

Levers of control, management innovation and organisational performance

Kevin Baird, Sophia Su and Rahat Munir

*Department of Accounting and Corporate Governance, Macquarie University,
Sydney, Australia*

Abstract

Purpose – This study aims to reinforce the important role of management control systems (MCSs) in managing change through adopting a unique approach to the conceptualisation of Simons' (1995) levers of control, specifically focussing on the enabling (beliefs and interactive) and constraining (boundary and diagnostic) levers of control and empirically examining their association with management innovation and organisational performance.

Design/methodology/approach – A mail survey questionnaire was used to collect data, with the Dillman (2007) tailored design method used in regards to the development of questions, and the personalisation and distribution procedures. A total of 645 questionnaires were distributed to either the Financial Controller or Chief Financial Officer of manufacturing business units identified in the OneSource database.

Findings – The findings reveal that the use of enabling controls was directly associated with organisational performance and with three management innovation dimensions (new structures, processes and practices) with new structures positively associated with organisational performance. It was also found that the use of constraining controls was indirectly, through the extent of adoption of new management techniques, associated with organisational performance.

Practical implications – The findings have important implications for managers in respect to how they use controls to enhance innovation and organisational performance.

Originality/value – The findings highlight the importance of the use of MCS, specifically both enabling and constraining controls, in facilitating change (management innovation) and performance. Hence, the findings provide empirical evidence in support of Simons' (1995, 2000) theoretical assertion that the levers coexist to provide benefits to organisations.

Keywords Organizational performance, Management innovation

Paper type Research paper

1. Introduction

Simons (1987, 1990, 1991, 1994) acknowledges the importance of management control systems (MCSs) in managing strategic uncertainties and enhancing competitive advantage with subsequent studies exploring the role of specific types of controls, specifically, the use of interactive and diagnostic control systems and the four levers of control (beliefs, boundary, interactive and diagnostic) in managing change and developing new strategic initiatives. Additional studies have further contributed to the MCS contingency literature by providing an insight into the impact of a change in strategy on the MCS (Kober *et al.*, 2003, 2007), the two-way relationship between MCSs and strategy, the association between the professionalism of top management teams on the interactive and diagnostic use of controls (Naranjo-Gil and Hartmann, 2006) and the use of controls across organisational life cycle stages (Su *et al.*, 2017).

This study aims to further highlight the important role of MCSs in effectively managing change, by providing an empirical insight into the association between MCSs with



management innovation, defined as “the generation and implementation of a management practice, process, structure or technique that is new to the state of the art and is intended to further organisational goals” (Birkinshaw *et al.*, 2008). The focus on the relationship between controls and management innovation is considered pertinent for a number of reasons. Firstly, Simons (1994, p. 185) refers to the importance of MCSs as levers of organisational change” and Speklé *et al.* (2017, p. 73) highlight the importance of understanding how controls and creativity are related”. Secondly, the role of management is entwined with the notion of control, with management responsible for taking action that influences employee behaviour and aligning their interests with organisational objectives. Hence, management innovation represents the process by which the controls take effect. Finally, the study addresses calls in the literature to examine the relationship between control systems and innovation (Malagueno and Bisbe, 2010; Tessier and Otley, 2012). Given “the extant literature highlights the importance of innovation in ensuring survival and enhancing competitive advantage (Su and Baird, 2018, p. 2,759)” we also examine the subsequent impact of management innovation on organisational performance, and both the direct (and indirect) impact of MCSs on organisational performance (through management innovation).

The study also aims to contribute to the literature by adopting a unique empirical approach to the conceptualisation of MCS. It is noted here that while in line with Collier's (2005) recommendation, many studies have conceptualised MCSs using Simons four levers of control (beliefs, boundary, interactive and diagnostic), examining the impact of these levers on organisational performance (Su *et al.*, 2015; Widener, 2007), there is conjecture as to how the impact of such levers should be considered. In particular, while the majority of empirical studies have considered specific levers, generally the diagnostic and interactive levers (Abernethy and Brownell, 1999; Henri, 2006; Simons, 1991; Su *et al.*, 2015, 2017), and examined the impact of the levers in isolation (Bisbe and Otley, 2004) and Heinicke *et al.* (2016) highlights the importance of the interdependencies between the levers of control, while Speklé *et al.* (2017) examine the combined use of all four levers of control (i.e. the intensity of control).

Accordingly, this study aims to operationalise MCS from a different perspective, addressing calls (Mundy, 2010; Simons, 1995) to contribute to the current literature focusing on the four levers of control (Kruis *et al.*, 2016; Speklé *et al.*, 2017) by emphasising the use of two different combinations of these levers of control. Specifically, the study examines the impact of Simons' enabling (beliefs and interactive use of controls) and constraining (boundary and diagnostic use of controls) levers on management innovation and organisational performance. The focus on these two combinations of the four levers is considered appropriate for a number of reasons. Firstly, Simons (2000, p. 301) maintains that the levers work together to benefit a firm. Specifically, the ability of the four levers to provide an effective control environment, “does not lie in how each is used alone, but rather in how the forces create a dynamic tension”. In particular, Simons refers to the coexistence of the constraining (boundary and diagnostic) and enabling (beliefs and interactive) levers. Secondly, this approach is consistent with the literature, which conceptualises control as a system of control practices (Simons, 1995; Speklé *et al.*, 2017). Finally, this approach is in line with the configuration approach, which recommends investigating the “multidimensional arrangements of interrelated components” (Bedford and Malmi, 2015, p. 3).

Previous studies, which have examined MCSs using Simon's levers of control framework have tended to be theoretical (Tessier and Otley, 2012) or case study based (Granlund and Taipaleenmaki, 2005; Kober *et al.*, 2007; Mundy, 2010; Simons, 1991, 1994; Tekavcic *et al.*, 2008; Tuomela, 2005; Widener, 2007). Hence, while there are theoretical assertions (Simons, 1995, 2000) or case-based studies (Mundy, 2010), which examine specific combinations of

Simons' levers of control, with the exception of [Speklé et al. \(2017\)](#), who found that the combined use of all four levers was positively associated with employee empowerment and creativity and [Kruis et al. \(2016\)](#), who identified how different combinations of the four levers of controls correspond to different strategic challenges, the empirical evidence relating to the combination of the levers is sparse. Accordingly, this study aims to extend the empirical evidence in this domain by examining the association between enabling and constraining levers with management innovation and organisational performance.

