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Title	Examining management control systems at middle manager level
Author(s)	Martyn, Patricia
Publication Date	2018-10-17
Publisher	NUI Galway
Item record	http://hdl.handle.net/10379/14616

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Examining the Role of Management Control Systems at Middle Manager Level

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Submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy
of the
National University of Ireland

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Submission Date: June 2018

Abstract

This thesis examines the influence of management control systems (MCS) at middle manager level as they drive change while remaining loyal implementors' of current strategy (Bryant and Stensaker, 2011). It is well recognised that emergent and current strategy is fundamental to firm performance. This study investigates, using the lens of Simons' levers of control (LOC) framework (Simons, 1994; 1995), how these simultaneous agendas are managed at middle management level.

The starting point of the research is that there has been insufficient attention in the existing MCS literature to middle managers. This is surprising as there is a substantial body of literature in the management domain, which recognises that middle managers are central to explaining key outcomes (Wooldridge, Schmid and Floyd, 2008) and they exert a heavy influence on organisational performance (Currie and Proctor, 2005). In parallel, the MCS literature emphasises the role of MCS in guiding behaviours and managing simultaneous agendas at the senior management or firm level. This study combines these two streams of literature.

A qualitative approach was adopted for this study. Four explanatory case studies were conducted to examine the interconnections between the LOC and middle managers' strategic influence (Floyd and Wooldridge, 1992; 1997). The case organisations were large, operating in either the med-tech or IT industries. Primary data was gathered through 43 semi-structured interviews, pre-interview surveys and on-site observations.

This study contributes to literature by developing a model to systematise the interrelationships between the LOC and middle managers' strategic roles. The study extends the applicability of the LOC by advancing our understanding of how it manifests at the middle manager level across firms and functional areas. In addition, the study demonstrates how beliefs systems can be mobilised to manage tensions between multiple logics at middle manager level.

Acknowledgements

I wish to acknowledge the following people for their support during my PhD journey:

- Professor Breda Sweeney for her timely and constructive feedback, unfailing patience and most of all for her constant encouragement. Her irreplaceable guidance throughout the course of this work is very much appreciated and I am greatly indebted to her.
- Dr. Emer Curtis for her advice and guidance as I navigated my way through this PhD. She was a great source of motivation and encouragement.
- My colleagues and fellow PhD students present and past, who continually showed interest in my work and provided encouragement to ensure I remained on track.
- Members of my GRC committee who provided advice and feedback at key point during this process.
- The management and staff of the four case firms, for supporting and facilitating this empirical research. Many individuals willingly gave their time despite their own demanding schedules. Without their cooperation and input this research would not have been possible.
- Closer to home, but equally important in the accomplishment of this task, I am very grateful those who have waited patiently for me to complete this thesis: my husband Vinny, my daughter Eabha, my sons Liam and Joseph and my mother Noeleen. I thank them for their support and encouragement. Similarly, I greatly appreciate the interest and support shown by my friends, particularly Joey, Clodagh and Riona.

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PhD Declaration

I, Patricia Martyn, certify the thesis is all my own work and I have not obtained a degree in this University, or elsewhere, on the basis of this work.

Date ____/____/____

List of Abbreviations

This section contains a list of acronyms that are used in this study for ease of reference.

AOP	Annual Operating Plan
CSFs	Critical Success Factors
DCS	Diagnostic Control Systems, control systems used in a diagnostic manner.
ICS	Interactive Control Systems, control systems used in an interactive manner.
LOC	Levers of Control
MCS	Management Control Systems

Introduction

1.1 Background and Motivation

A common challenge facing contemporary organisations is the need to innovate while simultaneously delivering on predictable goals. Achieving both represents the ideal organisational outcome (Andriopoulous and Lewis, 2009), yet in practice this is difficult to achieve as one may crowd out the other (Davila, Epstein and Shelton, 2012). The management control literature recognises that tensions will naturally arise and through the effective use of management control systems (MCS) these tensions can be managed. Specifically, Simons' (1994; 1995) contends that through the combined use of four levers of control (LOC), senior managers can translate organisational tensions into profitable growth.

Senior managers occupy the most visible hierarchical position in organisations (Caughron and Mumford, 2012). A large body of evidence has examined how senior managers use MCS to combine current and emergent strategies. In contrast, little attention has been given to the next hierarchical level. This study proposes that the experiences of those situated in the middle of organisations, in particular large multinational organisations with multiple hierarchical levels, is most salient for a number of reasons. Firstly, prior research identifies that organisational performance is primarily driven by what happens at the middle rather than at top levels of organisational hierarchies (Currie and Proctor, 2005). Secondly, as organisations become more global and fast paced (Smith and Lewis, 2011), the

tendency towards increased empowerment (Ogden, Glaister, Marginson, 2006; Carmeli, Schaubroeck and Tishler, 2011) at the mid management level means that strategically important responsibilities are cascading to middle managers. Thirdly, middle managers' actions are central in explaining a range of organisational outcomes (Wooldridge, Schmid and Floyd, 2008). Fourthly, increasing competitive pressures mean that middle managers are confronted by a growing scope of responsibilities and intensification of work (McCann, Morris and Hassard, 2008).

Struck by how middle management could be so markedly associated with organisational performance, the researcher became interested in examining management control systems at this important hierarchical level. Surprisingly, only a handful of studies investigate how MCS operate at middle manager level (Mundy, 2010; Tuomela, 2005; Marginson and Bui, 2002). In the context of the LOC, Tessier and Otley (2012) argue that this represents an extreme example of theory failing to explain what happens in practice. MCS have implications throughout all organisational levels. Although the two bodies of literature share a related primary interest, improving organisational performance, it is interesting that they remain largely discrete. This study aims to draw together these two streams of literature to advance understanding of how MCS channel middle managers' efforts in contemporary organisations.

1.2 Objective of this Research

The broad objective of this study is to investigate the operation of the LOC at middle manager level, and to identify the resulting implications for theory and practice.

Specifically, the study develops (section 4.2) three research questions:

- 1. How do the levers of control influence middle managers' role in implementing deliberate strategy?*
- 2. How do the levers of control influence middle managers' role in driving change and contributing to emergent strategy?*
- 3. How are the tensions between multiple roles made salient for middle managers by the levers of control?*

1.3 Contributions of the Study

As with any study, the contributions of this study can only be interpreted in light of any limitations. These limitations are set out in section 7.3. This section provides a brief overview of the main contributions of the study, and a more detailed account is provided in section 7.2.

Firstly, this study draws together two bodies of literature, which heretofore have been predominantly separate. This study represents the first attempt to systematically examine the interrelationship between middle managers' strategic contributions, conceptualised using Floyd and Wooldridges' (1992; 1997) typology, and MCS, conceptualised through Simons' LOC (1994; 1995). In doing so, it provides insights into how the LOC steers middle managers' actions towards the accomplishments of diverse organisational goals. Drawing on these empirical insights, the study presents a model to elucidate the key interrelationships between middle managers' roles and the LOC.

Secondly, the study responds to one of the key criticisms of the LOC that it fails to consider employees below senior manager level, rendering them as 'passive actors' (Tessier and Otley, 2012; Gray, 1990). This is very much at odds with the significance accorded to middle managers in the achievement of organisational goals within the management literature (Simsek, Jansen, Minichilli and Escriba-Esteve, 2015; Canales, 2015; Ren and Guo, 2011). To rectify this perceived imbalance, this study provides in-depth insights into the operation of the LOC at middle manager level in four case organisations. In this context, the study makes a number of contributions: it distinguishes between how the LOC operates at middle manager level compared to senior management level, and identifies variations in emphasis across both functional areas and case sites. The study also adds to the literature on how the LOC work in combination (Mundy, 2010; Widener, 2007) at this level. In addition, the study highlights how tensions arising at the middle manager level represent logics that are more closely related when compared to the dichotomous tensions that manifests at senior management or firm level.

Thirdly, the study provides much needed insights into how beliefs systems operate at middle manager level (Martyn, Sweeney and Curtis, 2016; Ahrens and Chapman, 2004; Davila, 2010). The study identifies significant variations in the manifestation of beliefs systems across the four cases. Observing these differences is useful as it helps build a much clearer understanding of how beliefs systems vary from 'static documents' to 'living systems' (Simons, 1995) across contemporary organisations. The study draws on the paradox literature to explain how beliefs systems can contribute to the establishment of paradoxical cognition at middle manager level. This is helpful in beginning to

understand how to better manage the multiple logics that confront middle managers.

Fourthly, the study addresses one important aspect of the LOC about which we have a very limited understanding: the continuum between DCS and ICS representing styles of use of feedback and measurement systems. This study teases out the continuum by presenting empirically derived scenarios situated between the extremities depicting various styles of use.

Other contributions include the implications of the LOC in subsidiary and corporate relationships, the identification of the potential for different results to emerge based on the research tool employed, exploration of middle managers' attitudes towards each of the LOC, and the novel but intriguing way in which specific control issues were 'personalised' and thereby given salience in one case organisation.

1.4 Structure of this Thesis

This thesis is comprised of seven chapters:

Chapter 1 introduces the study; it sets out the core ideas, contentions, together with the rationale for this study and outlines the research questions addressed in the study.

Chapter 2 commences a review of extant MCS literature relevant to the study. The chapter begins by defining control followed by a review of relevant literature on control theory with particular emphasis on control in organisations. From this expansive view of control, the chapter narrows in on a specific control framework, the LOC. Various

dimensions of the LOC are discussed. It examines existing studies to synthesis knowledge of the framework.

Chapter 3 moves to explore the middle management literature. It presents the literature in relation to the contributions of middle managers in contemporary organisations. The chapter provides an in-depth examination of Floyd and Wooldridge's (1992; 1997) typology of middle management strategic contribution. To conclude, issues concerning both middle management and MCS are discussed.

Chapter 4 firstly sets out the research questions addressed in this study. This is followed by a discussion of the philosophical assumptions. The development of the research methodology is explained together with the data collection methods used. The chapter also describes the crafting of the research instruments. In addition, the research context is briefly explained. A description of how the empirical data was analysed in this study brings the chapter to a conclusion.

Chapter 5 presents the findings from the interviews and pre-interview survey. It addresses each of the research questions posed in the study.

Chapter 6 reflects on the knowledge gained from the study and locates this knowledge in the context of existing literature. The chapter draws on a cross section of themes from the preceding chapters and presents an enhanced understanding on how LOC permeates and guides middle managers.

Chapter 7 concludes the thesis by providing a summary of the main contributions that the study makes to research and practice. In

addition, it provides a synthesis of the key strengths and limitations of the study. The chapter concludes by proposing potential avenues for future research.

Management Control

2.1 Introduction

This chapter presents an overview and discussion on management control. Developing an understanding of management control requires an appreciation of the concept of control and how management control frameworks have evolved over time. To that end, the concept of control is defined and literature on control theory is reviewed (section 2.2). Section 2.3 progresses to consider control in the context of organisations including the need for management control and constituents of management control. A number of management control frameworks are then presented in section 2.4, followed by a discussion on systems perspective (section 2.5) and challenges faced by contemporary organisations (section 2.6). Section 2.7 focuses on the LOC framework and presents a comprehensive review of the framework itself and how authors of empirical studies have applied it. Strengths and weaknesses inherent in the LOC are then discussed. The chapter concludes with a summary.

2.2 Definition of Control

The term “control” is widely used in management literature (Merchant and Otley, 2007) and can have different meaning in different contexts (Flamholtz et al., 1985). This study focuses on control in an organisational setting and thus control in this context relates to a function of management to ensure good organisational performance (Merchant and Otley, 2007). According to Berry, Broadbent and Otley (2005), there are a number of approaches to examining control in organisations but two have traditionally dominated: cybernetic control

and social control. The former is primarily concerned with negative feedback as the focus is on reducing deviations between desired and actual outputs (Berry et al., 2005). In contrast, the latter reflects the social perspective of the organisation by incorporating people policies such as selection, socialisation and training (Ouchi, 1979). In traditional hierarchical organisations, senior management establish rules and procedures which are conveyed to lower subordinate level staff who perform the work (Ouchi, 1978). Control may therefore be conceptualised in two ways: one refers to dominance (controller), the second to regulation whereby one party directs or governs another (Emmanuel et al., 1990). This assumes that desired outputs are measurable to validate performance (Ouchi, 1979). The control process involves: monitoring behaviour, evaluating outcomes, providing feedback and rewards (Ouchi, 1978).

2.3 Control in Organisations – Management Control

Control is a central concern in organisations (Barker, 1993; Berry et al., 2005) as it is the means through which organisations can ensure their goals and objectives are achieved. Control was first recognised as a central management function by authors in the early 1900's (Gigliani and Bedian, 1974 cited in Merchant and Otley, 2007). According to Collier (2005), organisational control is based on management control theory but rooted in systems theory. Management control as a distinct avenue of academic study dates back to Anthony's (1965) seminal work. He contended that management control was distinct from strategic planning (future oriented) and operational control (routine processes) and mediates between the two. Anthony's classification remains influential today (Berry et al., 2005; Merchant and Otley, 2007). He defined management control as: "...*the process by which*

managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of organizational objectives” (1965, p. 17). Anthony’s conceptualisation consists of four steps: standard setting, performance measurement, performance evaluation and feedback for correction. The definition focuses on strategy implementation as MCS are used to control organisational participants to achieve desired outcomes.

Guided by Anthony’s definition of management control, early research tended to predominantly focus on accounting-based controls associated with planning and performance monitoring (Langfield-Smith, 1997) such as budgeting. This rather narrow and passive view of MCS has been criticised by other researchers (see for example Langfield-Smith, 1997; Chenhall, 2003; Merchant and Otley, 2007; Malmi and Brown, 2008) as it fails to consider strategy formulation, the complexity of technological environments (Merchant and Otley, 2007) and changed business conditions (Otley, 1994).

Sociological perspectives position MCS as more active, empowering individuals to accomplish their own goals (Chenhall, 2003). This reflects the reality that lower level employees participate in strategically significant activities and the separation between operational, managerial and strategic advocated by Anthony (1965) is insufficient (Langfield-Smith, 1997). One form of social control is organisational culture (Flamholtz et al., 1985) whereby through a socialisation process, employees adopt values and norms comparable with those of the organisation.

The MCS definition has evolved over time resulting in a broader scope. The corollary of this is that defining MCS is now difficult, as numerous

definitions exist, some of which are quite varied (Malmi and Brown, 2008). This reflects the complexity of management control. One widely cited definition is provided by Flamholtz (1983, p. 154): "*...any action or activities taken to influence the probability that people will behave in ways which lead to the attainment of organisational objectives*".

In essence, MCS attempt to gain the cooperation of individuals or groups of individuals who might otherwise share only partially congruent goals and channel their efforts towards a specific set of organisational goals (Ouchi, 1979; Flamholtz, 1983). Management control therefore happens through individuals and must permeate down through the hierarchical levels of the firm (Wilson and Chua, 1993). To achieve this, senior managers exercise control using various management control mechanisms to direct subordinate managers' energies towards achieving strategic goals and objectives. The use of MCS does not guarantee that organisational goals will be achieved; rather it prevents an individual or group pursuing diverse and uncoordinated objectives.

Hopwood (1973) in his seminal work argued that the integration of energies of a large and diverse group of individuals into a coherent and directed effort is one of the oldest organisational challenges. According to Emmanuel et al. (1990), managers must ensure that organisational participants do what needs to be done to achieve organisational goals. They cite a number of reasons why individuals do not act in the organisation's best interest:

- Lack of direction - people do not understand what is expected of them;

- Lack of motivation - despite knowing what is expected of them, individuals do not perceive the incentives as adequate to motivate appropriate behaviours;
- Lack of ability.

Taken together, this means that management must implement a system of control to protect the organisation from the negative consequences of these potential failures.

2.4 Frameworks of Management Control

Frameworks have evolved over time to structuralise MCS (Langfield-Smith, 1997). According to Ahrens and Chapman (2004), a framework is useful insofar as it helps us understand "*specific ways in which management control systems may structure day-to-day operational management*" (p. 278). The earliest attempts to develop control frameworks date back to the 1950's and 1960's (Merchant and Otley, 2007). This section reviews some of the frameworks frequently cited in the extant literature.

Hopwood's (1974) seminal work provides one of the first frameworks to consider both formal accounting based controls combined with informal forms of control such as social control and self-control. His framework presents three forms of control in organisations:

1. Administrative control – formal procedures that employees must abide by including accounting-based controls.
2. Social control – promotes employees to adopt values, norms and beliefs that align to organisational values, norms and beliefs.

3. Self-control – encourages employees to regulate their own actions and behaviours.

Hopwood highlighted the importance of interaction between each type of control. Furthermore, he argued that control can be understood through the interaction of these three control categories.

Ouchi's (1979; 1980) work followed, drawing on a transaction cost perspective to study organisational control and the conditions under which a manager would use a specific type of control. Ouchi (1978) maintained that the control process within organisations consists of both formal and informal controls. Organisational participants become familiar with informal controls in advance of experiencing formal controls through selection and recruitment measures. Ouchi's (1979) framework identifies three different but equally important control mechanisms:

1. Market control – uses precise measure of control such as the price of products or services. Employee rewards are dependent on individual contribution.
2. Bureaucracy control – applies the rules and procedures with monitoring of employee behaviour to ensure they are compliant.
3. Clan control – comprises of rituals and ceremonies creating an informal social structure where groups of employees monitor themselves against their values and norms.

Each form of control needs different information to function: market control relies on prices as the basis for decisions; bureaucracy control depends on rules and procedures; and clan control operates through

traditions, norms and values which may lead to the formation of an organisational culture (Collier, 2005). According to Merchant and Otley (2007), these forms of control depend on two contextual factors: knowledge of desirable behaviours, and ability to measure outcomes. Ouchi (1979) posits that if an organisation's desired result is measurable, then outcome controls are preferable. In situations where an organisation knows the behaviours and processes to transform inputs to output, then behaviour control in the form of personal surveillance is used. If organisations cannot measure output and have limited knowledge of the transformation process, then they must revert to less formalised social controls characterised as clan control to monitor employees.

Subsequent research has expanded Ouchi's conceptualisations of control. For example, both Merchant (1985)'s and Emmanuel et al.'s (1990) formulation of a control framework is comparable to Ouchi's framework. *Emmanuel et al. (1990)* identify three classifications of control according to the object of control:

1. Results controls – this type of control emphasises results accountability, analogous to Ouchi's outcome control. The process consists of: setting predefined performance standards, measuring actual performance against these standards, and rewards are dependent on achievement of desired results. Traditional management accounting techniques such as budgets and variance analysis are illustrative of results controls.
2. Action controls – emphasises the need for employees to behave in a desirable and acceptable manner. The aim of this form of control is to ensure that employees understand the behaviours

- and actions expected of them. Emmanuel et al. observe that employees may perceive this type of control as limiting and constraining.
3. Personnel controls – draws on both self-control (the assumption that employees aspire to complete tasks effectively), and social control (pressure to conform to group norms and values). They argue that a strong organisational culture will foster greater identification with organisational goals and values. This idea echoes Ouchi's conceptualisation of clan control.

In designing an effective control system, combinations of controls are applied to address particular control problems (Emmanuel et al., 1990). They theorise that for each control problem, it is necessary to understand the underlying cause: lack of direction, poor motivation or personal limitations. Managers can then select an appropriate mix of controls to resolve the issue.

Adler and Borys (1996) categorise bureaucracy based on design principles; *Ahrens and Chapman (2004)* draw on this to conceptualise two contrasting views of how controls are used: enabling formalisation and coercive formalisation. In the former, employees are viewed as a resource. Organisational rules and processes are respectful of employee intelligence (*Ahrens and Chapman, 2004*) and therefore control systems support employees by providing guidance and clarifying responsibilities (*Adler and Borys, 1996*). In contrast, coercive formalisation mirrors traditional cybernetic control centred on adherence to pre-set objectives and standards (*Ahrens and Chapman, 2004*). This can lead to employee dissatisfaction and low levels of motivation (*Adler and Borys, 1996*).

Chenhall (2003) introduces a further typology of MCS. His categorisation classifies controls ranging from mechanistic to organic is based on the work of other authors including: Perrow (1970), Ouchi (1977; 1979) and Galbraith (1973). Mechanistic controls are formalised and exert control through rules, standard operating procedures and routines, examples include: budgets, output and results controls. In contrast, organic controls are more flexible and responsive in their nature, examples include: social controls, clan controls, participative budgeting and product development information. *Chenhall (2003)* drawing on contingency theory argues that such a conceptualisation is useful when considering how MCS fits with organisational culture. *Ahrens and Chapman (2004)* cite a number of empirical MCS studies (*Chapman, 1998; Simons, 1990; and Dent 1987*) that find a mix of both mechanistic and organic control types in use. They further argue that organisations must combine both forms of control to foster efficiency and flexibility.

2.5 Package or Systems Perspective

In practice, organisations employ a number of MCS (frequently introduced over different time periods) thus creating a 'package of systems' (*Malmi and Brown, 2008*). Similarly, *Tuomela (2005)* observes that firms "*adopt[s] a mix of formal and informal controls that are highly interdependent. The whole system should be perceived rather than merely looking at accounting controls*" (p. 296). *Malmi and Brown (2008)* identify reasons for examining MCS as a package: firstly, each control mechanism connects to other mechanisms within a broader system; secondly, the adoption of a new control mechanism must be examined in the context of prevailing MCS; and finally, conceptualising management control as a package fosters

consideration of other non-accounting forms of control such as informal and cultural controls. These ideas are comparable to the perspectives of systems theorists:

"The performance of a system obviously depends on the performance of its parts, but an important, if not the most important, aspect of a part's performance is how it interacts with other parts to affect the performance of the whole. Therefore, effective system management must focus on the interactions of its parts rather than on their actions taken separately."

(Ackoff, 1994, p. 180)

Ackoff provides descriptive analogies to underline the appropriateness of a systems' perspective: an eye separated from the body cannot see; or a steering wheel removed from a car steers nothing. Ackoff is critical of the fact that analysis frequently equates to considering parts separately. He asserts that greater understanding can be achieved by focusing on how individual elements function within the broader system, their function and role in the whole in conjunction with interactions between parts. In the context of management control, Malmi and Brown (2008, p. 288) echo this viewpoint: *"the challenge is to understand how all of the systems in an MCS package operate as an inter-related whole"*.

In a similar vein, Grabner and Moers (2013) are critical of the reductionist approach often applied in management control research, whereby a MC practice (such as a budget or balanced scorecard) is studied in isolation. They make a distinction between systems (explicitly considers interdependencies between MC practices as a design choice) and a package (set of control practices regardless of design choices/interdependencies). To maintain internal consistency, they advocate a systems' perspective to explore relationships among

MC practices. Recent studies have provided empirical insights at firm level. For instance, Bedford and Malmi (2015) explore how control mechanisms combine and they present a taxonomy of control configurations used by top managers. Further, Bedford, Malmi and Sandelin (2016) examine management control combinations in relation to strategic contexts.

One such system or package of controls is Simons' LOC framework (Simons, 1994; Simons, 1995). The central premise behind Simons' framework is that top managers use four levers of control in combination to manage tensions and achieve strategy. The LOC is therefore a system or a package of controls that work in combination to manage the implementation of existing strategy while also allowing innovative emergent strategies to develop (Martyn et al., 2016).

2.6 Challenges Faced by Contemporary Organisations

Firms operate in pluralistic environments characterised by a need to deliver on multiple objectives (Chenhall, Hall & Smith, 2010; Chenhall et al., 2013). On the one hand, organisations must maximise efficiencies to ensure continuity of cash flows and profit margins necessary for short-term survival. It is widely accepted that MCS have a useful role in supporting such pre-set goals: budgets and costing systems concentrate on efficiency and predictability. While some criticism and dissatisfaction has been directed towards budgets within the 'beyond budgeting' literature (Wallender, 1999; Jensen, 2001), a study conducted by Libby and Lindsay (2010) report that budgeting systems continue to play a key role in organisational control. They find that firms tend to adapt their budget systems to overcome challenges rather than abandon their use. In addition to striving for efficiency,

organisations must seek out creative innovation as this offers opportunities for growth, competitive advantage, relevance in today's global market and sustained financial performance. Davila, Epstein and Shelton (2012) argue that idea generation is the easy or fun aspect, the real challenge lies in implementing and capturing the potential value of creative innovation.

In contrast to predictable goals, creative innovation does not translate quite so easily into financial controls as outputs are frequently difficult to measure and the longer-term orientation is not well suited to those forms of traditional controls. This has led to considerable debate in the literature about the role of MCS in managing creative innovation. Arguments have been made that formal MCS can in fact stifle innovation (Amabile, 1998) and empirical studies have found that looser forms of control are more prevalent in high innovation settings (Abernethy and Lillis, 1995). More recently, however, arguments have been presented in the literature that formal controls can provide support and direction for the innovation process (Davila, Foster and Li, 2009).

"Increasingly, however, organisations and managers must pursue dual strategies concurrently; they must compete today while preparing for tomorrow, balancing more operational, financially-oriented objectives with the organisational demands of long-term strategic objectives."

(Nixon and Burns, 2005, p. 263).

The combination of both targeted achievement and innovativeness represents the ideal organisational outcome (Andriopoulos and Lewis, 2009). However, it poses a significant managerial challenge, because in practice one may crowd out the other (Davila, Epstein and Shelton, 2006). The organisational ambidexterity literature also recognises this challenge and refers to it as the exploration-exploitation dilemma. The

dilemma stems from the need to get the most from the current situation, while at the same time exploring possibilities for future growth and improvements (Laureiro-Martinez et al., 2010). Smith et al. (2010) claim that organisations will inevitably face extensive conflict in the pursuit of competing strategies. Invariably, this leads to competition for scarce resources, which raises tensions. In parallel the management control literature acknowledges similar challenges (see for example: Davila et al., 2012; Henri, 2006; Davila, Foster and Li, 2009). Recent studies focusing on institutional complexity also recognise that contemporary organisations are confronted with multiple logics or demands that are often incompatible and this causes tensions (Carlsson-Wall et al., 2016; Lounsbury, 2007; Pache and Santos, 2010).

Organisational success is in part, driven by the ability to manage these tensions. Maintaining the correct balance between competing demands requires careful management and MCS can play a useful role in this regard. For instance, Davila et al. (2012) emphasise the importance of organisational structures and processes to allow creativity and commercialisation to coexist. Chenhall, Hall and Smith (2013) report that performance measurement systems can be useful in these circumstances as they enable productive debate between diverse logics creating 'concurrent visibility'.

To summarise, the purpose of the preceding sections was to review the numerous ways in which MCS have been depicted in the extant literature. It also serves to highlight that there is no single universal conceptualisation of controls but rather it has been interpreted in various ways. Furthermore, it is evident that there is considerable

overlap between MCS frameworks. We would expect this as authors draw on preceding work in the area and consequently MCS frameworks have evolved over time. The next section considers the LOC framework in more detail.

2.7 The Levers of Control Framework

The LOC framework has received considerable attention from researchers over the last 30 years. This has been largely motivated by the fact that it accurately captures the challenges that contemporary organisations face: innovating for tomorrow while delivering today. Its prominence within the management control literature reflects its usefulness as a lens to study organisational challenges. Accordingly, this chapter proceeds to examine the extant literature pertaining to the LOC framework in more detail.

2.7.1 Evolution of the LOC Framework

Simons formulated the LOC framework based on extensive fieldwork spanning almost a decade. His findings were presented across a series of journal publications. In the first of these, Simons (1987) examined the relationship between strategy and accounting controls; specifically he observed that MCS were used differently depending on the strategic position, categorised using Miles and Snow (1978) typology, adopted by the organisation. This finding underpinned the significance of the MCS-strategy relationship. In his following publication (Simons, 1990), Simons introduces the concepts of interactive and diagnostic controls based on his examination of how senior managers in two competitor organisations use MCS. In Simons (1991), he extends the concepts of ICS and DCS based on data collected from newly appointed senior managers in 16 US healthcare firms. In particular, he highlights how

the system that senior managers select for interactive use may often appear counter-intuitive, the rationale being that senior managers often use ICS to focus attention towards perceived organisational weaknesses. He also notes that only a limited number of systems can be used simultaneously in an interactive manner. In the final of the four papers (Simons, 1994), Simons includes beliefs and boundary systems to complete the LOC framework. This paper charts the stages in which newly appointed senior managers use each of the levers to bring about change. Appendix A presents a summary of Simons' empirical studies (reproduced from Martyn et al. (2016)). As the LOC framework culminated from extensive empirical investigation, it is regarded as a practice informed framework (Bisbe et al., 2007; Martyn et al, 2016) drawing on theoretical properties observed in practice. The LOC is therefore an explanatory framework. Simons' body of academic work has been brought to the attention of a wider audience through the publication of his management texts: *Levers of Control: How Managers Use Innovative Control Systems to Drive Strategic Renewal* (Simons, 1995) and *Levers of Organizational Design* (Simons, 2005).

2.7.2 Overview of Simons' Levers of Control Framework

Simons' LOC framework (figure 2.7.2-1) identifies four systems of control: beliefs systems, boundary systems, controls systems used in an interactive manner (ICS), and control systems used in a diagnostic manner (DCS). The four systems are analogised as levers, which may be deployed by senior managers as necessary to ensure the organisation realises its strategic aims. Each of these levers is responsible for managing one of four key constructs: core values, risks

to be avoided, critical performance variables and strategic uncertainties. Belief systems communicate core organisational values and act as a positive and inspirational force. They specify the mission, goals and objectives of the organisation to staff using mainly non-quantitative means (Berry et al., 2005). In contrast, boundary systems are stated in negative terms; they set limits and thus communicate risks that must be avoided. In this way, they point out what activities should not be undertaken because they do not contribute to current strategy or are inappropriate for other reasons (Berry et al., 2005). Control systems are used in an interactive manner to direct organisational attention to strategic uncertainties. Simons explains that strategic uncertainties are contingencies or uncertainties that could threaten or invalidate current organisational strategy. Thus, they provide an early warning system indicating when organisational strategy needs to be re-examined. Critical performance variables are managed on an exception basis through control systems used in a diagnostic manner. This keeps intended strategy on track and monitors predictable goal achievement.

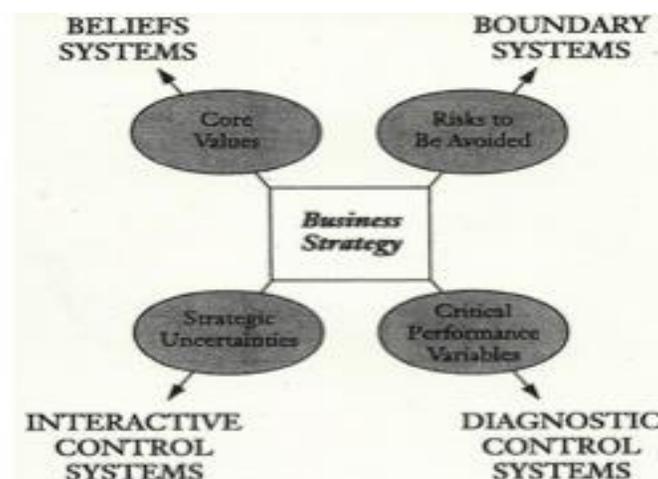


Figure 2.7.2-1 Simons' levers of control framework (Source: Simons, 1995 p. 7)

Control systems used in either an interactive or diagnostic manner utilise the same set of formal information but use it in a different manner and for varying purposes. The following sections provide a more detailed description of each lever.

2.7.2.1 Beliefs Systems

Beliefs systems are defined as "*the explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose and direction for the organization*" (Simons, 1995, p. 34). Their role is to gain commitment to organisational core values and this contribution to overall management control is "*increasingly acknowledged*" (Marginson, 2008). Beliefs systems encompass mission and vision statements, statements of core values (Simons, 1995) but also extend to lists of behavioural traits such as integrity and teamwork (Simons, 2010). Simons' publications also illustrate the application of beliefs systems for instance: on wall placards, company websites. He cautions against lack of attention to beliefs systems as he suggests they are fundamental to organisation success. Furthermore, his definition emphasises the need for systematic reinforcement of core values; however, within the existing body of literature there are limited insights into how this happens in practice. The significance of beliefs systems relates to their role in providing guidance to employees about whose interests to prioritise when faced with difficult decisions (Simons, 2010).

