this date, the employees of PathCentre were deemed employed by the previous three component entities that made up the "combined operations".

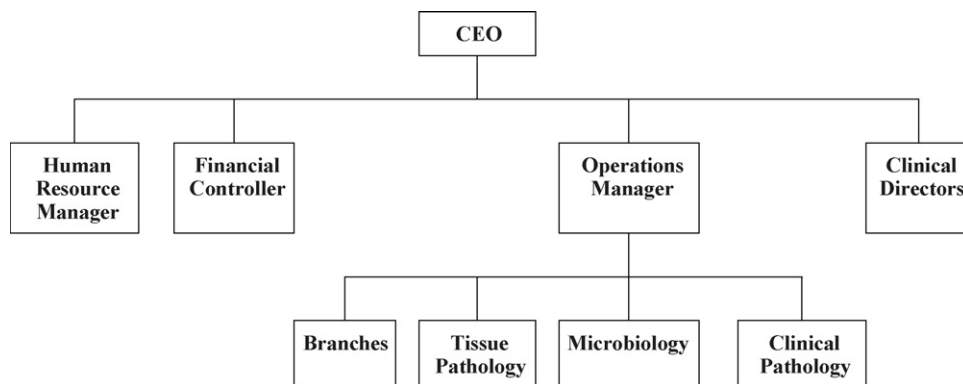


Fig. 2. Partial organisational chart.

to achieve a more commercial organisation structure, “doctors [were] best kept out of management”.

Four Managing Scientists were appointed to managerial positions, overseeing the daily operations of each division. Seven of the former Heads of Department were appointed Clinical Directors of the various disciplines. The Clinical Directors reported directly to the CEO and were responsible for all professional and clinical issues. While this allowed the Clinical Directors to concentrate on practice issues, taking them out of management was seen by some as a downgrading, which created resentment.

Funding for the organisation came primarily from two sources: state government work (e.g., hospital work, forensics, and tests for all government agencies) was block funded; and out-patients services which were funded by the federal government on an item-by-item scale.¹⁸

As evidenced from the mission statement and from interviews, the original intention of PathCentre was to deliver high-quality services in a cost-effective manner. This is consistent with a defender strategy. However, the questionnaire responses in Fig. 1 revealed that, for the Formation period, respondents were undecided between an analyser strategy (36%) and prospector strategy (31%). This period of uncertainty is not surprising given two events that occurred during this time period. First, it was apparent from the interviews that it was during this period that a strategy of moving into new markets and competing with private sector providers began to emerge (e.g., competing for doctor referrals and drug testing of mining company employees). Second, the organisation faced an upheaval in its operations, with the formation of the new structure, industrial disputes, and concerns by staff about their job security. From the interviews, it was evident that this was a period when staff were unsure of what was happening and of the future direction of the organisation.

In terms of management controls, during this time period, Management Scientists’ meetings and Clinical Directors’ meetings were introduced. The Clinical Directors’ meetings were held once a month, and were attended by the Clinical Directors and the CEO. These meetings focused on the discussion of professional issues and the direction of pathology within PathCentre. The Managing Scientists’ meetings were attended by all Managing Scientists, and the Operations Manager, Financial Controller, Accountant, and the CEO. These meetings were also held monthly, and were used to discuss operational and business

¹⁸ Private sector pathology providers also receive federal funding for tests on out-patients, using the same item-by-item scale.

issues. Towards the end of the Formation period, financial controls in the form of variance analysis, monthly reports and output controls were introduced and discussed at the Managing Scientists' meetings. However, although Managing Scientists were starting to be held accountable for the financial performance of their Divisions, the budget setting process was centralised.

The results of the questionnaire presented in [Table 3](#) indicated that the three control groups used most frequently in the Formation period were: (1) cost controls, (2) professional controls, and (3) control tightness. As discussed earlier, one of the intentions on the formation of the organisation was to gain control of costs and increase efficiency, through rationalisation. This would account for the usage of cost controls and control system tightness. Professional controls continued to be highly ranked, which is consistent with the organisation's emphasis on teaching and research.

The Formation period also saw the emergence of interdisciplinary workgroups. These workgroups were formed by staff who came from different Divisions but recognised commonalities in their work.