The study conceptualises management innovation using [Volberda et al.'s \(2013\)](#) integrative framework of management innovation, which focusses on the four dimensions referred to by [Birkinshaw et al. \(2008\)](#) i.e. new managerial practices, processes, organisational structures and managerial techniques. This approach enables us to contribute to the contingency literature examining the factors influencing different aspects of management innovation, including management techniques i.e. management accounting practices ([Naranjo-Gil et al., 2009](#)). Management innovation plays a significant role in enhancing competitive advantage ([Hamel, 2007](#); [Mol and Birkinshaw, 2006](#)), and hence, can assist organisations in improving organisational performance. Accordingly, the study will examine the mediating role of management innovation in the association between the enabling and constraining levers with organisational performance. Specifically, relying on [Hamilton and Chervany's \(1981\)](#) assertion that the effect of management initiatives indirectly influences organisational performance through the ability to improve organisational processes, it is argued that the enabling and constraining levers influence organisational performance through management innovation.

While the empirical analysis will examine the association between the enabling and constraining levers with all four dimensions of management innovation, as there is no developed theory to associate the levers with each dimension we do not develop separate hypotheses. Rather, this analysis is considered exploratory and we develop one hypothesis in relation to the association between the enabling and constraining levers with management innovation.

2. Literature review and hypotheses development

2.1 *Simons' (1995) levers of control*

[Simons \(1995\)](#) developed a system of four levers of control (beliefs, boundaries, interactive and diagnostic), which are integrated to achieve the business strategy ([Simons, 2000](#), p. 301). In reference to the need to consider the complementarity of these levers, [Simons \(2000\)](#) refers to two categories of levers, enabling and constraining. The enabling levers consist of beliefs and the interactive use of controls. Beliefs refer to "the explicit set of organisational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose and direction for the organisation" ([Simons, 1995](#), p. 34). Beliefs systems encourage the exploration of new opportunities. Interactive control systems are "used to stimulate search and learning, allowing new strategies to emerge as participants throughout the organisation respond to perceived opportunities and threats" ([Tekavcic et al., 2008](#), p. 98). The interactive lever facilitates face-to-face discussions at different hierarchical levels, subsequently promoting organisational learning and innovation. [Simons \(2000](#), p. 304) indicates that these two enabling levers "create intrinsic motivation by creating a positive informational environment that encourages information sharing and learning".

Alternatively, the constraining levers consist of boundaries and the diagnostic use of control. The boundaries define the domain in which organisational participants can operate ([Simons, 1995](#), p. 39), thereby restricting undesirable behaviour and limiting organisational

risk. Diagnostic control systems are used to motivate employees, monitor their performance, and provide appropriate rewards to ensure they work towards organisational goals. [Simons \(2000, p. 304\)](#) suggests that these two constraining levers provide “explicit goals, formula-based rewards and clear limits to opportunity seeking behaviour”.

As previously mentioned this study focuses on the impact of the enabling and constraining levers on two desirable organisational outcomes, organisational performance and management innovation with Sections 2.2 and 2.4, respectively, discussing the nature of the association between the levers with these two outcomes.

2.2 The association between the enabling and constraining levers of control with organisational performance

Amidst evidence that different types of controls, specifically the levers of control, are interrelated ([Heinicke et al., 2016](#); [Mundy, 2010](#); [Tuomela, 2005](#); [Widener, 2007](#)), and to address calls for further research addressing the impact of [Simons \(1994\)](#) four levers, we hypothesise how specific configurations of [Simons \(1995\)](#) four levers of control combine to influence organisational performance.

[Simons \(1995\)](#) suggests that both the constraining (boundary and diagnostic) and enabling (beliefs and interactive) levers can have a positive influence on organisational performance with the constraining levers facilitating control and the enabling levers facilitating experimentation and creativity ([Mundy, 2010, p. 500](#)). The constraining levers focus on defining an organisations operating domain and monitoring its performance to ensure efficiency and effectiveness. [Speklé et al. \(2017, p. 74\)](#) refer to constraining controls as providing “structure by placing limits on inappropriate behaviours, setting clear targets and expectations, and monitoring feedback”. Alternatively, the enabling factors focus on establishing strong internal values and extensive communication and integration throughout the organisation, so as to enable the organisation to take advantage of opportunities and to cope with any threats to the organisation. While the constraining factors create negative energy and the enabling factors create positive energy, [Simons \(2000\)](#) maintains that they are both essential to enhance organisational performance.

Hence, [Simons \(2000\)](#) argues that an effective control system relies on the use of all four levers with the use of the constraining and enabling levers expected to facilitate the two objectives of monitoring performance to enhance efficiency and effectiveness and encouraging creativity to enhance performance. We, therefore, hypothesise that a more extensive focus on the use of enabling and constraining levers of control will result in higher organisational performance:

- H1a.* The extent of use of enabling levers of control will be positively associated with organisational performance.
- H1b.* The extent of use of constraining levers of control will be positively associated with organisational performance.

2.3 Management innovation

Management innovation refers to the changes in the operational practices of management ([Vaccaro et al., 2012](#)), with new management practices introduced in an attempt to enhance organisational performance. In line with [Volberda et al. \(2013\)](#), we conceptualise management innovation in respect to four dimensions: the rules and procedures, tasks and functions (new managerial practices), systems and performance assessment (processes), organisational structures and techniques. In respect to techniques, as in

Naranjo-Gil *et al.* (2009), we refer to the use of specific management accounting practices focussing on the following nine practices: benchmarking, activity-based management, activity-based costing, the balanced scorecard, quality costing, value chain analysis, total quality management, key performance indicators and strategic cost management.

Management innovation can enhance the effectiveness and efficiency of internal organisational processes, improve productivity and enhance competitiveness (Hamel, 2006; Mol and Birkinshaw, 2009; Volberda *et al.*, 2013; Walker *et al.*, 2010). Similarly, Mol and Birkinshaw (2009) assert that the introduction of new management practices can contribute to improving organisations' productivity and retaining competitiveness. This study is motivated to observe the association between the use of the enabling and constraining levers of control with management innovation and the subsequent impact of management innovation on organisational performance.