Within existing literature, beliefs systems are generally associated with opportunity-seeking (for example: Marginson, 2002; Bruining et al.

2004, Marginson and Bui, 2009) and strategic change (for example Marginson, 1999; Marginson, 2009; Curtis and Sweeney, 2017). Simons' describes beliefs systems as a positive and inspirational force "*The primary purpose of a beliefs system is to inspire and guide organizational search and discovery.*" (Simons, 1995, p. 36). At an individual level, Simons maintains that beliefs systems encourage individuals and create a momentum to search for novel ways of creating value and he labels beliefs systems as a positive form of control. Some relevant empirical evidence exists concerning the influence of beliefs systems on innovative activities. For instance, Marginson and Bui (2009) demonstrate how beliefs systems were used to create a general climate of value adding innovation. Marginson (2002) claims that beliefs inspire organisational participants in their opportunity seeking endeavours as they play a critical role in generating and filtering ideas. Similarly, Bruining et al. (2004) show beliefs system being used to promote a more entrepreneurial company, while Heinicke, Guenther and Widener (2016) find that beliefs systems are a key element of control in the context of firms operating with a flexible culture. Consequently, beliefs systems are viewed as a positive control system.

One interesting characteristic of beliefs systems is that they are intentionally broad and vague (Simons, 1995) to ensure all organisational members can commit to them. Mundy (2010) emphasises this point: "*the purpose of beliefs system is to inspire organizational search and discovery without prescribing the precise nature of the activities*" (Mundy, 2010, p. 501). Ahrens and Chapman (2004) concur describing beliefs systems as very general, which they

claim leaves little restriction in labeling something affecting management control as a constituent of beliefs systems.

Overall, a rather modest level of attention has been directed to understanding beliefs systems; Martyn et al. (2016) observe in their review of 45 published studies adopting the LOC framework how only 16 studies include beliefs systems. This is somewhat surprising as it is well-recognised that values and beliefs are integral to the functioning of organisations (Ouchi, 1979; Simons, 1995; Chenhall, Hall and Smith, 2017) and given the over-arching nature of the beliefs system in management control. Simons acknowledges that the functioning of interactive and diagnostic controls depend on organisational beliefs (and boundary) systems (Ahrens and Chapman, 2004). Collier (2005, p. 336) is critical of the LOC framework itself claiming it *"pays too little attention to beliefs"* a view supported by Nixon and Burns (2005). There is considerable scope to learn more about how beliefs shape actions and behaviours.

2.7.2.2 Boundary Systems

In contrast to beliefs systems, boundary systems are designed to rein in behaviours (Simons, 1994; Heinicke et al., 2016). Boundary systems are defined as: *"formal systems used by top managers to establish explicit limits and rules which must be respected. Boundary systems are stated typically in negative terms or as minimum standards"* (Simons, 1994, p. 170). They are thus used to deter employees from taking inappropriate risks by explicitly prescribing off-limit actions (Simons, 1994). Examples of boundary systems include: codes of conduct, asset acquisition systems, operational guidelines and strategic planning systems.

Boundary systems may be categorised in two ways: business conduct boundaries and strategic boundaries. The former often emerge in response to reputational concerns (Simons, 1995) and are described in the literature (see for example: Simons (1995); Mundy (2010); and Martyn et al., (2016)) as 'proscriptive' and 'negative systems'. Business conduct boundaries may also incorporate industry standards or regulations (Simons, 1995). Simons (1995) posits that business conduct boundaries offer individuals protection when pressed to act in an unethical manner. Arjalies and Mundy (2013) note the importance of boundary systems when risks of non-compliance and reputational damage are high. Similarly Kruis, Speckle and Widener (2016) find that boundary systems are prominent in organisations that could easily lose legitimacy or operated in markets where reputation was of great consequence. Simons (1995) argues that pursuing unfocused opportunities is wasteful. To avoid this, senior managers establish acceptable and unacceptable domains for search through strategic boundaries (second categorisation of boundary systems). Engagement in certain behaviours by organisational participants can potentially have a detrimental impact on organisational earnings and at an extreme cause firm failure (Sarre, Doig and Fiedler, 2001 cited in Arjalies and Mundy, 2013). At an organisational level, existing research reports a close connection between the establishment of strategic boundaries and strategic risks. For example, Widener (2007) reports a positive association between the extent to which firms are confronted with strategic risks and uncertainties and the emphasis placed on boundary systems. Similarly, Kruis, Speckle and Widener (2016) report variation in prominence and an emphasis of the boundary lever use contingent on strategic position. Granlund and

Taipaleenmaki (2005) find that boundary systems are effective in restricting opportunistic behaviours.

The purpose of boundary systems is to clearly set out a focused domain for opportunity seeking and thus it has implications at the individual level. Simons maintains that boundary systems "*delegate decision making and thereby allow the organization to achieve maximum flexibility and creativity... a prerequisite to organisational freedom*" (Simons, 1995 p. 41). Prior research (Bruining et al., 2004; Mundy, 2010) observes that through strategic boundaries, senior managers delegate responsibility to lower management level by setting minimum acceptable standards such as hurdle rates of return. Analogous to beliefs systems, there are a limited amount of studies addressing the boundary lever notwithstanding its importance in establishing the infrastructure (in combination with beliefs systems) for interactive and diagnostic systems.

2.7.2.3 Control Systems Used in a Diagnostic Manner

Diagnostic controls manage "*well-understood, routine issues*" (Ahrens and Chapman, 2004, p. 278). Simons (2005, p. 84) defines DCS as "*formal information systems that managers use to monitor organizational outcomes and correct deviations from preset standards of performance*". Operating DCS encompasses: setting goals, aligning performance measures, designing incentives, reviewing exception reports and following-up on significant exceptions (Simons, 2000). DCS are closely linked with implementing existing/intended organisational strategy as it facilitates monitoring of progress towards current goals and day-to-day operational management. Thus it is comparable to traditional forms of cybernetic control discussed in

section 2.4. DCS allow senior management to delegate responsibility for delivering critical performance variables to subordinate levels, as DCS makes outcomes and activities both tangible and visible (Arjalies and Mundy, 2013). Diagnostic processes are depicted as negative forms of control as they exert a constraining and convergent influence. As Simons (1995) explains, senior management's role in DCS is confined to monitoring and oversight with further involvement prompted only by deviations from preset standards of performance. The implication being that DCS permits senior managers to direct their attention to other more strategic matters.

While a considerable number of studies have included the concept of DCS, there is no single study focusing solely on DCS. Martyn et al. (2016) ascribe this to the fact that this form of control represents the traditional use of MCS, synonymous with management control literature, and is generally perceived as being well understood.

2.7.2.4 Control Systems Used in an Interactive Manner

While DCS monitor firm's progress relative to plan, interactive systems ensure that those plans are still valid. This fourth and final lever, is used to identify and manage strategic uncertainties defined as "*uncertainties and contingencies that could threaten or invalidate the current strategy of the business*" (Simons, 1995, p. 94). The purpose of ICS is: creative search, disruptive change, opportunity seeking and organisational learning all of which combine to stimulate the emergence of new strategies and initiatives (Simons, 1995, Abernethy and Brownell, 1999; Kober et al., 2007; Bisbe and Otley, 2004; and Arjalies and Mundy, 2013). ICS are concerned with current and future

time-frames "*continuous re-estimation of future states and consideration of how best to react*" (Simons, 1995 p. 123).

One distinctive feature of ICS is that it represents a style of use of a performance measurement systems rather than a technical design feature, senior management choose to make a control system interactive. Their decision to use a budget or a profit planning system in an interactive manner will signal the importance of that issue to the entire organisation, thereby pressure to act cascades from the top to the lowest organisational levels (Simons, 2000). Control systems used in an interactive way have the following characteristics (Simons, 1995; Bisbe et al., 2007):

1. Information generated by the system represents an important and recurring agenda of top management;
2. The ICS system requires frequent and regular attention from managers across all levels of the organisation;
3. Information gathered is analysed, interpreted and discussed at face-to-face meetings of superiors and subordinates;
4. Act as a catalyst for organisational challenge and debate of underlying assumptions and actions plans; and
5. Non-invasive, facilitating and inspirational.

As a number of authors (see for example: Bisbe et al., 2007; Martyn et al., 2016) have pointed out, these characteristics are practice-informed.

Considerable attention has been directed to ICS; Martyn et al. (2016) report that of 45 empirical studies using the LOC framework, only

three did not consider ICS. Furthermore, 15 of those studies focused exclusively on ICS. One of the major challenges in applying the LOC framework is operationalising the ICS construct and this is discussed further in section 2.7.4.3.1.

2.7.3 LOC Operating in Combination

As the previous section explains, each of four levers has a specific purpose; however, Simons (2000) claims that the power of the LOC framework is not in how each lever is used in isolation, but how they complement each other when used simultaneously. This happens via the interaction of the positive and negative forces created by the levers leading to effective strategy implementation and strategic renewal (Broadbent and Cullen, 2005). In doing so, it addresses the dilemma between delivering today while preparing for tomorrow. Beliefs systems and control systems used in an interactive manner exert a positive influence that creates an inspirational organisational vision, which encourages creative innovation. In parallel, MCS used in a diagnostic way and boundary systems are considered to be negative systems (Simons, 2000); they focus on supporting performance improvements (Mundy, 2010). In addition, they create constraints and ensure compliance with orders (Broadbent and Cullen, 2005). Collectively, the levers inspire commitment to organisational purposes, stake out territory for experimentation and competition, monitor the execution of current strategies and motivate the search for future strategies (Broadbent and Cullen, 2005). Working together the levers produce a dynamic tension (Simons, 1995 p. 153):

"The power of the control levers does not lie in how each is used alone but rather in how they complement each other when used together. The interplay of positive and negative forces generated

by these systems creates a dynamic tension between the opportunistic innovation and predictable goal achievement that is necessary for profitable growth.”

Simons (1995, p. 153)

Appropriate design and use of MCS permit conflicting tensions to be managed and translated into profitable growth (Simons, 1995). Simons argues that senior managers, by using all four levers concurrently, create an effective control environment where both predictable goal achievement and innovation can thrive ensuring long-term success. Subsequent studies have examined the concept of opposing forces and their balance that underpins the LOC framework. For example, Henri (2006) reports that control systems used in both an interactive and diagnostic manner results in a desirable state of dynamic tension. His findings demonstrate the collective power of LOC. A balanced use enabled notions of competition and complementarity to evolve simultaneously. Mundy (2010) also stresses the importance of balance; she argues that MCS have two complementary and interdependent roles: first to control the accomplishment of organisational goals, and second to enable search for opportunities. Balance is implicit in the LOC framework; use of all four levers should bring about the balance necessary to compete today and prepare for tomorrow (Nixon and Burns, 2005).

2.7.4 Strengths and Weaknesses of the LOC Framework

Researchers have documented both the strengths and weaknesses of the LOC framework (see for example Ferreira and Otley, 2009). They enumerate the following strengths:

1. The achievement of strategy is central as the framework concentrates on how MCS can be used to advance organisational strategic goals.
2. The LOC considers a broad range of controls, emphasising how they can be used.
3. Consideration is given to alternative uses of MCS; the framework recognises that MCS configuration will vary between organisations. According to previous research (Simons 1995; Ferreira, 2002; Mundy 2010), balance between positive and negative levers is driven by how MCS are used.

The paper also identifies a number of weaknesses associated with the framework:

1. The framework was developed based on Simons' (1987; 1990; 1991; 1994) examination of how senior managers use MCS. While the LOC clearly has implications for other hierarchical levels, it concentrates on the perspective of senior managers.
2. Control within organisations frequently operates in an informal manner; however the framework only considers formal MCS and consequently ignores MCS of an informal nature. Moreover, it is well recognised that a combination of both formal and informal control are advantageous (Chenhall and Moers, 2015).
3. The framework underplays the role of socio-ideological controls.
4. Conflation of terminology used in the framework has led to subjective interpretation by researchers (Ferreira, 2002 cited in Ferreria and Otley, 2009) as definitions tend to be vague or absent.

5. The framework does not apply to all forms of organisations. Simons' empirical studies, from which the framework emerged, were conducted in large organisations and hence it does not translate well to small or medium sized organisations.
6. In addition, Ferreira (2002) observes the difficulty in practice of separating interactive and diagnostic use of a single control system.

These weaknesses have prompted both criticism and further attention from researchers and thus provide a useful way of organising the discussion in the following sections:

2.7.4.1 Application of the LOC Beyond Senior Management Level

One of the key criticisms of the LOC is that it focuses solely on the perspective of senior managers. This is to be expected as it was formulated based on over 10 years of field research (see section 2.7.1), which examined senior managements' use of control systems to realise strategy. Tessier and Otley (2012) are critical of this restrictive view and they draw on Gray (1990) in describing employees as 'passive actors' in the LOC framework. They further argue that it fails to fully embrace the definition of management control advanced by Flamholtz (1983, p. 154) being: "*...any action or activities taken to influence the probability that people will behave in ways which lead to the attainment of organisational objectives*". This definition suggests that the entire organisation is implicated through the exercise of management control systems. Accordingly, the relevance of the LOC extends beyond senior management and its influence transcends hierarchical levels. Hence MCS apply to, and exert an influence over,

the entire organisation and this is well recognised within the broader MCS literature. Control systems are used to influence and shape subordinates behaviours (Emmanuel et al., 1990) and increases the likelihood that the organisation will achieve its objectives (Merchant and Van der Stede, 2007). Therefore the senior manager perspective reflected in the LOC framework does not necessarily explain how control operates throughout the entire organisation. Related to this point, Ferreira and Otley (2009) note how this concern becomes more problematic the greater the reliance on informal controls, which becomes more likely as we move down through the organisational hierarchy. To achieve a more complete understanding of how MCS drives organisational performance it is necessary to extend our attention to other hierarchical levels.

2.7.4.2 Informal Controls within the Formal LOC framework

The LOC framework is restrictive as it only considers formal controls and this has repeatedly been raised as a cause of concern (Marginson, 1999; Collier, 2005; Ferreria and Otley, 2009; Tessier and Otley, 2012; Chenhall and Moers, 2015; Martyn et al., 2016). Only controls fitting Simons' definition of formal controls are therefore included: "*the formal, information-based routines and procedures managers use to maintain or alter patterns of organizational activities*" (Simons, 1995 p. 5). Collier (2005) identifies informal controls as an important constituent of overall control in his case study, while Marginson (1999) proposes that informal controls can replace administration controls. Lack of clarity exists on how informal controls may be considered in conjunction with the formal LOC framework and this requires further attention.

Chenhall and Moers (2015) warn that while there may be commonalities between control systems used in an interactive manner and more informal manifestations of control such as clan controls and enabling controls, they each represent different theoretical perspectives and should not be confused.

There have been calls in the literature that researchers should focus on how management accounting systems are used (see for example Tuomela (2005); Malmi and Brown (2008)). Tuomela (2005, p. 296) observes that firms "*adopts a mix of formal and informal controls that are highly interdependent*". Informal controls are particularly important in the context of innovation, which often relies on organic processes to stimulate idea generation (Chenhall and Moers, 2015); however, the LOC fails to capture this.

2.7.4.3 Conflation in Terminology and Concepts Underpinning the LOC Framework

A recent study conducted by Martyn et al. (2016) pointed to the confusion that exists around some of the concepts underlying the LOC. They maintain that this has resulted in a lack of coherence within the empirical research that has applied the framework. Triggered by a need for more precision, a number of papers have attempted to address some of the issues. For example, Bisbe et al. (2007) try to clarify the definition of interactive control. Tessier and Otley (2012) tease out issues including the positive and negative labels presented in the framework and ambiguities regarding diagnostic and interactive manner of use. Each of the key issues to emerge are dealt with in turn:

2.7.4.3.1 ICS an Ambiguous Concept

Martyn et al. (2016) highlight an interesting observation relating to ICS in their recent review paper: ICS has received the most attention from researchers. Of 45 empirical studies included in their review, only three excluded ICS, and moreover 15 of the studies solely addressed ICS. Despite this considerable research focus, it is well recognised that the ICS concept remains ambiguous (Bisbe et al., 2007; Ferreira and Otley, 2009, Martyn et al., 2016; Chenhall and Moers, 2015; Curtis and Sweeney, 2017). This has been particularly problematic when trying to operationalise the concept in survey research. Martyn et al. (2016) note that there are seven different measures for the concept within existing literature. This is to be expected as "*conceptual issues naturally extend to the empirical setting*" (Grabner and Moers, 2013, p. 408). Furthermore, a lack of definitional consistency hinders our ability to draw overall conclusions from the body of empirical findings (Martyn et al., 2016) and raise concerns about the legitimacy of the conceptual model (Chenhall and Moers, 2015).

Efforts have been made by various authors to provide a more precise definition of ICS. Bisbe et al. (2007) propose five criteria that must be met for a control system to be defined as an ICS: intensive use by superiors, intensive use by subordinates, face-to-face interaction, concentration on strategic uncertainties, and a non-invasive management style. Ferreria and Otley (2009) suggested that the ICS actually consists of two concepts each operating at different levels. One relates to the intensity of use by senior managers akin to the description provided by Simons (1995). According to Tessier and Otley (2012), this embodies the first three components proposed by Bisbe et

al. (2007). They argue that the second concept captured in ICS is concerned with organisational strategy and the controls that monitor the appropriateness of strategy, which they term strategic validity controls. Martyn et al. (2016) suggest a further approach that may be helpful in bringing clarity to the ICS construct. It encompasses two systems: one channelling positive energy while the other channels negative energy.

Insights into the operation of ICS in practice are helpful in furthering our understanding of this practice-informed construct. Curtis and Sweeney (2017) offer empirical insights on the use of intelligence gathering systems in an interactive manner. These systems focused on assessing strategic direction and customer-oriented innovation. Their contribution extends existing literature which to date has tended to concentrate on more traditional forms of control such as budgets and performance measurement systems and thus furthers our understanding of ICS.

2.7.4.3.2 The Concept of Dynamic Tension

The concept of dynamic tension is critical to the framework however it is vague and ambiguous (Curtis et al., 2017 Kruis, Speckle and Widener, 2016). The concept can be traced back to other streams of literature such as conflict and paradox literature (English (2001) cited in Henri (2006)). Henri (2006) asserts that tension will not necessarily have a negative impact as one might expect and conversely it may offer a number of benefits. Firstly, it stimulates organisational dialogue (Dent, 1987, cited in Henri, 2006) allowing opposing positions to be debated (Chenhall, 2004). Secondly, it encourages on-going communication on strategic issues and therefore leads to mutual

understanding. Thirdly, the synthesis of different perspectives (Chenhall, 2004) stimulates the exploration of alternatives. Lastly, dynamic tensions focus organisational attentions and make explicit underlying issues.

Some efforts have been made to tease out the concept. For example, Henri (2006) reports that the simultaneous use of performance measurement systems in an interactive and diagnostic manner both stimulates and constrains organisational capabilities such as market orientation, entrepreneurship, innovativeness and learning resulting in a desirable state of dynamic tension in certain environmental contexts. Widener (2007) emphasises the importance of inter-dependence and complementary nature of the relationship between the four levers. Moreover, her findings reveal that the combined use of all four levers enhances organisational performance. Mundy's (2010) case study reports empirical evidence of circumstances that lead to desirable dynamic tensions and also demonstrate circumstances where dynamic tensions were not manifest due to a particular style of MCS use. She identifies a number of factors which support/inhibit balance namely: internal consistency, logical progression, suppression and historical tendency. Further empirical insights on balanced use of MCS are provided in a study conducted by Kruis et al. (2016). Applying configuration theory, they observe distinct manifestations of balance arrangements achieved through "*different combinations of emphasis*" (p. 40) aligned with underlying strategic and environment challenges.

Curtis and Sweeney (2017) offer a novel application of the concept of dynamic tension in the context of the LOC. They theorise that the concept can be usefully applied to explore the role of MCS in managing

other forms of organisational tensions that arise, aside from the tension between creative innovation and predictable goal achievement typically cited in the LOC framework. This represents an interesting extension of the LOC framework beyond its original domain to manage broader competing strategic priorities. Their study explores how MCS can potentially be used to generate dynamic tension between different types of innovation. This application reflects the challenges faced in contemporary organisations where a mix of innovation types is essential. This point has been emphasised by the ambidexterity literature, which highlights the importance of a balance of innovation types (Lin et al., 2013; Cao et al., 2009) such as radical and incremental innovation. Curtis and Sweeney's (2017) findings revealed that the combination of MCS mobilised in the case organisation resulted in an absence of dynamic tension between two forms of innovation (customer-oriented and technological-oriented) and consequently an absence of countervailing forces. This could be explained by the suppression of DCS associated with technological innovations, which allowed greater energy and attention to be directed towards customer-orientated types of innovation.

2.7.4.3.3 ICS-DCS Continuum

A central premise of the LOC is the notion of opposing forces. One manifestation of opposing forces is evident in Simons' labelling of feedback and measurement systems as either interactive or diagnostic. Underpinning his distinction is the underlying strategic variable to be managed: a routine issue that he refers to as a strategic performance variable or a strategic uncertainty. As Ahrens and Chapman (2004, p. 278) observe, "*routine issues would be managed through diagnostic systems based on traditional mechanistic notions of control, strategic*

uncertainties would be controlled interactively". The difficulty with these terms is that they have been interpreted as a binary division. Granted, Simons acknowledges, *"these labels represent two extremes on a continuum of top management attention"* (Simons, 1991, p. 52). His description of interactive systems representing positive (yang) forces and diagnostic systems as negative (ying) forces, serves to reinforce the notion of extremes on a continuum. Simons (1995) simply identifies senior managers' attention patterns as the foundation of the delineation. Existing literature provides little insight into what systems falling between either ends of the continuum might look like. This contributes to confusion in the literature and merits further attention.

Parallels with the strategy literature can be identified, this literature distinguishes between two types of strategy: deliberate and emergent (Mintzberg and Waters, 1985). On a practical level, the authors acknowledge that it would be highly unusual for a strategy to be entirely deliberate or entirely emergent. Rather emergent and deliberate represents either ends of a strategic continuum within which a range of real world strategies exist.

The practical challenge of demarcating ICS and DCS in empirical studies has been raised in prior studies. Ferreira and Otley (2009) highlight that the same control mechanism may be used in an interactive and diagnostic fashion in the same organisation. They cite studies by Tuomela (2005) and Abernethy and Brownell (1999) in which the balanced scorecard and budgets respectively were used in both manners. Mundy (2010) finds that a budgeting and variance systems primarily intended for diagnostic use also had characteristics

associated with interactive use. Large budget variances tended to prompt intense discussion beyond normal review associated with DCS. She observes that in practice the single system simultaneously embodied both types of use even within the context of a particular review meeting. In another example, Mundy indicates that customer satisfaction goals were used to signal potential risks resulting in a transforming "*to use interactive processes to resolve any problems*" (Mundy, 2010, p. 507). In contrast, Dunk (2011) adopts a binary approach when operationalising ICS and DCS in his quantitative study. If budgets were used for planning purposes, they were considered ICS and budgets used for control purposes were classified as DCS. Similarly, Simons (1991) observes that it was relatively straightforward to identify systems used in an interactive manner in his empirical work.

2.7.4.3.4 Positive and Negative Labels

The use of positive and negative labels pervades throughout the LOC framework. Tessier and Otley (2012) tease out this idea of positive versus negative arguing that while a negative label has negative connotations it does not mean bad; its use simply means that it constrains against the positive forces of opportunity search and reduces options. Therefore, they conclude that a more appropriate description is enabling and constraining. In addition, they contend that employees' attitude to controls is an important dimension that warrants further investigation. They draw on the work of Merchant (1985) and Adler and Borys (1996) who describe how negative and positive responses to controls can emerge depending on whether they support or coerce employees in performing their duties. Positive and negative descriptors are typically used to portray attitudes to controls.

Tessier and Otley (2012) contend that alongside positive and negative, a neutral categorisation should also be included representing neither a positive nor a negative attitude toward a particular control. They call for researchers to consider this, as heretofore they have not been explored in any depth.

The LOC does not explicitly consider employees' perceptions of controls but this merits further attention. For instance, Simons (1995) specifies that beliefs systems motivate the search for opportunities and act as a positive inspirational force. Based on this definition, one would expect beliefs systems to appeal to employees' emotions.

2.7.5 Empirical Application of the LOC Framework

The LOC framework has been widely applied by management control researchers and this highlights its usefulness as a lens to understand how control operates in contemporary organisations. Martyn et al (2016) provide a comprehensive review charting its empirical application between 1990 and 2015 (within specified accounting, general management and strategic management journals). They found a total of 45 studies applying the framework: 30 qualitative studies and 15 quantitative studies. A number of interesting observations emerge from their analysis: firstly, limited attention has been paid to boundary and beliefs systems; secondly, evidence of a reductionist approach in applying the framework emerges as only 12 of the 45 studies apply the framework in its entirety. Failure to consider interdependencies between control mechanisms produces a piecemeal understanding of MCS (Abernethy and Brownell, 1997; Ferreria and Otley, 2009). Most attention has been directed to ICS and 43 of the 45 studies examined include consideration of ICS.

Regarding qualitative studies (Appendix B) that apply the LOC framework, Martyn et al. (2016) point to a number of contributions to literature. For instance, studies have explored how MCS operate within different sectors: Nyland and Pettersen (2007) examine budgets in third level education; Marginson and Bui (2009) study budgets within the telecommunications sector; an NGO setting provided the context for Chenhall et al.'s (2010) paper; and a number of studies have explored how budgets operate in a healthcare setting (Nyland and Petterson, 2004; Ostergren, 2009).

Strategies being pursued by firms have also been a common theme within qualitative LOC studies. For example, Bruining, Bonnet and Wright (2004) highlight the increased role of all four LOC to foster an increase in market orientation. Kober et al. (2007) report that ICS enabled a change in strategy, while de Haas and Kleingeld (1999) observe that DCS enable the initiation of strategic dialogue. The growing body of LOC literature has also extended our knowledge related to the operation of control packages (Malmi and Brown, 2008). For example, Revellino and Mourtisen (2009) find that all four levers are interconnected, while Tuomela (2007) observes that a performance measurement scorecard can be used diagnostically and interactively simultaneously. Furthermore, a study by Frow et al. (2010) illustrate how continuous budgets can be used in both an interactive and diagnostic manner enabling the firm to maintain flexibility while pursuing pre-set goals. Martyn et al. (2016) also outline the contribution of recent LOC qualitative studies in broadening the application of the framework. Studies have considered corporate social responsibility (Arjalies and Mundy, 2013), risk management

within the banking sector (Mikes, 2009), tax strategy for transfer pricing (Plessner Rossing, 2013), and environmental reporting (Rodrigue, Magnan and Boulianne (2013).

A further extension of the framework relates to consideration of external parties and for instance Kominis and Dudac (2012) apply the LOC to investigate inter-organisational controls. Rodrigue et al. (2013) note that ICS, DCS and beliefs system all contribute to channeling stakeholder influence on environmental performance indicators. As section 2.7.2 explains, the LOC reflects the perspective of senior managers; however, some qualitative studies adopted a more expansive approach. Marginson (2009) gathers data from multiple hierarchical levels to examine the role of beliefs systems in enabling organisational change. The clinician perspective is considered in a paper by Ostergren (2009). Section 2.7.1 outlines how the LOC conceptualises control in large firms, but researchers have applied the LOC to the SME sector (Granlund and Taipaleenmaki, 2005).

In general, there has been less attention from researchers in the quantitative domain (Appendix C). Much of the efforts have been directed towards understanding the use of a specific MCS in a diagnostic or interactive manner and the interaction with other organizational variables. This is to be expected, as the nature of quantitative research is deductive, confirmatory and focused on making generalisations about relationships between variables. For example, Janke et al. (2014) theorise that if senior managers perceive a negative external crisis, in response they will place a greater emphasis on control systems used in an interactive way. In a similar vein, Naranjo-Gill and Hartmann (2007) report a positive association

between interactive use of management accounting systems and strategic change in firms transitioning to a prospector strategic position.

Martyn et al. (2016) comment that researchers interested in understanding innovation and emergent strategy have been attracted to the LOC framework (see for example Henri, 2006; Bisbe and Otley, 2004; and Bisbe and Malagueño, 2009). While Simons (1995) argues that senior managers use control systems in an interactive manner to stimulate organizational learning, creativity and innovativeness, contradictory findings have emerged. For example, Bisbe and Otley (2004) fail to find general support for the hypothesis that management accounting systems used in an interactive manner is positively correlated with product innovation. The posited relationship was only borne out in low innovating firms, while a converse relationship was evident in high innovating firms.

In operationalising concepts underpinning the LOC, the body of quantitative studies has contributed to the development of the framework (Martyn et al., 2016). Studies have mainly focused on the ICS and DCS levers. Only one measure exists for the beliefs and boundary levers. In contrast, there are seven different measures capturing ICS and two separate measures of DCS (Martyn et al., 2016). This lack of consistency in measurement of ICS within the existing body of empirical studies reflect the challenges associated with operationalising what is generally considered to be an obscure concept (section 2.7.4.3.1).

2.8 Conclusion

This chapter introduced the concept of control and proceeded to examine control at the organisational level. A number of control frameworks were discussed highlighting that there is no single universal conceptualisation of control; rather it has been interpreted in various ways. Furthermore, it is evident there is considerable overlap between the MCS frameworks. We expect this as authors naturally draw on preceding work in the domain and consequently MCS frameworks evolve over time. Section 2.7 describes Simons' LOC framework in some detail including: the evolution of the framework, a description of each lever and how the levers work in combination. A number of weaknesses associated with the LOC have been identified and section 2.7.4 provides further insights.

The control literature recognises the key role of MCS in directing and shaping actions towards the accomplishment of a range of firm's goals. Recent studies (Davila et al., 2012; Chenhall et al., 2013) stress the importance of MCS in enabling firms to attend to multiple logics concurrently. Managing tensions that naturally arise between competing logics underpins Simons' (1994, 1995) LOC framework. One of the weaknesses of the framework identified by prior studies (section 2.7.4) is that it only captures the operation of MCS from the senior management perspective. Prior research acknowledges that MCS have implications for all organisational participants. How each of the levers exerts an influence at lower hierarchical levels remains unclear. Examining how the LOC permeates through the organisational hierarchies would extend our knowledge of the framework.

In addition, prior literature (section 2.7.3) highlights the importance of the interplay between the four levers within the LOC. Empirical studies using the LOC have tended towards a reductionist approach focusing on one or two levers and/or particular control mechanisms. Evidence regarding how control mechanisms work in combination remains fragmented and this points to the need for further research which explicitly considers interdependencies (Grabner and Moers, 2013).

Middle Management

3.1 Introduction

This chapter reviews a number of key areas from the middle management literature. The chapter begins by briefly outlining an overview of management within contemporary organisations. This establishes three distinct levels of management and the remainder of the chapter concentrates on mid-level managers. The challenges associated with defining middle managers are discussed. The chapter proceeds to describe the strategic input of middle managers in organisations today. A discussion of tensions commonly manifesting at this hierarchical level follows. The chapter advances to consider the importance of middle managers in driving organisational performance. Section 3.4 proceeds to review how management control systems operate at middle management level. The implications of Simons' LOC (1994, 1995) for middle managers is then addressed which includes relevant empirical insights from prior studies. A brief summary brings the chapter to a conclusion.