5.3. *Post-formation (beginning 1997–mid-1998)*

The questionnaire responses indicated that, in the Post-formation period, the majority of respondents selected a prospector strategy (60%; $\chi^2 = 46.143$, $p < 0.001$). The change away from a reactor strategy to a more commercial mindset is evident from our review of documentation and from comments made during the interviews.

A comparison of Annual Reports over the three time periods highlighted that, in the Post-formation period, there were relatively more new tests introduced and more were also internally developed. It was also apparent that the nature of the new tests was changing. In the previous periods, new tests appeared to be focused more on enhancing the efficiency or quality of existing tests, whereas in the Post-formation period there was more of an emphasis on the development and introduction of new tests for new services. The increased number of new tests and the focus on the development of new services is consistent with the pursuit of a prospector strategy.

Comments made during interviews also corroborated the move to the new mindset:

“For PathCentre to survive, it must maintain its current customers and attract new ones.”

“We're not regarded as the dinosaurs that we were before. There was a time when the private sector would not send tests here. We've got good people; we're lean, focused [and] more respected.”

As aptly stated by one manager, PathCentre had changed away from a “clock-watching” mentality.

The move towards competing with private sector providers and entering new markets, which began in the Formation period, continued to evolve in the Post-formation period. This is consistent with a prospector typology. Hence, PathCentre evolved beyond what was originally intended (i.e., high-quality, cost-effective services), and it was noted in the interviews that this strategic change was greater than that which could have been reasonably foreseen by senior management or the government at the time of formation.

An example of PathCentre's pursuit of a prospector typology can be seen by its commitment to achieve a change in its government funding mechanism, from block grant funding to fee-for-service funding. As a result of strong lobbying by PathCentre, the government now reimburses PathCentre for the cost of individual services provided to public hospitals. This means the organisation receives payment for all

services rendered, as compared to the previous block grant system, whereby the organisation received an annual grant and had to provide all public hospital services.¹⁹ As noted in the 1999 Annual Report (p. 8), the “implementation of this commercial system creates a clearer relationship for PathCentre as a provider of services for a broader range of its clients”.

Another example of PathCentre’s pursuit of a prospector typology is highlighted by a senior manager’s comment that the organisation actively sought to find new niches. However, they were selective in their approach; choosing only markets where they believed they had a competitive advantage (e.g., drug testing of mining company employees). The comments of other managers also captured this ethos:

“[PathCentre] will actively target those who pay.”

“create as many services as possible to sources other than the State, at the least possible cost.”

In deciding which markets to pursue, PathCentre’s approach was summarised as follows:

“[the] strategy is to find a niche. We [PathCentre] select the area where we have a competitive advantage. We don’t go out wholesale for everything, but select certain areas.”

Consistent with the tenets of NPM, accrual accounting was introduced to the Western Australian public sector during this period. In line with these sector-wide requirements, PathCentre’s internal budgets and financial reports moved from a cash basis to an accrual emphasis.

The Post-formation period also saw the introduction of participative budgeting. In the initial stages (1997), only Managing Scientists were involved in the budget setting process for their own Divisions. This was then later followed by the involvement of most Section Heads in setting their Sections’ budget in consultation with the Managing Scientists.

As a consequence of the increased financial reporting practices, the Managing Scientists’ monthly meetings were split into two monthly meetings. One meeting focused purely on operational issues and was attended by the Managing Scientists, the Operations Manager, Financial Controller, and the CEO. The second meeting, which focused on business issues, involved the discussion of financial matters, and was therefore also attended by the Accountant.

As substantiated by the Annual Reports, this period also saw the attainment of higher levels of laboratory (quality) accreditation standards. While PathCentre was already accredited to a minimum national standard, the organisation sought a more rigid structure of quality control procedures. This involved developing a comprehensive set of procedure manuals, the training of staff to conduct quality audits, and the participation in external quality assurance tests.