2.4 The association between the enabling and constraining levers of control with management innovation

In discussing the association between the levers of control and management innovation it is important to reflect on the context of the apparent paradox between Simons levers of controls, which focus on control (constraining levers) and creativity (enabling levers). First, in respect to the enabling levers, belief controls reinforce the mission and core values of the organisation. Management's awareness of such values and beliefs can motivate "organisational participants to search for and create opportunities to accomplish the overall mission of the firm" (Simons, 2000, p. 303), thereby, serving to facilitate management innovation. Similarly, the interactive approach to using controls ensures widespread discussion and communication amongst employees, thereby, facilitating greater experimentation and creativity (Simons, 2000). Speklé *et al.* (2017, p. 74) refer to enabling controls as "positive types of control that offer autonomy support by allowing employees freedom of choice in selecting their courses of action". Hence, as argued in Speklé *et al.* (2017) in relation to creativity, we argue that enabling controls provide the autonomy support for creativity or as is the case in our study, management innovation. We, therefore, hypothesise that the extent of use of enabling controls will enhance the level of management innovation:

H2a. The extent of use of enabling levers of control will be positively associated with management innovation.

Alternatively, boundary controls highlight the specific areas that must be avoided, and hence, place restrictions on management in respect to the span of operations, while the focus of diagnostic controls on managing the performance of employees and the achievement of goals is also thought to limit the innovative capacity of management. For example, Amabile (1988) reported that such constraining controls restrict employees' creativity, and therefore, stifle product innovation. Hence, while control is required to ensure efficient and effective operations (Collier, 2005; Zhou and George, 2003), there is a belief that such controls restrict behaviour and cause employees to refrain from innovative activities.

However, while it may be argued that the constraining levers (boundary and diagnostic) restrict creativity and innovation, these factors provide management with the stability in performance required to explore opportunistic possibilities. Hence, the stronger the overall control in respect to both maintaining control over performance and the values and beliefs of the organisation, the greater the opportunity for management to explore their creative side i.e management innovation. For example, many studies have reported that formal management accounting and control systems (MACS) may contribute to innovation with Simons (1995), Speklé *et al.* (2017) and Bisbe and Malagueño (2009) suggesting that the

tension between different types of formal MACS encourage innovation. Accordingly, consistent with [Speklé et al. \(2017\)](#), we argue that the constraining controls provide the structure to support such innovation, and therefore, hypothesise that management innovation will be stronger when there is a greater focus on the use of constraining levers of controls:

- H2b.* The extent of use of constraining levers of control will be positively associated with management innovation.

2.5 The association between management innovation and organisational performance

Management innovation plays an essential role in enhancing the efficiency and effectiveness of organisational internal processes ([Walker et al., 2010](#)). Specifically, compared to technological and product innovations, management innovation is more systemic, and more difficult to observe and imitate, thereby, leading to organisational long-term competitive advantage ([Hamel, 2006, 2007](#)).

According to the performance gap theory ([Zaltman et al., 1973](#)), management innovation is introduced to reduce the gap between what an organisation is actually achieving and what it can potentially achieve. Similarly, organisational behavioural theory ([Cyert and March, 1963](#)) suggests that organisations introduce new practices to fill a performance gap, while [Birkinshaw et al. \(2008\)](#) argued that while management innovation is risky and costly it will ultimately improve organisational performance. [Mol and Birkinshaw \(2009\)](#) considered management innovation as a goal-oriented activity, which intends to improve the performance of organisations reporting a positive association between the adoption of new management practices and productivity growth. While there is little empirical evidence in regards to the association between the adoption of management innovation and organisational performance, such an association has been well evidenced in practice, with a number of firms becoming their industry leaders through management innovation. For example, the long-term leading organisation in the car industry, Toyota, remains in a dominant position in such a competitive industry because of its management innovations including just-in-time and target costing ([Mol and Birkinshaw, 2006](#)). Similarly, General Motors achieved their success because of the innovation in their organisational structure, while Ford developed their competitive advantage through the introduction of the moving assembly line, which streamlined their production processes ([Mol and Birkinshaw, 2006](#)). Accordingly, we hypothesise that organisational performance will be enhanced by management innovation:

- H3.* Management innovation will be positively associated with organisational performance.

2.6 The mediating role of management innovation in the association between enabling and constraining levers of control with organisational performance

In line with the above discussion, which outlines the association between the extent of use of the enabling and constraining levers of control with management innovation and its subsequent impact on organisational performance, it is maintained that management innovation mediates the association between the use of the enabling and constraining levers of controls with organisational performance. Specifically, it is argued that the impact of controls, specifically the enabling and constraining levers of controls, is operationalised or

enacted through the implementation of management initiatives, which, in turn, results in enhanced organisational performance.

- H4.* Management innovation mediates the association between the extent of use of enabling and constraining levers of control with organisational performance.

3. Method

A mail survey questionnaire was used to collect data, with the [Dillman \(2007\)](#) tailored design method used in regards to the development of questions, and the personalisation and distribution procedures. A total of 645 questionnaires were distributed to either the Financial Controller or Chief Financial Officer of Australian manufacturing business units identified in the OneSource database[1]. These respondents were chosen because of their knowledge of controls and innovation within their units. We focussed on the manufacturing sector as because of the increasing level of automation and the introduction of contemporary manufacturing technologies in this industry, management innovations emerge and become pertinent to respond to the changing manufacturing environment. A total of 174 (27 per cent) questionnaires were returned, 92 (14 per cent) from the initial mail out and a further 82 (13 per cent) in response to the follow-up mail out. The absence of any significant differences in the mean variable scores for early and late respondents indicated that non-response bias was not a problem ([Roberts, 1999](#)).

3.1 Measurement of variables

3.1.1 Enabling and constraining levers of control. Each of Simons' (1995) levers of control were measured using established instruments with respondents required to indicate the extent to which a series of statements reflected practices within their business unit, using a five-point Likert scale with anchors of "1 = Not at all" and "5 = To a great extent" ([Appendix](#)). Specifically, the measures for boundary and beliefs controls were adopted from [Widener's \(2007\)](#) while the interactive and diagnostic controls were measured using the instrument used by [Su et al. \(2015\)](#) ([Appendix](#)). The enabling (constraining) use of control was calculated as the average score for the beliefs and interactive (boundary and diagnostic) levers, with higher (lower) scores indicating that they were used to a greater (lesser) extent.

3.1.2 Management innovation. As mentioned previously we used [Volberda et al.'s \(2013\)](#) integrative framework to measure the four dimensions of management innovation (new practices, processes, structures and techniques). The first three of these four dimensions were measured using [Vaccaro et al.'s \(2012\)](#) six-item scale with respondents required to indicate their agreement with six statements (two for each dimension) concerning their business unit's level of management innovation, using a five-point Likert scale with anchors of "1 = Strongly Disagree" and "5 = Strongly Agree" ([Appendix](#)).