3.2 Hierarchy of Management in Contemporary Organisations

It is widely acknowledged within the management literature that there are three distinct management levels: senior, middle and operational. Existing research recognises that managers at different hierarchical levels fulfil different roles and therefore exert distinct influences on firm outcomes (Glaser et al., 2015; Floyd and Lane, 2000). Senior managers represent the upper echelons of a firm's hierarchy and operate at a broad organisational level (McMullen, Shepherd and Patzelt, 2009). Their foci of attention relates to scanning the business

environment, formulating strategic priorities accordingly (Yang et al., 2010) and strategic decisions (Glaser et al., 2015; Amason, 1996) thus steering the organisation towards their future strategic agenda. Senior manager signal the need for change by communicating strategic intent (Hamel and Prahalad, 1989); however, according to Canales (2015), strategic intent is an abstract notion. Floyd and Lane (2000) identify the key tasks of senior managers: to make sense of the broader patterns that emerge from lower levels; ratify operational decisions; formulate performance standards and offer support to subordinate levels. They have little direct involvement in the day-to-day running of the organisation; rather they inspire, direct organisational attention, intervene when exceptions necessitate it, establish boundaries and worry about strategic uncertainties (Simons, 2005). Consequently senior managers may be characterised as having a very broad span of accountability, a formal power base (Collins and Clark, 2003), and limited attention (Simons, 1995).

In parallel, middle managers operate at a functional level (McMullen et al., 2009). They are primarily concerned with translating business strategy into actions (Yang et al., 2010) and controlling managerial problems (Thompson, 1967) through a two-way interaction with senior managers (Parsons, 1960). Consequently, mid-level managers are frequently depicted as a link between strategic and tactical levels (Simsek et al., 2015) as they coordinate strategic and operational levels (Floyd and Wooldridge, 1997). This implies a constant flow of information between operations and senior management (Glaser et al., 2015). While their span of accountability can vary, their primary focus is on executing organisation strategy (Mantere, 2008; Kuratko et al., 2005; Raes et al., 2011) as they concentrate on steering operational

levels towards those goals. In addition, they are responsible for specific actions that allow their organisation to interact in its environment (Canales, 2015).

Operational managers are often referred to as first-line or lower-level management. They are responsible for coordinating activities to accomplish tasks of a subgroup related to a specific functional area. Activities at this hierarchical level tend to be short-term in nature focused on realising tactical plans.

3.3 Defining the Term 'Middle Manager'

There is consensus among researchers (see for example Dopson and Stewart, 1990; 1993; Pinsonneault and Kraemer, 1993; Wooldridge et al., 2008; Ogbonna and Wilkinson, 2003) that defining the term 'middle manager' is problematic. This has resulted in varying usage of the term across different organisations (Ogbonna and Wilkinson, 2003) and consequently inconsistencies in definition result. This reflects the uniqueness of organisational structures and language that exist in practice.

Wooldridge et al. (2008) describes middle managers as '*individuals who are hierarchically located below top management and above the first line of supervision*'. This definition has been adopted by other researchers, for example Kauppila (2014) and Raes et al. (2011). Yammarino's (1994) characterisation of middle managers as simultaneous leader and follower has also been used (for instance Caughron and Mumford (2012) and Chun et al. (2009)). Other studies have defined middle managers based on their positional situation in the organisation hierarchy. For instance, Currie and Proctor's (2005)

case studies of the public hospital sector specified that middle managers must be located within the operational core of the organisation and have a minimum of two levels of staff reporting to them. This definition was in line with Smith (1997) and Staehle and Schirmer (1992). Ogbonna and Wilkinson (2003, p. 1175) claim that middle management is generally understood as "*those managers subject to management from 'above' at the same time as they manage those 'below'*".

Wooldridge et al. (2008) highlight that it is not middle managers' position in the organisation chart per se but their unique access to top management together with their understanding of operations that distinguishes middle managers. According to Nonaka (1994), this allows them to mediate between the day-to-day activities of the organisation and strategy. Therefore, middle managers may encompass: line managers, business unit heads, functional line managers, and both team and project executives.

3.4 Middle Managers' Contribution within Contemporary Organisations

According to Wooldridge et al. (2008, p. 1191), "*middle managers are central to explaining key organizational outcomes*". Currie and Procter (2005) point to a growing body of literature within the management domain which argues that organisational performance is heavily influenced by what happens at the middle rather than top levels of organisations. This implies that middle managers are key strategic actors essential for success of contemporary firms. For instance, Canales (2015) refers to literature (Noda and Bower, 1996; Floyd and Wooldridge, 1992), which argues that senior management is unable to

formulate a complete strategic plan without input from middle management. Other studies (for example Ouakoak, Oedraoga and Mbengue, 2014; Wooldridge and Floyd, 1990; Currie and Procter, 2005; Kumarasinghe and Hoshino, 2010; Ouakoak et al., 2014; Hambrick and Mason, 1984) substantiate middle managers' contribution to improved organisational performance.

The 1980's and 1990's brought increased global competition and an accompanying trend towards empowerment, which saw a shift in decision-making authority from higher to lower hierarchical levels. Managerial empowerment has been suggested as a route to improving corporate performance (Ogden, Glaister, Marginson, 2006; Carmeli, Schaubroeck and Tishler, 2011). Empowerment implies that middle managers now perform strategically significant roles that were previously confined to senior management (Langfield-Smith, 1997). Authors have identified a number of benefits associated with empowerment of middle management levels: increased firm commitment, stronger identification with corporate goals, and greater innovativeness (Ogden et al., 2006; Ezzamel et al., 1995). The following sections advance to offer a more in-depth analysis of middle managers' contributions.

3.4.1 Middle Managers as Key Organisational Linking Pins

Canales (2015) observes that middle managers, flanked between operational and senior managers, play a pivotal role in organisations. Because of this unique positioning, middle managers are commonly referred to as 'linking pins' translating senior managers' priorities into operating realities (Floyd & Wooldridge, 1997). Leadership theory suggests that each management layer influences adjacent levels (Yang

et al., 2010; Jacobs and McGee, 2001). This influence manifests strongly in the middle of a firm structure as research suggests that lower level employees are more receptive to middle manager influence than to senior management influence (Schaubroeck et al., 2007; Caughron and Mumford, 2012; Chun et al., 2009). This is important in the context of contemporary firms, as in practice the hierarchical distance between operational/lower level managers and senior managers diminishes the influence that senior managers can exert.

This implies that middle managers act as an intermediary influencing lower levels that those 'distant' leaders cannot reach. Middle managers thus act as transformational leaders inducing subordinates to transcend self-interest in the interest of the organisation resulting in favourable outcomes such as organisational commitment and elevated firm performance (Judge and Piccolo, 2004). According to House and Aditya (1997), this is accomplished through specific behaviours including: the articulation of a vision for the future and the communication of high performance expectations. In the context of multinational firms, characterised by geographical separation (Joshi et al., 2009; Gibson et al., 2007), this point appears to be even more pertinent (Yang et al., 2010). In their empirical investigation, Yang et al. (2010) report a strong positive correlation between middle managers' leadership and favourable job performance at lower levels. This underpins the key importance of middle managers in influencing organisational performance.

3.4.2 Middle Managers as Change Agents

"Entrepreneurial actions are viewed as critical pathways to competitive advantage and improved performance" (Kuratko, Ireland and Hornsby, 2001, p. 60). Large organisations must embrace change to cope with the competitive and uncertain environments in which they operate (Glaser et al., 2015). For that reason, organisations are increasingly reliant on middle managers to contribute to strategic change, creativity and innovativeness (Marginson, 2002; Bartlett and Ghosal, 1993; Dutton et al., 1997; Simons, 1995, 1999). Activities directed at these aims manifest in numerous ways. For instance, firms implement new technologies (Glaser, 2017), replicate best work practices (Gupta et al., 2015; Glaser, 2017), seek out radical innovations and exploit incremental product innovations.

Middle managers are regarded as pivotal to driving all forms of organisational change and their involvement is well recognised in the literature. As discussed in section 3.4, the 1980's saw a drive towards de-layering in organisations, which led to the elimination of many mid management positions. Burris' (1994) examination of Kodak, which abolished many middle management positions in the late 1980's, provides an interesting illustration of how this had detrimental effects on entrepreneurial activities. Subsequent to restructuring, innovation and creativity sharply declined, causing the company to lose significant ground to competitors in terms of technological advances with adverse consequences for firm performance.

Prior literature indicates that middle managers exert a multidimensional influence on emergent strategy. Firstly, middle managers are frequently the first to acknowledge the need for

divergence and take action to initiate change (Burgelman, 1991; 1994; Dutton and Ashford, 1993; Heyden et al., 2017). Kurotoko and Goldsby (2004) observe that they challenge organisational status quo and thus may propel the organisation in a new direction. For instance, Taylor and Helfat (2009) report that middle management have an important influence on organisational change in technology-driven organisations. They argue that middle managers are critical to the success or failure of technology transitions as they are organisational connectors. Their involvement in prompting change is attributed to their 'intimate exposure' (Heyden et al., 2017) to technological and market changes as a result of frequent external interactions.

Secondly, middle managers play a critical role in fostering initiatives from operational levels (Canales, 2015). According to Wooldridge et al., (2008), recognising and championing ideas proposed by frontline staff and supporting their entrepreneurial behaviour constitutes one of the pivotal middle management functions. Their function in evaluating and sponsoring initiatives (Ren and Guo, 2011) combined with the ability to mobilise resources accordingly (Marginson and Ogden, 2005; Dutton et al., 1997) provide the necessary momentum for innovation to thrive. Given that they are regularly exposed to the demands of external parties such as suppliers and customers, they are well placed to recognise the potential value of divergent initiatives (Floyd and Woodridge, 1997). Furthermore, they can draw on their knowledge of customers, operating capabilities and top management intent to exert an upward influence within the organisation. In his case study of telecommunications firms, Marginson (2002) finds evidence of middle managers supporting ideas and initiatives particularly when they

perceive that they will be well received in the current organisational climate.

Thirdly, middle managers are pivotal in driving initiatives proposed by senior managers (Canales, 2013). McCann et al. (2008) claim that it is beneficial for upper management to involve middle managers in the strategy formulation process. Their actions are central in the process of interpreting and giving traction to an organisation's entrepreneurial vision (Simsek et al., 2015) and thus are a medium through which a vision transforms into action.

3.4.3 Middle Managers as Implementors' of Deliberate Strategy

Realisation of organisational strategy is critical for optimal organisational performance (Noble, 1999; van Riel et al., 2009). Existing literature (for example Mintzberg, 1978; Nutt, 1987) acknowledges the challenges associated with strategy implementation because it is rarely straightforward (van Riel et al., 2009). Strategy implementation in contemporary firms is complex requiring multifaceted interactions and continual adjustments.

The significance of middle management is manifest in this context as they implement business goals set by senior managers (Yang, Zhang and Tsui, 2010). Strategy implementation is considered to be the traditional role of middle managers (Hope, 2010). This perspective is echoed by Raes et al. (2011) who contend that strategy implementation constitutes a significant part of middle managers' role behaviour as they are accountable for executing deliberate strategy. In this role, managers engage in convergent activities (Stensaker and Falkenberg, 2007) and it is thus characterised as top-down (Floyd and

Lane, 2000). Constituent tasks include: disseminating strategy to subordinates and monitoring conformance with top-down objectives (Mantere, 2008; Floyd and Lane, 2000). Mantere (2008) explores middle manager agency and identifies a number of conditions that enable individuals to fulfil the implementation role. Firstly, senior management narrate the thought process associated with selection of current strategy therefore providing a coherent link from past to present and a sense of incremental work progress. This enables middle managers to "*construct a meaningful pattern in the strategy*" (Mantere, 2008, p. 305). Secondly, contextualisation of top-down objectives supports the implementation role by providing a 'backbone' for daily activities. Resource allocation aligned with top-down objectives provides the implementation tool and is the third condition. Finally, respect from senior management for implementation activities demonstrates to middle managers that their efforts are both meaningful and valuable.

While middle managers commitment is crucial to successful strategy implementation, their role is frequently underappreciated (Guth and MacMillan, 1986). This is reflected by the scarcity of studies focusing on implementing strategy in comparison to a substantial body of literature examining middle managers contribution to change, entrepreneurship and innovation. This de-emphasis on the implementation role implies that it is assumed or taken as given. Given that it is considered to be the primary role of middle managers, this is somewhat surprising.

3.4.4 Typology of Middle Management Potential Strategic Influence

Floyd and Wooldridge (1992; 1997) propose a categorisation to systematise the span of middle managers' influence on strategy. Their widely cited typology, depicted below, is helpful to better understand role expectations placed on middle managers.

	Upward	Downward
Divergent	Championing Alternatives	Facilitating Adaptability
Integrative	Synthesising Information	Implementing Deliberate Strategy

Figure 3.4.4-1 Typology of middle manager strategic influence (Floyd and Woodridge, 1992)

Each of the four quadrants represents a potential type of middle management involvement in strategy: championing alternatives, facilitating adaptability, implementing deliberate strategy and synthesising information.

Floyd and Wooldridge (1992) draw on the work of Bower (1970) and Burgelman (1983) to explain how middle managers advocate new business opportunities thereby influencing and renewing corporate strategy. In this '**championing alternatives**' role, middle managers sell entrepreneurial and strategic initiatives and thus can potentially shape future strategy. The benefit to middle managers of participating in bottom-up promotion of ideas is that it potentially allows them more control over the future. This function is formally defined as "*the*

persistent and persuasive communication of strategic options to upper management" (Floyd and Wooldridge, 1992, p. 155).

'Facilitating adaptability' is defined as "*fostering flexible organizational arrangements*" (Floyd and Wooldridge, 1992, p. 155). Middle managers influence subordinate levels by supporting radical activities outside of top managements' formal expectations. They encourage subordinates to be alert for changing conditions, to experiment and to adapt work practices to the changing environment and thereby legitimise the development of work practices (Mantere, 2008). Senior managers may be unaware of these activities; they are often not sanctioned and may even be subversive requiring middle managers to seek out resources to foster emergent ideas.

Floyd and Wooldridge define **'implementing deliberate strategy'** as "managerial interventions that align organisational actions with the strategic intentions of executive management" (Floyd and Wooldridge, 1992, p. 155). Effectively they translate corporate strategy into action plans and individual objectives thereby implementing intended strategy. They report that this type of middle management activity is most prominent in their extensive fieldwork of middle managers across multiple organisations. Mantere (2008) concurs with this and argues that implementing strategy is the most typical expectation perceived at middle management level. Floyd and Wooldridge stress that a certain level of uniformity at middle manager level leads to horizontal consistency at operational levels resulting in improved organisational performance. They argue that without consistent downward influence from middle managers, 'coordination breaks down' and this will hamper the achievement of strategy. This implicates middle managers as central to the organisational control function aligning actions with

desired results. Floyd and Wooldridge (1994) emphasise that this is not merely a mechanical process, rather a highly complex series of actions:

"Even in fairly stable situations, priorities must be revised as conditions evolve and new information unfolds. Implementation, therefore, is best characterized as an ongoing series of interventions which are only partly anticipated by top management plans and which adjust strategic directions to suit emergent events."

Floyd and Wooldridge (1994, p. 51)

It is premised on middle management understanding both strategic rationale and specific directives; the link between the two facilitates effective strategy implementation. Thus, involvement in other strategic roles supports middle managers as strategy implementors.

In the final quadrant, **'synthesising information'**, middle management gather, interpret and report information to top management, which may form the foundation for future strategic change. This activity is defined as the *"interpretation and evaluation of information"* (Floyd and Wooldridge, 1992 p. 155) and offers the opportunity to influence senior managements' perceptions. Middle managers filter internal and external information, opportunities and threats relevant to strategy but importantly they give this information meaning *"through evaluation, advice and subjective interpretation"* (Floyd and Wooldridge, 1992 p. 155). This evokes the linking pin concept prevalent in the management literature.

Overall, Floyd and Wooldridge's framework is based on two principle dimensions, each of which is a contrast or a dichotomy. The first is the direction of the strategic influence on strategy formation. An upward influence is exerted through championing alternatives and synthesising

information, both of which contribute to shaping senior managements' perceptions. In parallel, a downward influence ensures organisational arrangements are aligned with strategic circumstances. The second dichotomy, integrative and divergent activity, is based on the cognition of ideas. Floyd and Wooldridge acknowledge that strategy is a change process thus demanding divergent ideas leading to change. This is achieved through championing ideas and facilitating adaptability. Drawing on Mintzberg (1979), they explain that strategy is also an integrated pattern requiring coordination to support a coherent direction. Synthesising information and implementing deliberate strategy represent integrative forms of middle managers' cognitive contributions. Floyd and Wooldridge explain why synthesising information is integrative (rather than divergent) as it "*combines ambiguous and diverse data*" (p. 155). Mantere (2008) observes that this framework is widely accepted and is regarded as incorporating most of the expectations that top management have of middle management.

3.5 Inherent Tensions at Middle Management Level

The preceding sections highlight the multiplicity of role expectations demanded of middle managers: manager, subordinate, linking pin, change-agent, strategy implementor, champion, corporate entrepreneur and synthesiser. Expectations are many and therefore it is not surprising that existing literature reports a broadening of responsibilities at middle manager level. Moreover, prior research observes that such diverse responsibilities impose conflicting demands at the individual level.

Yang et al. (2010, p. 657) observe that middle management are confronted by "*widened responsibilities and span of control*" often prompted by turbulence in the external environment. This view is consistent with McCann, Morris and Hassard (2008, p. 341) who refer to 'growing areas of responsibility' prompted by increased competitive pressures leading to increasing demands being placed on middle managers. In tandem, restructuring of large organisations often involving a delayering of middle managers was pervasive during the 1990's (Littler, Wiesner and Dunford, 2003; Littler and Innes, 2004; White et al., 2004; McCann et al., 2008). As Littler et al. (2003, p. 227) surmise, "*By the end of the 1990's there was a widespread 'flatter is better' school of management thought*". This has resulted in an 'intensification' of work for those middle managers that remain (McCann et al., 2008). Similarly Ogbonna and Wilkinson (2003) refer to studies (Dopson and Stewart, 1990; 1993; Worall, Cooper and Campbel, 2000) which provide empirical evidence of reducing numbers of middle managers, a wider range of duties and increasing strategic orientation.

The increasing breath of expectations results in individual-level tensions and challenges and these have been documented in prior literature. For instance, Bryant and Stensaker (2011) describe middle managers as both loyal implementors and change agents:

"Expecting middle managers to develop behaviors associated with change leaders while also expecting them to remain loyal implementers suggests that organizations may be reinforcing the middle management dilemma and placing new, and possibly unfair expectations upon individuals."

Bryant and Stensaker (2011, p. 356-357)

The analogy of middle managers as organisational linking pins (Floyd and Wooldridge, 1992) mediating between senior management and

lower organisational levels evokes the inherent tautness of the role. During interactions with top-level managers, middle management fulfils a dual role (Raes et al., 2011): representing their organisational unit while simultaneously being the accomplice of top management.

Middle managers wrestle between continuity and change (Huy, 2002), and this demands the balancing of strategic and operational. Balogun (2003) echoes this view, arguing that middle managers are expected to implement change while maintaining a 'business as usual' mind-set. Raes et al. (2011) lend further support, pointing to the importance of middle managers in managing the forces that drive continuation towards achievement of the current strategy and forces for change. These forces need to be balanced over time to ensure achievement of prior objectives while simultaneously being responsive to environmental change. In a similar vein, Glaser et al. (2016) remark that middle managers must exercise initiative while attending to day to day objectives. Sharma and Good (2013, p. 99) claim that middle managers by virtue of their hierarchical positioning are "*predisposed to the balancing of opposites*" and are able to navigate the accompanying challenges and tensions. Furthermore, their proximity to top management means they recognise the need to attend to multiple logics.

The extent to which individual middle managers will experience such tensions will vary. Most individuals identify with a principle logic (Pache and Santos, 2010; Sharma and Good, 2013). Therefore individual-level tensions may remain latent until such time as they are specifically triggered (Smith and Lewis, 2011) and must be confronted. According to Sharma and Good (2013, p. 100), tensions between

logics will only be felt if *"the manager juxtaposes the demands of both logics and infuses them with dual saliency"*. Thus, recognition of the salience for both logics is an antecedent for tension. They further argue that saliency is cultivated when a manager is embedded in contexts reflecting different logics.

3.6 Management Control Systems at Middle Manager Level

MCS research as it affects middle and lower levels of management is of increasing concern as control must extend and be embedded across all levels of the organisation (Otley, 1994). Moreover, the responsibility for successful achievement of business strategy, as set out by top management, lies in the hands of lower management levels (Nilsson and Rapp, 1999). Section 3.4 highlights the increasing trend towards empowerment of middle managers and this has implications for management control as Simons (1995, p. 163) emphasises:

"Most writing on empowerment fails to recognize that empowerment requires greater control. The control systems used, however, must balance empowerment and control in such a way that empowerment does not lead to a control failure, and correspondingly, control does not lead to an empowerment failure."

This might contradict what is expected with increased empowerment, but it does reinforce the importance of control at middle management level. Langfield-Smith (1997) argues that the traditional boundaries of control, proposed by Anthony (1965), are no longer relevant, while Otley (1994) suggests there should be less emphasis on senior management in MCS research as empowerment becomes more prevalent.

Hall (2010) highlights that much remains to be learnt about the role of accounting in managers' work. He observes that management

accounting research tends to focus on how managers use accounting information, rather than the influence it has. As section 2.2 discusses the purpose of MCS is to integrate energies of individuals towards the achievement of organisational goals (Hopwood, 1973; Emmanuel et al., 1990; Ouchi, 1979; Flamholtz, 1983). Consequently control cascades from the top echelons of a firm down through the hierarchical levels to shape employees behaviours. In particular, top management rely on MCS to give direction to the organisation on the goals and targets that must be achieved and as a result, MCS have implications for all organisational participants (Flamholtz, 1983). This raises an important distinction that at middle management level MCS, may relate to 'control of' (middle managers are controlled by senior managers through MCS) and/or 'control by' (middle managers use MCS to exert an influence over their subordinates). In practice it is difficult to clearly disentangle the two forms; this study focuses on how MCS are used to exercise 'control of' middle managers.

Section 3.4 highlights the central role of middle management in achieving a broad range of organisational outcomes. As they are critical to firm success, the implications of control at this highly significant level is a key concern for researchers.

3.7 Implications of the LOC at Middle Management Level

Section 2.7 explains how, through use of four levers of control, senior management manage organisation level tensions to realise firm strategy. This implies that each of the levers of control potentially exerts an influence on middle manager activities as illustrated in 3.7-1 below. The following section draws on existing literature to theorise how this influence may manifest in practice.

A key criticism of the LOC framework is that it only considers the perspective of senior managers (section 2.7.4) and the vast majority of empirical studies using the framework concentrate on this organisational level. This limits our understanding of how the levers influence and guide activities below senior management, albeit that this is beyond its original intention but nonetheless important in the context of contemporary firms.

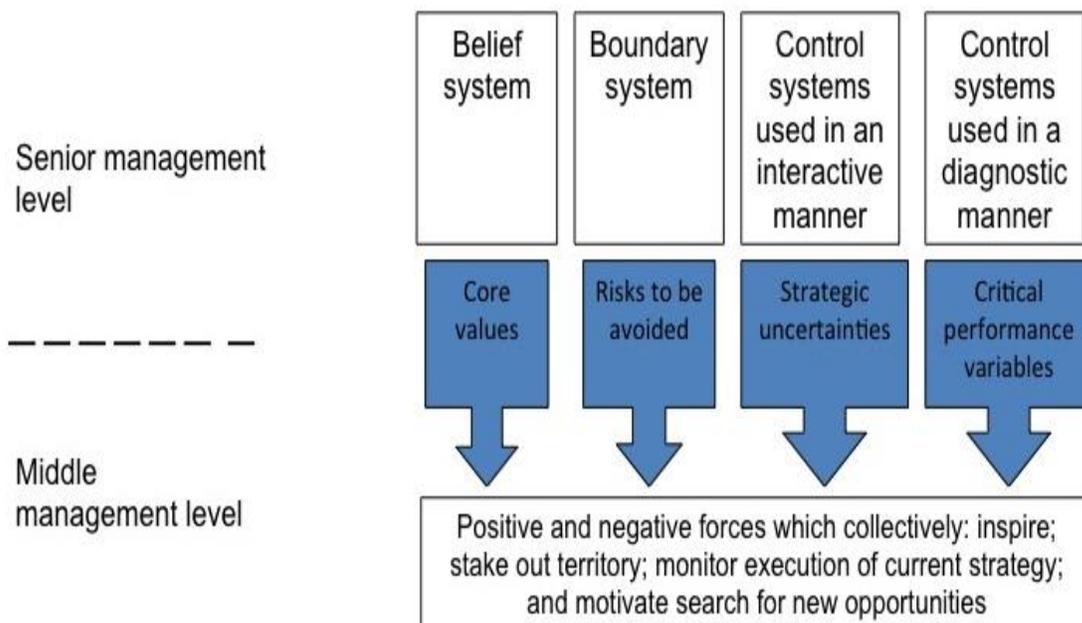


Figure 3.7-1 The LOC cascading to middle management level

A small number of studies have explicitly focused on middle managers (Marginson, 2002; Marginson, McAulay, Roush and van Zijl, 2014) and relevant findings are included within the following sections. While other papers draw on data collected from employees below senior management level without necessarily specifying participants hierarchical positioning, it is likely that they fulfil the definition of middle management. For example, Tuomela's (2005) study

participants include domestic sales manager and commercial manager, while Mundy's (2010) interviewees comprise of individuals straddling strategic and operational levels. As a result, important findings emerging from these studies are also included in the subsequent discussion. One point of interest is that almost all of the studies included are single case studies; given the nature of this methodology, the scope to generalise findings beyond the particular case setting is constrained.

3.7.1 Beliefs Systems at Middle Manager Level

"The ultimate responsibility for forming a vision rests with top-level executives. An effective entrepreneurial vision allows affected parties to focus on critical tasks as they pursue organizational and personal objectives. A meaningful vision is sensible in employees' eyes, is easily understood, suggests a higher calling, and creates a cultural glue that binds people together in ways that help them share knowledge in competitively relevant ways. Moreover, in the global economy, the most effective vision highlights a firm's commitment to product, process, and market innovations. "

(Kuratko, Ireland and Hornsby et al., 2001, p. 62)

Thompson (1967) stresses the importance for organisations of establishment of purpose; this refers to way in which shape and meaning is given to patterns of activity across the organisation (Berry, Broadbent & Otley, 2005). Without a sense of purpose, an organisation will not survive as a viable entity. But contemporary organisations are increasingly diverse, complex and dynamic in both nature and structure. In such rapidly changing contexts, Simons (1995) observes that individuals may find it difficult to understand firm purpose and direction. To counteract this, senior managers use beliefs systems to inspire, create momentum, establish a sense of direction, and provide guidance on how value can be created. This is achieved through "the

symbolic use of information" (Simons, 1995, p. 36) in organisational mission statements, value statements and credos. Section 2.7 highlights how beliefs systems are 'intentionally vague' to appeal organisation-wide. Marginson (2009) draws attention to the lack of concrete guidance and high levels of abstraction associated with interpretation of values espoused by beliefs systems. In an effort to overcome the inherent vagueness, Marginson found that senior managers were compelled to adopt a tiered approach that included detailed guidance on appropriate individual level behaviours. Similarly, a study by Mundy (2010) illustrates how senior managers used beliefs systems as a mechanism to frame strategic goals within organisational values. This enabled employees to better understand how strategic goals aligned with firm values. Simons (1995) specifies that individuals need to commit to firm purpose and values on their own terms while Marginson (2009) refers to this process as 'internalisation of espoused values'. Frow et al. (2010, p. 457) report from their case study how senior managers placed considerable emphasis on ensuring individuals understood firstly the overall firm direction, and secondly, *"demonstrating to each individual how their own contribution impacts on the organization's ability to achieve its goals"*. However, they failed to specify how this was achieved in practice. Evidence offered by these studies provides useful insights but much remains to be learned about how key messages, characterised as vague and symbolic, conveyed by beliefs systems are interpreted at the individual level. Moreover, the potential usefulness of beliefs systems is contingent upon individual interpretations within the context of their own roles and responsibilities.

Addressing the role of middle managers, Simons (1995) emphasises the pressing need for middle managers to understand organisational

beliefs; otherwise he cautions, they "*will not become enthusiastic participants in the search for opportunity*" (p. 37) or translate organisation values into actions and strategies. Similarly other researchers (Kauppila, 2014; Wooldridge et al., 2008) have noted that middle managers' sense making and interpreting processes determine which initiatives and opportunities they support from grass roots and which they opt to discourage. In addition, Kauppila (2014, p. 758) highlights "*... the way in which the middle managers put a planned strategy into action depends on how they interpret and understand the top manager's plan*". Simons further stresses that core values communicated by beliefs systems must be designed to provide guidance on how to make difficult decisions and whose interests to put first (Simons, 2010). These points further underscore the importance of interpretation of core values especially in the context of devolution of strategically significant roles to middle management (section 3.4), as Simons (2000, p. 207) points out:

"To achieve financial and nonfinancial goals, managers must rely on the efforts and initiative of employees. Employees throughout the organization must understand the business's strategy and their role in achieving strategically important goals."

Simons draws attention to the fact that the benefits of beliefs systems manifest through discussions relating to core values rather than from the wording of the formal documents themselves. Consequently, allowing opportunity for discussions is a vital dimension to improve comprehension at the individual level. Research conducted by Van Riel et al. (2009) establishes a positive relationship between strategically aligned middle management behaviour and the perceived senior managements' efforts to inform them about the strategy, the rationale for it and their role in implementing it. They report that strategically

aligned behaviours consist of two types of individual level behaviours: firstly task performance defined as activities which support/contribute to transform inputs into outputs; secondly, activities that support the social and psychological organisational context, referred to as contextual performance. Their findings are interesting as they provide empirical evidence to suggest that beliefs systems can potentially directly influence middle managers' behaviours. It also highlights that continual reinforcement of organisational purpose and core values is necessary for beliefs systems to affect behaviours.

One of the intended outcomes of beliefs systems is that they should inspire employees (Mundy, 2010; Bruining et al., 2004; Simons, 1995; Marginson, 2002). Mundy (2010) describes how beliefs systems played a central role in motivating and inspiring lower level managers to work towards their departments' goals. Similarly, Frow et al. (2010) provides a description of how beliefs were used to gain commitment to key strategic goals, while Marginson and Bui (2009) highlight the role of beliefs system in creating a 'general climate' allied with organisational aims.

Prior studies have established that beliefs systems play a central role in driving organisational change (Bruining et al., 2004; Mundy, 2010) and a small number of studies have considered this at the middle management level. Marginson's (2002) study illustrates how the intensive use of beliefs systems by senior managers to engineer a change of organisational mindset exerted a significant effect on middle managers. The revised values empowered middle managers to actively pursue ideas and initiatives. Being associated with successful ideas was perceived as strategic behaviour. Ironically, it appears the beliefs

systems change of mindset was too successful, as middle managers deemphasised routine work such as customer relations, resulting in adverse ratings. A study conducted by Heinicke, Guenther and Widener (2016) observes a positive correlation between emphasise on a flexible culture and emphasize placed on beliefs systems.

Simons' writing on beliefs systems infers there is a single set of organisational level core values. As noted earlier, organisational structures are complex with quite diverse business units suggesting that distinct purposes and indeed cultures may exist within the same organisation. We tend to perceive organisations as having a homogenous dominant culture (Gordon, 1991; Malmi and Brown, 2008) aligned with senior management perspective (Langfield-Smith, 1997). However, it is claimed that many organisations are likely to have diverse subcultures (Dent, 1991; Clegg, Kornberger and Pitsis, 2005; Robbins, 1995). Organisational subculture is defined by Van Maanen and Barley (1984, p. 38) as:

"A subset of an organisation's members who interact regularly with one another, identify themselves as a distinct group within the organisation, share a set of problems commonly defined to be problems of all, and routinely take action on the basis of collective understandings unique to the group."