Responses from the questionnaire showed that, in the Post-formation period, the three most used control groupings were: (1) cost controls, (2) professional controls, and (3) bureaucratic controls. The continued usage of professional controls across the three time periods is consistent with prior research that found that professional controls were often used extensively in organisations that emphasised research and development (Abernethy and Brownell, 1997; Abernethy and Stoelwinder, 1995). The increased usage of bureaucratic controls is consistent with PathCentre’s move towards differentiation through higher quality

¹⁹ Because of the nature of the previous system, there was no incentive for doctors in public hospitals to be cost-conscious in terms of the volume of pathology tests requested. In effect, this resulted in PathCentre being under funded for the work it conducted for public hospitals.

accreditation. The pursuit of higher accreditation required a greater level of documentation, which explains the higher level of bureaucratic controls in the Post-formation period. This sentiment was reflected in the following comment made during an interview:

“Write what you do, and do what’s written.”

6. Results

The preceding discussion illustrates the changes that occurred to PathCentre’s strategy and MCS over the three time periods. Table 4 summarise the main organisational characteristics in each of the three time periods, and highlights the strategic typology, strategic direction, characteristics of the

Table 4
Organisation characteristics in each time period

Pre-formation	Formation	Post-formation
<u>Strategic typology</u>		
<ul style="list-style-type: none"> ● Reactor 	<ul style="list-style-type: none"> ● Undecided 	<ul style="list-style-type: none"> ● Prospector
<u>Strategic direction</u>		
<ul style="list-style-type: none"> ● Survival 	<ul style="list-style-type: none"> ● High-quality service ● Cost efficiencies 	<ul style="list-style-type: none"> ● New markets ● High-quality service ● Cost efficiencies
<u>Characteristics of the period</u>		
<ul style="list-style-type: none"> ● Comprised three component entities ● Entities worked interdependently ● High level of wastage/inefficiency ● Some conflict—no proper lines of authority 	<ul style="list-style-type: none"> ● Formation of new organisational structure comprising nine departments—an amalgamation of “combined operations” ● Staff required to reapply and compete for jobs ● Further restructuring occurred, resulting in the formation of four operational divisions ● Appointment of four Managing Scientists ● Introduction of monthly Management Scientist meetings ● Introduction of variance analysis, monthly reports, output controls ● Formation of interdisciplinary workgroups 	<ul style="list-style-type: none"> ● Introduction of participative budgeting ● Splitting of Management Scientists meeting into two meetings per month—one on operational issues, and one on business matters ● Pursuit of higher level accreditation for laboratories
<u>MCS usage by rank</u>		
<ol style="list-style-type: none"> 1. Culture 2. Cost controls 3. Professional controls 4. Control tightness 5. Communications 6. Bureaucratic controls 7. Tailoring 8. Results monitoring 9. Resource sharing 	<ol style="list-style-type: none"> 1. Cost controls 2. Professional controls 3. Control tightness 4. Communications 5. Culture =6. Bureaucratic controls =6. Tailoring 8. Results monitoring 9. Resource sharing 	<ol style="list-style-type: none"> 1. Cost controls 2. Professional controls 3. Bureaucratic controls 4. Control tightness 5. Culture 6. Tailoring 7. Communications 8. Results monitoring 9. Resource sharing

period, and MCS mechanism usage by rank for the Pre-formation, Formation, and Post-formation periods.

In summary, the responses from the questionnaire revealed an evolution of the strategy pursued by PathCentre (i.e., from reactor to prospector) over the three time periods. The mission statement and interviews indicated that, upon formation, PathCentre's intention was to deliver high-quality services in a cost-effective manner, a strategy consistent with that of a defender typology. It was apparent from the interviews that a strategy of moving into new markets and creating competition with private sector providers began to emerge in the Formation period and continued to evolve in the Post-formation period. This is consistent with a prospector typology. Thus, over the three time periods, PathCentre's strategy evolved beyond what was envisaged by senior management or the government at the time of formation.²⁰

PathCentre's MCS also evolved, with an increase in the usage of controls across the three time periods. We now focus on how the use of MCS mechanisms affected strategy (Research Question 1) and how changes in strategy resulted in changes to MCS mechanisms (Research Question 2). The ensuing discussion focuses on the MCS mechanisms of results monitoring and cost controls, resource sharing, and bureaucratic controls, as these were specifically mentioned during interviews in connection with the strategic change process.