The fourth dimension of management innovation, the focus on new managerial techniques was measured based on the extent to which the nine contemporary innovative management initiatives had been used in respondents' business units over the past three years ([Appendix](#)). This approach is consistent with [Su and Baird \(2018\)](#), who measured a fourth dimension of management innovation based on the extent of use of six innovative management initiatives. However, compared to [Su and Baird \(2018\)](#), this study provides an improved measure by incorporating nine contemporary innovative management initiatives. A five-point Likert scale was used with anchors "1 = Not at all" and "5 = To a great extent" with the focus on new managerial techniques measured as the average score across the nine

practices (ranging from 1 to 5), with higher (lower) scores representing a higher (lower) extent of management innovation.

3.1.3 Organisational performance. The organisational performance was measured as the average score across a six-item adapted version of [Kaynak and Kara's \(2004\)](#) instrument. Respondents were asked to indicate the extent to which they agreed with each statement ([Appendix](#)) using a five-point scale with anchors of "Strongly Agree" and "Strongly Disagree".

4. Results

[Table I](#) provides descriptive statistics including the mean, standard deviation and the minimum and maximum values for each of the variables. The mean scores in [Table I](#) indicates a relatively high level of use of Simons' enabling and constraining levers of control and organisational performance in Australian manufacturing organisations. [Table I](#) also reveals that Australian manufacturing organisations adopt management innovation to a moderate extent, with the highest level of management innovation involving the implementation of new managerial practices, followed by new managerial processes, structures and techniques.

In assessing the reliability of the measures, [Table I](#) shows that the scale reliability for all variables except for the new managerial processes are considered acceptable, with Cronbach's alpha scores above or just below 0.7 ([Nunnally, 1978](#)). Given the low Cronbach's alpha score for new managerial processes, only one item (i.e. respondents' agreement that their organisation regularly implements new management systems) in the initial two-item measure was used in the final measurement of new managerial processes.

4.1 Path analysis

Structural equation modeling was used to examine the association between the enabling and constraining levers of control with the adoption of management innovation and organisational performance. In line with [Anderson and Gerbing \(1988\)](#), insignificant paths were removed until all remaining paths were significant and the overall (reduced) model was a good fit. The results are provided in [Figure 1](#) and [Table II](#). The four benchmark fit indices (CMIN/DF = 1.01; GFI = 0.98; AGFI = 0.95 RMSEA = 0.01) indicate a good fit of the model[2].

[Table II](#) and [Figure 1](#) reveal a positive association between the extent of use of the enabling levers of control and organisational performance ($\beta = 0.23$; $p = 0.00$) thereby providing support for *H1a*. The extent of use of enabling controls was also found to be positively associated with three of the four dimensions of management innovation including new managerial practices ($\beta = 0.49$, $p = 0.00$), new managerial processes ($\beta = 0.52$;

	N	Mean	SD	Minimum actual (theoretical)	Maximum actual (theoretical)	Cronbach's alpha
Enabling levers of control	173	3.52	0.84	1.42 (1)	5.00 (5)	0.91
Constraining levers of control	173	3.82	0.77	1.50 (1)	5.00 (5)	0.88
New managerial practices	173	3.27	0.82	1.00 (1)	4.50 (5)	0.66
New managerial processes	173	2.79	0.92	1.00 (1)	5.00 (5)	0.50
New organisational structures	173	2.68	0.93	1.00 (1)	5.00 (5)	0.71
New managerial techniques	173	2.61	0.49	1.97 (1)	4.16 (5)	0.79
Organisational performance	173	3.68	0.73	1.83 (1)	5.00 (5)	0.78

Table I.
Descriptive statistics

Figure 1.
Results for all
hypotheses

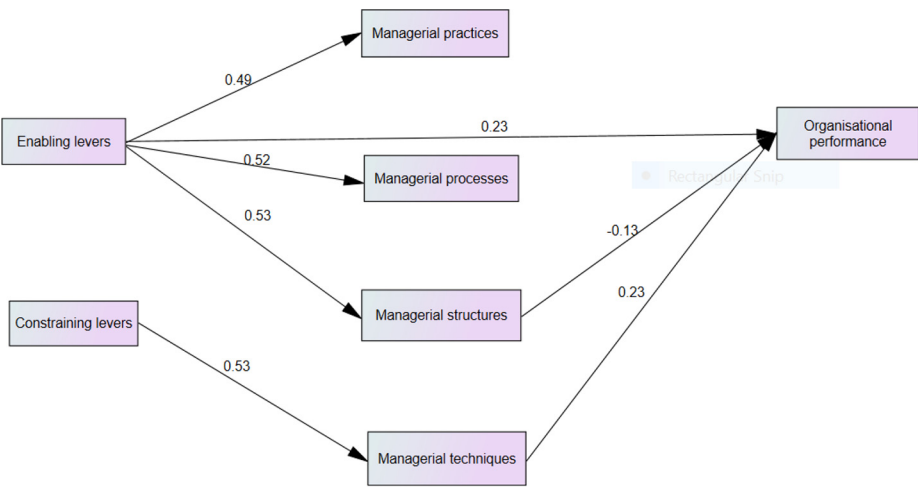


Table II.
Results of the
analysis for the
association between
enabling and
constraining levers of
control with the
adoption of
management
innovation and
organisational
performance

Regression path	Standardised β	Standardised error	Critical ratio	p -value
Enabling levers \rightarrow organisational performance	0.23	0.08	3.06	0.00
Enabling levers \rightarrow new managerial practices	0.49	0.06	7.61	0.00
Enabling levers \rightarrow new managerial processes*	0.52	0.07	7.02	0.00
Enabling levers \rightarrow new organisational structures	0.53	0.07	7.12	0.00
Constraining levers \rightarrow new managerial techniques	0.53	0.06	8.33	0.00
New managerial structures \rightarrow organisational performance	-0.13	0.06	-2.08	0.04
New managerial techniques \rightarrow organisational performance	0.23	0.08	3.12	0.00
<i>Goodness of Fit Statistics**</i>				
CMIN/DF		1.01		
GFI		0.98		
AGFI		0.95		
RMSEA		0.01		

Notes: *As mentioned in the main text due to the low Cronbach's alpha scores only one item of the two in the initial measurement was used in the model. Alternative analysis was also conducted using the deleted item as the measure of managerial processes with identical associations found; **the acceptable cut-off scores for CMIN/DF, GFI, AGFI and RMSEA are lower than 3, higher than 0.95, higher than 0.95 and lower than 0.05, respectively

$p = 0.00$) and new organisational structures ($\beta = 0.53$; $p = 0.00$). Hence, $H2a$ is partially supported. In respect to the constraining levers of control, there was no direct association with organisational performance, thereby resulting in the rejection of $H1b$. However, the extent of use of constraining controls was positively associated with the new managerial techniques dimension ($\beta = 0.53$; $p = 0.00$), providing partial support for $H2b$. Finally, the new organisational structures dimension was negatively associated with organisational performance ($\beta = -0.13$; $p = 0.04$), while the new managerial techniques dimension was positively associated with organisational performance ($\beta = 0.23$; $p = 0.00$) thereby providing partial support for $H3$.