Subcultures can evolve relating to functional differentiation (Subramaniam and Mia, 2003) or organisational units (Malmi and Brown, 2008). They develop when individuals are exposed to a socialisation process to inculcate a specific set of values (Malmi and Brown, 2008). There is increasing recognition that while subcultures may display some parallels, it is also possible that disjointed and inconsistent perspectives may emerge within an organisation (Langfield-Smith, 1997). The preceding arguments suggest that beliefs

systems may in practice be more varied than the organisational-level manifestation proposed by Simons. Furthermore, it is likely that different functional areas will place more emphasis on specific aspects of core values and purpose while deemphasising others.

One unexplored aspect of beliefs systems relates to how it may be mobilised to manage individual level tensions commonplace at middle management (section 3.5). At an organisational level, paradox researchers (Lewis and Smith, 2014; Lewis, 2000) propose that organisations should adopt a 'both/and' view rather than 'either/or' perspective when faced with competing demands such as innovation and predictable goal achievement. Of relevance in examining beliefs systems is Smith and Tushman's (2005) argument that strategic contradictions can be managed through cognitive frames or mental templates which help foster both/and logic rather than either/or and thereby "*accept the simultaneously existence of contradictory forces*" (p. 526). Furthermore, they point out that corporate values are a form of cognitive frame and thus are a mechanism to promote seemingly conflicting agendas.

3.7.2 Boundary Systems at Middle Manager Level

In contemporary organisations, individuals must be encouraged to exercise initiative as this contributes to organisational effectiveness (Grant and Ashford, 2008). However "*taking initiatives is a risky endeavour that often has unpredictable consequences*" (Glaser et al., 2016 p. 1,342). Glaser et al. further argue that this is especially salient at the middle manager level, as they are expected to both foster new opportunities identified by subordinates and advance initiatives from the top (Wooldridge et. al., 2008). Section 2.7.2.2

described the role of boundary systems in allowing individual-level creativity to take place within defined parameters. To briefly recap, boundary systems are configured in two ways. Firstly, codes of business conduct are designed to protect firm reputation by establishing proscribed standards of behaviour. Secondly, strategic boundaries limit excessive opportunity seeking to avoid wasteful usage of firm resources. Both types of boundary systems are applicable to middle manager level.

Regarding strategic boundaries, the implication for middle managers is that a focused domain for search activity is clearly set out. This implies that boundary systems are important in the context of middle managers involvement in emergent strategy and particularly their championing initiative role. Simons (1995 p. 41) states that strategic boundaries *"allow [senior] managers delegate decision making and thereby allow the organization to achieve maximum flexibility and creativity... a prerequisite to organisational freedom and entrepreneurial behavior"*. The corollary being within these predefined limits, middle managers have autonomy to explore new opportunities. Research conducted by Tuomela (2005) illustrates how boundary systems directed individuals towards selected suppliers and preferred key clients. A study by Kruis, Speckle and Widener (2016) reports differences, at organisational level, of prominence and emphasis of the boundary lever use depending on firm strategic position. In contrast, Widener (2007) fails to find a positive association between extent to which firms are confronted with strategic risk and the emphasis placed on boundary systems. While prior research results are inconsistent in respect of the individual middle manager level, one would expect that individuals occupying roles with a higher degree of uncertainty such as

R&D and sales would experience a more pronounced manifestation of boundary systems. As noted by Sarre, Doig and Fiedler (2001) (cited in Arjalies and Mundy, 2013), engagement in certain behaviours by organisational participants can potentially have a detrimental impact on organisational earnings and at an extreme, cause firm failure. It thus appears likely that boundary systems manifest in more pronounced ways for middle managers with greater involvement in championing initiatives.

With regard to business conduct boundaries, Simons (1995) contends that generally individuals will actually favour codes of conduct. Usually they will align with people's own personal standards and offer protection to individuals faced with ethical dilemmas. Prior studies report that business conduct boundaries are increasingly important when risk of non-compliance is high (Arjalies and Mundy, 2013) or in firms where risks of reputational damage is high (Kruis et al., 2016; Arjalies and Mundy, 2013). For this reason, I predict that middle managers occupying roles, which entail significant external interactions, will be more strongly associated with business conduct boundaries. Additionally, middle managers employed in industries where reputation is highly prized will be subject to more rigorous business conduct boundaries. In his description of business conduct boundaries, Simons (1995) also refers to industry standards and professional regulations. This is of particular relevance to middle managers who frequently are the closest in proximity to industry and professional bodies within their functional domain.

3.7.3 Control Systems Used in a Diagnostic Manner at Middle Manager Level

There is consensus within the middle management literature that the main thrust of middle managers energies are directed towards implementing existing strategy (see for example: Mantere, 2008; Raes et al., 2011; Caughron and Mumford, 2012). Traditional controls such as budgets, variance analysis and costing systems are well suited to managing pre-set goals and critical success factors associated with implementing existing strategy. Hence it would appear that the characteristics of DCS (section 2.7.2.3) are well matched to support the routinised nature of the implementation function. For example, Marginson (1999, p. 222) refers to KPI's regulating work on a day-to-day level for lower levels: "*meaningful regulators of their day-to-day (shorter-term) performance*".

Traditional forms of controls such as budgets and costing systems have been extensively explored within the general accounting literature. In contrast in the context of the LOC literature, DCS has tended to be underemphasised, relative to ICS. This trend also extends to the management domain; Raes et al. (2011) observe a distinct lack of attention towards strategy implementation. However, as Simons (1995, p. 89) stresses, "*...organizations cannot function without diagnostic control systems*"; he describes them as ubiquitous and the mechanism that link intended strategies to lower level goals.

Simons (1995) posits that DCS enables senior managers to conserve their limited attention by confining their input to one of oversight and management by-exception. One important inference of this is that DCS

is the mechanism to allow delegation of responsibilities to lower levels upon whom the burden of accountability falls. Drawing on the work of Argyris (1990), Simons (1995, p. 87) warns that dysfunctional consequences may arise as individuals "*become overzealous in searching for errors and shortfalls*" resulting in defensive routines. He further argues there is a possible punitive dimension to DCS for middle managers if they fail to deliver on budgetary targets. He cites Merchant (1989) to reinforce this point noting that they may lose credibility with consequent impacts on their promotion prospects, ability to secure organisational resources, and loss of autonomy if senior managers need to intervene. Thus, one of the key design characteristics of DCS is that senior managers only become involved when there are significant exceptions. Frow et al. (2010) provide a rich description of how issues escalate in practice. They suggest the implications of escalation are multi-faceted for lower level managers. On one hand, they perceived it as a resource to draw on when confronted by difficulties but at the same time it was clear that it must be used sparingly. In addition, their findings indicate that it was incumbent on managers to demonstrate that they had fully explored options to resolve any problems that arose. Consequently, individual managers were not only accountable for their targets; they were also held responsible for actions taken to solve issues. Frow et al.'s (2010) findings are interesting in the context of middle managers, albeit based on a single case study, as they highlight some of the challenges associated with delivery of reasonably routine expectations (section 3.4.3). In addition, findings suggest that expectations devolved to middle management through DCS are more complex and multifaceted than what is suggested in Simons' writings.

Within a single case study, Marginson (1999) observes that a willingness to take ownership of KPIs and departmental targets was expected from line managers. This also implied responsibility to 'deliver' and this expectation was formed "*on the basis of shared expectations or unwritten rules*" and that individuals "*upheld his part of the deal*" (p. 223). Further, Marginson reports that it was accepted that individuals could seek and receive assistance from peers when necessary. At the individual level, his findings pointed to a dominance of social controls evidenced through "reciprocity of dependence" and "mutual accountabilities" creating an expectation of achievement. The implications for self and colleagues of failing to deliver were clear. Consequently significant time and attention was given to issues to 'clear problems' to ensure delivery. The preceding argument implies that it is very likely that middle managers experience pressures of mutual accountabilities in their efforts to deliver on critical success factors associated with DCS. Moreover, the nature of this task potentially binds middle managers together to work towards this common goal.

In the context of multinational organisations, middle managers frequently occupy senior roles within their subsidiary organisation and thus the subsidiary mandates are relevant. Birkinshaw (1996, p. 467) defines subsidiary mandate as "*a business, or an element of a business, in which the subsidiary participates and for which it has responsibilities beyond its national market*". He highlights that mandates are dynamic phenomena transforming over time (Galunic and Eisenhardt, 1995). Significantly, there is consensus within existing mandate research that mandates are earned by subsidiary management and not bestowed by corporate level management

(Crookell and Morrison, 1990; Birkinshaw, 1996; Birkinshaw, Hood, Jonsson, 1998). To better understand the processes around subsidiary mandates, Birkinshaw (1996) analysed the factors associated with the gain, development and loss of mandates in Canadian subsidiaries. The study underlines the importance of subsidiary capabilities and efficiencies as a driver of subsidiary mandates. One importance inference that can be drawn from Birkinshaw's findings is the potential role of the LOC, and more specifically DCS, as a vehicle to articulate and affirm subsidiary capabilities and efficiencies to parent. Moreover, Birkinshaw et al. (1998) note that corporate managers rely on productivity measures to identify high performing subsidiaries. In addition, studies have established that meeting commitments results in increased visibility from corporate (Birkinshaw et al., 1998) and enhanced subsidiary credibility and reputation (Dorrenbacher and Gammelgaard, 2016). This indicates that achievement or non-achievement of critical success factors managed through DCS may have implications for the future direction of the subsidiary and that middle managers can potentially exert a significant influence in this regard.

As organisations become increasingly complex (Kauppila, 2014), roles and tasks have become more abstract (Wong et al., 2007). This has implications at the individual level; employees need clear roles to identify with both the organisation and its associated goals (He et al., 2008). For this reason, the way in which roles are conveyed to individuals is an important managerial concern. Budgets are commonly used to delegate tasks: "*budgets can offer structure and certainty in situations of high ambiguity and uncertainty*" (Marginson and Ogden, 2005, p. 450). Marginson and Ogden contend that this is positive for individuals' workplace experience. The rationale for this being that

people are naturally 'pulled' towards visible measures and wish to appear competent against such measurable performance criteria (Johnson and Gill, 1993; Van der Stede 2000). Ogden, Glasier and Marginson (2006) echo this perspective as they observe that managers may prefer the certainty of working within established procedure and methods. The foregoing suggests that middle managers will potentially respond in a positive way to the measurable outputs specified through DCS.

3.7.4 Control Systems Used in an Interactive Manner at Middle Manager Level

Senior management must be able to adapt their organisation within a continually changing environment and this is contingent upon focusing managerial attention on appropriate issues (Ocasio, 1997; McMullen et al., 2009). By using control systems in an interactive way (section 2.7.2.4), senior management stimulate the emergence of new initiatives and strategies (Simons, 1995) and this is closely associated with strategy formulation. Highlighting middle management's role in strategy formulation, Canales (1995) observe that the strategy-formulation process is an organisation-wide phenomenon, neither the sole responsibility of senior managers nor a bottom-up only process. Bottom-up knowledge inflows serve to provide top management with an enhanced understanding of changes in existing technologies, products, processes, and markets and with increased knowledge of new or emerging technologies, markets and customer needs (Brady and Davies, 2004; Burgelman, 1983; Floyd and Lane, 2000; Mom et al. 2007). In practice, strategy making is the product of interaction between organisational levels.

A key focus for middle managers is surveying their external environment and this represents an ongoing activity. Both the MCS and the middle management literature recognise the importance of this. For instance, Simons (1995) makes reference to continuous search activity. Similarly, the middle management literature refers to this as competitive intelligence relating to the detection of external threats to current and future organisation interests (McMullen et al., 2009; Schneider, 2006). In this role, individual managers identify information relevant to their own function or task domain and are thus in a perpetual state of vigilance to threats and opportunities. As Floyd and Wooldridge (1990) observe, middle managers are often first to recognise potential strategic issues (section 3.4.4) because of their frequent external interaction. Furthermore, time is a very limited commodity for senior managers and in a context of competing demands they cannot attend to all strategic issues in contrast to middle management who have more time available to devote to specific issues. In addition, middle management possesses the requisite local and technological expertise (Mom et al., 2007) to make sense of the issue. Middle managers therefore constitute a significant resource to facilitate knowledge of the competitive landscape that would not be feasible for senior management alone (McMullen, et al. 2009) and are central to shielding the organisation from and mitigating competitive threats together with recognising opportunities. Shepherd et al. (2007) contend that without middle managers' attention to potential threats, senior management risk falling into strategic myopia.

In identifying strategic uncertainties and choosing to use a control system in an interactive way, senior managers signal the importance of a particular issue. Senior management may then draw from this

pool of competitive intelligence information gathered by their middle managers when deciding on the course of action the business will take. Alternatively, identification of a previously unknown opportunity or threat may focus attentions in a new direction. This will activate new information gathering routines at mid management level whereby managers will have to seek out new intelligence and formulate revised action plans in response. Simons (1995, p. 121-122) explicitly highlights the involvement of middle management in facilitating the ICS process:

"Middle management are especially important in making the interactive control process work effectively. Middle managers are key nodes of the information network that reveals senior management's concerns and moves newly collated information up, down, and sideways in the organization."

Mundy's (2010) empirical findings are consistent with this perspective. She describes a two-way process through which senior managers seek localised information from subordinate managers, which forms the basis for debate and discussion.

In his description of ICS, Simons (1995) claims that senior managers drive the process and that subordinate levels follow their lead. Literature from the middle management domain hints that middle managers may play a more dynamic role. Indeed in practice it is arguably more likely that middle managers are the first to detect the strategic issue (Floyd and Wooldridge, 1990) and they may actively seek out senior management involvement. In this scenario, the involvement of middle managers might be described as an act of persuasion in a bottom up process rather than mere 'facilitator' suggested by Simons.

In attempting to resolve the strategic uncertainty confronting the organisation, top managers "*build internal pressure*" (Simons, 1995, p. 122). Senior managers challenge assumptions and action plans, play devil's advocate, engage in debate and discussions, all of which demand new perspectives and alter the status quo of subordinate levels. Simons observes that subordinates quickly become aware of the importance of information generated by a control system used in an interactive way including personal consequences for themselves. Meeting the information demands of senior management intensifies workload and represents a massive gearshift for those involved. These demands must be met while also delivering on prevailing commitments.

While it is well recognised in the literature that ICS demand significant time and attention from senior managers (Bisbe & Otley, 2004; Widener, 2007; Mundy, 2010), the inputs of middle managers have been rather overlooked. Tuomela (2005) empirically confirms, based on data collected from middle managers during longitudinal single case study, the workload costs associated with ICS participation for mid level managers. There were two dimensions to this: firstly, the cost associated with dedicating time to preparing the necessary information; and secondly, the time devoted to discussing and debating with senior management. Some study informants expressed frustration at the extra burden of work and were concerned about time away from their day jobs. Findings emerging from Mundy's (2010) case study also reports that ICS redirected attentions from routine activities. She observes that this has a destabilising effect on individuals at below middle management level and can create an environment in which continual change is expected.

One of the characteristics of ICS is that there is an emphasis on learning (Simons, 1995). The very nature of strategic uncertainties means that they present problems for which resolutions must be found. Resolving problems involves dealing with unstructured information, decisions tend to be nonroutine and thereby uncertainty is accentuated (Galbraith, 1977). According to Argyris and Schon (1978), this stimulates learning for those involved. Tuomela (2005) highlights the learning potential of balanced scorecards and argues that their use interactively stimulates learning. Individual managers had an enhanced understanding of both strategy and the key cause-and-effect relationships necessary to drive sales growth. These findings support the perspective that ICS facilitates learning at the individual manager level.

Simons (1995) specifically draws attention to possible adverse consequences of involvement with ICS for those below senior management level. For instance, the intense interest and participation of senior management may be perceived as threatening. Furthermore, the nature of the ICS process implies there will be a high level of scrutiny and challenge. He observes that this may result in subordinate levels simply echoing top managers' perspectives and defensive behaviours. Tuomela's (2005) findings are consistent; he reports potential for interactive use to be viewed as threatening as it amplifies visibility and accountability at the individual level. He provides an account of one study participant deliberately not attending meetings to avoid critical scrutiny. In a similar vein, Vaivio (1999) finds that ICS creates a very public type of responsibility and the attention that ensued was not always perceived as positive.

One additional challenge of involvement in ICS, perhaps overlooked by Simons, is the ambiguous nature of both the process and the information used and the challenges this poses for middle management. For example, Mom et al. (2007, p. 915) emphasise this point in their description of bottom up information flows which form an integral part of ICS:

"...do not follow these standardized and formalized paths in an organization, rather they come about in ad hoc, random, unpredictable, and reciprocal interactions between the knowledge donor and knowledge recipient (Burgelman, 1983) and typically demand qualitative rather than quantitative changes of existing activities (Sanchez and Heene, 1996)".

While the knowledge flows are ambiguous, it is necessary for middle managers to facilitate top managements' decision making by interpreting and making sense of abstruse information.

It is likely that involvement in ICS may have positive career consequences. For instance Mom et al. (2007) reports a positive relationship between the extent that managers supply knowledge to senior managers and engagement in exploration activities. One factor that might potentially influence positive career influence is the individual's middle manager's level of tolerance for ambiguity. Those with a higher tolerance for ambiguity on an individual level may be able to engage better with control systems used in an interactive way.

3.7.5 LOC and Tensions at Middle Manager Level

At an organisational level the requirement for creative innovation while attaining predetermined targets creates 'countervailing forces' (Simons, 1995). Simons contends that the tension between predictable goal achievement and creative innovation is natural for an organisation and

effective MCS can turn this tension into profitable growth. The ambidexterity literature echoes the organisational level tensions to which Simons refers. At the firm level, ambidexterity is defined by Bonesso et al. (2014) as a firm's capacity to pursue two apparently conflicting sets of activities: exploiting existing capabilities (exploitation) and exploring new opportunities (exploration). The literature refers to this as the exploration-exploitation dilemma which challenges firms to get the most from the current situation while at the same time exploring possibilities for future improvements (Laureiro-Martinez et al. 2010). The conflict between the two is difficult for firms, as one tends to drive out the other. Excelling at both represents the ideal organisational outcome (Andriopoulos and Lewis, 2009). In both bodies of literature, tensions are usually studied at the firm or business unit level. How these tensions impact at the individual level have received far less attention.

Research conducted by Marginson (2002) reports that the way control systems are used by senior managers influences middle managers' perception of their role with respect to innovation and efficiency within the organisation. These findings illustrate that MCS have a role in determining by whom and where innovation happens. He reports a polarisation of roles between those who enable innovation to happen by minding the shop and focusing on predictable goal achievement (termed "enablers") and others (termed "entrepreneurs") who are permitted to concentrate on innovative-related activities. Marginson further argues that the polarisation of roles was an intentional response on the part of individual managers "*driven by the need to balance the tension between innovation and control throughout the firm*" (p. 1,025). Similarly, Marginson and Bui (2009) argue that middle management levels experience these countervailing forces

intensely. If strategy signals the need for both creative innovation and achievement of predictable goals simultaneously, then middle management must somehow divide their energies between these contradictory demands. Tensions between short and long-term objectives will result (Marginson et al., 2010).

While the LOC focuses on firm level tensions, much of the middle management literature elaborates on pressures and tensions that emerge at the middle management level (section 3.5). The distinction between creative innovation and predictable goal achievement discussed in the LOC literature perhaps has limited applicability in the context of middle managers. Given the breadth of roles this hierarchical level are expected to fulfil (section 3.4), it appears more likely that tensions manifest more closely than in the dichotomy presented by Simons. For instance, it seems quite likely that conflict might arise between implementing deliberate strategy and facilitating adaptability roles and likewise between championing alternatives and facilitating adaptability roles.

3.8 Summary and Conclusion

This chapter commenced with a discussion of the hierarchy of management in contemporary organisations (section 3.2). This was followed by a review of the term 'middle manager' and its meaning in contemporary firms (section 3.3). Section 3.4 proceeded to elaborate on the wide-ranging and significant contributions of middle management. The challenges and tensions encountered by middle managers were discussed in section 3.5. This was followed by a review of management control systems at middle management level. Also

included was a review of the LOC specified by Simons (1995) with an emphasis on their application to middle managers.

Chapter 2 emphasises the role of MCS in driving firm activities towards the accomplishment of organisational goals. Firm success is contingent on an ability to give due regard to both long-term and short-term logics. Prior research suggests that MCS are useful in managing such competing demands (section 2.6). One particular MCS framework, the LOC, focuses on managing tensions through the use of four control levers (2.7.3). Within the LOC literature, focus has been placed on elaborating the challenges for senior managers as they work to harness energies to support the delivery of both long and short-term agendas. While the importance of understanding senior managements' perspective is well considered, less attention has been given to the next hierarchical level (section 3.6). However, each of the levers has consequences (section 3.7) for all firm participants including mid level managers and previous research only provides us with a partial account of how this manifests in practice.

In contrast to the management control literature, research from the management domain emphasises the immense impact the middle manager layer exerts on organisational performance. An organisation's goals and strategies are realised through individual-level initiatives and actions, and prior research has extensively documented middle managers' contributions in that regard (section 3.4). Prior research confirms that middle managers are accountable for the implementation of current strategy and simultaneously they cultivate many forms of changes within firms. Given the breadth of expectations that middle managers must attend to, it is to be expected that tensions between

different requirements will emerge. Understanding how the LOC drives their actions and manages tensions between competing demands is important.

My study seeks to draw together these two largely distinct bodies of literature to extend our understanding of how management control systems guide middle manager actions. In doing so, it begins to examine the micro-practices that unfold everyday in contemporary organisations and contributes to *addressing "the lag before practice is incorporated into theory"* (Otley, 1994, p. 107). The next chapter sets out the specific research questions addressed in this study along with the research method.

Research Methodology

4.1 Introduction

This chapter commences by developing the research objective and questions, which guide the research design and selection of data collection methods. Section 4.3 presents a discussion of the philosophical assumptions underpinning this study. This is followed by an overview of the literature relating to quantitative and qualitative approaches (section 4.4). Section 4.5 presents an overview of data collection methods. This is followed by an outline of the design of the study (section 4.6). An in-depth account of the data collection methods employed is provided in section 4.7. Finally, the method used to code, analyse and write up findings based on the empirical data is discussed in section 4.8.

4.2 Research Objective and Questions

Based on a review of the management control literature (Chapter 2) and the middle management literature (Chapter 3), a broad research objective is formulated which is to provide a better understanding of how the LOC operate at middle manager level. The significance and necessity of achieving multiple outcomes in organisations was discussed in section 2.6. Challenges associated with their simultaneous achievement were also examined. MCS have an important role in directing attention towards a variety of organisational agendas. Moreover, the middle management literature suggests that organisational outcomes are primarily driven by the actions of middle managers. However, this level has been given relatively little attention

in the MCS literature (Martyn et al., 2016). Given the importance of the middle management to organisational performance, it is valuable to study how controls operate at this very salient hierarchical level. The general objective of this study is to investigate the how management control systems, conceptualised through the LOC direct middle managers in the achievement of multiple strategic roles. In this context, the LOC is used as an explanatory framework and the intention is therefore not to develop or test theoretical assumptions underlying the framework. This led to the development of three research questions, each of which is justified in the subsections below.

Middle managers are traditionally associated with implementing deliberate strategy (Hope, 2010; Currie and Proctor; 2005). Empirical studies (for example Mantere, 2008) have confirmed that the expectation to implement strategy is the most typical expectation senior managers have of middle management. This convergent activity sees middle managers translating broad corporate strategy into action plans, individual objectives and behaviours. In this way, middle managers are key drivers of organisational effectiveness. They provide a critical downward influence to the operational level resulting in consistent performance necessary for sustained organisational performance. It is widely accepted that MCS have a useful role in achieving predictable goals associated with deliberate strategy and many of the traditional control systems such as budgets and costing systems are focused on efficiency and predictability. While the middle management literature clearly recognises the importance of middle managers in the achievement of deliberate strategy, the MCS literature as highlighted in section 2.7.4 has directed limited attention to their contribution. For that reason, this study seeks to provide a

detailed account of how the LOC directs middle manager activities towards implementing deliberate strategy. Thus research question one is formulated as follows:

RQ1 *How do the levers of control influence middle managers' role in implementing deliberate strategy?*

Organisations have become more global, fast paced and competitive (Smith and Lewis, 2011) and consequently contemporary organisations that wish to be viable in the long term must seek out continuous improvements and innovations. As a corollary of this, organisations have become increasingly reliant on the creativity and innovativeness of middle-level managers (see for example Marginson, 2002; Bartlett and Ghosal, 1993; Dutton et al., 1997; Simons, 1995; 1999). Furthermore, they are regularly exposed to the demands of external parties such as suppliers and customers and are therefore well placed to recognise the potential value of divergent initiatives (Floyd and Wooldridge, 1997). They draw on their knowledge of customers, operating capabilities and top management intent in this championing role to exert an upward influence within the organisation. Marginson (2002) finds evidence of middle managers championing ideas and initiatives. The MCS literature suggests that formal controls can provide support and direction for the innovation process (Davila, Foster and Li, 2009). This study seeks to understand how LOC guides the drive for change and emergent strategy at the critical hierarchical level of middle management. Consequently research question two is posed as follows:

RQ2 *How do the levers of control influence middle managers' role in driving change and contributing to emergent strategy?*

The middle management literature recognises the challenges and tensions that arise for middle managers. For example, middle managers have been characterised as both loyal implementors and change agents (Bryant and Stensaker, 2011); they are required to implement change while maintaining business as usual (Balogun, 2003); and they must concurrently drive current strategy and forces for change (Raes et al., 2008). MCS literature contends that there will be tension between "*accountability for today's goals and adaptability for the future*" (Simons, 2005 p. 10); this is natural for an organisation. Maintaining the right balance between the two is difficult and requires careful management. Understanding how organisations balance their control systems to give due regard to both the short- and long-run measures of success in firms remains a central question for researchers to address (Otley, 2003). Furthermore, sustained organisation performance is dependent on simultaneously attending to pre-set target goals and longer-term innovation and through an appropriate use of MCS attention can be directed to both agendas. This study focuses on how these tensions are made salient for middle managers through the LOC. In the context of this study, the concept of salient/salience is drawn from the paradox literature (Lewis, 2000; Smith and Lewis, 2011). This literature argues that firms confronted by multiple demands must make tensions between competing logics 'salient', relevant or applicable at the individual level. This enables individuals to "*recognise, appreciate and embrace distinctions and contradictions between strategic agendas*" (Heavey and Simsek, 2017, p. 921 cited in Bedford et al., 2018).

Notwithstanding the fact that middle managers are responsible for delivery of organisational outcomes, the literature remains relatively silent on how this challenge manifests and is managed at this critical hierarchical level. Thus research question three is worded as follows:

RQ3 *How are the tensions between multiple roles made salient for middle managers by the levers of control?*

4.3 Research Philosophy

Researchers make assumptions and choices at every stage of the research process and these assumptions reflect their underlying research philosophy (Saunders, Lewis and Thornhill, 2012). Ontological perspective and epistemological position form critical components of one's research philosophy and offer clarity about the essence of the research enquiry (Mason, 2012).

Ontology relates to nature of reality and the associated assumptions researchers have about the way the social world operates (Saunders et al., 2012; Mason, 2012). Two distinctions, representing either end of a typology, are objectivism and subjectivism. Objectivism (realism) represents the position that *"reality is a concrete given, something that is external to, imposing itself on, and even determining individual behaviour, and that knowledge is similarly "real" in the sense of having observable and measurable regularities, laws and patterns"* (Cunliffe, 2011 p. 649). In contrast, subjectivists (nominalism) perceive *"reality as imagined in and therefore a product of the human mind"* (Cunliffe, 2011 p.649).

Epistemology, or theory of knowledge, relates to the way people believe that they can obtain knowledge about the world and the validity of that knowledge (Collis and Hussey, 2003). This can be categorised into two extremities based on the researcher's view of how they can acquire valid knowledge about the subject of their enquiry. One view is that knowledge may be acquired through hard facts or physical means (Burrell and Morgan, 1979) (referred to as positivism). Alternatively, interpretive researchers believe knowledge is something that must be experienced (Burrell and Morgan, 1979). Consequently, it is suited to more participative means of enquiry (Collis and Hussey, 2003). Weber (2004) claims that the differences between the two positions are captured in the research methods embraced by positivists and interpretivists. The following two sections explain the assumptions of each philosophy. This is followed by a discussion of the philosophical approach adopted in this study.

4.3.1 Positivism

The origins of positivism can be traced back to the natural sciences where research is conducted through experiment seeking to establish evidence of cause and effect (Orlikowski and Baroudi, 1991). Social scientists have been following the approach used by natural scientists since the end of the nineteenth century (Collis and Hussey, 2003). The positivistic premise is that precision, objectivity and rigour are applied in the research study. Inherent to this approach is the belief that the researcher is separate and independent of reality and is unaffected by the subject of the research (Hirschheim, 1992; Weber, 2004). Furthermore, the research is conducted in a value-free way (Saunders

et al., 2012) as the researcher remains neutral and detached. Orlikowski and Baroudi (1991) argue that positivism is most appropriate in studies using formal propositions, quantifiable measures of variables, hypothesis testing, drawing inferences from a sample to stated propositions and generalising to a wider population.

There is considerable debate concerning the appropriateness of the positivistic approach in social science research, with some arguing that it fails to produce interesting and insightful meaning in complex social settings (Remenyi et al., 1998). Saunders et al. (2012) question whether researchers can in practice exclude their individual values. Moreover, Easterby-Smith et al. (2002) argue that human interests, beliefs and values are both fundamental to and impact the research process. Such concerns contributed to the development of the interpretivist perspective discussed below.

4.3.2 Interpretivism

In contrast to the positivistic approach, interpretivism seeks to understand the context of the research problem within its natural setting without attempting to generalise (Orlikowski and Baroudi, 1991). This philosophical stance addresses the criticisms associated with positivism. The underlying logic is that the researcher must appreciate the differences in human behaviour (Saunders et al., 2012). Researchers attempt to gain deep insights into how individuals think and act in social circumstances (Locke, 2001). Interpretivists enter the social world of the research subject in an effort to understand their world from their perspective (Saunders et al., 2012). Interpretivism recognises that each situation is unique and specific to the individual

and experiences differ across groups and settings (Locke, 2001). Saunders et al. (2012) observe that this makes the approach appropriate for business and management researchers, as business situations are both complex and unique. Unlike the positivistic approach, interpretivists include themselves and their methods as part of the study (Mumford et al., 1995) as they interpret what they observe (Weber, 2004).

Table 4.3.2-1 Key Features of the Positivist and Interpretivist Paradigms

	Positivist Paradigm	Interpretivist Paradigm
Basic beliefs	The world is external and objective Observer is independent Science is value-free	The world is socially constructed and subjective Observer is part of what is being observed Science is driven by human interests
Researcher should:	Focus on facts Look for causality and fundamental laws Reduce phenomena to simplest elements Formulate hypothesis and the test them	Focus on meaning Try to understand what is happening Look at the totality of the situation Develop ideas through induction of data
Preferred methods include:	Operationalising concepts so they can be measured Taking large samples	Using multiple methods to establish different views of the phenomena Small samples investigated in depth or over time

Source: (Easterby-Smith et al., 1991, p. 27)

The interpretivist paradigm has also received some criticism: data collection can be very time and resource intensive; data analysis is challenging; and credibility can be a cause of concern (Easterby-Smith et al., 2002). It is difficult to replicate a study adopting an interpretive approach consequently generalising to a broader population is more

difficult (Remenyi et al., 1998). Easterby-Smith et al. (2002) draw on Burrell and Morgan's paradigm distinctions to usefully summarise the main variations between positivism and interpretivism, illustrated in table 4.3.2-1.

4.3.3 Philosophical Position Adopted for this Study

Reflecting on philosophical issues is important for a number of reasons: to help clarify the research design, enable the researcher to recognise which designs will and will not work, and to guide research designs to accommodate various constraints (Easterby-Smith et al., 2002). For those reasons, selecting a philosophical stance at an early stage in the research process while challenging is nonetheless important (Remenyi et al., 1998).