6.1. *Research Question 1*

From Table 3, it can be seen that there was a change in the level of usage of results monitoring and cost controls over the time periods examined. From the interviews, we learned that not only was there an increase in the level of usage in these controls, there were also the introduction of some new mechanisms. These are described below.

The interviews suggested that the Pre-formation period was characterised by a lack of financial controls. As indicated in the interviews,

“[there were] no lines of accountability.”

“people didn't really know where the dollars were being spent.”

The interviews revealed (and this was confirmed by documentation reviews), that the few financial controls in place were input based and mostly consisted of measures of labour; there were no output controls (such as the number of tests conducted) at this point in time.

For the Formation period, the interviews revealed that PathCentre started to use budgets in an interactive manner, which encompassed formal and informal face-to-face meetings and discussions of variances and any necessary corrective actions. An example which confirmed the interactive nature of the budgetary process was that of a branch that experienced a blow-out in costs. The blow-out resulted from the costs associated with the branch manager's initiative to target new business, and the costs incurred in the delivery of services to the new clients. This manager, together with senior management, discussed the reasons for the cost blow-out and it was agreed that this manager would be afforded flexibility in terms

²⁰ Statistical analysis did not reveal significant differences across the four divisions of PathCentre in terms of strategic typology selected. Therefore, it can be concluded that four divisions of PathCentre were not pursuing different strategies. Furthermore, the Snow and Hrebiniak (1980) descriptions of reactor, defender, analyser, and prospector strategies were framed so as to measure the strategy of the entire organisation and not of the separate divisions. Statistical analysis also revealed that there were no significant differences in terms of strategic typology selected by different levels of management.

of not having to meet the original budget targets. This approach contrasted with past practices where, should this situation have arisen, a branch manager would have been told to adhere to predetermined budget targets.

This period also saw the introduction of output controls, and the interviews indicated that these focused staff attention on efficiency and cost minimisation. One of the settings for formal discussions on these types of controls was the Managing Scientists' monthly meetings. At these meetings, the Managing Scientists, the Operations Manager, the Financial Controller, the Accountant, and the CEO discussed and reached agreement on business and operational issues. The Managing Scientists would then meet with their Section Managers and they, in turn, would meet with their staff. These meetings were interactive, facilitating inter-hierarchical communication and discussion. The interviews also revealed that Managing Scientists and Section Heads would often individually meet with the Accountant and/or the Financial Controller to discuss issues related to the budgets and financial controls.

The interviewees believed that the introduction of results monitoring and cost control mechanisms helped the organisation to change its strategy to one of cost efficiency. This is consistent with Research Question 1, which states that the interactive use of MCS mechanisms helps to facilitate a change in strategy.

The Post-formation period saw a shift to a control process that involved annual budgetary negotiations. There was a marked increase in budget participation over this period. The interviews revealed that Managing Scientists were required to set their own budgets. Several of the Managing Scientists also required their Section Heads to produce their own budget estimates. These budget estimates were then discussed and negotiated with the Managing Scientists, who then compiled a consolidated budget for their division. This consolidated budget was then presented at a Managing Scientists' meeting where the budgets were further negotiated and agreed upon. Interviewees also recognised that, during this period, there was more feedback from senior management, and that communication across, and within, divisions was "much better". The management philosophy adopted during this time period is encapsulated in comments such as:

"management now listen to people."

"management interacts with people below, and works with them."

Furthermore, during the Post-formation period, the monthly formal meetings with Managing Scientists were increased to twice a month, thus splitting the discussion of operational and business issues, and providing the opportunity for greater discussion of financial matters.

Hence, in the Post-formation period, there was greater emphasis on results monitoring and cost control MCS mechanisms, in terms of the frequency of monitoring and increased participation. Furthermore, this period saw the finalisation of a comprehensive suite of reports. Our documentation review revealed that, during this period, reports were expanded to include information on revenues so that managers were able to access monthly reports that outlined costs, outputs, and revenues.

In the Post-formation period, PathCentre evolved beyond its original intention of "providing cost-effective high-quality services to the community" (akin to a defender strategy) to a strategy of active competition with the private sector and the pursuit of new markets (akin to a prospector strategy).