The bootstrapping with bias-corrected confidence intervals method (MacKinnon *et al.*, 2002) was used to test the mediating effect of management innovation. However, due to the lack of association between new managerial practices and processes with organisational performance, the mediation test was only applied in respect to the new organisational structures and new managerial techniques dimensions of management innovation. Table III indicates that the adoption of new organisational structures mediates the positive association between the extent of use of enabling controls and organisational performance as the confidence interval (CI) [lower bound (LB) of 0.01 and upper bound (UB) of 0.32] does not cross zero. Similarly, the new managerial techniques mediates the positive association between the extent of use of constraining controls and organisational performance as the confidence interval (CI) [lower bound (LB) of 0.04 and upper bound (UB) of 0.22] does not cross zero. Accordingly, *H4* is partially supported.

Given the mediating role of new managerial techniques, which is represented by the extent of adoption of nine management accounting practices, an additional exploratory analysis was undertaken to explore the mediating role of each of the nine practices independently. The results here revealed that seven practices (benchmarking, activity-based management, balanced scorecard, quality costing, total quality management, key performance indicators and strategic cost management) were found to mediate the association between the extent of use of constraining controls and organisational performance Table IV.

Table III.
Bootstrapped
regression analysis
of the mediation
effect of new
managerial
techniques on the
association between
enabling and
constraining levers of
control and
organisational
performance

	Organisational performance	
	LB 95% CI	UB 95% CI
Enabling levers of control	0.01	0.32
Constraining levers of control	0.04	0.22

Table IV.
Results of the
analysis for the
mediating role of
each of the seven
practices in the
association between
constraining levers of
control and
organisational
performance

Regression path	Standardised β	Standardised error	Critical ratio	<i>p</i> -value
Constraining levers → benchmarking	0.46	0.11	4.12	0.00
Constraining levers → activity based management	0.43	0.11	3.84	0.00
Constraining levers → balanced scorecard	0.62	0.12	5.15	0.00
Constraining levers → quality costing	0.36	0.12	3.02	0.00
Constraining levers → total quality management	0.67	0.13	5.33	0.01
Constraining levers → key performance indicators	0.68	0.09	7.43	0.00
Constraining levers → strategic cost management	0.69	0.12	5.62	0.00
Benchmarking → organisational performance	0.17	0.05	2.69	0.01
Activity based management → organisational performance	0.17	0.45	3.71	0.00
Balanced scorecard → organisational performance	0.11	0.04	2.58	0.01
Quality costing → organisational performance	0.12	0.04	2.71	0.01
Total quality management → organisational performance	0.09	0.04	2.08	0.04
Key performance indicators → organisational performance	0.15	0.05	2.83	0.01
Strategic cost management → organisational performance	0.16	0.04	3.88	0.00

5. Discussion and conclusion

This study set out to contribute to the literature examining the role of MCSs in managing change and enhancing performance. Specifically, the study sought to examine the association between [Simons' \(1995\)](#) levers of control with management innovation and organisational performance. In doing so, the study used a unique perspective in respect to the levers of control, focussing on two combinations of the four levers i.e. enabling (beliefs and interactive) and constraining levers (boundary and diagnostic). Hence, the objective of the study was to examine the association between [Simons' \(1995\)](#) enabling and constraining levers with organisational performance and to examine the mediating role of management innovation in this association. The findings have significant implications for future research in the MCS domain, highlighting the important role of MCSs in facilitating management innovation and organisational performance, and suggesting that future researchers should consider the combination of [Simons' \(1995\)](#) levers of control. Similarly, from a practitioner's perspective, the findings provide an insight into how managers can use controls and management innovation in an attempt to enhance organisational performance.

The specific findings indicate that the levers of control exhibit a positive association with all four dimensions of management innovation, with the extent of use of the enabling levers found to influence the level of three of the four dimensions of management innovation (new managerial practices, new managerial processes and new managerial structures) and the extent of use of constraining levers exhibiting a positive association with the other management innovation dimension, new managerial techniques. In particular, it is revealed that the more intense use of enabling controls (beliefs and interactive use of controls) facilitates innovation in respect to roles and procedures, tasks and functions (new managerial practices), systems and performance assessment (new managerial processes) and new managerial structures, while the more intensive use of constraining controls (boundaries and the diagnostic use of controls) facilitates the use of new managerial techniques, with the latter operationalised in respect to nine management accounting practices (benchmarking, activity-based management, activity-based costing, the balanced scorecard, quality costing, value chain analysis, total quality management, key performance indicators and strategic cost management).

The findings highlight the importance of MCSs in facilitating change by highlighting the role of both enabling and constraining controls in facilitating an active environment in which management innovation can flourish. Hence, the findings provide empirical evidence to support [Simons' \(1994, 2000\)](#) theoretical assertion that MCSs are important levers of change (), and that the levers coexist to support innovation and growth. Furthermore, the observed relationships suggest that management innovation represents a means by which these controls are enacted with the more intense use of controls, both enabling and constraining, facilitating the introduction of changes in the operational practices of organisations.

While the current study provides a preliminary insight into the role of these controls in enacting change (i.e. management innovation), future studies may explore this relationship further. In particular, given that the current study only found that enabling and constraining levers of controls are significantly associated with specific dimensions of management innovation, in response to [Simons' \(2000\)](#) reference to the dynamic tension and balance between controls, future studies may consider how enabling and constraining controls “work together simultaneously in balance” ([Heinicke et al., 2016](#)) to influence management innovation. Furthermore, in line with [Bisbe et al. \(2007\)](#), future studies may look to improve the conceptual specification of the use of enabling and constraining controls.