In this study, the researcher adopted a philosophical position closer to interpretivism. This was driven in part by the research questions but also by the nature of the subject under investigation. The study is explanatory in nature and seeks to understand middle managers in their natural environment with a particular emphasis on LOC. Specifically, the study strives to gain an in-depth understanding on how middle managers' experiences of LOC manifest and guides their behaviours. It further seeks to understand how tensions between multiple role expectations arise at middle manager level and the implications for individual middle managers. Gaining a deep understanding of middle managers' work environment lends itself to a more interpretivistic strategy.

4.4 Research Approach

Many different methods exist to conduct research within the social sciences, some lending themselves more to one paradigm than another (Collis and Hussey, 2003). Experiments, longitudinal studies and surveys are generally considered to be positivistic in nature (Remenyi et al., 1998; Collis and Hussey, 2003), while action research, ethnography, grounded research and case studies are predominantly interpretive.

The importance of understanding that positivism and interpretivism exists on the extremities of a continuum must be emphasised. It follows that research methods "*can be moved some way along the continuum according to the researcher's assumptions*" (Collis and Hussey, 2003, p. 61). A number of research strategies may potentially be fruitful in answering specific research questions. Examining the limitations of a method can help the researcher identify the most suitable method to address their objectives

The researcher's objective in this study was to gain deep insights into the influence of LOC at middle management level. This necessitated an understanding of individual viewpoints about how the LOC facilitated an array of middle manager roles. The study also sought to understand the interconnectedness between different LOC and how they work in combination to drive middle management activities. In addition the study is also concerned with the nature of tensions and impact of tensions created through the LOC. Thus the focus of the study is individual middle managers in their work environments and therefore a case study approach was deemed the most suitable approach. The following section discusses the case study method.

4.4.1 Case Study Method

Case study research involves the exploration of a research phenomenon within its natural context, or within a number of real-life contexts (Saunders et al., 2012). Yin (2009) emphasises the importance of context. It enables the researcher gather empirical data from real situations, and describe current challenges and issues (Myers, 2009). Bryman and Bell (2003) support this view "*With a case study, the case is an object of interest in its own right and the researcher aims to provide an in-depth elucidation on it*" (p. 54).

Case studies tend to be associated with an interpretive philosophical position and qualitative tradition (Meyers, 2009). However Bryman and Bell (2003) argue this is not always appropriate as case studies frequently combine both quantitative and qualitative techniques.

Eisenhardt and Graebner (2007) argue that the case study method is always relevant if the objective is to gain a rich understanding of the context. Yin (2009) sets out the steps involved in a case study: planning, designing of case study, preparation in advance of data collection, data collection, data analysis and reporting the findings. Myers (2009) outlines the characteristics that a case study should demonstrate:

- provide new and interesting information
- display sufficient empirical evidence, demonstrated for example through supporting quotations from interviewees
- be complete in terms of data collection
- considers alternative perspectives, for example different theories

- written up in an engaging manner
- contribute to knowledge

Case studies may be framed in a variety of ways (Ryan et al., 2002). *Descriptive* case studies may seek to describe current or best practice. This is often referred to as *illustrative* case studies. According to Otley and Berry (1994), they are used when the researcher commences with an initial theory, studies the case and interprets the empirical data using the selected theory, the objective being to reinforce the theoretical position. Collis and Hussey (2003) observe that it is suitable when a research study attempts to illustrate new and possibly innovative practices in specific organisations. *Experimental* case studies involve examining the conduct of an experiment in the field. Smith (2015) observes that this type of case is extremely rare in the field of accounting. *Exploratory* cases involve a preliminary investigation to tease out problems or practices with the aim of developing or extending theory (Otley and Berry, 1994). The final category of case study is an *explanatory* case, often referred to as a critical case. The research is directed at providing convincing explanations to justify practice choices (Smith, 2015). The researcher draws on existing theory to understand and explain their findings. These types of cases studies are considered suitable when a substantial body of literature exists on a topic allowing researchers to test, contradict, compare, point out inadequacies of, and suggest changes to, existing theories (Otley and Berry, 1994; Myers, 2009).

In this study an explanatory case study is used. As revealed in the literature review (chapter 2 and chapter 3), there is a considerable body of literature examining how senior managers use the LOC to

realise strategy. However, aside from a few noted studies there is limited evidence about the impact of the LOC on middle managers actions. By examining a small number of cases, the researcher was able to examine each organisation in detail and attempt to understand the empirical data in the context of the organisational setting.

Proponents of case study research point out that this approach allows researcher flexibility (Cavaye, 1996). This view is supported by Beverland and Lindgreen (2010) who point out that the inherent flexibility of the case approach is critical in studying complex and evolving relationships such that exist in an organisational setting. Berry and Otley (2008) concur as they emphasise that "*the very nature of case based research requires an openness to the possibility of discovery*" (p. 235). It is well recognised that case research is a platform from which researchers can develop theory and concepts from the empirical setting (Benbasat et al., 1987; Chua, 1996). Empirical data from case studies may be examined using multiple theoretical lenses and interpretations thus enhancing the potential learning that can emerge (Parker, 2012). Lukka and Kasanen (1995 p. 75) point to the potential of a case study to be a compelling read by "*offering new and fresh perspectives, observations and thorough interpretations of a single or a few research objects.*" In the context of management accounting research, Parker (2012, p. 57) advocates strongly for the case study approach which:

"Offers researchers the ability to develop rich, contextualised accounts of organisational and management accounting processes. On that foundation they can produce deeper understandings of organisational actors and their worlds. Such accounts and understandings permit the development of new concepts and relationships, and more informed theory."

While case studies represent a valuable approach, a number of well-documented weaknesses prevail. Case studies are often disregarded for a lack of rigour caused by the researcher not adhering to a systematic approach (Yin, 2009). As recommended by Dube and Pare (2003), this concern is addressed in my study by providing a detailed account of case selection, research design, data collection and analysis (sections 4.6 to 4.8). The potential for researcher bias is an additional concern in case study research (Yin, 2009). Gaining access to a suitable organisation can be challenging to negotiate (Collis and Hussey, 2003). Case studies can be a lengthy procedure (McQueen and Knussen, 2002). The reason for this is they tend to yield large volumes of data all of which must be analysed and interpreted (Eisenhardt, 1989; Yin, 2009). According to Yin (2009 p. 2) the *"essential tactic is to use multiple sources of evidence, with the data needing to converge in triangulating fashion"*.

In this study, multiple data collection methods were used to alleviate some of the concerns outlined above. The use of a pre-interview survey (section 4.6.5) enabled the researcher to gain a better understanding of participants' roles. Additionally, on-site observations helped the researcher to identify more subtle forms of control that existed within each of the organisations.

4.4.2 Unit of Analysis

Precisely defining the unit of analysis or the term 'case' in the context of a specific study is important (Yin, 2009). Collis and Hussey (2003 p. 121) provide the following definition: *"unit of analysis is the kind of case to which variables or phenomena under study and the research*

problem refer, and about which data is collected and analysed". Drawing on the work of Kervin (1992), Collis and Hussey (2003) provide some examples of unit of analysis: an individual, an event, a body of individuals and a relationship. If a researcher conducts interviews with a sample of individuals, then the unit of analysis might be the individual (Mason, 2012). Even within a single-case study, there may be more than one unit of analysis (Yin, 2009). Mason (2012) further explains that the unit of analysis for data collection purposes does not have to match the unit of analysis for analytical purposes. For example, a researcher may wish to aggregate and compare data based on groupings of individuals. Furthermore, observations may not tie in exactly to an individual unit of analysis but may again be applicable to a grouping. In this study, the unit of analysis is the individual middle manager. For analytical purposes, various aggregations of individual middle managers are used for example per organisation and per functional area.

4.4.3 Single versus Multiple Case Studies

Cases may be either single or multiple-cases. A single case-study is similar to a single experiment (Remenyi et al., 1998). It is chosen because of the nature of the case (Saunders et al., 2012). Single case studies are characterised as "*low breadth, high depth*" (Lillis and Mundy, 2005, p. 131). Yin (2009) contends that a single case is appropriate under the following five circumstances:

- representative of a critical case which tests well-formulated theory
- where the case represents an extreme or a unique case

- representative of a typical case; for example a typical project among many such projects
- if the case is a revelatory case enabling the researcher to investigate a phenomenon never previously studied
- represents a longitudinal case investigating the same case over different points in time

Alternatively a researcher may develop a research design formulated on two or more cases referred to as a multiple-case study. Saunders et al. (2012) argues that the rationale for selecting this type of approach is that it can demonstrate replication across cases. There are two forms of replication. Literal replication is achieved when two or more cases are selected because they are likely to produce similar results for anticipated reasons (Yin, 2009). Alternatively, choice of case may be based on a contextual factor that is likely to cause variations in findings, referred to as theoretical replication (Saunders et al., 2012). The literature identifies a number of advantages of opting for multiple-case design over a single case approach. Firstly, they produce more empirical evidence (Saunders et al., 2012). According to Remenyi et al. (1998), they are considered more robust than a single-case, especially where the findings are replicated across cases. However, multiple-cases are more demanding on the researcher and time consuming (Yin, 2009). Reporting findings from multiple cases can be problematic *"because of the necessity to balance cross-case summaries with rich quotes"* (Beverland and Lingreen, 2010 p. 61).

Lillis and Mundy (2005) provide a useful visual comparison (figure 4.4.3-1) of types of research methods on breadth (sample size) and

depth dimensions. Single case studies represent low breadth and high depth, while multiple case studies provide comparatively higher breadth but somewhat less depth. They conclude that multiple case studies are positioned toward a single case study approach.

In this study, the researcher adopted a multiple case study approach. This approach allows the researcher to examine if findings are replicated across cases. The potential for replication, while maintaining depth, enhances the robustness of this study.

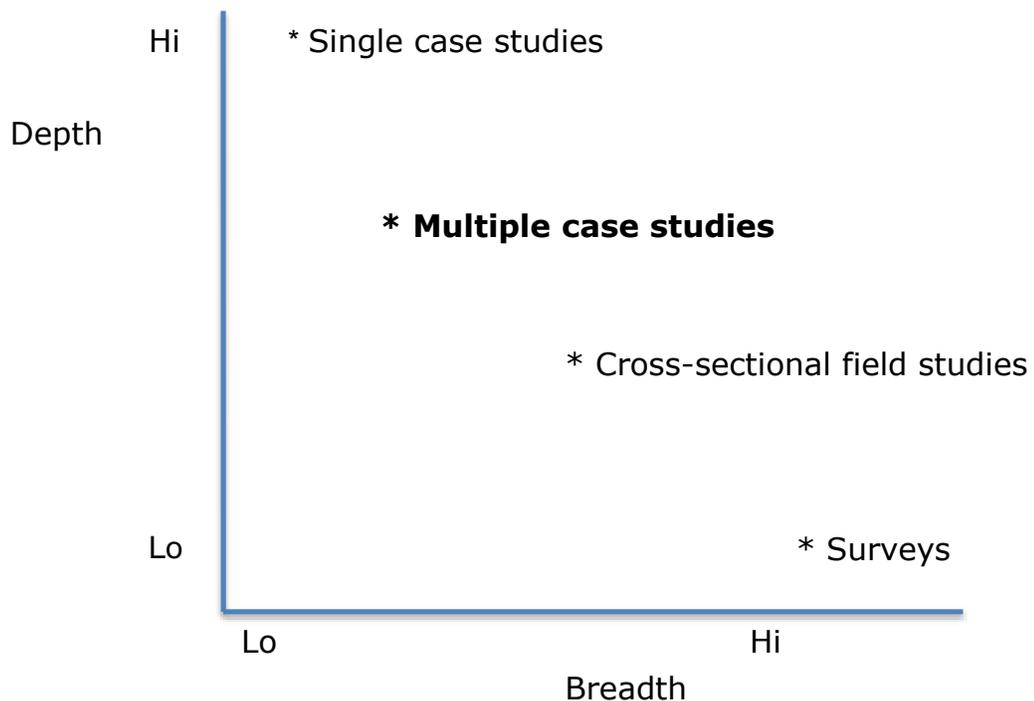


Figure 4.4.3-1 Positioning of multiple case studies among related methods along dimensions of breadth and depth. Adapted from Lillis and Mundy (2005).

4.4.4 Criteria to Assess the Quality of Research Design

Beverland and Lindgreen (2010) call for greater attention to quality in case study research as they argue this will prevent inappropriate practices. Much debate exists about how the quality of qualitative research can be evaluated (Knussen and McQueen, 2002; Mason, 2012). Researchers must provide adequate detail about the research process to allow others judge its quality.

Yin (2009) offers four criteria by which the quality of research design may be evaluated: construct validity, internal validity, external validity and reliability. Adequate consideration of each of these issues helps researchers *"strike a balance between realising the richness of field research through open-mindedness and flexibility of approach, with the researcher's obligations to be rigorous and unbiased in the execution of their research"* (Lillis, 2006 p. 461).

Construct validity concerns the establishment of appropriate measures for concepts being studied (Berry and Otley, 2008). In the context of interviews, construct validity refers to the extent to which questions posed measure the presence of those constructs the researcher intended them to measure (Saunders et al., 2012). According to Yin (2009), there are a number of tactics available to the researcher to strengthen construct validity. These include: use of multiple sources of evidence, establish chain of evidence and asking participants to review draft case study reports. In this study, construct validity was addressed by collecting data from multiple interviewees within each case and through numerous site-visits. Moreover the inclusion of questions in the interview protocol resulted from a rigorous review of

the literature to establish the characteristics of the theoretical framework.

Internal validity is the second criteria proposed by Yin (2009). It concerns casual relationships (Beverland and Lindgreen, 2010) and is relevant in explanatory case studies. It raises two difficulties: firstly that the researcher may incorrectly identify a causal relationship without considering an alternate causal factor. Secondly, case studies inherently require the investigator to make inferences, failing to consider rival explanations and possibilities weaken internal validity (Yin, 2009). He argues that it is difficult to address but the use of pattern matching, explanation building and determining rival matching during data analysis are all useful tactics to strengthen internal validity. In this study, the researcher examined all the data collected to establish if there were variations in the views of the participants. Where the evidence pointed to similar views, this strengthened internal validity. Divergent views were also reported as recommended by Eisenhardt (1989).

The third test of quality is *external validity*, which refers to the extent a case study's findings can be generalised to other relevant settings or groups (Saunders et al., 2012). In contrast to survey research, the nature of case study research does not seek to offer findings that can be generalised to other situations (Smith, 2015). Analytical generalisation is appropriate when the researcher wishes to use a previously developed theory as a template to compare results (Yin, 2009). Furthermore, if similar findings emerge from two or more cases then this demonstrates replication (Mason, 2012; Yin, 2009). The

current study addressed concerns related to external validity by using multiple cases following replication logic.

The final quality criterion concerns *reliability*, which assesses the accuracy of the research methods and techniques (Mason, 2012). The issue of reliability is especially relevant in case study research (Yin, 2009) where biases can be problematic (Otley, 2001). To strengthen reliability, Lillis (2006) recommends documenting procedures used during data collection and analysis. Yin (2009) advocates using a case study database and a research protocol. During this research an interview protocol was developed and used during data collection (Appendix D). In addition, following Yin's recommendation a database was set up in NVivo to manage transcripts, survey responses, field documentation, secondary information, field notes and coded data.

4.5 Data Collection Methods

Case study evidence can come from a number of sources (Yin, 2009). He identifies six: documents, archival records, interviews, direct observation, participant-observation and physical artefacts. The selection of the data collection methods is dependent on the research approach, research questions and the unit of analysis (Benbasat et al., 1987). Scapens (2008) suggests that each research question should be examined with a view to identifying the evidence required to answer that question. Using multiple sources of data is strongly recommended in case studies (Mason, 2012; Yin, 2009; Scapens, 2008). Bryman and Bell (2003) observe that business and management researchers are increasingly adopting multiple-methods as it alleviates weaknesses of one method and generates richer data.

This is commonly referred to as triangulation, which according to Marginson (2008) is commonly viewed as a means of enhancing both contextual and construct validity.

Studies that mix qualitative and quantitative data collection techniques are defined as mixed method studies (Saunders et al., 2012). In the context of accounting research, Smith (2015, p. 71) encourages researchers to combine qualitative and quantitative data sources: "*case study researchers will frequently make use of diverse data sources – making already rich qualitative outcomes even richer*". The extent of combination can range from simple to complex (Creswell and Plano Clark, 2007). Certain characteristics such as timing, level of integration and relative status further define mixed methods research (Saunders et al., 2012). When one methodology supports another, this is referred to as embedded mixed method research (Creswell and Plano Clarke, 2007). One method has a dominant role and the other supports that primary method. In this study, interviews were the primary source of data but a pre-interview questionnaire and observation provided supporting evidence. The following sections examine these data collection methods.

4.5.1 Interviews

Interviews are one of the most commonly used forms of qualitative research methods (Mason, 2012). They present the opportunity to collect rich data from each interviewee (Benbast et al., 1987). One of the most important considerations is around the degree of structure of the interview (Scapens, 2008; Easterby-Smith et al., 2002) that may be structured, semi-structured or unstructured. According to McQueen

and Knussen (2002), qualitative research interviews generally follow a semi-structured format whereby the interviewer has a broad framework for questioning but there is flexibility to tease out issues in depth to gain clarification or pursue a new line of enquiry (Scapens, 2008; Myers and Newman, 2007). Therefore the issues explored can alter from one interview to the next as various aspects of the topic are revealed (Collis and Hussey, 2003). They regard this form of 'open discovery' as a key strength of semi-structured interviews. However, there are several problems associated with conducting interviews. Collis and Hussey (2003) point out that it is a very time-consuming process, access can be challenging, and it can be expensive undertaking. Furthermore, there is considerable potential for interviewer bias through repeated questioning, gestures and facial expressions (Lillis, 1999).

In this study the researcher selected a semi-structured interview as the primary means of data collection. This enabled the researcher to gather rich data but maintained flexibility to explore or probes issues that arose during the course of the study. Section 4.7.2 provides further detail of the interview process.

4.5.2 Questionnaires

Survey questionnaires are an efficient way of obtaining the same type of data from a large group of people. They are closely linked with the positivistic tradition and focus on identifying patterns and generalisations (Bryman and Bell, 2003). However they can be effectively used to supplement a primarily qualitative study (Creswell and Plano Clarke, 2007). In this study a pre-interview questionnaire

was used to determine interviewees' potential involvement in strategy. Further detail on the pre-interview questionnaire is included in section 4.6.5.1.

4.5.3 Observation

Observation while a legitimate form of data collection in its own right is often used as a means to supplement another form of data gathering (Cooper and Schindler, 2003). It can be used in both qualitative and quantitative research (McQueen and Knussen, 2002). In this study the researcher used observation to supplement interviews as the main source of evidence. Further detail is provided in section 4.7.3.

4.6 Research Design

Research design is the plan to organise research activity, including the collection and analysis of data in ways most likely to achieve the research aims (Yin, 2003; Easterby-Smith et al., 2002). This section provides a detailed account of how this study was designed, case selection, a brief profile of each case and design of the data collection protocol.

4.6.1 Case Selection

Case selection must be carefully considered as the case provides the researcher with data needed to address the research questions (Mason, 2002). Cases may be selected on a random basis, although this approach is not recommended (Eisenhardt, 1989). A replication

strategy similar to that employed in multiple experiments should be adopted (Yin, 2009). Replication may take the form of extreme circumstances whereby cases are selected because they represent polar opposites (Pettigrew, 1990; Yin, 2009). Consequently they yield contrasting results for predicted reasons (i.e. theoretical replication) (Yin, 2009). Otherwise, case selection may be motivated by literal replication producing similar results to extend existing theory (Yin, 2009). Case selection should principally be guided by the research questions under investigation (Pettigrew, 1990). Additionally, specific criteria may guide case selection for example organisation size and industry sector (i.e. purposeful sampling). As multiple cases require significant access, ensuring sufficient access for data collection is a critical concern (Yin, 2009).

Determining an appropriate sample size for multiple case studies is difficult. The number of cases may be pre-specified prior to fieldwork commencing or they may evolve over the course of the fieldwork (Miles and Huberman, 1994). Yin (2009) recommends selecting a few cases for literal replication and four to six cases for theoretical replication. Miles and Huberman (1994) caution against the inclusion of too many cases as the study will become impractical and unwieldy.

4.6.2 Criteria Applied in Selection of Cases

Establishing boundaries (Miles and Huberman, 1994) is essential in case study research. These boundaries must be cognisant of a reasonable timeframe for data collection. In this study the following case selection criteria were used:

- Organisation size constituted an important case selection criterion in this study, each case organisation was large in size. The LOC framework was explicitly developed to explain how management control systems operate in large organisations (Martyn, Sweeney and Curtis, 2016). Furthermore management researchers contend that the strategic behaviour of middle managers is best examined in the context of large organisations (Floyd and Wooldridge, 2000; Pappas and Wooldridge, 2007).
- The researcher also carefully considered industry sector of cases. Each case operated in innovative sectors of either med-tech or IT. Both of these sectors can be characterised as dynamic, complex and competitive (Pappas and Wooldridge, 2007). Firms within these sectors are forced to innovate due to changes in technologies, customer demands, competition and regulation. Simultaneously firms operating in these sectors must maximise their current capabilities due to short-term competitive pressures in terms of an increased focus on efficiency, cutting costs and the increased importance of economies of scale (Gibson and Birkinshaw, 2004; Henisz and Macher, 2004).
- As these types of firms compete across diverse products and markets, they are especially dependent on the strategic input from middle managers (Pappas and Wooldridge, 2007). Given the broad array of organisational objectives, it is likely that middle managers are confronted with multiple demands (Mom, van den Bosch and Voldera, 2009).

Using these criteria, four cases were selected. An initial analysis of the data revealed similar findings across all cases indicating that a point of 'theoretical saturation' has been reached where insights from further

data collection was expected to be negligible (Glaser and Strauss, 1967; Eisenhardt, 1989). However, it is recognised that the inclusion of additional cases from other sectors may provide other insights on management control systems and middle manager strategic influence and this was identified as a possible avenue for further research (Chapter 7).

Cases were identified and access negotiated in a variety of ways. Contact with Case one was initially established through a personal contact of the researcher. Following informal discussions with a manager in the organisation, agreement to participate was reached. Similar to Case one (C1), contact with Case two (C2) was initiated through a personal contact that introduced the researcher to a more senior colleague. A meeting to discuss the research subsequently took place. Agreement was made to contact the organisation in six months at which time an on-going reorganisation would be complete. Colleagues of the researcher facilitated contact with Case three (C3) and Case four (C4) through their professional networks. Agreement to participate in the study was reached following informal meetings with senior managers in each of the respective organisations. During the course of negotiations, one other firm was approached. After consideration they declined, as timing was not suitable due to an impending takeover.

Assurance of confidentiality was given to each organisation prior to fieldwork commencing. Additionally, there was also an assurance given that individual participants would not be identified in any of the research output.

4.6.3 Case Profiles

A brief profile of the four cases is presented in the subsections below and a summary is provided in table 4.6.3-1.

C1 is a medical device organisation. The company is organised into four segments. Operational headquarters are in the USA; however the organisation operates multiple sites across the globe. At the time of data collection, C1 employed over 40,000 people globally and generated sales revenue of over \$17 billion. Products are sold directly to hospitals/hospital groupings or directly to government agencies. C1 is listed on the New York Stock Exchange. The research was conducted in one of two Irish locations where the company had a presence since the late 1990's. At the time of data collection, there were approximately 3,000 employees. The site was exclusively involved in one specific business segment and largely concerned with manufacturing. In addition, there was a significant R&D group on site.

C2 designs, manufactures and markets a wide range of high performing analog and digital signal circuits used in practically all forms of electronic equipment. The organisation was founded in the mid sixties and has a strong tradition of solving complex engineering challenges. The organisation's headquarters is in USA and total workforce is approximately 10,000 across 30 global sites. C2 shares are listed on the NASDAQ, Information Technology sector. At the time of data collection, revenue was approximately \$3.5 billion. C2 is a business-to-business firm and its products are consumed in an array of end markets such as industrial, communications, automotive and consumer. The organisation has a number of competitors. Data collection was conducted in an Irish location in existence since the mid

1970's, which employs approximately 1,100 employees. C2 has a strong commitment to R&D demonstrated by investment of 20% of revenues in new product development. The Irish location is a significant R&D centre. In the course of data collection, a newly constructed dedicated R&D building was brought into use.

Table 4.6.3-1 Summary profile of participating organisations

	Case 1	Case 2	Case 3	Case 4
Industry sector	Medical device	Information technology	Medical device	Information technology
Multinational	Yes	Yes	Yes	Yes
Number of employees globally	40,000	10,000	25,000	300,000
Annual turnover	\$17 billion	\$3.5 billion	\$7.4 billion	\$50 billion
Location where research conducted	Ireland	Ireland	Ireland	Ireland
Number of employees in research location	3,000	1,100	2,500	1,000
Customers	Hospitals; Governments	Business to business	Hospitals; Governments	Large enterprises; consumers

C3 develop, manufacture and market medical devices applied to a broad array of interventional specialities. Products are used to diagnose and treat a broad range of medical issues. There are seven core businesses organised through three business segments. Founded in the late 1970's and headquartered in USA, C3 employs 25,000 people across 12 main locations. Revenue generated is approximately \$7.4 billion and the company is listed on the New York Stock Exchange. The company was first established in Ireland in mid 1990's and has a number of sites in Ireland. All of the data for this study was collected

in a single location representing the largest Irish site employing 2,500 people. Approximately 60% of headcount in this site is directly engaged in product building organised under six production units. In addition, approximately 10% of staff on site works exclusively on new product development. The company invests \$.8 billion annually in R&D. **C4** is an Information Technology multinational with operations headquarters in the USA. The company develops and manufactures a broad range of hardware components, software and related services to consumers, small- and medium-sized businesses. In addition it offers specialised technologies and software solutions services to large enterprises, including customers from government, health and education sectors. At the time of data collection, the global workforce totaled 300,000 people and sales revenue just over \$50 billion. In this study, data was collected from one of two Irish sites. The site had just under 1,000 employees and data collection coincided with the move to a newly developed state-of-the-art facility. At that time, the company had a presence in Ireland for over forty years. The Irish operation has evolved greatly over that period from primarily manufacturing to the current focus on software R&D and business services.

4.6.4 Participant Profiles

Sampling and selection are an important element of qualitative research and directly impact on generalisation of findings (Mason, 2012). Mason contends that the sample must facilitate access to data that is relevant to generating ideas, advancing understanding and developing theoretically grounded arguments. In this study, the researcher adopted a purposeful sampling approach, which involves the researcher deliberating choosing cases most suited to answering

the research questions (Saunders et al., 2012). Selection criteria are based on theoretically relevant characteristics or criteria (Mason, 2012). This approach is commonly used and considered appropriate in case studies (Neuman, 2005) and yields information-rich cases (Patton, 2002).

In this study, the researcher was interested in middle managers across a broad spectrum of functional areas. For the purpose of this study, middle managers are defined as occupying senior management roles in the Irish subsidiary of the multinational firm. Regarding their hierarchical positioning, middle managers were directors of business units or reported into director level. Despite occupying senior management roles in a subsidiary context, viewed from a global perspective middle managers are positioned in the centre of the global hierarchy. They were at least two levels down from the corporate leadership team and generally had responsibility for two hierarchical levels of subordinates. This definition corresponds with Ogbonna and Wilkinson's (2003) description of middle managers that are managed from above while simultaneously they manage those below.

In cooperation with the HR manager/organisational contact point and with reference to the organisational charts, we selected managers who work in units that are required to innovate and also deliver on day-to-day operational goals. The managers had responsibility for either a functional area/unit or a specific product line working across a range of functional areas including: Engineering, Production, Sales, Customer Service, Quality, Human Resources, Lean Sigma, Finance, Training, Marketing and R&D. In some cases, managers' responsibilities extended beyond the Irish subsidiary; for example, in C3 the

Marketing Manager was responsible for the product category on a European wide basis. One limitation of the study was that it was not always possible to interview across all major functional areas in each case. For example, in C1 the Irish subsidiary did not fulfill a sales or marketing role and therefore no participant from a sales-related role was available. Another limitation related to the fact that the sample set across each case varied and therefore a matching set of roles across the cases was not possible.

4.6.5 Design of Research Instruments

Development of appropriate research instruments was completed prior to data collection. This is recommended in the case of an explanatory or confirmatory study (Miles and Huberman, 2012). The process of designing the pre-interview questionnaire and the in-depth interview protocol is explained the following subsections.

4.6.5.1 Pre-interview Questionnaire

The concept of embedding refers to a research design in which the *"researcher incorporates a secondary method within a research design traditionally associated with another approach"* (Plano Clark and Ivankova, 2016, p.140). They explain that the secondary method should be designed to complement and supplement the primary research instrument. In this study, a quantitative method in the form of a pre-interview questionnaire is embedded in the primarily qualitative case study design to enrich the case descriptions. Questionnaires capture data from respondents in a systematic and

standardised way through the use of predefined questions. They are considered suitable for explanatory research (Saunders et al., 2012).

The questionnaire utilised an existing research instrument to assess middle manager strategic influence (Floyd and Wooldridge, 1997). The 21-item instrument measures involvement in the strategy process classified under four headings: implementing deliberate strategy (five-item), facilitating adaptability (seven-item), championing alternatives (five-item) and synthesising information (four-item). Floyd and Wooldridge developed these categorisations following a review of middle management literature. Flaherty, Pappas and Allison (2014) report the use of pre-existing measures to be both valid and reliable. Despite being developed in 1997, Mantere (2008) points out that the Floyd and Wooldridge categorisation is widely accepted and accurately captures the role expectations of middle managers. Instructions requested respondents to assess how frequently they are required to perform each activity on a five-point Likert scale from 'never' to 'very frequently'.

In advance of each meeting, interviewees were invited to complete a pre-interview questionnaire, which the researcher posted to them. Following the recommendations of Dillman (2009), the questionnaire (Appendix E) was accompanied by a covering letter (Appendix F) that outlined: the purpose of the research, confirmation of the date, time and venue of the scheduled meeting and requested the recipient to bring the completed questionnaire to the meeting.

4.6.6.2 Interview Protocol

The principal source of data collection was in-depth interviews and as recommended by Mason (2012), considerable planning in advance was necessary. An interview protocol (Appendix D) was developed prior to fieldwork commencing. This was utilised in all interviews to ensure that systematic information was obtained given the interview time constraints. The use of the interview protocol minimised interviewer bias by ensuring questions were pre-specified (Lillis, 1999) thereby avoiding unplanned, biased probes and leading questions.

The wording of the questions was carefully considered and all questions were clearly phrased. Each interview began with a similar opening question, as suggested by Mason (2012). The interview protocol primarily consisted of questions that were open-ended in nature. This allows interviewees to respond freely to the questions. Closed questions were used occasionally to elicit specific information, for example the number of subordinates for whom they have responsibility. Extensive use of probes allowed the researcher to follow up on interviewee responses.

The interview protocol consisted of seven sections, each section containing questions and potential probes that could be used to further explore responses. Care was taken to ensure each section flowed logically from one to the next. The assumption was that all sections of the interview protocol would be covered at each interview; however, the structure permitted the interviewer to change the order of the topics depending on the flow of the interview. The first section primarily used open-ended questions to capture details on the interviewee role, responsibilities, goals and hierarchical position. This

was followed by a small number of closed questions on reporting structure and number of subordinates. Section two included a number of open-ended questions and further probes in relation to expectations for innovation and predictable goal achievement. This was followed by open-ended questions related to organisational culture. Section four consisted of questions pertaining to operational and strategic boundaries. Both section five and six explored the use of management control systems. The final section of the interview protocol related to perceived trade-offs and tensions. To minimise possible interviewee bias, the interview protocol was not made available to interviewees in advance of the interview.

4.7 Data collection

The data collection process is discussed in this section. It begins by outlining the planning of data collection, followed by the administration of the pre-interview questionnaire and the interview process. Table 4.7-1 summarises the data collected in each of the four cases.