From the interviews, it was evident that the interviewees believed that the MCS facilitated the shift to the prospector strategy. Specifically, the interviews suggested that the increased usage of results monitoring and cost controls in an interactive manner, and the introduction of the new controls which were also used

in an interactive manner (e.g., participative budgeting, and the second Managing Scientists' meeting), promoted discussion and debate, and fostered increased awareness of the financial environment. Staff recognised that, in order to improve their divisional resources, they had to seek funding from new sources, and they came to the conclusion that they had to be proactive in competing with the private sector to attract additional resources. As mentioned in Section 5.3 (Post-formation), interview comments revealed that PathCentre actively sought new markets. However, the organisation was selective in deciding which markets to enter, only targeting those where it believed it had a competitive advantage. For example, PathCentre established a community branch laboratory in a country town. This was a new initiative for the organisation as it was its first “stand-alone” laboratory (i.e., it was not associated with a public hospital) and was seen by PathCentre to be a foray into a new market. Other examples mentioned during the interviews were the active promotion of PathCentre's services to general practitioners in the local communities, and the provision of employee drug testing for large private sector companies. This provides further support for Research Question 1 as it clearly shows that the interactive use of MCS (i.e., results monitoring and cost controls) facilitated changes to strategy.

6.2. *Research Question 2*

The comments expressed during the interviews were consistent with the results from Table 3, which showed an increase in the usage of resource sharing mechanisms and bureaucratic controls over the three time periods.

In relation to resource sharing, we learned from the interviews that the Formation period saw the development of interdisciplinary workgroups (e.g., a diagnostic molecular biology laboratory). These interdisciplinary groups comprised staff from different divisions/sections that performed different tasks but used similar testing methods. From the interviews, we gleaned that these interdisciplinary groups were formed to facilitate the sharing of ideas, enhance group dynamics, and to achieve cost efficiencies. This is an example in support of Research Question 2, where a new MCS mechanism (i.e., interdisciplinary workgroups) was introduced to fit with the organisation's goal of cost efficiencies.

In relation to bureaucratic controls, while the laboratories were accredited to a minimum national standard during the Pre-formation period, a more rigid framework of quality control was pursued in the Formation period, resulting in the development of procedure manuals and a higher level of laboratory accreditation in the Post-formation period. As part of these efforts, an extensive programme of internal and external quality audits was implemented, and any discrepancies arising from these audits were discussed with relevant personnel to ensure corrective actions were taken.

The establishment of procedure manuals and the move to a higher level of accreditation, which involved extensive documentation procedures, resulted in a tightening of controls. As noted previously, a philosophy of “[w]rite what you do, and do what's written” was fostered within the laboratories. The adherence to these strict testing procedures was necessary to maintain quality control and these procedures were predominantly diagnostic in nature.

It was gleaned from the interviews that the initial increased emphasis on bureaucratic controls during the Formation period was aimed at ensuring high-quality pathology tests, which was in line with the organisation's original intention of providing high-quality services. This is another example in support of Research Question 2, which states that MCS mechanisms change to match a change in strategy.

Further support for Research Question 2 is evident from the pursuit of the higher level of accreditation in the Post-formation period. During this period, PathCentre sought to actively compete in new pathology

markets and increase its client base. To achieve this, the organisation chose to differentiate itself from its competitors through the quality of its testing procedures. To achieve a fit between the new prospector strategy and its MCS, PathCentre increased the levels of bureaucratic control (i.e., higher levels of accreditation).

7. Conclusions

This study examined the interrelationship between MCS and strategy. Two research questions describing this interrelationship were developed and tested in the paper. The first research question stated that the interactive use of MCS mechanisms helps to facilitate a change in strategy, and the second stated that MCS mechanisms change to match a change in strategy. These research questions were tested using an organisation that experienced strategic change. The paper documented the changes in strategy and MCS that occurred in the organisation, tracing these changes over an extended time period which covered the periods prior to, during and after, the change.

The results indicated changes in strategy over the time periods studied. PathCentre's initial strategic typology resembled that of a reactor. However, with the introduction of NPM reforms, PathCentre had to change its strategic direction. The organisation's response to these reforms was to pursue the provision of high-quality, cost-effective pathology services, which is consistent with a defender strategy. Interestingly, PathCentre evolved beyond this intention, and sought to differentiate itself from competitors so as to actively compete in its existing pathology market and seek out new markets (i.e., a prospector typology).