The extent of use of constraining controls was also found to influence organisational performance, albeit indirectly through the use of new management techniques. Hence, our study demonstrates that while there is no direct association between the constraining lever of controls and organisational performance the use of constraining controls can still enhance organisational performance through its impact on new management techniques. Accordingly, it is suggested that managers should consider incorporating constraining controls (i.e. boundary and diagnostic controls) to a greater extent.

The use of enabling controls was found to influence organisational performance, both directly and indirectly through new organisational structures. However, while a more intense focus on the enabling levers leads to enhanced organisational performance and enhances innovation in respect to the implementation of new managerial structures, surprisingly the new managerial structures exhibited a negative impact on organisational performance. This finding implies that constant changes in the organisational structure and/or the intra- and inter-department communication channels may cause unwarranted disruption, which has a negative impact on organisational performance. Accordingly, while managers are encouraged to use enabling controls (interactive and beliefs) to a greater extent because of their positive direct impact on organisational performance, organisations should try to minimise the extent to which the enabling levers enact changes in managerial structures. In addition, the lack of significant associations between managerial practices and managerial processes with organisational performance is surprising, and together with the negative finding in respect to managerial structures suggests that future studies should further investigate the impact of management innovation on organisational performance.

The findings reinforce the claims of many authors who suggest focussing on MCSs as a package of controls (Alvesson and Kärreman, 2004; Bedford and Malmi, 2015; Herath, 2007; Malmi and Brown, 2008; Mundy, 2010; Nilsson, 2010; Sandelin, 2010). This has important implications for researchers, for while previous studies have primarily considered the impact of specific levers in isolation (Abernethy and Brownell, 1999; Henri, 2006; Su *et al.*, 2015), the findings imply that future studies should consider the influence of the use of these levers in combination, specifically, the extent of use of the enabling and constraining levers. Future studies may consider the futility of using these combinations as opposed to alternative conceptualisations such as Speklé *et al.*'s (2017) intensity of control measure, which considers all four levers together and/or Heinicke *et al.*'s (2016) call to empirically consider the interdependencies of the levers. From a practitioner perspective, as managers are responsible for implementing the processes, which enact controls, it is suggested that they need to have a broader perception of control. Specifically, rather than considering the specific impact of each of the four levers of control on management innovation, they need to consider how they combine as constraining and enabling levers to influence specific dimensions of management innovation. Furthermore, in line with Heinicke *et al.* (2016), managers should consider the interdependencies between the levers and how the levers can be integrated to advance management innovation and performance.

The findings extend previous studies, which have demonstrated the impact of management innovation on organisational outcomes (Hamel, 2006; Mol and Birkinshaw, 2009; Volberda *et al.*, 2013; Walker *et al.*, 2010), in particular, by highlighting its role as a mediator in the association between the enabling and constraining levers of control with organisational performance. Specifically, it was found that these associations were mediated by the new managerial structures and the new techniques dimension of management

innovation, which represents the combined use of nine management accounting practices. Hence, while the use of enabling controls has a positive influence on organisational performance, the association is also through the use of new managerial structures, which surprisingly exhibited a negative impact on performance suggesting that managers should aim to minimise the extent of change in organisational structures. Similarly, the impact of the constraining levers of control on performance is enacted through the use of new managerial techniques. Interestingly, additional analysis of the independent influence of these nine practices on the association revealed that seven of these practices were found to influence organisational performance. Consequently, in line with the literature referring to the use of management accounting practices as a package (Malmi and Brown, 2008; Sandelin, 2008), it is implied that it is both the combined use of these practices and the use of specific practices, which contributes to organisational performance. However, while it is suggested that managers should focus on using a number of practices, this analysis is preliminary, and hence, it is recommended that future researchers conduct a more detailed examination of the mediating role of organisational structures and specific managerial techniques in the association between the use of enabling and constraining controls with organisational performance.

While the results of this study shed some light on the role of the levers of control as an antecedent of management innovation and organisational performance, it is acknowledged that the generalisability of the findings may be limited due to the methodology applied and the sample selected. In particular, in addition to the usual limitations of the survey method including the use of simplified closed-ended questions, and poor response rates, there are concerns in regard to social desirability bias and common method bias. These concerns were alleviated somewhat due to the relatively high response rate obtained (27 per cent), the full ranges on the variables, which suggests that social desirability response bias is not an impediment, and the fact that using Harman's (1967) single factor test the highest Eigenvalue value only accounted for 31.1 per cent of the variance, which is less than the 50 per cent threshold used to indicate common method bias problems (Podsakoff *et al.*, 2003). In addition, given our data is cross-sectional, there are concerns that our lack of findings may be attributed to the time lag required for the impact of management innovation to take effect on organisational performance. Accordingly, future longitudinal studies may be undertaken to consider such effects. Future studies may also consider using more comprehensive measures of management innovation and performance, which are less ambiguous in respect to the timeframe captured. For example, future studies could rely on archival data and measure organisational performance using objective performance indicators such as return on assets and Robin's Q values in line with King and Lenox (2002). The use of such objective measures could effectively solve the ambiguity issue in relation to the timeframe captured, and potentially reduce common method bias.

Notes

1. Business units with more than 100 employees were randomly chosen. Business units with less than 100 employees were not considered to be large enough to have a sufficient focus on MCSs and management innovation.
2. The acceptable cut-off scores for CMIN/DF, GFI, AGFI and RMSEA are lower than 3 (Kline, 2005), higher than 0.95 (Jöreskog and Sörbom, 1984) and lower than 0.05 (Browne and Cudeck, 1993), respectively.