Table 4.7-1 Data collection in the four cases

	Case 1	Case 2	Case 3	Case 4
Number of interviews conducted	11	10	11	11
Number of site visits	5	5	10	7
Number of plant tours		2	1	
Number of company presentations	3	1	2	
Responses to pre-interview questionnaire	9	8	11	10

4.7.1 Planning of the Data Collection

Interviewing is a time-intensive process and requires considerable advance planning. With one exception, all interviews were face-to-face.

Data was collected over a 13-month period from July 2014 to July 2015. In C1, all interviewees were scheduled in advance with a manager within the organisation. Data collection took place over a two-month period with the researcher visiting the organisation on five occasions. Interviews in C2 were more sporadic occurring over a period of 11 months. This was largely due to a request by Directors to minimise disruption during a reorganisation. Initially six interviews were conducted; these were arranged by the researcher's personal contact. The remaining four interviews resulted from a 'snowball' technique that involved the researcher asking initial interviewees to recommend colleagues within the firm who would be willing to participate. In total, the researcher visited C2 on five occasions. Data was collected in C3 over an eight-month period, which involved the researcher making ten on-site visits. Initially three interviews were arranged through a senior manager. As in C2, the researcher employed the snowball technique in C3, and this resulted in a further eight interviews taking place. Five interviews were organised through a senior manager in C4. The snowball technique yielded an additional six participants. All interviews with C4 participants were conducted during seven site visits within a timeframe of six months.

All interviews took place at the interviewees' places of work. Primarily the interviews were held in interviewees' private offices or alternatively interviewees reserved a meeting room. Conducting on site interviews had the advantage that interviewees had ready access to computers and documentation to support discussions (Saunders et al., 2012). Interviewing within firms disrupts individual's work time and arranging a convenient time for the interviewee particularly those in management position can be challenging (Bryman and Bell, 2003). In

this study the researcher was cognisant of time pressures of interviewees and arranged interviews to fit with their availability.

4.7.2 The Interview Process

With one exception, all interviews were conducted face-to-face. A complete listing of all interviews is shown in table 4.7.2-1 below. Interview times ranged from 38 minutes to 2 hours 1 minute and averaged one hour and six minutes. Following introductions, the researcher commenced each interview by requesting each interviewee to return the completed pre-interview questionnaire (section 4.6.5.1). In cases where the interviewee had omitted to complete the questionnaire, another copy was presented and the interviewee was allowed adequate time to complete it. The researcher then provided a brief outline of the objectives of the study. In addition, the researcher assured interviewees of the confidentiality of the study and emphasised that no participant would be personally identified. Recording of interviews increases the accuracy of data collection and allows the interviewer to give their full attention to the interviewee (Patton, 1990). Sekaran (2002) advocates that permission should be sought to record each interview. The researcher followed this recommendation and all participants consented. Guided by the interview protocol, the researcher asked interviewees each question in turn. In tandem, the researcher maintained the conversation flow in line with the purpose of the interviews (Yin, 2009). If necessary, probes were used to encourage interviewees to expand on their responses. The researcher frequently requested interviewees to provide an example from their own experiences to gain deeper insights. On completion of the interview, the researcher thanked each

interviewee for their time. In a small number of instances, interviewees were requested to nominate colleagues to participate who might offer useful insights.

Table 4.7.2-1 Interviewee roles and interview duration

	Interviewee roles	Interview duration (in minutes)
Case 1	Senior Engineering Manager	76
	Senior HR Manager	66
	Finance Manager	69
	Quality Manager	59
	Product Manufacturing Manager	63
	Training and Development Manager	56
	Lean Sigma Manager	64
	Product Development Manager (twice)	107
	R&D Manager	65
	Senior PR Manager	38
Case 2	Marketing Manager	87
	Finance Manager	78
	Director of Quality (twice)	121
	Director of Manufacturing Operations	60
	Project Manager	79
	Technical Leader	60
	Product Line (IP) Group Manager	77
	Manufacturing Manager	59
Product Line (AP) Group Manager	62	
Case 3	Project Leader (R&D)	65
	Manufacturing Unit Manager	64
	Director Strategic Business Support	59
	Director Programme Management	63
	Marketing Manager for Europe	54
	Data Manager	58
	Direct Commercial Capabilities	61
	Director of Process Development (SS)	65
	Business Solutions Manager	54
	Process Development Director (R&D)	58
Finance Manager	66	
Case 4	Portfolio Manager	76
	Director Innovation Centre (twice)	108
	Director Development R&D/General Manager	54
	Director CS Division	63
	Account Executive	82
	Finance Manager	58
	Business Development Manager	87
	Global Service Delivery Manager	70
	Project Manager	55
Senior Delivery Executive	49	

Immediately after each interview, the researcher made notes reflecting on the interview as recommended by Collis and Hussey (2003). A professional transcribing firm transcribed all the interviews. Transcriptions were crosschecked against interview recordings and this resulted in some very minor amendments to transcripts. Interview transcriptions were subsequently imported to a qualitative research software package for coding (NVivo).

Failure to observe appropriate quality standards in research methodology can result in erroneous conclusions and consequently low credibility (Plano Clark and Ivankova, 2016). Key concerns when collecting data through interviews is maintaining data validity and reliability (Marginson, 2008). Validity refers to the degree to which the researcher provides an adequate account of the phenomena under investigation (McQueen and Knussen, 2002). They argue that field notes and observations are an important dimension of validity. In this study, as mentioned earlier, field notes were written up at the end of each interview. These included observations such as displays in receptions area and other public areas, information displayed on office walls and any on-screen information shown by interviewees.

4.7.3 Direct Observations

In this study, data was also collected through direct observations. As outlined in section 4.7.1, all interactions with participants took place in the natural setting of the case organisation and therefore created opportunities for direct observations (Yin, 2009). Yin explains that observations can range from formal to very casual. In the context of this study, observations were casual and took place during site visits

for interview or site tour purposes (C2 and C3). The researcher took note of physical artefacts such as awards, quality statements, mission statements, vision statements, strategy statements and accounts of organisation and product evolution, that were displayed in case premises (C1, C2 and C3). Additionally, interviews frequently took place in the interviewees' offices and this allowed the researcher to directly observe relevant physical artefacts displayed such as strategy documents, project planning systems boards and unit/team charts. Yin (2009) points out that physical artefacts provide an insightful means of understanding the cultural features of an organisation. In the course of the current study, this was particularly pertinent in C1, C2 and to a lesser extent in C3. In contrast, C4 provided less observation evidence, but this can be explained by the fact the company had moved into new premises at the time the interviews were conducted.

On a number of occasions, interviewees showed the researcher relevant files from their computers (C1, C2 and C3) such as: corporate strategy documentation; individual performance measurements systems; production schedules and variance systems; weekly, monthly and quarterly update reports; individual project update reports; and programme management update reports.

4.7.4 Documentation

Yin (2009) points out that documentary information is likely to be relevant in all case studies. Saunders et al. (2012) observes that documentary evidence is often used as part of a case study that primarily collects data through interviews in business and management research. They also note that researchers are increasingly drawing on

web-based materials as secondary sources of documentary data. In this study, the researcher referred to online documents such as: organisation overviews; vision and mission statements; annual reports and product overviews. In addition, interviewees provided hard copy information to the researcher (C1, C2 and C3) such as organisation charts, team charts, organisation overview powerpoint presentation, and unit-level strategy documentation. Furthermore, informal conversations took place outside of the formal interviews: over lunch and walking to and from reception area (all cases). The researcher included any relevant comments in the field notes.

4.8 Data Analysis

"Data analysis in field studies projects involves an exhaustive process of data classification, reduction, interpretation and development of links with theory" (Lillis, 2006 p. 472). The challenging process of qualitative data analysis has been compared to attempting to piece together a jigsaw without being able to reference the picture on the box (Saunders et al., 2012). They report: *"In qualitative analysis there may well be no well-defined external reality, so there is no pre-existing picture that we strive to recreate"* (p. 544). Eisenhardt (2002) is critical of the limited attention researchers tend to give to discussion of analysis in published studies; this creates a void between data and conclusions. In this section, the coding and subsequent analysis of data in this study is discussed.

4.8.1 Computer Assisted Qualitative Data Analysis Software

Condensing highly complex and context-specific information into a manageable format (Easterby-Smith et al., 2002) presents a huge challenge to researchers. It is generally accepted (see for example McQueen and Knussen, 2002; Anderson-Gough, 2008; Smith, 2015) that computer software can be of considerable assistance during this process. Tesch (1989) identifies the advantages of using software to aid analysis: reduces overall analysis time, eases the administrative burden, encourages a systematic approach and aids completeness. Given the interconnected nature of case study data, Ragin and Becker (1989) point out that the use of software is especially useful. Yin (2009) cautions against the assumption that software can do the analysis, emphasising the contribution is merely a tool to assist. In this study, the researcher used the analytical software nVivo version 10.

4.8.2 Data coding

Coding enables researchers to synthesise and dissect data in a meaningful way (Miles and Huberman, 1994), thus commencing the process of data analysis. During the coding process, the researcher attaches a code that summarises and attaches meaning to a group of words, phrases, sentences or paragraph (Miles and Huberman, 1994). The formulation of codes should be guided by the research questions and objectives (Saunders et al., 2009). Each code represents a means to interrogate the data (Corbin and Strauss, 2008). According to Saunders et al. (2009), codes can be derived in two ways: in advance with reference to the literature (concept-driven), or guided by the data collected (data-driven). The following multistep coding process was employed in this study:

Phase 1: As recommended by Eisenhardt (1989) and Bryman and Bell (2003), each of the interview transcripts was carefully read and re-read by the researcher.

Phase 2: Using NVivo, a database was created to store all of the interview transcripts, audio files and supplementary documentation by case. Attributes of both cases and interviewees were populated with values for example: gender and role categorisation.

Phase 3: Involved coding all of the interviewee transcripts to the characteristics of the LOC based on the literature (see Appendix H which sets out LOC characteristics) and broad participant driven codes. An example of this data coding process is included in Appendix G.

Phase 4: The next round of coding involved further expanding the categories into sub-categories to allow further insights such as behaviours and implications. The sub-categories were largely data-driven.

Phase 5: Volume of data is an immense challenge for case study researchers, one that Pettigrew (1988) fittingly describes as 'death by data asphyxiation'. Within-case analysis can be helpful to overcome this problem (Eisenhardt, 2002) by completing descriptive write-ups for each case site. This study followed Eisenhardt's recommendation, which helped to identify similarities and differences between cases. For example, the data on each case was compared based on how the beliefs systems and mission statement manifested, was reinforced and the extent to which it exerted an influence on interviewees. The

researcher made extensive use of summary tables to further support the analysis during this phase.

Phase 6: A third round of coding was required. The objective of this round of coding was to recode the data against the characteristics of middle management strategic involvement typology (Floyd and Wooldridge, 1997) detailed in the literature (see Appendix I outlining the characteristics of each role). This resulted in numerous segments of interview narrative being coded to both LOC and middle manager roles characteristics. These overlaps enabled the researcher to examine the interconnections between the LOC and middle management roles within the data. Matrix reports were developed in NVivo to identify the most salient co-occurrences between the LOC and middle management roles, thereby focusing on the research questions posed in this study. According to Miles and Huberman (1994), matrices cross two or more dimensions in order to understand the extent to which they interact. These types of structured data displays enable data to be arranged systematically to focus on answering specific research questions (Lillis, 1999). Lillis (2006) encourages the use of matrices as they are useful in establishing links between empirical observations and theory. She argues that they allow the researcher organise real-world control practices around theoretical concepts such as the levers of control.

Specifically, the author adopted a systematic approach to follow "*weight of evidence*" (Lillis, Malina and Mundy, 2016, p. 17). This approach involves the calculation of C-ratios allowing the most salient patterns in data to emerge. The process followed a number of steps. Firstly, the data was coded in nVivo to the four LOC (Simons, 1995)

and four middle managements' strategic contributions identified in Floyd and Wooldridge (1997). Secondly, frequency of codes in each dimension was presented in tabular form facilitated by nVivo. Thirdly, reports were developed in nVivo to present a matrix of the frequencies of which code pairing were applied to the same narrative (Lillis et al., 2016). Fourthly, this information was then translated into co-occurrences in the data. In the fifth, and final step, the co-occurrences were adjusted to C-ratios "*normalize the frequency of coding co-occurrences*" (Lillis et al., 2016). A C-ratio is between 0 (indicating no co-occurrence) and 1 (indicating complete co-occurrence). Therefore, interrelationships with a high C-ratio reflect a significant interaction between concepts, and vice-versa. The tabularised results of both the frequency of codes and the C-ratios are presented in Chapter 5. An illustrative example of the process is set out in appendix J.

This phase primarily involved data reduction as it focused on providing a framework of themes to support the writing up process. This enabled the researcher to accurately synthesise the content into narrative form, the output of which is presented in the following chapter.

4.9 Summary

This chapter set out the research questions and the approach used by the researcher to address those questions. An interpretive approach was used given the explanatory nature of the study. Following careful consideration, the study adopted a qualitative approach using multiple case studies. Data was collected through a number of means: primarily in-depth semi-structured interviews, pre-interview questionnaire supported by observation and documentary evidence

(section 4.7). A rigorous approach was adopted from the design of research instruments through to coding and analysis of data (section 4.8). The following chapter, chapter 5, presents the results of the analysis.

Findings

5.1 Introduction

In this chapter, findings related to each of the research questions are presented in sections 5.2 to 5.4. The findings are primarily drawn from the in-depth interviews conducted with middle managers in four case organisations. Supporting evidence from field observations and pre-interview survey is also included where relevant. Profile information relating to each of the four case organisations was included in chapter 4 (section 4.6.3). Interviewees worked across a range of functional areas and section 4.6.4 provided background information. Throughout this chapter supporting quotations from interviews are used to illustrate specific points; each interviewee is identified by a brief job title. Each of the case organisations is denoted as C1 (Case 1), C2, C3 and C4.

The aim of the study is to investigate how MCS facilitates the work of middle managers. The LOC (section 2.7) is used as the conceptual framework to examine how MCS supports a range of strategic middle management roles characterised across a typology (section 3.4.4). To briefly recap on these two core aspects of the study, the LOC framework (Simons 1994; 1995) identifies four levers of control that senior managers employ to realise strategy and manage organisational tensions. Each of the levers manages an underlying strategic variable: beliefs systems communicate core values, boundary systems specify risks to be avoided, ICS manage strategic uncertainties, while DCS manage critical success factors. As the focus of interest is middle management the study also draws on Floyd and Wooldridges' (1992;

1997) typology of middle manager potential strategic influence to typify four middle management roles: implementing deliberate strategy, facilitating adaptability, championing alternatives and synthesising information.

In the context of this study research question one (section 5.2), concentrates on one specific middle manager role, implementing deliberate strategy. While research question two (section 5.3) examines how middle managers affect change and influence emergent strategy encompassing the roles of facilitating adaptability, championing alternatives and synthesising information. In each of these roles middle managers contribute to different aspects of organisational change. In facilitating adaptability, middle managers alter work practice in line with changing environments; in championing alternatives, middle managers contribute by seeking out new opportunities; and the synthesising role involves middle management bringing in relevant information from the external environment to inform emergent strategy. In section 5.4 empirical findings on tensions that emerge between middle management role expectations are presented. Findings regarding the influence of the LOC in managing such tensions are also presented.

Research questions one and two seek to examine how the LOC guides middle manager roles; in addressing these questions the study draws on the data analysis phase discussed in section 4.8.2. Specifically, research questions one and two seek to examine the interconnection between middle manager roles and the LOC. To facilitate such analysis a series of matrix reports were developed in nVivo to count the instances that interview narratives were coded to middle manager role

dimensions and LOC dimensions; the results are summarised by case and in total in table 5.1-1 below. Co-occurrences between narratives relating to both middle manager roles and LOC dimensions were subsequently identified. The extent of the interaction between dimensions was then determined through the calculation of C-ratios (between 0 to 1: with 1 representing complete co-occurrence and 0 representing no co-occurrence). Results of this analysis are presented in table 5.1-2 for all four cases and for each individual case in tables 5.2-3 to 5.2-6. Sections 5.2 (research question one) and 5.3 (research question two) reference these tables to highlight relevant co-occurrence patterns between middle manager roles and the LOC. In addressing each of these research questions, particular emphasis is placed on significant co-occurrences between dimensions.

Table 5.1-1: Code frequency table

	C1	C2	C3	C4	Total	%
Facilitating	169	228	235	145	777	28%
Implementing	242	216	291	322	1,071	39%
Championing	169	218	69	97	553	20%
Synthesising	69	98	109	81	357	13%
Total role codes	649	760	704	645	2,758	
Beliefs system	73	79	74	74	300	24%
Boundary system	68	74	62	70	274	22%
DCS	83	141	89	96	409	32%
ICS	58	98	57	75	288	22%
Total LOC codes	282	392	282	315	1,271	

Table 5.1-2 Code co-occurrences - all cases

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.11	0.07	0.08	0.06
Implementing	0.12 (B)	0.07 (D)	0.38 (A)	0.08 (C)
Championing	0.09	0.13	0.06	0.07
Synthesising	0.02	0.15	0.02	0.37

Table 5.1-3 Code co-occurrences - Case 1

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.08	0.06	0.13	0.06
Implementing	0.17 (B1)	0.06	0.33 (A1)	0.12 (C1)
Championing	0.10	0.17	0.09	0.06
Synthesising	0.05	0.23	0.01	0.21

Table 5.1-4 Code co-occurrences - Case 2

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.13	0.05	0.07	0.04
Implementing	0.08	0.06	0.44 (A2)	0.06
Championing	0.07	0.14	0.05	0.10
Synthesising	0.04	0.07	0.03	0.53

Table 5.1-5 Code co-occurrences - Case 3

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.12	0.03	0.07	0.07
Implementing	0.08	0.12(D3)	0.41 (A3)	0.07
Championing	0.07	0.07	0.06	0.07
Synthesising	0.00	0.26	0.02	0.37

Table 5.1-6 Code co-occurrences - Case 4

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.10	0.15	0.04	0.07
Implementing	0.14 (B4)	0.05	0.33 (A4)	0.07
Championing	0.11	0.12	0.04	0.02
Synthesising	0.01	0.08	0.01	0.32

5.2 Research Question One

How do the levers of control influence middle managers' role in implementing deliberate strategy?

This section provides insights on middle managers involvement in their role in implementing deliberate strategy included in Floyd & Wooldridges' (1992; 1997) typology (section 3.4.3) and the pursuit of predictable goal achievement in the four case organisations. Evidence strongly supports the significance of this agenda at middle management level. Following this, sections 5.2.1 to 5.2.4 examine how individual levers encourage and facilitate interviewees' implementation activities.

Table 5.2-1 presents interview code frequencies relating to middle manager roles and LOC, which are shown in total and for each case. It confirms implementation as the most prominent of the four middle manager activities accounting for 39% (1,071 of 2,758) of role narratives. Secondly, with the exception of C2, this finding was consistent across cases.

Summarised results of the pre-interview survey (section 4.6.5.1) are presented in Appendix K; this information is revealing in several ways. It further highlights the significance of the implementation role at middle management level evidenced by an average mean score of 4.3 (C1 4.6, C2 4, C3 4, C4 4.4) representing the highest mean score of the four roles. Ranking of each role per respondent, shown in Appendix K, indicates that 33 of the 38 respondents perceived implementation as their primary role. Overall this data confirms implementation of

deliberate strategy as the predominant activity for respondents.

5.2.1 Interplay between DCS and Implementation of Deliberate Strategy

Returning to interview data, narratives related to DCS which coincide with those associated with implementation role are captured in Cell A of table 5.1-2. It is apparent from this table that the strongest co-occurrence between dimensions across the entire data set occurs between DCS and implementation (C-ratio 0.38). Furthermore, this pattern is pervasive across all four individual cases, confirmed by high C-ratios (A1 to A4) in tables 5.1-3 to 5.1-6 respectively. These results clearly show that DCS is the most prominent form of control in guiding middle managers in implementing deliberate strategy.

Inter-play between DCS and implementation of deliberate strategy manifested differently across functional role areas; accordingly, findings are organised on this basis. Table 5.2.1-1 presents the c-ratios measuring co-occurrence between DCS and implementation overall and for each sub-category. As can be seen from the table, with the exception of R&D, the dimensions are highly correlated particularly in Operations and Project-Related roles.

Table 5.2.1-1 Code co-occurrences ratios between implementing and DCS across role categories

		Interviewee role categories				
	Overall	Operations	Project	Sales	Customer Service	R&D
C-ratio	0.38	0.47	0.38	0.23	0.30	0

Table 5.2.1-2 presents a high-level summary of the data for each role

category across a number of dimensions: commonly used systems, illustrative CSFs, characteristics of CSFs, the typical review process, and illustrative issues that prompted further attention from senior managers. This table highlights that traditional management accounting techniques were prominent in DCS, typical systems included: budgeting systems, scorecards and variance systems. More comprehensive analysis of data related to Operations and Project Related roles is provided in Appendices L & M.

CSFs Cascading to Middle Managers

As can be seen in Table 5.2.1-2, management of CSFs were delegated to individual interviewees by senior management through DCS. Within the Operations and Sales functions, budgets or organisation-specific forms of budgets and quality systems, typically facilitated this process. Programme management systems were widely used in conjunction with budgeting systems in Project-Related roles while customer service delivery systems dominated with Customer Service functional areas.

	Interviewee role categories			
	Operations	Project-Related	Sales	Customer Service
Commonly used systems	Budgets, quality systems, safety systems	Programme/ project management systems, Financial & headcount budgets	Budgets, sales pipeline	Service delivery systems, Customer service measurement systems
Illustrative CSFs	Yield, costs, inventory, conformance, cycle time, scrap, variance, equipment utilization	Project milestones, executive per project plan, timelines, delivery within budget	Value of sales achieved on customer and product category levels, Value of pipeline, Adherence to pricing policies	% of queries closed with two/five working days, % of quotations issued within two/five working days, customers perceptions of responsiveness, competency and likelihood to recommend.
CSFs Characteristics	Very tight measurable targets/ scorecards	Tight monitoring of quantifiable timelines. Scorecards/ traffic lights frequently used	Massive focus in C4, loose form of control in C2 & C3	Performance assessed against non-negotiable targets in C4
Typical review process	Real time metrics & variances, Weekly local review of KPI; Monthly/ quarterly reporting to corporate	Weekly programme level, Weekly/ Monthly unit level, Quarterly to corporate, stage reviews	Daily in C4, monthly in C2 & C3	Monthly review
Issues prompting senior manager attention	Exception driven particularly those impacting customers and site metrics, focus on recovery plan	Timeline slippages, client relations issues, resource constraints, emphasis on completion and recovery	Failure to achieve sales targets (C4)	Disruption of service to clients, linked to future revenue streams

Table 5.2.1-2 Cascade, review and escalation of critical success factor through DCS - Operations related roles

As part of their role remit, interviewees were responsible for specific CSFs and the following account provided by one interviewee of how CSFs cascaded to him is illustrative of how this process typically unfolded in the Operations area:

"We would have a planning process, which would come from global supply chain and they would have a sales and operating plan and then we would translate that into a build plan and into our annual operating plan. That would give you targets - your labour burden, material costs...inventory targets, yield targets. All of those would be in your annual operating plan. So that would be your driver. There would be your demand resource plan coming out of that. Then you'd have your sales and operating plan which would filter down into your annual build plan, [then] down into quarterly plan, and whittle down into a monthly plan, and your monthly plans will whittle down into a daily plan."

(Product Line Manager, C1)

One Projected-Related interviewee in C3 describes how project goals cascaded to him: *"on the project management side that's very much milestones and deliverables, every project we are doing has a very clear plan and scope"* (Director of Programme Management, C3). The researcher was able to observe the cascade of CSFs as a number of interviewees shared them on screen: Manufacturing Manager C2, Training & Development Manager C1, Project Manager, C4, Product Manager C1 and Quality Manager, C1.

Middle managers intensively manage CSFs

Not surprisingly the evidence strongly indicated that interviewees directed their activities towards meeting delegated CSFs; one interviewee referred to the budget as *"our bible"* (Finance Manager, C2). Achievement of CSFs was only possible through intensive

management on the part of interviewees, the following quotes typifies the intensity of this process:

"I'd look at it [live production metrics on dashboard] at eight o'clock in the morning, eight o'clock at night and probably twice during the day. I might look at it at eleven o'clock at night as well."

(Manufacturing Manager C2).

For Project-Related interviewees, timelines were foremost in their minds: *"we're always talking about timelines"* (Business Solutions Manager C3). Referring to customer service metrics, one interviewee stressed the level of focus required: *"I need to know how many queries are open at any point in time... that's our bread and butter... I've huge focus on it on a day to day basis"* (Global Service Delivery Manager, C4).

In parallel, interviewees referred to the demands this placed on them and the need to be able to negotiate obstacles, as one interviewee put it:

"Now this sounds rosy, but it's a lot of hard work. And all you need is one upset to throw the apples out ... last month we turned in our target but it was a struggle ... for example, we had a supervisor out. So things happen."

(Product Line Manager, C1).

Pressure intensified as projects neared their scheduled completion dates *"especially approaching the sharp end there would be daily meetings reviewing bugs etc."* (Director CS Division, C4). Interviewees were keen to deliver per commitment; securing additional resources, particularly headcount, appeared to be challenging in Project-Related areas. Referring to a project he was working on, one interviewee

commented: *"I will be under more pressure... the funding is running out...I will try to get as much finished as I can... getting a new budget organised and funding can be a hard thing in C4"* (Project Manager, C4).

Characteristics of CSFs Vary Across Role Categories

For most interviewees, CSFs were very quantifiable, measurable and tight performance targets. This was most evident in the Operations function where typical examples were: yield, output, scrap rates and costs of goods sold (Appendix R). Similarly, in Project-Related roles the data (Appendix S) shows CSFs established specific project timelines and milestones. Interviewees within this category strongly emphasised the importance of completing projects within the specified timeframe: *"key one [metric] is getting the projects released on time"* (Technical Leader C3), *"delivery and execution"* (Business Solutions Manager C3).

Establishing performance expectations in clear and unambiguous terms enabled interviewees to focus intensely on delivering their assigned targets. As one interviewee commented: *"you can't dodge"*. Interviewees commonly expressed the view that CSFs allowed them to easily identify when something is going out of line. For instance, project completion dates provided a concrete goal and interviewees could assess their progress accordingly: *"it's like a barometer, are we on track, are we off track... it's that simple"* (Director of Process Development, C3).

In contrast, there was greater variation in descriptions of the precision

of performance goals between interviewees from Sales roles. For example, in some cases goals tended to be broadly described: *"how we can deliver value... did you achieve the big picture things. And you tend not to have small goals or objectives written down"* (Marketing Manager, C2) and *"growing the business"* (Marketing Manager, C3). One interviewee explicitly contrasted this with his Operations colleagues: *"the engineering group would be very scorecard oriented in terms of meeting [production] schedules and so on. Marketing very less so"* (Marketing Manager, C2). The Account Executive in C4 reported a divergent view. He was accountable for tight revenue metrics, which were monitored against forecast data on a daily basis on both a customer and product category level.

Manufacturing based interviewees (particularly in C1 and C3) were tasked with maintaining compliance with regulatory guidelines: *"lack of compliance, it's just not tolerated"* (Director of Process Development, C3), *"we are really, really careful not to break any of the rules from a regulatory and FDA perspective"* (R&D Manager, C1). Some interviewees mentioned that the site might be subject to an unannounced inspection at any time. As a result, compliance with external regulations was tightly managed. The implications of quality standards were more far reaching than simply a metric as the following quote illustrates:

"It's part of the culture... it kind of goes hand in hand with quality right... It's not about making a quick buck, it's about being a company in this industry for fifty, a hundred years... your reputation is everything, one slip up will cost you way more in reputation."

(Marketing Manager for Europe, C3)

The Routine Process of Reviewing Middle Managers' Efforts in Managing CSFs

Table 5.2.1-2 provides an overview of the process involved in reporting up CSFs to senior management (further detail in Appendices R & S). The table highlights that this is a very structured process; generally it consisted of a weekly review at site management/business unit level followed by a roll up to corporate level on a monthly basis or as part of the quarterly business review. Results tended to become more concise as reviews progressed to higher levels: *"reports just roll up into one"* (Manufacturing Operations Director, C2). The Finance Manager in C2 articulates the key information he reports to corporate, typical of interviewees: *"There's a deck of slides that we put together. A high level P&L, which largely just gives sales, gross margin and spending. Are you in control of those three, are you on plan for the three of those"* (Finance Manager, C2).

Middle Managers Receiving More Intense Scrutiny from Senior Managers

As part of the review process, some issues prompted further attention from senior managers (Table 5.2.1-2) on an exception basis: *"not hitting those numbers"* (Manufacturing Manager C2). As results were quantifiable, interviewees would have advance warning on issues that were likely to escalate: *"I know the monthly plan and I know [when] I won't hear, but the minute I'm over plan I'll get a call"* (Finance Manager, C2). The focus of the escalation process appeared to be on senior management gaining an understanding of the challenges: *"if you're not [achieving targets] you have to explain why you're not"*

(Delivery Executive, C4); “what are you doing to close the gap or accelerate... have you a recovery plan” (Director Commercial Capabilities, C3). Furthermore, interactions between senior and middle managers focused on resolution rather than blame: “*coming in ... the spirit of helping... what assistance can [they] give us versus coming in to go, gee that’s terrible.*” (Production Unit Manager, C3). In contrast, the Account Executive in C4 appeared demoralised by scrutiny from senior management due to challenges associated with achieving sales:

“It’s literally micro-managed... ‘Well what happened last week? Did we hear? Did we put a call into that person? Did we get? Why can’t we?’ So it’s down to that level.”

(Account Executive, C4)

This quote reveals the sense of frustration this interviewee felt. However, the interviewee did acknowledge this strong interest reflected C4 current emphasis on generating sales revenue at that particular point in time. This view was corroborated by one of his colleagues:

“They’re amazingly focused on revenues right now. If you’re doing your number, it’s amazing how much noise goes away. If you’re not doing your revenue number, they can be brutal.”

(Business Development Manager, C4)

Interviewees commented on the importance of articulating to senior managers the ‘contingency plan’ in these scenarios. One interviewee referred to this process as ‘message managing’. The focus quickly shifted to providing a credible resolution, as interviewees perceived this was how senior managers would evaluate their performance.

“It doesn’t matter how well you run a project if things go wrong it’s about how you react to it, how you respond.”

(IP Group Manager, C2)

The importance of meeting metrics was spoken about in the context of

validating their own, their units, and the wider site's capabilities to Corporate. As the following quote highlights, this was perceived as key to local survival:

"I don't think we've ever let the business down. So [Ireland] would be recognised as being very, very strong and capable in those areas [quality, service, bringing new products into operations]. That's what we survive on really."

(Finance Manager, C1)

5.2.2 Beliefs Systems Guiding Implementation of Deliberate Strategy

Cell B in Table 5.1-2 captures narratives (145) related to beliefs system in combination with implementing deliberate strategy with an overall C-ratio of 0.12. There was some variation in strength of co-occurrence between cases. The highest C-ratio scores occurred in C1 of 0.17 (cell B1) and C4 of 0.14 (cell B4). Table 5.2.2-1 summarises how beliefs systems both highlight the importance of, and cascade responsibility for, pre-set goals to interviewees. While there were similarities across all cases, each had their own nuances and emphases. Findings are organised into four areas of focus, each describing the impact as perceived by interviewees.

Advocating commercial focus

Earning a reasonable profit is one of the core principles articulated in the C1 mission statement. The HR Manager explained how this principle translates on a practical level: *"the figures have to add up... that's either you sell more product or you keep your costs down. It's quite simple"*. The CEO credo in C4 emphasised sales revenue 'everyone sells', while credos used in Manufacturing areas in C1 and

C3 referred to 'costs'. Senior management credos in C3 encouraged strong performance "*good to great*" (Production Unit Manager C3), through collaboration "*winning together*" (Process Development Manager, C3). 'Faster' was one dimension of a revised set of organisational values that the CEO was communicating by means of a credo. This had instilled the need for more expedient execution of projects: "*Our real mission then is to be able to execute on time*" (Technical Leader, C2).