The results also indicated a change in the usage of MCS mechanisms over the time periods examined. Specific mechanisms that were identified during interviews in connection with the strategic change process were then examined in detail to identify their role in the change process and thus test the two research questions. The study revealed an increased use of results monitoring and cost controls in an interactive manner which facilitated a change in strategy. The introduction of interactive meetings on business and operational matters promoted inter-hierarchical communication and discussion, and lower level managers interacted with their superiors in the development of budgets and the monitoring of variances. These interactive activities fostered discussion and debate, and promoted an awareness of the financial environment. In this way, they helped to facilitate a change in strategy. This finding is consistent with Research Question 1 (i.e., the interactive use of MCS mechanisms helps to facilitate a change in strategy) and lends support for Simons' (1995) assertion that through the use of management control in an interactive manner, new strategies can arise.

The interviews also identified resource sharing mechanisms and bureaucratic controls as playing a role in the strategic change process at PathCentre. Resource sharing (i.e., the formation of interdisciplinary workgroups) was, in part, introduced at PathCentre as a means of achieving cost efficiencies. In a similar way, more stringent bureaucratic controls were pursued as a means of enabling PathCentre to differentiate itself from its competitors. In both these examples, changes to the MCS mechanisms were made as a result of the strategy that was being pursued. Hence, MCS changed to match the strategy being pursued. These findings provide support for Research Question 2 (i.e., MCS mechanisms change to match a change in strategy) and are consistent with the traditional view of the role of MCS (e.g., Fiegenger, 1994; Govindarajan and Shank, 1992; Kober et al., 2003; Miller and Friesen, 1982).

Taken together, our findings shed light on earlier literature that speculated on the strategy–MCS relationship (e.g., Hopwood, 1987; Dent, 1990; Macintosh, 1994). By showing that MCS mechanisms used

in an interactive manner help to facilitate a change in strategy and, when a change in strategy occurs, the MCS mechanisms change to match, we illustrate the interrelationship between MCS and strategy. Thus, we find support for [Macintosh \(1994\)](#) and [Kloot \(1997\)](#) who suggested a two-way relationship between MCS and strategy. That is, the MCS both shapes, and is shaped by, strategy.

Several limitations of this study must be acknowledged. First, while case studies enable a detailed analysis of the strategic change process, and the use of the case study approach has been encouraged by researchers (e.g., [Dent, 1990](#); [Shields, 1997](#)), the generalisability of any findings may be limited due to the presence of various organisation-specific characteristics. Furthermore, this paper focused on describing the internal factors that facilitated changes to PathCentre's strategy and MCS. The initial impetus for PathCentre's change in strategy was externally imposed, but while these external institutional factors created a need for change they did not create the mechanisms within the organisation to enable the change to occur. Prior literature (e.g., [Roberts, 1990](#)) described instances where external factors created a need for organisational change but the organisation failed to change because internal factors did not support the required change. Nonetheless, we acknowledge that the external environment may have impacted on the organisational change process, but we could not control for these externalities. This study used a retrospective longitudinal study and necessarily relied on participants' recall and memory of events in the time periods studied. While this enabled participants to "look back" and consider the relative magnitude of the changes that had occurred, they were doing so with the benefit of hindsight and this could have affected their recall of events. Therefore, it would be interesting to repeat a similar study in an organisation that is currently considering changing its strategic direction. Questionnaires could then be distributed to complement the timing of the change. Finally, a decision was also made to separate the time horizon surrounding the strategic change into three time-frames. The appropriateness of these time-frames may need to be considered. However, care was taken in their selection by seeking input from several senior managers who confirmed that employees could easily associate with the event periods.

While the research questions developed in this paper were tested using a single organisation, future research needs to be conducted with other organisations that are presently undergoing change in order to validate the findings of this study. Future research may also investigate the role of MCS mechanisms used in a diagnostic manner in the MCS–strategy relationship. While this paper focused on the role of MCS mechanisms used in an interactive manner on the relationship, the results revealed that some MCS mechanisms used in a diagnostic manner had also increased in usage. It would be interesting to conduct future research on the effect of MCS mechanisms used in a diagnostic manner in the MCS–strategy relationship.