References

- Abernethy, M.A. and Brownell, P. (1999), "The role of budgets in organizations facing strategic change: an exploratory study", *Accounting, Organizations and Society*, Vol. 24 No. 3, pp. 189-204.
- Alvesson, M. and Kärreman, D. (2004), "Interfaces of control. Technocratic and socio-ideological control in a global management consultancy firm", *Accounting, Organizations and Society*, Vol. 29 No. 3-4, pp. 423-444.
- Amabile, T. (1988), "A model of creativity and innovation in organizations", *Research in Organizational Behaviour*, Vol. 10, pp. 123-167.
- Anderson, J.C. and Gerbing, D.W. (1988), "Structural equation modeling in practice: a review and recommended two-step approach", *Psychological Bulletin*, Vol. 103 No. 3, p. 411.
- Bedford, D.S. and Malmi, T. (2015), "Configurations of control: an exploratory analysis", *Management Accounting Research*, Vol. 27, pp. 2-26.
- Birkinshaw, J., Hamel, G. and Mol, M.J. (2008), "Management innovation", *Academy of Management Review*, Vol. 33 No. 4, pp. 825-845.
- Bisbe, J., Batisat-Foguet, J.M. and Chenhall, R. (2007), "Defining management accounting constructs: a methodological note on the risks of conceptual misspecification", *Accounting, Organizations and Society*, Vol. 32 Nos 7/8, pp. 789-820.
- Bisbe, J. and Malagueño, R. (2009), "The choice of interactive control systems under different innovation management modes", *European Accounting Review*, Vol. 18 No. 2, pp. 371-405.
- Bisbe, J. and Otley, D. (2004), "The effects of the interactive use of management control systems on product innovation", *Accounting, Organizations and Society*, Vol. 29, pp. 707-737.
- Browne, M.W. and Cudeck, R. (1993), "Alternative ways of assessing model fit", in Bollen, K.A., Long, J. S. (Eds), *Testing Structural Equation Models*, Sage Publications, Newbury Park.
- Collier, P.M. (2005), "Entrepreneurial control and the construction of a relevant accounting", *Management Accounting Research*, Vol. 16 No. 3, pp. 321-339.
- Cyert, R.M. and March, J.G. (1963), *A Behavioural Theory of the Firm*, Prentice-Hall, Englewood Cliffs, NJ.
- Dillman, D.A. (2007), *Mail and Internet Surveys: The Tailored Design Method*, 2nd ed., John Wiley and Sons, New York, NY.
- Hamel, G. (2006), "The why, what and how of management innovation", *Harvard Business Review*, Vol. 84 No. 2, pp. 72-84.
- Hamel, G. (2007), "Management innovation", *Leadership Excellence*, Vol. 24 No. 1, p. 5.
- Hamilton, S. and Chervany, N.L. (1981), "Evaluating information system effectiveness – part I: comparing evaluation approaches", *MIS Quarterly*, Vol. 5 No. 3, pp. 55-69.
- Harman, H. (1967), *Modern Factor Analysis*, University of Chicago Press, Chicago.
- Heinicke, A., Guenther, T.W. and Widener, S.K. (2016), "An examination of the relationship between the extent of a flexible culture and the levers of control system: the key role of beliefs control", *Management Accounting Research*, Vol. 33, pp. 25-41.
- Henri, J. (2006), "Management control systems and strategy: a resource-based perspective", *Accounting, Organizations and Society*, Vol. 31 No. 6, pp. 529-558.
- Herath, S. (2007), "A framework for management control research", *Journal of Management Development*, Vol. 26 No. 9, pp. 895-915.
- Jöreskog, K.G. and Sörbom, D. (1984), *Lisrel VI. Analysis of Linear Structural Relationships by Maximum Likelihood, Instrumental Variables, and Least Squares Methods*, Mooresville, IN.
- Kaynak, E. and Kara, A. (2004), "Market orientation and organizational performance: a comparison of industrial versus consumer companies in mainland China using market orientation scale (MARKOR)", *Industrial Marketing Management*, Vol. 33 No. 8, pp. 743-753.

- King, A. and Lenox, M. (2002), "Exploring the locus of profitable pollution reduction", *Management Science*, Vol. 48 No. 2, pp. 289-299.
- Kline, R.B. (2005), *Principles and Practice of Structural Equation Modeling*, Guilford Press, New York, NY.
- Kober, R., Ng, J. and Paul, B.J. (2003), "Change in strategy and MCS: a match over time?", *Advances in Accounting*, Vol. 20, pp. 199-232.
- Kober, R., Ng, J. and Paul, B.J. (2007), "The interrelationship between management control mechanisms and strategy", *Management Accounting Research*, Vol. 18 No. 4, pp. 425-452.
- Kruis, A., Speklé, R.F. and Widener, S.K. (2016), "The levers of control framework: an exploratory analysis of balance", *Management Accounting Research*, Vol. 32, pp. 27-44.
- MacKinnon, D.P., Lockwood, C.M., Hoffman, J.M., West, S.G. and Sheets, V. (2002), "A comparison of methods to test mediation and other intervening variable effects", *Psychological Method*, Vol. 7 No. 1, pp. 83-104.
- Malagueno, R. and Bisbe, J. (2010), "The role of management accounting and control systems as antecedents of organizational creativity and innovation capabilities", available at: <http://ssrn.com/abstract=1720989> (accessed 10 November 2015).
- Malmi, T. and Brown, D.A. (2008), "Management control systems as a package – opportunities, challenges and research directions", *Management Accounting Research*, Vol. 19 No. 4, pp. 287-300.
- Mol, M.J. and Birkinshaw, J. (2006), "Against the flow: Reaping the rewards of management innovation", *European Business Forum*, Vol. 27, pp. 25-29.
- Mol, M.J. and Birkinshaw, J. (2009), "The sources of management innovation: when firms introduce new management practices", *Journal of Business Research*, Vol. 62 No. 12, pp. 1269-1280.
- Mundy, J. (2010), "Creating dynamic tensions through a balanced use of management control systems", *Accounting, Organizations and Society*, Vol. 35 No. 5, pp. 499-523.
- Naranjo-Gil, D. and Hartmann, F. (2006), "How top management teams use management accounting systems to implement strategy", *Journal of Management Accounting Research*, Vol. 18, pp. 21-53.
- Naranjo-Gil, D., Maas, M.S. and Hartmann, F.G. (2009), "How CFOs determine management accounting innovation: an examination of direct and indirect effects", *European Accounting Review*, Vol. 18 No. 4, pp. 667-695.
- Nilsson, A. (2010), "Balancing the management control package of small, rapidly growing firms in turbulent environments", *International Journal of Entrepreneurship and Small Business*, Vol. 11 No. 1, pp. 3-24.
- Nunnally, J.C. (1978), *Psychometric Theory*, 2nd ed., McGraw-Hill, New York, NY.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, p. 879.
- Roberts, E.S. (1999), "In defence of the survey method: an illustration from a study of user information satisfaction", *Accounting and Finance*, Vol. 39 No. 1, pp. 53-79.
- Sandelin, M. (2008), "Operation of management control practices as a package – a case study on control system variety in a growth firm context", *Management Accounting Research*, Vol. 19 No. 4, pp. 324-343.
- Simons, R. (1987), "Accounting control systems and business strategy: an empirical analysis", *Accounting, Organizations and Society*, Vol. 12 No. 4, pp. 357-374.
- Simons, R. (1990), "The role of management control systems in creating competitive advantage: new perspectives", *Accounting, Organizations and Society*, Vol. 15 Nos 1/2, pp. 127-143.
- Simons, R. (1991), "Strategic orientation and top management attention to control systems", *Strategic Management Journal*, Vol. 25, pp. 49-62.