Communication of financial metrics as part of corporate and business unit town hall meetings was apparent in all cases: "*I think the focus of those townhalls will be really what were our financials in the previous quarter*" (Service Delivery Manager, C4). Particular focus was given to sales results in C4: "*what's happening with sales*" (Delivery Executive, C4); "*revenue growth, profitability they will go through those KPIs, it's the current quarter, current financial year*" (Finance Manager, C4). Meeting market expectations and being predictable were also identified as part of the routine town hall agendas in C1 and C4. The HR Manager (C1) gave a particularly vivid account of how the CEO used imagery in a powerful way to reinforce this point:

"We need to say what we're going to do and we need to go and do it. And so he [CEO] tracks, and he has a slide in his town hall, and he does it in a step stairs of, you know, Q1 – yes, we achieved. Q2 – yes, we achieved. And he has a great graphic and it is some acrobats swinging, and about how the position of that connection, and if you miss, you fall. But if you miss, a miss is a miss. So he used that in terms of we need to be positioned here. We need to say what we're going to do and we need to go and do it. And missing it by 1% isn't acceptable. We need to be spot on with it."

(HR Manager, C1)

Site or unit level town-halls tended to emphasise productivity and cost metrics in C1, C2 and C4. In addition, the long-term sustainability of

the site was talked about in conjunction with these metrics in C1. Senior managements' consistent focus on these metrics emphasised their salience in interviewees' minds. As one interviewee commented: *"the main mission of any multinational is to make profit and generate value for their shareholders"* (Director Development R&D, C4).

Symbolic reminders were observed in C3. Award plaques recognising individuals for delivery of successful cost rationalisation projects were prominently displayed in common areas.

Advocating Commitment to Quality

Maintaining consistent quality standards emerges as an important theme within this subset of narratives particularly in C1 and C3. As both of these firms operate in the med-tech industry, establishing a culture where quality is a constant priority was critical and evidence suggests that beliefs systems supported this. Quality is explicitly referenced in the C1 mission statement: *"the mission speaks to stride without reserve on the quality side of things"* (Engineering Manager, C1). Interviewees in C1 were acutely aware of the integral importance of quality; they related this to patient welfare, creating a strong sense of individual-level conscientiousness described as "non-negotiable" (CRM, Manager, C1):

"How this then manifests is, it means that you'll have a culture where quality is important because these things go into people's bodies. So it does connect an importance around quality. It drives a culture of responsibility for making sure things are done well because there's big consequences ... they could die if the product isn't of the right quality."

(Lean Sigma Manager, C1)

When asked what formed part of the typical agenda of a town-hall

meeting, a number of interviewees in C1 commented that quality is spoken about at every occasion: *"quality and reliability is spoken about at every [townhall] meeting"* (Engineering Manager, C1); *"key takeaways [from site town-hall] would be, guys, we need to watch quality, absolutely it's always number one."* (HR Manager, C1). Interviewees in C3 also referred to the importance of quality *"absolutely a priority"* (Data Manager, C3) however the evidence did not indicate that this was actively conveyed through the corporate level beliefs systems.

Interviewees in C1 and C3 discussed the use of operational credos that prioritised quality, these were predominantly referred to by Manufacturing based interviewees. These credos provided absolute clarity that quality must be prioritised over other operational concerns: *"Quality always comes first. Quality will trump service and service will trump costs. That's the way it goes."* (CRM Manager, C1).

Symbolic reminders of the significance of quality were evident in C3. For example, a quality commitment logo was visible on all employee identification badges. A quality commitment statement signed by employees was prominently displayed in a communal area. Far less attention was directed to quality in C2 although quality was one of the core operating principles. There was no indication from interviewees that quality was a prominent dimension of organisational values in C4.

Advocating Customer and Service Focus

Interviewees alluded to customer and service related issues being highlighted through beliefs system. Patients are central within the C1

mission statement and this encompasses service excellence. One interviewee explained how this translated to him: *"if a patient doesn't get a product, there can be consequences. They could die because they don't have the product on the shelf"* (Lean Sigma Manager, C1). Service issues are regularly spoken about at site town-halls (C1) further emphasising their significance. Interviewees described how the inclusions of patient and clinician videos in corporate town-halls underscored the significance of customer and service focus. Patient care is also specified in the core values in C3 *"customer and patient care is at the core of everything and they are cascaded on a regular basis"* (Data Manager, C3). Images of clinicians and patients were observed in communal areas of C3. However, the beliefs system in C3 did not emphasise service related issue.

Both C1 and C3 highlight service in their operational credos (while quality is prioritised, service is next). The following quote illustrates how these prioritisations cascaded in practice:

"If we don't have enough of something and I need to run a lot of overtime to get the product out there, I'll get the product out there at a higher cost. I won't say I can't afford to do that overtime so therefore service would be compromised. Service always trumps cost, that's the business we are in. Service to the customer is hugely important. Back order is an absolutely dirty word."

(CRM Manager C1).

Customer satisfaction and engagement was a core value in C4, and interviewees maintained that it was hugely important to senior managers: *"putting the customer first at all times"* (Global Service Delivery Manager, C4). Both corporate and business unit town-halls substantiated this as a review of customer satisfaction metrics formed part of the agenda. Individuals who exceeded customer expectations

were publically recognised. The town-hall agenda included customer interests and this helped build strong commitment:

"There's always a customer in [townhall] telling a story because story telling is so important in the conveyance of goals, objectives and success. So they often get a customer in, they will show a video of a customer. We know that person or we have something to do with what they do and that's magic."

(Senior Development R&D Manager, C4)

The CEO credo (C2) included the term 'clearer'. This was a direct reference to providing a clearer value proposition to key strategic clients. This has resulted in an increased awareness among interviewees of the need to engage with clients.

Explicit Connecting of Unit and Individual Level Goals to Vision and Mission

Some interviewees (C2, C3, C4) explained how their individual or unit level goals linked directly to corporate vision and mission generally as part of the annual goal setting process. The Director of Quality (C2) demonstrated the online system used whereby each of his goals was directly linked back to organisational strategy and vision "*it's alignment*" (Director of Quality, C2). Other interviewees provided accounts of a similar process: "*All of our goals feed into that mission, no matter what goal it is... whether it's efficiencies, whether it's delivering your projects*" (Development R&D Manager, C4). One interviewee in C3 referred to alignment meetings, which formally establishes a connection between broad corporate objectives and how individuals are expected to contribute to them. The following account illustrates how this process enabled individuals to translate from corporate level to their own role:

"Between mission, vision, core values they are always there and the objectives we have on the system we use to track our objectives links them back. So you will see what we are trying to do here, we are developing our core capabilities, which are the values and you link them back to us. All the data issues and what we are trying to do here, it's to enable our core capabilities"
(Data Manager, C3).

Interviewees in C1 did not refer to a similar mechanism. One possible explanation might be that the mission statement in C1 was very well understood relative to the other cases and consequently there was no need to make explicit the connection to individual goals.

The process of connecting individual level goals to corporate vision and mission was more challenging for some interviewees and one interviewee (C3) commented: *"that can be quite a difficult process"*. When probed further he explained:

"I think they are too vague. I think they are very often on slides at senior executives presentation or senior executive communication. And it can be hard to map those to month-on-month objectives or quarter-on-quarter objectives. And sometimes you're just guessing."
(Business Solutions and Support Manger, C3).

Others expressed similar concerns: *"I think people find it very, very difficult to abstract the goals at [CEO level] into what that actually means for them on a day to day basis"* (Product Line Manager, C2); *"sometimes it's hard to get the links because it's such a big organisation"* (Management Accountant, C3). In contrast, others did not perceive any difficulty: *"you can always link them"* (Data Manager, C3) and *"the way I use that is I'll look at that and say okay well that's what the corporation is trying to do, how is that linked to what I'm doing"* (Director of Commercial Capabilities, C3).

Each major product release conference (C4) specifically addressed how this release connected to firm mission and vision. One interviewee described how this forms part of the release ritual:

"For every major release there's a process, and the top level part of that process is everybody turns up virtually to a conference room and there's a kind of entrance hymn that the product management director will talk about the vision and purpose of this release, so people are brought back to this common place."

(Development R&D Director, C4).

Furthermore, the vision also influenced decision making in relation to product releases: *"you look at the top level view and vision of where we are going so when you make decisions, you need to be making decisions that are aligned to the overall direction of where we are trying to go"* (Development R&D Director, C4).

Preset goals	Case 1	Case 2	Case 3	Case 4
Commercial related	<ul style="list-style-type: none"> • Global townhalls review previous quarter financials and forecasts • Local townhall review site metrics and areas where improvement is needed; review of cost efficiencies and cost-down metrics • Mission statement advocates earning a reasonable profit • Long term sustainability of the plant discussed at local townhall and resulting in drive for continuous improvement • Costs specified in operational credo 	<ul style="list-style-type: none"> • Global townhalls reviews quarterly results, emphasises importance of delivery per financial markets expectations and communicate key business goals • Site and unit level townhalls review key operations and revenue metrics • CEO credo emphasises expedient execution to plan • Individual level objectives must be linked back to organisation mission and values 	<ul style="list-style-type: none"> • CEO road tour reflects on prior year, communicates annual operating plan and key business imperatives • Senior management credo emphasises collaboration to improve performance • Individual level goals aligned to site and corporate objectives at alignment meetings • Townhalls communicate how initiatives will deliver market share • Projects and initiatives linked back to vision and mission • Symbolic award plaques for cost saving projects displayed in public area [observation] 	<ul style="list-style-type: none"> • Generating sales is specified in the organisation and business unit mission statements and senior management credo • Townhalls highlight importance of meeting financial market expectations, review previous quarter results, financial outlook and strong emphasis on sales • Each major release virtual conference references contribution to vision • SLT cascade their vision incorporating profits and cost management as part of annual goal setting process and culture of tight centralised cost management

Quality related	Commitment to quality and product reliability specified in organisation mission statement	Culture of high quality and right first time specified in manufacturing principles	Overarching quality mission statement	
	Importance of quality reinforced at all global and local town halls		Quality prioritised in operational principles	
	Quality prioritised in operational credo		Symbolic reminders of importance of quality e.g. signed quality commitment, logo on ID badges [observation]	
	Quality failure & impact on patient care is discussed at local town halls and drives culture of quality excellence			
Customer/service related	<ul style="list-style-type: none"> • Emphasis on getting right product to right location • Service specified in operational credo • Service issues highlighted at town halls • Impact on customer considered when faced with trade-offs • Patient/clinician videos shown regularly at town halls to demonstrate impact 	<ul style="list-style-type: none"> • Global town hall advocates strong solution-based delivery to key strategic clients • Value for money specified in manufacturing principles 	<ul style="list-style-type: none"> • Patient care specified in core values and service specified in operational credo • Symbolic images of patients and clinicians in public areas [observation] 	<ul style="list-style-type: none"> • SLT cascade their vision for customers as part of annual goal setting process • Customer satisfaction indices reviewed at business unit town halls • Customer first core value • Award system publically recognises staff for exceeding customer expectations • Enabling customers to buy is specified in mission statement • Customer videos demonstrating impact frequently part of town halls

5.2.3 ICS and Implementation of Deliberate Strategy

Narratives relating to both implementing and ICS are captured in cell C of Table 5.1-2 that displays a relatively low C-ratio of 0.08 indicating a limited co-occurrence between the two dimensions. With the exception of C1 this is consistent across all cases. Cell C1 (Table 5.1-3) shows a C-ratio of 0.12, is noticeably higher and consequently a relatively higher co-occurrence exists between the dimensions in C1 compared to the other three cases (C2: 0.06, C3: 0.07, C4: 0.07).

Further examination reveals that the narratives in C1 related to ICS being used to resolve issues that are normally managed through DCS but circumstances had caused them to escalate to the extent that they were considered a strategic uncertainty and resulted in significant attention from senior management. This theme came up in relation to a quality issue, product failure in the field, demand spike, and production line being down: *"most of what escalates is per the strategy"* (Lean Sigma Manager, C1). In all cases, the informants adopted a pragmatic attitude, and focus was firmly directed to resolving the issues in all cases. It was suggested by the Finance Manager that *"if we're getting attention from the senior leadership team here in [Irish location] we probably deserve it, there's something not being done right and it needs to be rectified"* (Finance Manager, C1).

In their accounts of the events surrounding such scenarios, interviewees were required to assess the situation, plan and resource a resolution and ensure senior management and other relevant stakeholders were kept fully informed.

5.2.4 Boundary Systems Influence on Implementation of Deliberate Strategy

Cell D in Table 5.1-2 captures the co-occurrence in narratives relating to boundary systems and the implementation role, which results in an overall C-ratio of 0.07. This suggests that boundary systems exert a limited influence on implementing deliberate strategy activities. A somewhat stronger co-occurrence between the two dimensions emerged in C3 with a C-ratio of 0.12 (Cell D3 Table 5.1-5).

Dialogues referred to a number of different issues but all referred to operational boundaries. References to compliance with code of ethics was prominent in these narratives: "*corporate do deem it very important*" (Management Accountant, C3); "*it is very, very visible and clear*" (Process Development Director in PD, C3); and "*I would say it's taken very seriously*" (Director Strategic Business Support, C3). Quite a number of interviewees spoke about the requirement to complete mandatory annual code of conduct training. Regulations around holding patient data were also raised as a concern; data protection was critical. In addition, a number of interviewees mentioned the importance of maintaining compliance with external regulatory bodies such as GAAP, Sarbanes-Oxley, FDA and CE Mark.

For a med-tech organisation, patient care and quality is critical, and interviewees addressed both of these issues. As one interviewee put it:

"We are making devices which get implanted in the patients. So a huge focus on making sure that our whole design elements or manufacturing is always about safety of patients, so that's paramount"

(Director of Programme Management, C3)

For interviewees, this cascaded as standard work practices for daily tasks; adherence was absolutely essential:

"We've got work standards, everything has to be done exactly that way, because if we don't do it in that way, the product won't be in theory manufactured the way it needs to be, somebody might die [is] the worst case scenario. So definitely what's off limits for us is behaving against standard practice and procedure."

(Management Accountant, C3)

Elaborating this issue, another participant pointed to a strong connection between organisational reputation and robust quality and ethical practices:

"In this industry you have to have good quality, it's not about making a quick buck, it's about being a company in this industry for fifty years, a hundred years. Your reputation is everything, one small slip will cost you way more in reputation... the quality standards are high."

(Marketing Manager for Europe, C3).

5.3 Research Question Two

How do the levers of control influence middle managers' role in driving change and contributing to emergent strategy?

This section reports findings relating to interviewees' function in affecting change. It uses constituents of middle management strategic influence identified in the literature (section 3.4.4) to structure the analysis of findings. Evidence regarding the prevalence of the change agent role for interviewees is reported. Following this, sections 5.3.1 to 5.3.3 explore how individual levers drive and facilitate change agent activities of middle managers across the four cases.

To recap on what was stated in section 3.4.4, the change agent role manifests through the combined influence of synthesising, championing and facilitating adaptability activities. These roles represent important activities for interviewees and account for 1,727 (61%) of total narratives (Table 5.1-1). While the implementation role was perceived as the most significant by interviewees (Table 5.1-1) this is followed by facilitating adaptability (28%), championing (20%) and synthesising (13%) roles.

5.3.1 Middle Managers Role in Facilitating Adaptability

As detailed in section 3.4.4, facilitating adaptability was defined as "*fostering flexible work arrangements*" (Floyd and Wooldridge, 1992, p. 155). In this role, middle managers are expected to be alert for changing conditions, to experiment and to adapt work practices to the changing environment. Facilitating activities accounted for 28% of total role-related narratives (Table 5.1-1). While this was reasonably

consistent across all cases, it was more prominent in C2 and C3. Analysis of the pre-interview survey responses reveals an average mean score of 3.4 (Table 5.3.1-1 & Appendix K) and an overall ranking of fourth. Consistent with the greater prevalence of facilitating activities during interviews with participants from C2 and C3, facilitating ranked third in both cases.

Table 5.3.1-1 Pre-interview survey results – analysis of facilitating role

	C1	C2	C3	C4	Overall
Mean score facilitating activity	3.68	3.1	3.36	3.37	3.4
Comparative ranking of facilitating activity	4 th	3 rd	3 rd	4 th	4 th

Focusing on interview data, interplay between facilitating and each of the levers is captured in Table 5.1-2. This shows that beliefs were the most influential form of control for facilitating activities. As Table 5.3.1-2 shows, each of the remaining levers had only a noticeable influence in the context of a particular organisation or role category.

Table 5.3.1-2 Code co-occurrence facilitating role – within function

	Operations	Project	Sales	Customer Service	R&D
Facilitating * Beliefs	0.12	0.12	0.09	0.03	0.04
Facilitating * Boundary	0.04	0.05	0.14	0.25	0.00
Facilitating * DCS	0.11	0.06	0.01	0.07	0.04
Facilitating * ICS	0.06	0.05	0.00	0.10	0.24

5.3.3.1 Beliefs Systems and Facilitating Adaptability

Table 5.1-2 highlights a reasonable co-occurrence between beliefs and facilitating activities (C-ratio 0.11). The interaction between the two dimensions was somewhat stronger in C2 and C3. Issues raised within this subset are summarised on a case-by-case basis in table 5.3.3.1-1

which specifies how beliefs systems guided facilitating activities and the resultant impact on interviewees.

As table 5.3.3.1-1 shows, interviewees in C1 perceived that beliefs systems steered adaptability in two ways. Firstly, senior management cultivated a culture of continual improvement; this manifest as a *"vision, continuous innovation by everybody every day"* (Lean Sigma Manager, C1). Continual improvement was perceived as being responsive and the means to overcome any challenges that presented. Secondly, organisational core values and the mission statement both advocated valuing all employees. The Senior Engineering Manager explained how this was critical to engaging employees and cultivating an environment where grass-roots improvements were encouraged:

"Particularly people on the floor first of all, they're the experts in the process and they may have an idea. Some of them are good, some of them are bad. No matter what, they should be valued and respected... keep the engagement because if your workforce is not engaged you're not going to achieve anything."

(Senior Engineering Manager, C1)

High levels of employee engagement enabled the plant to be responsive in the face of challenge:

"We've just said we'll do this and now we've been given an even more strenuous target, and we've to look and say, ok that's our new target. Right how are we going to achieve that? In order to do that, this is what we need to do"

(Senior HR Manager, C1)

Underpinning the CEO (C2) credo of 'clear, bolder, faster' was the need to adapt to a changed business environment; execution and delivery were closely aligned to this. This was reflected in the course of the interviews:

"There's a lot of talk of execution, there's a lot of talk about system level and relationships with strategic key customers..."

there's a lot of focus on that, but you can only do that if you can actually execute so execution is key."

(IP Group Manager, C2)

The importance of delivery was further emphasised by the inclusion of the word 'delivery' within the corporate logo: "*so we know we have to deliver*" (Director of Quality, C2); "*we need delivery as well*" (Project Manager, C2).

Interviewees in C2 provided examples of recently changed work practices, in line with senior management values. For instance, there was a heavy emphasis on right first time in the context of product design. This was perceived as key to meeting client delivery commitments.

Delivery of client commitments was seen as central to fostering and maintaining collaborative relationships with key strategic clients, another key dimension of the CEO agenda.

"We are constantly reinforcing the message, whether it's the commitment to the commits... 'right first time' might be a stretched goal, but people understand it's that, it means that [product design] needs to be as good as it can possibly be... you are enabling the customer."

(IP Group Manager, C2)

The Marketing Manager shared another example: "*This new CEO is definitely trying to deliver very simple messages in terms of how we need to change... from a sales perspective, [it] would be that it's taking us too long to get our ideas to market*" (Marketing Manager, C2). This was prompting middle managers to converge innovation efforts and reduce the number of on-going projects. As a result, much greater attention was being directed to the project selection process. A

strong value proposition had to exist reflecting the 'clearer' constituent of the CEO credo. This was also conducive to developing relationships with key strategic customers advocated by the CEO. Interestingly, one interviewee noted that criteria for promotions were becoming broader to encompass revised organisational values. Heretofore effectively the only factors of concern were innovation and technical excellence. More recently, on-time delivery and execution had also become important considerations.

As discussed in section 5.2, evidence from interviews revealed that beliefs systems were more disparate across C3. Tag lines used by senior management promoted improved performance. The Production Unit Manager described an on-going initiative within his own unit to implement the framework and principles of operational excellence. These principles were initially spoken about at unit-level town halls where an example and a video demonstrating the application of the principle would be presented. Following this, discussion would take place *"as to how we can embrace these better in everything we do, changes we'd like to see and capture that"* (Production Unit Manager, C3) to deliver higher performance.

Table 5.3.3.1-1 Summary of how beliefs systems guide facilitating adaptability across cases

	Evidence of how beliefs systems guide facilitating adaptability	Evidence of how this translates into action at middle manager level
Case 1	<ul style="list-style-type: none"> • Senior managers advocate culture of long-term mutual sustainability through continuous improvement • Corporate core behaviours advocate respecting employees & mission statement refers to valuing employees 	<ul style="list-style-type: none"> • Continuous improvement enables site to respond to challenges presented • Everyone has freedom to 'can' ideas that might prompt change
Case 2	<ul style="list-style-type: none"> • Execution & delivery efforts linked to CEO credo • Delivery is included corporate logo • Clearer is specified in CEO credo 	<ul style="list-style-type: none"> • Attaching greater importance to deliver per commitments • Project selection process incorporating revised CEO agenda • Weight attached to execution & delivery in promotion decisions
Case 3	<ul style="list-style-type: none"> • Senior management tagline 'winning together' promoted internal collaboration • Principles of operation excellence promoted at unit level town-hall • CEO raises concerns about speed of incremental innovations at town-hall meeting 	<ul style="list-style-type: none"> • Greater focus on collaborative relationships • Catalyst for improvement within Operations • Project team established to expedite incremental innovation
Case 4	<ul style="list-style-type: none"> • Everyone sells core element of CEO credo 	<ul style="list-style-type: none"> • Alert for potential opportunities to generate revenues • Stimulating exploration of internal revenue generation opportunities

An interviewee in C3 provided an account of a project to change work practices prompted in response to concerns that key physicians perceived C3 as comparatively slow to act on their feedback and release new incremental products. It was perceived that *"over time doctors are migrating to these start-ups and the term that was used was we have lost the share of mind, doctors no longer thought we were innovative or relevant"* (Project Leader, C3).

"The message from the top, the CEO of the company about 18 months ago, [which] opened up the path for us to do something, the CEO said we are an ageing elephant in the company, we need to do something about innovation"

(Project Leader, C3)

This was the catalyst to form a product development team, modelled as an internal start-up. The objective was to dramatically reduce the launch time for new product iterations; the team had enjoyed recent success in this regard which the Project Leader attributed to:

"Break[ing] down bureaucracy in C3, challenge all the systems that are there over years and get through the product development system quicker. Change their thinking about why it's not necessary or why okay to do it a certain way that's not the prescribed system. So now we have people coming to us saying actually we want to use that approach on this other product."

(Project Leader, C3)

As the above quote conveys, the team had transformed work practices; senior management had communicated the successes of the team through formal communications *"a lot of positive airplay"*. This had a far-reaching impact:

"It all changed from that and suddenly the language of the company is starting to change, the words people use are starting to change which is interesting, you look at it and you read about this stuff and it's actually happening right before our eyes."

(Project Leader, C3)

'Everyone sells' was an integral element of the CEO credo in C4 as table 5.3.3.1-1 shows findings revealing that interviewees were alert to changes in the environment and potential opportunities this might present to drive revenue. One interviewee explained how he adapted his work practices in line with this by expanding the service offerings to clients to include the wider C4 offering rather than confining selling effort to his business unit offering. Similarly, another interviewee referred to the importance of his business unit town hall as a forum to learn about what the wider business is doing and how this might translate into local opportunities.

"We can't be blinkered in our world that we do X in [our area] and we don't care about the wider [business unit], we have to care about them because in fact there are opportunities for our business to grow if we know this person is selling a particular service. We know software is going to be part of it... use us."

(Business Development Manager, C4)

5.3.1.2 DCS and Facilitating Adaptability in Case 1

A reasonable co-occurrence (0.13) emerged in narratives related to facilitating and DCS in C1 (Table 5.1-3). By comparison this co-occurrence was significantly higher than in the other three cases. Findings indicate that DCS steered facilitating tasks in a number of ways.

A number of interviewees referred to a systematic improvement/innovation process, 'A3', used throughout the organisation. This process was an integral element of the broader Lean

Manufacturing strategy adopted by the site, and was used to manage all forms of improvement ranging from major strategic reforms to minor scope issues. There was a clear expectation that all staff take on improvement projects: *"we do expect everyone to proactively look to how they're doing continuous improvement activities"* (HR Manager, C1). The Quality Manager echoed this view; in his unit, all staff are assigned the goal of working on an improvement project. Examples discussed were: defective kinking of product; adaption of staff records to reflect various types of leave; request for training course; issues with IT system; and modification of training course to increase application of learning by attendees. As the HR Manager highlights in the following quote, innovation in this context is interpreted as process improvement rather than radical innovation, which applies not just in operations but extends across all functional areas:

"When we talk about innovation here, say in the HR function, is to innovate in terms of looking at new ways of doing things and improvements to the process that you are working with. Being more at the leading edge and best practice. Innovation can take all forms."

(Senior HR Manager, C1)

An A3 is initiated through 'problem cards' that any member of staff can raise. A number of problem cards highlighting a similar issue will compel the staff member responsible to commence an A3 for the issue to systematically investigate and resolve the problem.

The evidence suggested that once an A3 was opened, it followed a very structured process: project owner formed team, project champion assigned (frequently interviewees themselves), necessary improvement identified, lead person appointed and timeline established. Resource allocation was dependent on this system: *"you'll*

find it would be difficult to resource a project or get support for it without an A3, the first question somebody will ask is, have you started an A3 on it and, if not, why not." (Training & Development Manager, C1). Actions were subsequently monitored against timeline. For larger scale projects, project owners updated champions on progress at weekly project review meetings. Monitoring also had a visual dimension; display boards (observed by researcher in three locations) detailing all A3's currently in progress and recently closed were prominently displayed. Interviewees explained how they served as a visual management tool to monitor progress and enabled anyone to get immediate status update on any issue. This raised the visibility of both individuals' involvement in and their progress toward achieving identified improvements.

The Lean Manufacturing strategy further managed process improvements within Operations. The Lean Sigma Manager described a measurement tool specifically developed to measure individuals' process improvements. Workflows are categorised as in either the stability region (signifying slow improvement) or the improvement zone (indicating regular improvement) and these are reported on routinely. The Lean Sigma Manager described a shift in emphasis in performance management:

"The traditional management system looks at results; it tries to manage the results. We're in a state of change on the site at the moment. I personally don't spend much time on managing result. I focus on inputs. That's our focus on strategy. Are we delivering the strategy? If we deliver the strategy, then we will get the results. There's a transformation happening on the site in relation to that at the moment. The culture change is you do less and less of looking at yesterday's news and more and more of problem solving for tomorrow."

(Lean Sigma Manager, C1)

5.3.1.3 Boundary Systems and Facilitating Adaptability

Tables 5.1-6 & 5.3.1-2 indicate a relatively stronger co-occurrence between boundary systems and facilitating adaptability in C4 and specifically associated with Customer Service interviewees. The Account Executive (C4) perceived the need for diversification as very pressing as they endeavoured to expand their sales pipeline by sector-specific targeting. Leveraging technological opportunities to complement existing market offerings was central combined with a greater understanding of customers needs: "*rather than going to them with a blank*" (Account Executive, C4). The Global Service Delivery Manager commented that the imposition of benchmarks for percentage market share prompted closer working relationships with account managers who have responsibility for full portfolio offering to individual accounts.

5.3.2 Middle Managers Championing Role

Section 3.4.4, described championing strategic influence as "*the persistent and persuasive communication of strategic options to upper management*" (Floyd and Wooldridge, 1992 p. 155). Through championing activities, middle managers participate in bottom-up promotion of ideas that potentially allows them more control over the future. Table 5.1-1 shows that 553 (20%) narratives were associated with championing and it highlights some inter-case variation. Generally there was more emphasis on championing in C1 and C2 than the other firms.

Focusing now on the results of the pre-interview survey described in section 4.6.5 (Appendix K), championing emerges as the second most prominent role for respondents with an overall average mean score of 3.6. As shown in Appendix K, this ranking position remained consistent across each of the four cases.

Tables 5.1-2 to 5.1-6 summarises the C-ratios between championing and each of the LOC by case and in total. A reasonably strong co-occurrence emerged between boundary systems and championing at an overall level (0.13) and with the exception of C3, this was consistent across the individual cases. In addition, there was evidence that beliefs systems and ICS were influential in championing activities in specific cases.

5.3.2.1 Boundary Systems and Championing Role

Co-occurrences (0.13) between narratives concerning championing activities and boundary systems are captured in table 5.1-2. A number of common themes emerged from the analysis and each of these are discussed in turn.

Broad Delineations at Firm Level

Championing activities were very broadly delineated through the use of wide scoping strategic boundaries in each of the four cases. For example, C2 only operate in business-to-business markets and within that are confined to specific sectors such as industry, automotive, medical and communications. Similar restrictions apply in C4 as they operate business-to-business in specific domains and only work with clients that are major enterprises or public utilities. In C1, R&D

opportunities must relate to vascular systems. Likewise, C3 focus on specific disease states. The following quotation is illustrative of views expressed:

"We like to play in the business to business of industry, automotive, medical and communications markets ...so they are our four key and we align ourselves to that type of strategy, here's the major industries we are playing into, this is the type of thing we want to do."

(Manufacturing Operations Director, C2)

Strategy Deployment and Scope

Evidence indicated that overall organisation strategy was formulated centrally by senior management at corporate level and cascaded to a local level. The process of how this manifests in each of the cases had its own nuances. In C1, global strategy was translated to a local level through the C1 Operating Strategy; in C2, interviewees related this cascade process to the benchmark plan; and through the annual strategy setting process in C3 and C4. Broadly these strategy cascade systems set the parameters within which the Irish sites could seek out opportunities.

Regarding scope, interviewees generally perceived that they could influence direction at a local level but opinions varied in relation to broader influence. Some interviewees described a narrower scope than others. Even within C1, there were divergent views. For example, one interviewee commented *"is it consistent with strategy, with site charter"* (Product Line Manager, C1), while another argued that the Irish location exerted little influence at corporate level: *"we don't have a huge amount of input into the overall strategy of Case 1"* (Finance Manager, C1). This contrasts with the view expressed by a colleague:

"Pretty good bandwidth. We don't get handed a piece of paper with three things written on it and say do this. We have a lot of scope to look around and drive the business."

(Product Development Director, C1)

Findings suggest that adhering to strategy did exert a constraining force. As one individual stated, *"we have to integrate it in some way so those sorts of decisions are not within our hands"* (Director of Business Support, C3). Another interviewee expressed a similar viewpoint:

"Anything we want that makes business case sense... I believe we've got the mechanism and the wherewithal to go and champion that business case, get the investment to do it, but then we have to deliver on it".

(Production Unit Manager, C3)

The Product Development Director in C1 raised an interesting issue; the CEO had recently assigned targets for market share increases of 20% in emerging markets directly to R&D managers. On one hand he (as noted above) perceived *"pretty good bandwidth"* to explore ideas but on the other, delivery targets were specified and his performance was to be measured against this benchmark. In his particular case, boundary systems allowed creative freedom but simultaneously imposed constraints.

Metrics

Evidence emerged that financial targets and controls were used as a mechanism to establish acceptable domains for interviewees to pursue championing activities. As the Marketing Manager (C2) put it: *"as long as it delivers from a financial perspective"*. In C2, proposed projects had to exceed an explicit margin:

"40% margin is a bit of a magic number, if you are below 40% all kinds of alarm bells are going off."