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Appendix A. Strategic typology

Respondents were provided with the following descriptions of four organisational types, and asked to select the organisational type that they thought most closely described PathCentre in each time period.

A.1. Type 1

This type of organisation attempts to locate and maintain a secure niche in a relatively stable product or service area. The organisation tends to offer a more limited range of products or services than its competitors, and it tries to protect its domain by offering higher quality, superior service, lower prices, and so forth. Often this type of organisation is not at the forefront of developments in the industry—it tends to ignore industry changes that have no direct influence on current areas of operation and concentrates instead on doing the best job possible in a limited area.

A.2. Type 2

This type of organisation typically operates within a broad product–market domain that undergoes periodic redefinition. The organisation values being “first in” in new product and market areas even if not all of these efforts prove to be highly profitable. The organisation responds rapidly to early signals concerning areas of opportunity, and these responses often lead to a new round of competitive actions. However, this type of organisation may not maintain market strength in all areas it enters.

A.3. Type 3

This type of organisation attempts to maintain a stable, limited line of products or services, while at the same time moving out quickly to follow a carefully selected set of the more promising new developments in the industry. The organisation is seldom “first in” with new products or services. However, by carefully monitoring the actions of major competitors in areas compatible with its stable product–market base, the organisation can frequently be “second in” with a more cost-efficient product or service.

A.4. Type 4

This type of organisation does not appear to have a consistent product–market orientation. The organisation is usually not as aggressive in maintaining established products and markets as some of its competitors, nor is it willing to take as many risks as other competitors. Rather, the organisation responds in those areas where it is forced to by environmental pressures.

Appendix B. Management control system characteristics

Questions pertaining to PathCentre's MCS were separated into two parts.

B.1. Part 1

For each time period, respondents were asked to indicate the extent to which the following MCS items were used in PathCentre.

Response scale:

1. never/seldom;
2. occasionally;
3. half the time;
4. frequently;
5. always.

Items:

1. Informal communications (e.g., meetings, interpersonal contacts) in passing information up and down the hierarchy.
2. Formal reports (e.g., management reports, monthly performance reports).
3. Cost centres for cost control.
4. Budget variance analysis.
5. Procedure manuals.
6. Formal appraisal of personnel.
7. Internal audit groups for checking financial information systems and reports.
8. Internal audit groups for checking *accreditation standards* (i.e., quality standards) for operations.
9. External audits for checking *accreditation standards* (i.e., quality standards) for operations.
10. Interdisciplinary meetings (i.e., meetings between people from different disciplines to exchange information).
11. Interdisciplinary workgroups/teams (e.g., people from different divisions working together on a project/task).
12. Management control reports relating outputs with inputs consumed (e.g., costs per test, output per labour hour).
13. Evaluation of performance in any period by comparing PathCentre's results with those of competitors in the pathology services sector.
14. Written explanations in budget reports for changes between current year results and the results of previous years.
15. Resource sharing (i.e., different divisions sharing the same equipment/reagents/personnel).

B.2. Part 2

For each time period, respondents were asked to indicate the extent to which they agreed/disagreed with the following statements.

Response scale:

1 (strongly disagree) – 7 (strongly agree).

Statements:

1. There is a strong emphasis on adherence to rules, policies, or plans.
2. Management control systems are used to monitor virtually all tasks in your sub-unit.
3. You have a high degree of discretion and autonomy in making decisions and responding to new unanticipated opportunities or challenges.
4. Lab personnel are awarded a high degree of autonomy in exercising judgment in carrying out tasks (i.e., self-regulation, low levels of monitoring).
5. There is a strong sense of shared values, beliefs, and norms within PathCentre.
6. Employees are committed to PathCentre's objectives and values.
7. Information is well communicated from top management to lower levels.
8. Information is well communicated across divisions.
9. Information included in control reports is always accurate.
10. The trend between last period's actual results and the results of the current period is monitored closely by senior managers.
11. You are faced with tight budget goals.
12. Management control systems are tailored to suit differing individual and divisional/sectional needs.

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