- Simons, R. (1994), "How new top managers use control systems as levers of strategic renewal", *Strategic Management Journal*, Vol. 15 No. 3, pp. 169-189.
- Simons, R. (1995), *Levers of Control: how Managers Use Innovative Control Systems to Drive Strategic Renewal*, Harvard Business School Press, Boston.
- Simons, R. (2000), *Performance Measurement and Control Systems for Implementing Strategy*, Prentice Hall, NJ.
- Speklé, R.F., van Elten, H.J. and Widener, S.K. (2017), "Creativity and control: a paradox - evidence from the levers of control framework", *Behavioral Research in Accounting*, Vol. 29 No. 2, pp. 73-96.
- Su, S. and Baird, K. (2018), "The role of leaders in generating management innovation", *International Journal of Human Resource Management*, Vol. 29 No. 19, pp. 2758-2779.
- Su, S., Baird, K. and Schoch, H. (2015), "The moderating effect of organisational life cycle stages on the association between the interactive and diagnostic approaches to using controls with organisational performance", *Management Accounting Research*, Vol. 26, pp. 40-53.
- Su, S., Baird, K. and Schoch, H. (2017), "Management control systems: the role of interactive and diagnostic approaches from an organizational life cycle perspective", *Journal of Accounting and Organizational Change*, Vol. 13 No. 1, pp. 2-24.
- Tekavcic, M., Peljhan, D. and Sevic, Z. (2008), "Levers of control: analysis of management control systems in a Slovenian company", *The Journal of Applied Business Research*, Vol. 24 No. 4, pp. 97-112.
- Tessier, S. and Oteley, D. (2012), "A conceptual development of Simons' levers of control framework", *Management Accounting Research*, Vol. 23 No. 3, pp. 171-185.
- Tuomela, T. (2005), "The interplay of different levers of control: a case study of introducing a new performance measurement system", *Management Accounting Research*, Vol. 16 No. 3, pp. 293-320.
- Vaccaro, I.G., Jansen, J.J., Van Den Bosch, F.A. and Volberda, H.W. (2012), "Management innovation and leadership: the moderating role of organizational size", *Journal of Management Studies*, Vol. 49, pp. 29-51.
- Volberda, H.W., Van den Bosch, F.A. and Heij, C. (2013), "Management innovation: management as fertile ground for innovation", *European Management Review*, Vol. 10 No. 1, pp. 1-15.
- Walker, R.M., Damanpour, F. and Devece, C.A. (2010), "Management innovation and organizational performance: the mediating effect of performance management", *Journal of Public Administration Research and Theory*, Vol. 21 No. 2, pp. 367-386.
- Widener, S.K. (2007), "An empirical analysis of the levers of control framework", *Accounting, Organizations and Society*, Vol. 32 Nos 7/8, pp. 757-788.
- Zaltman, G., Duncan, R. and Holbek, J. (1973), *Innovations and Organizations*, Wiley, New York, NY.
- Zhou, J. and George, J.M. (2003), "Awakening employee creativity: the role of leader emotional intelligence", *The Leadership Quarterly*, Vol. 14 Nos 4/5, pp. 545-568.

Further reading

- Jeremias, J. and Setiawan, T. (2008), "The moderating effects of hierarchy and control systems on the relationship between budgetary participation and performance", *The International Journal of Accounting*, Vol. 43 No. 3, pp. 268-292.
- Kennedy, F.A. and Widener, S.K. (2008), "A control framework: insights from evidence on lean accounting", *Management Accounting Research*, Vol. 19 No. 4, pp. 301-323.

Appendix

Measurement of variables

- (1) *Boundary controls:*
 - A code of conduct informs the workforce about off-limits behaviour.
 - The organisation communicates to the workforce risks that should be avoided.
 - A code of conduct defines appropriate behaviour for the workforce.
 - The workforce is aware of the organisation's code of conduct.
- (2) *Beliefs controls:*
 - A mission statement communicates the organisation's core values.
 - Top management communicates core values.
 - The workforce is aware of core values.
 - The mission statement inspires the workforce.
- (3) *Interactive approach:*
 - There is a lot of on-going interaction between operational management and senior managers in the performance management systems process.
 - Performance measurement systems are used regularly in scheduled face-to-face meetings between operational and senior managers.
 - Performance measurement systems are often used as a means of developing ongoing action plans.
 - Performance measurement systems generate information that forms an important and recurring agenda in discussions between operational and senior managers.
 - Performance management systems are used by operational and senior managers to discuss changes that are occurring within the business unit.
 - Performance measurement systems are often used as a means of identifying strategic uncertainties.
- (4) *Diagnostic approach:*
 - Track progress towards goals and monitor results.
 - Review performance.
 - Plan how operations are to be conducted in accordance with the strategic plan.
 - To identify significant exceptions from expectations and take appropriate actions.

Management innovation

- (5) *Managerial practices:*
 - Rules and procedures within our organisation are regularly renewed.
 - We regularly make changes to our employees' tasks and functions.
 - Managerial processes
 - Our organisation regularly implements new management systems.
 - The policy with regard to employee compensation has been changed in the past three years.
- (6) *Managerial structure:*
 - The intra- and inter-departmental communication structure within our organisation is regularly restructured.
 - We continuously alter certain elements of the organisational structure.

(7) *Managerial techniques:*

- Benchmarking.
- Activity-based management.
- Activity-based costing.
- Balanced scorecard.
- Quality costing.
- Value chain analysis.
- Total quality management.
- Key performance indicators.
- Strategic cost management.

Organisational
performance

375

Organisational performance

- Profit goals have been achieved.
- Sales goals have been achieved.
- Return on investment goals have been achieved.
- Our product(s) are of a higher quality than that of our competitors.
- We have a higher customer retention rate than our competitors.
- We have a lower employee turnover rate than our competitors.

Corresponding author

Sophia Su can be contacted at: sophia.su@mq.edu.au

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgroupublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com