(Product Line Manager, C2)

'Margins' was a word repeatedly used by all C2 interviewees, indicating its widespread use as a form of boundary control. In addition, the organisation had developed sophisticated tools for evaluating potential projects through stage-gates, payback and rate of return *"there's certain curves you have to meet, if you are below this curve that project is not going to contribute to the growth that C2 wants to achieve"* (IP Group Manager, C2). Interviewees were pragmatic as the following quote illustrates:

"We are resource constrained ... at the end of the day there's a bottom dollar, it's fairly ruthless if you are not profitable or if there isn't a clear path to profitability... there is a huge focus on return on investment."

(Product Line Manager, C2)

Similarly in C1, revenue growth targets were established and project evaluation systems, project plans and budgets were used. While interviewees in C3 were subject to budgetary and project timeframes, metric related constraints did not appear to be as prominent as C2. Revenue growth was a pressing concern in C4, given the forthcoming corporate split, and ideas appeared to be evaluated based on their ability to generate short-term revenue. The following quote is illustrative:

"From a commercial perspective it's all driven by revenue... where short-term can we get revenue in this year and where can we get revenue in next year."

(Director Development R&D, C4)

While each of the processes described clearly establishes minimum

acceptable standards, there was evidence that these boundaries could be pushed. One interviewee argued that the R&D outcome, *"did I want a lada, or did I want a BMW"* (R&D Manager, C1) were dependent on individual willingness to challenge boundaries:

"In the phase zero projects, there are budgets and there are boundaries and you shouldn't cross them, but you can and you don't get any trouble that would be my experience. So if you want to push it you can, but you have to be willing to push it, so lots of guys will push it but stay within the boundaries and that's fine, but that limits what you end up with. To my mind you end up with something slightly different if you push beyond the boundaries and you get into a little bit of trouble every once in a while and then you find those couple of nuggets and after you get a slap on the wrist, you shouldn't have done that, but what you got there was good, so you know it was worth it."

(R&D Manager, C 1)

Interviewees identified market share and market positioning as critical metrics in applying constraint to their championing activities. For example, a common view amongst interviewees in C2 was that the company strives to be the market leader *"if we are in an area, we need to be successful in it... we make a conscious decision... no point being 30% in it"* (Project Manager, C2). Consequently, there was considerable emphasis on time-to-market *"number one getting there, second or late you know you're going to have trouble"* (Product Line Manager, C2). Interviewees in C3 provided similar accounts *"one of our corporate strategies is we want to be number one or number two in every market that we play in"* (Director Programme Management, C3). The implication of this was that it was only feasible to pursue certain opportunities, either *"untapped needs"* or markets where they can *"go into at four [fourth market position] but after a very short period of time we will cap the market"* (Director Programme

Management, C3).

Circumventing Boundaries to Champion Below the Radar

Case 4 appeared to have established a strong local culture of incubating innovation described by one interviewee as a '*conscious decision... to be below the radar and let it formulate*' (Director Development R&D, C4). This point was reinforced by one of his colleagues: "*this business [unit], it started here in X, we innovated, we put it together, we didn't ask for permission, forgiveness rather than permission was our mantra*" (Business Development Manager, C4). Interviewees perceived that championing ideas below the radar was core to local success. The Business Development Manager expressed frustration at the challenges associated with seeking approval from senior managers:

"I'm around here long enough to know sometimes you're better off to do stuff and be a little innovative and creative yourself and bring it in as a shadow innovation and give it room to bud and to grow before somebody starts killing it... I'm going to have to explain myself, defame myself, get kicked around by 5 or 6 managers that are just Rottweiler's for no good reason other than flex their muscles and let me know who they are. I couldn't be bothered, I can do this and bring it in under the radar screen and I'll give it life."

(Business Development Manager, C4)

His quote provides interesting insights into the personal cost of championing ideas. It also highlights the importance of the local incubation period. To progress an idea he believed that it was necessary circumvent or intentionally ignore strategic boundaries. Of further relevance here is the fact that middle managers supported each other in their championing endeavours: "*I've a new idea but it requires a bit of engineering support, I need a developer to come in and work on it, I'll give you one of my guys to help you get this off the*

ground" (Business Development Manager, C4). This was referred to as a 'spiders web'.

Limiting Individual Level Opportunity Seeking

A dominant culture of strong innovative engineering was evident in C2 and it was highly prized. This emphasis had resulted in a tendency to relentlessly pursue innovation at the expense of commercial concerns. The recently appointed CEO was trying to rebalance and place more emphasis on commercial performance (section 5.2.2). To achieve this aim, relationships with Key Strategic Customers (KSC) were strongly advocated. The findings suggested that the margin threshold (discussed above) were applied more loosely when evaluating KSC projects thereby they were viewed more favourably: "*you can go after lower margin business but it has to be strategic [for KSC]*" (Product Line Manager, C2). The application of margins was converging championing activity in a definite direction thereby exerting a constraining effect.

Complying With External Regulations

The issue of compliance with external regulatory bodies was raised by a number of interviewees, all of whom stressed the importance of maintaining compliance. A number of interviewees pointed out that the external regulatory systems impose practical constraints: "*in medical devices you are constrained by human anatomy and regulations*" (R&D Manager, C1). Regulatory bodies must grant approval for even very minor changes:

"We are highly regulated ... so we cannot ad lib and say, that's a great idea, go implement. We have a much more rigorous process to follow before an idea can actually get translated into a change."

(Product Line Manager, C1)

Respecting Competitors' Patents

Securing patents is fundamental part of the research and development process in the medical device industry. Consequently, the potential to infringe other firm's patents constantly exists and this issue was brought into focus by interviewees especially in C1. A common view expressed was that inter-company litigation was relentless: *"it's warfare out there ...there's litigation going on all the time"* (Finance Manager, C1). He expanded on this point by explaining that C1 had recently lost an infringement case and as a result were paying significant royalties. Nonetheless, there was a sense that interviewees adopted a pragmatic view: *"we're constantly bumping into everybody's IP and then trying to work around it"* (Product Development Director, C1), *"there's variations that you can work with"* (Engineering Manager, C1) and *"I don't see it as a major barrier"* (Finance Manager, C1).

Table 5.3.2.1-1 Summary findings boundary systems and championing activity – within case		
Form	Manifest how	Implications for middle managers
Case 1		
Strategy	Mandate cascades from global strategy through strategy deployment process; reasonable scope to explore once it creates shareholder value; CEO strategic imperatives	<ul style="list-style-type: none"> • Global strategy set and cascades to local level, sets parameters • Mainly concerned with implementing existing strategy • More scope in R&D roles within vascular system • All opportunities that create shareholder value are considered • CEO strategic imperatives: economic value, globalisation and services; these are the green spaces where opportunities can be explored and activities must be aligned to these areas • Importance of delivering on service, quality and costs to ensure site is well positioned for further opportunities • Close relationship with pipeline marketing to develop portfolio
Metrics	Budgets for all R&D projects; CEO growth target	<ul style="list-style-type: none"> • Budgets for all projects specifies timelines and monetary amounts • Limits often pushed to realise full potential of innovation, no consequences • CEO has set target of 20% market share growth in emerging markets • CEO has set growth target of 5% • Filter system to evaluate return on investment, gap, consistency with site charter, and competitors activities
Patents	Patent portfolio management	<ul style="list-style-type: none"> • Frequent product iterations minimises impact of IP issues • Establish strong IP in certain spaces to constrain competitors actions • Must avoid certain competitor patents • Frequent litigation
Case 2		
Strategy	Business to business markets only; serve specific industry sectors; more strategizing evident since new CEO appointed; recently divesting activities; and market leader aspirations	<ul style="list-style-type: none"> • Business to business markets – specific areas within that of industry, automotive, medical and communications • Highly innovative products, solving challenging engineering problems • Questioning how the company delivers value in each of the markets they operate in • Recently have been divesting business areas no longer aligned with strategy • Play to win ethos
Metrics	Emphasis on margins and targets to establish minimum performance expectations	<ul style="list-style-type: none"> • 18% of revenue reinvested in R&D • 10% overall growth year on year • Minimum margin of 40% • Only 15% of parts deliver the forecasted return, target to increase that to 20% • Stage gate process for new projects- 3, 5 & 7 year payback; return curves that must be met • Number one in market with new innovation or revenue will not be delivered • Shifting focus to smaller markets where they can take a substantial market share • Benchmark organisational performance against market and financial performance relative to competitors in each of their technologies – sets targets of minimum accepted performance

Building relationships with KSC	Pursue opportunities by solving KSC problems	<ul style="list-style-type: none"> • Sets boundaries of innovation opportunities • More leeway on margins when fostering relationships with KSC • Domain of internet of things – green space
Patents	Patent management	<ul style="list-style-type: none"> • Very high number of patents
Case 3		
Scope/strategy	Business case process; strategy cascades from headquarters; new disease states	<ul style="list-style-type: none"> • Medical device • Currently work with specific disease states • Considering new disease states but substantial investment required and constrained by expertise they have • Can champion new ideas via business case process but subsequent delivery is critical • To move into other areas takes considerable effort to convince senior management • Strategic projects cascade from strategic imperatives • Tension with other sites moving into ‘their’ areas becomes political
Market positioning	Aspiration to be number one/two	<ul style="list-style-type: none"> • Strategy to be market leader or second in every market; this limits opportunities that can be pursued as needs to be either unmet need or can scale up rapidly to outstrip competition • Strategy to remain within current customer space and continue to meet their needs • Investment required to achieve number one position is huge and demands market share in the billions
Patents	Potential patent infringements	<ul style="list-style-type: none"> • Conservative regarding interactions with competitors
Case 4		
Scope/local culture	Innovation encouraged; under the radar innovation prevalent;	<ul style="list-style-type: none"> • CEO credo encourages individuals to explore • Ambitious revenue targets set and exceeded • Middle managers incubate innovation locally before approaching corporate • Middle managers offer collegial support to harness innovation locally
Strategy	Business to business; domains; strategy cascades down; limited resources; broad scope; portfolio management	<ul style="list-style-type: none"> • Customers are major enterprises/public utilities • Operate in specific domains: cloud, security & privacy, mobility and big data • Strategy determines fiscal tactics and projects • Limited headcount constrains opportunities that can be explored • Aggressively overtake competition • Diversification is encouraged • Prepare for new technology waves and drive game changing innovation • Formal process to funnel ideas
Metrics	Strong emphasis on revenue growth	<ul style="list-style-type: none"> • Boundaries very flexible in the context of aggressive pursuit of revenue growth • Requires substantial effort on part of middle managers to push boundaries

5.3.2.2 Beliefs Systems and Championing Role

Tables 5.1-3 and 5.1-6 capture narratives that simultaneously refer to both championing and beliefs within C1 (0.10) and C4 (0.11) respectively. In both of these cases, the C-ratio was higher than the average result across the entire data set (0.09) indicating a somewhat stronger inter-play in these firms. Further investigation revealed very little inter-role variation (Table 5.3.2.2-1).

Table 5.3.2.2-1 Code co-occurrence championing role – within role

	Operations	Project	Sales	Customer Service	R&D
Championing * Boundary	0.14	0.12	0.06	0.19	0.14
Championing * ICS	0.04	0.08	0.10	0.00	0.06
Championing * Beliefs	0.06	0.08	0.08	0.04	0.08
Championing * DCS	0.02	0.07	0.06	0.04	0.17

Table 5.3.2.2-2 summarises the ways in which beliefs systems promoted innovation and seeking out new opportunities in C1 & C4. For example, the C1 mission statement positively encourages research and development, promotes advances in biomedical engineering and emphasises focused growth. These goals resonated with middle managers, as one interviewee put it: *"if we don't get involved in innovation, then we're going to stagnate and we're not going to be here"* (Quality Manager, C1). Similarly, interviewees referred to the strong messaging by the CEO of corporate imperatives prioritising innovation: *"he now has a clear imperative that he wants us to drive which is... optimising innovation and accelerating globalisation"* (Product Development Director, C1). There was evidence that these imperatives were shaping actions:

"People are now trying to tweak what they are working on to make sure it is aligned with CEO's new imperatives for the business... he is significantly changing the way the organisation is, the organisation was very slow to embrace the international R&D or emerging market requirements. CEO has just pushed everybody that way and people are changing."

(Product Development Director, C1).

To stimulate this vision, the CEO has made R&D managers accountable for increasing market share in emerging markets by 20 per cent. A number of interviewees described how patient and physician videos which highlighted the potential of biomedical engineering to transform recipients' lives formed part of the routine town-hall agenda. The researcher observed symbolic reminders of the importance of R&D during site visits. For example, the word 'innovation' in numerous languages formed a mural in a reception area and the 'innovation walk' in a corridor displays patents attributed to the site.

Table 5.3.2.2-2 Beliefs systems support championing activities

Case 1	Case 4
<ul style="list-style-type: none"> • <i>Mission statement:</i> Promotes R&D, extending existing knowledge and focused growth • <i>Corporate town-halls:</i> Communicates expectations from the marketplace for product development and shows patient and physician videos • <i>Local town-halls:</i> Translation of strategy at a local level (emphasising innovation) • <i>CEO imperatives:</i> Emphasise innovation • <i>Employee tours of R&D Unit</i> • <i>Physical reminders:</i> Recognises importance of patents and promotes innovation 	<ul style="list-style-type: none"> • <i>Credos:</i> Strong emphasis on innovation • <i>Town-halls:</i> Emphasising the need to return to technology centric • <i>Product roadshows:</i> Showcasing innovative products and services • <i>Physical symbol:</i> promoting creativity at entrance to site • <i>C4 Conferences:</i> Innovation theme • <i>Innovation awards</i>

Turning to C4, a number of interviewees spoke about how the organisation traditionally was innovation-centered but this had stagnated in recent years. More recently, innovation was perceived as increasingly valued:

"I think now there is a much greater focus on innovation again, and innovation incubation, and a realisation that in order to be successful in the long-term, you need a scenario whereby you are actually innovating constantly."

(Global Service Delivery Manager, C4)

Interviewees explained that one of the CEO's objectives was reinvigorating the organisation and restoring the firm's relevance to the market through innovation. He was communicating this message through credos: 'Case 4 invent' and 'innovation, change and everybody sells'. Evidence suggested that interviewees were responding positively: *"there is a credo ... I look at myself, first of all I'm responsible for inventing new products that enable new sales"* (Director CS Innovation Centre, C4) and *"we are constantly reinventing ourselves"* (Development R&D Manager, C4).

In addition, interviewees spoke about initiatives to create a sense of excitement around creative endeavours by profiling new innovations on their intranet site and bringing new technologies on roadshows: *"bring them into sites so employees can touch and feel them"* (Finance Manager, C4).

5.3.2.3 DCS and Championing (R&D)

Analysis reveals a reasonably strong co-occurrence between DCS and championing (0.17) for interviewees in R&D focused roles (Table 5.3.2.2-1). This was significantly higher than the overall C-ratio (0.06) shown in Table 5.1-2. Interviewees discussed various controls *"rigorous product development process"* (Product Development Director, C1) in place to manage R&D activities. In C1 a commercial perspective is emphasised from the earliest stage of product

development *"try to build a business model around our concept"* (Product Development Director, C1). He further explained that a contract is established for each project detailing expected costs, timelines and quality of deliverables. The performance of the project team is subsequently measured against the project contract at fortnightly reviews. He highlighted the importance of being able to change strategy quickly and this often necessitates ending projects. In addition, he raised concerns about the difficulties of establishing measures to communicate R&D performance to corporate. Another interviewee referred to the introduction of broader set of performance measures *"the way I get measured is: do we get repeat business [from corporate], do they come back to us, ask us to do more projects"* (R&D Manager, C1).

5.3.2.4 ICS and Championing (C2)

Overall there was a relatively weak C-ratio (0.07) between ICS and championing activities (Table 5.1-2). However, between-case analysis reveals a somewhat stronger co-occurrence (0.10) between the two dimensions in C2 (Table 5.1-4). A number of issues were raised within these narratives. The organisation expects middle manager to take on championing roles: *"they do trust product champions to put forward good ideas"* (Marketing Manager, C2) and *"people that can champion certain topics and make things happen"* (IP Group Manager, C2). A number of mechanisms were discussed that facilitate interaction between senior and middle managers to facilitate championing activities. For example, C2 run an annual technical conference and a key part of this is a new ideas forum. This stimulates sharing of new opportunities and ideas and creates visibility at a senior management level. In addition, master classes are held to discuss technological

developments. As part of that, people are encouraged to "*present a number of light bulb ideas*" (IP Group Manager, C2) to share really innovative work. A number of interviewees also referred to the C2 Garage, which was described by one interviewee as a mechanism for "*incubating off the wall ideas*" (Product Line Manager, C2).

5.3.3 Middle Managers Synthesising Role

As discussed in section 3.4.4, synthesising is defined as activities where "*middle management gather, interpret and report information to top management which may form the foundation for future strategic change*". Overall, 13% of narratives related to synthesising (Table 5.1-1) and this was reasonably consistent across the four cases. In general, synthesising emerged as the least prevalent of the four middle manager roles across the data set. The only exception was C3; in that particular case, synthesising was more prominent than the championing role.

Turning now to the findings from the pre-interview survey described in section 4.6.5, analysis of responses reveals an average mean score of 3.5 (Appendix K) and an overall ranking of third for the synthesising role. This pattern was largely consistent across the four cases except for C2 with a resultant ranking of second.

Analysis of the interview data reveals that ICS and boundary were the most significant forms of control for synthesising activities (Table 5.1-2). In contrast, the C-ratio between synthesising and both DCS and beliefs systems were both very low, indicating little co-occurrence between these dimensions.

5.3.3.1 ICS and Synthesising Role Across Functional Areas

Table 5.1-2 reveals a strong c-ratio (0.37), indicating a substantial co-occurrence between narratives concerning synthesising and ICS. The C-ratio is significant across all four cases but is more pronounced in C2 (0.53) and to a lesser extent in C3 (0.37). In addition, analysis within functional roles (Table 5.3.3-1) also shows a considerable co-occurrence in particular for sales (0.62), customer service (0.47) and operations (0.42). Appendix Q summarises the nature of the synthesis process, type of data which emerges, and how it is subsequently used. This summary is organised under five middle manager functional areas, each of which are discussed in turn.

Table 5.3.3-1 Code co-occurrence synthesising role – within function

	Operations	Project	Sales	Customer Service	R&D
Synthesising * ICS	0.42	0.29	0.62	0.47	0.19
Synthesising * Boundary	0.13	0.19	0.04	0.00	0.43
Synthesising * Beliefs	0.04	0.00	0.03	0.00	0.13
Synthesising * DCS	0.02	0.02	0.01	0.03	0.02

ICS and Sales Focused Roles

ICS were remarkably salient in the synthesising function of sales focused interviewees, as shown by a C-ratio of 0.62 (Table 5.3.3-1). Narratives were largely concerned with competitor analysis, industry changes, customer preferences and market research. Not surprising understanding market dynamics was critical for this cohort of interviewees: *"it's one of the number one roles in the job is understanding the competitive landscape"* (Marketing Manager, C2). A number of mechanisms to gather market-related information were described by interviewees such as customer site visits, feedback through sales people, and industry conferences. For example, one

participant described the rigorous evaluation of a recently launched competitor product that threatened C2 technological leadership position: *"look at the product and paring it back, how did they achieve that and does that mean they've better technology bases than we have?"* (Marketing Manager, C2). This illustrates interviewees applying their technical expertise to provide insights about competitor activity.

Evidence pointed to a high level of interaction with senior management on these issues: *"very much in tune with what's going on in the marketplace"* (Marketing Manager, C2). One participant explained that medical device conferences were a critical source of market data: *"after every major conference there would be a big review, what have you learned, what are the competition doing, what are customers doing, what are the trends"* (Marketing Manager for Europe, C3). In addition to bringing relevant issues to senior managements' attention, interviewees were expected to interpret that information and formulate a response *"we needed to show them what the strategy was... we had a plan and a response and it was a matter of communicating that strategy back"* (Marketing Manager, C2). Information gathered through synthesising role formed the basis for strategic decision-making.

ICS and Customer Service Focused Roles

A strong co-occurrence (0.47) between ICS and synthesising activities for customer-service related roles emerged (Table 5.3.3-1). The main theme of these narratives related to identifying customer based opportunities. For example, a recurrent agenda item on the field seller meeting in C4 focused on *"innovating our offering"* (Business Development Manager, C4). In addition, relevant market and customer

feedback is collected into an opportunities database. Customer-related opportunities are also identified by analysing documentation such as requests for proposals. In all cases, interviewees were expected to bring this feedback to the attention of senior managers: "*would be expecting that I'd be briefing him in relation to anything that's pertinent at a sales office, vendor and at a customer level*" (Global Service Delivery Manager, C4). One interviewee described the type of interaction with senior managers as follows:

"We'll bring some of the leaders of our group into a room and we'll talk about ideas that have come up, that we should be adding this to our portfolio, what's our thoughts, what's our views and what will come out of that is maybe three to five potentials that go into incubation to qualify them more, find out the revenue potentials. We'll come back and say here's what we believe the addressable market value is in the markets we want to play in. Here's the effort that we think will be required to sell it and the cost. We'll then make a decision whether to bring it in or not."

(Business Development Manager, C4)

ICS and Manufacturing Focused Roles

Table 5.3.3-1 shows a high C-Ratio between ICS and synthesising for manufacturing-based interviewees. A recurrent theme within this data set was the identification of opportunities through external benchmarking of functional areas: "*we would benchmark from a Lean Sigma perspective... where are we going as a function. What can we do to improve our functional presence*" (Lean Sigma Manager, C1). Another interviewee reported that he does four external visits per year and he explained that his motivation was "*to challenge my own norms*" (Manufacturing Manager, C2). Learning from these visits is subsequently shared with colleagues through an innovation meeting.

Also of relevance was the task of gathering feedback from customers. One interviewee explained how the company recently lost out to a competitor on a tender. The feedback indicated that their costs were significantly higher than their competitors. This prompted considerable attention from senior management and cross-functional teams were established to investigate and formulate a corrective strategy. Evidence suggested that customer feedback quickly influenced strategy as highlighted by the following comment: *"there's been a change of strategy, we are divesting this application"* (Finance Manager, C2). Interviewees were also expected to use their expertise to evaluate the technical constituents of competitor products and how the performance capabilities of their own products matched up on comparison.

One interviewee also referred to assessment of forthcoming external regulatory changes. Interpreting the implications of these changes and crafting a strategy to support enactment was critical to maintain regulatory compliance: *"that needs to be assessed in relation to what impact that will have and what do we need to change here to ensure that we come in line with that"* (Quality Manager, C1).

ICS and Project Focused Roles

Table 5.3.3-1 identifies a strong co-occurrence (0.29) between ICS and synthesising activities based on analysis of data from project-related roles. Competitor analysis was a key concern for this cohort of interviewees; this was more pronounced in C3 as a number of individuals worked on projects related to sales support. For example, to facilitate decisions on *"key features for the next generation product"* (Product Line Manager, C2), the organisation needed to evaluate the

direction of competitor products. The following quote is illustrative of the type of competitor analysis that interviewees were expected to convey to support strategic decision-making:

"Rumours of new launches coming in from the competitors. Their competitive play, how they are attacking the market. Are they coming in with their technology at the same price? If they are coming in with a leapfrog technology or is it an iterative technology? Are they coming in to price differentiate or they coming in to get a share of the market at the same price point. Are they looking to crash the market?"

(Director Commercial Capabilities, C3)

Another interviewee was responsible for the system that captures and reports on market surveillance information including competitor activity. The ability to capture this information enabled the organisation to predict the impact of competitor activity and the scale of threat posed. Interpreting and filtering data for senior managers was seen as critical. The quote below highlights how interviewees rely on their own judgment in deciding what information must be brought to the attention of senior management:

"We are constantly feeding that back, now of course you are trying to give them a sense of the scale of the threat as well. There's plenty of competitors out there all the time, but you are not going to report on every one of them. You pick the ones that you really think are significant and you project what it might mean in terms of the sales impact potentially. To have a voice it all comes back to the numbers. The company won't react unless they feel there is a significant impact to the business... if it's up in the millions, then people get alerted to you."

(Director Commercial Capabilities, C3)

As a result, senior management become more involved and based on discussions of this information strategies may be revised, for example, accelerating certain projects within Product Development. In a similar vein, another interviewee spoke about his involvement in Corporate

Steering Team which is a regular forum focused on market dynamics *"we are feeding back what we are hearing from customers, what other companies are doing ... there is very much a kind of bottoms up feel of what's going on in the market"* (Director of Programme Management, C3). It was suggested that being involved in transmitting market intelligence information was very challenging:

"You usually get work because you're bringing the information, don't care how well prepared you are, there's going to be a million questions, you are going to end up having to go and answer another million questions. So it is a burden. Middle management can be difficult because you are the conduit up and you're a conduit down"

(Director of Programme Management, C3)

ICS and R&D Focused Roles

Analysis reveals a reasonably high C-ratio between ICS and synthesising activities (0.19) for those in R&D roles (Table 5.3.3-1). A common theme discussed by interviewees was the critical need to understand competitors' R&D pipeline. Failure to do this in the recent past had adverse consequences: *"we didn't look at what their [competitors] next generation looks like, by the time we got to the market we had missed it"* (R&D Manager, C1). One interview described how the general manager devoted considerable attention to this issue:

"Our general manager would constantly look at what we call the flag chart, of when products are going to be released and different geographies and how that is against the competition".

(Product Development Director, C1).

This formed the basis for regular interaction between senior and middle managers to clarify focus areas: *"What type of new products have they coming in? And have we equivalent or better products that we think we can be successful in?"* (Product Development Director, C1).

Industry trade shows also presented very important opportunities to gather market surveillance and specifically "*work out what competitors are at*" (R&D Manager, C1). A regular forum, innovation summit, had been established to facilitate cross-functional discussion of the direction of the R&D portfolio.

5.3.3.2 Boundary Systems and Synthesising Role

Table 5.1-2 reveals an overall C-ratio of 0.15 between narratives relating to both synthesising and boundary systems. Between case analyses (Tables 5.1-3 to 5.1-6) reveals a marked difference between the strength of the co-occurrence in C1 (0.23) and C3 (0.26) compared to C2 (0.07) and C4 (0.08). As discussed in section 4.6.3, C1 and C3 operate in the med-tech industry while C2 and C4 are part of the IT industry. This finding suggests that boundary systems are of greater consequence for organisations competing in the med-tech sector. Within role comparison (Table 5.3.3-1) also points to considerable variations with significantly higher C-ratios for external focused/partnering roles of R&D (0.43) and Project (0.19) relative to other roles. Further analyses of within role variation indicate that it is largely the result of a strong co-occurrence from interviewees in C1 and C3. A number of main themes (summarised in Table 5.3.3.2-1) emerged, each of which is discussed below.

C1 and C3 actively engage in collaborations with external parties particularly physicians, Key Opinion Leaders (KOL), as a way to identify market needs to guide innovation activities. The nature of these relationships was clearly and formally demarcated: "*you are very careful about any kind of interactions or crossover points*" (Business

Solutions and Support Manager, C3), “the [corporate] lawyers are very paranoid about this” (Project Leader, C3) and “*we put a lot of structure and procedure in place around that to manage the ethics and the challenges you could end up in*” (Product Development Director, C1). Interviewees referred to ways this manifested: contracts, consulting agreements, documentation detailing interactions, and legal documents establishing IP ownership:

“We put contracts in place with every physician we work with. We clearly define up front... the very first thing we say to him [physician] is, we don’t want to know your ideas... If it’s a good idea, patent it, and protect it. And then if we want to work on it, we’ll pay you for it. That’s as simple.”

(Product Development Director, C1)

High ethical standards and tight protocols are core in collaborative relationships: “*there’s very strong ethical requirements around what you can and cannot do*” (Director of Programme Management, C3). This issue came into sharp focus particularly for those interviewees engaging in such relationships as described in the following excerpt:

“I personally got a lot of training, I had to go to the US for it... so it’s all about if he says, I think I have a great idea... I’ve got to say to him stop right now, because if you say this to me you are giving me ownership of that... I had to through all this role play.”

(Project Leader, C3)

Table 5.3.3.2-1 Summary of boundary systems influence on synthesising activities in Case 1 and Case 3				
Boundary system	Manifest how	Implications for middle managers	Manifest how	Implications for middle managers
		Case 1		Case 3
Managing relationships with physicians/ collaborators	Contracts drawn up with collaborators ; mgmt of communications	<ul style="list-style-type: none"> • Ideas not discussed until physician has their idea patented • Physicians' expectations from the collaboration must be managed • Only technically accurate information can be communicated to physicians • False expectations should not be set • Very conservation approach to communications management 	Additional training for individuals meeting KOL and physicians; consulting agreements; and legal team review joint ownership of IP	<ul style="list-style-type: none"> • Specialised training comprehensive role play • Increased awareness of ethical conflicts • Constraints around what information can pass from physicians • Heightened managers' anxiety levels initially • Additional measures in place when working with partners in countries deemed more risky • Constraints on types of marketing data that can be stored • View relationships as long-term • Reputation is central to sustainability; reputation damage costs will far outweigh any short-term gain
External regulations	Compliance with external regulations	<ul style="list-style-type: none"> • High emphasis on compliance • Awareness of reputational damage • Site may be subject to unannounced audits, constant state of readiness, protocols around this • Documentation supporting production must be always accurate • Need to comply with external regulations makes implementing even very minor changes challenging 	Subject to FDA regulations; CE quality standards; Euromed and financial regulations	<ul style="list-style-type: none"> • Must comply with guidelines of regulators, lack of compliance is not tolerated • Awareness of risks attached to non-compliance • No flexibility in manufacturing must be precise
Patents	Avoid/ work around competitors patents	<ul style="list-style-type: none"> • Awareness of patents and potential infringements 	Avoid/ work around competitors patents	<ul style="list-style-type: none"> • Awareness of patents and potential infringements

While he acknowledged the comprehensiveness of the training, it heightened his awareness of potential ethical risks and appeared to cause anxiety: *"it made me nervous, I wouldn't have been nervous before, but it makes me nervous interacting with physicians for the first few times"* (Project Leader, C3). In a similar vein, another interviewee highlighted that communications with physicians was an area where ethical challenges could arise and consequently, these were carefully managed:

"We are very, very careful about our physician communication and it's managed very, very carefully. We don't want to set false expectations, we don't want to say things that are technically incorrect. We are most conservative about our communications to physicians. On the whole the biggest fear is bad communications to physicians, it's basically brand damage. For example, if a physician met an engineer from C1 who said I could use this device off label which is basically designed and tested for use in a certain area of the body... oh you can use them here it's fine. We don't, we are really, really careful about that."

(R&D Manager, C1)

5.4 Research Question Three

How are the tensions between multiple roles made salient for middle managers by the levers of control?

Previous sections (5.2 & 5.3) have presented the empirical findings associated with the need for achievement of deliberate strategy and change within the case firms. This section focuses on perceived tensions, which emerge as a result of attending to multiple agendas. Evidence regarding the extent to which the levers of controls made the tensions between various requirements salient for middle managers is also presented.

In all cases, there was evidence that some level of tensions did exist between innovation and predictable goal achievement. While there were similarities across the four cases, each had their own nuances and therefore is discussed separately in sections 5.4.1 to 5.4.4. Table 5.4-1 presents a matrix representation of instances of interview narratives coded to both tensions and LOC.

Table 5.4-1 Narratives relating to tension and LOC

Tensions	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Case 1	9	1	6	1
Case 2	5	4	4	4
Case 3	9	2	4	2
Case 4	5	3	3	4

5.4.1 Case 1

Tensions between pre-set goals and creative endeavours did emerge from the findings. The Product Development Director explained the various ways tensions manifested in R&D. For instance, managing an R&D unit co-located with a primarily manufacturing facility presented challenges. He believed this hindered the cultivation of an appropriate R&D culture within his unit. He argues that R&D required more flexibility to operate outside standard operating procedures essential in Manufacturing.

"We [R&D] have to have our own culture, we have to do things differently. Operations is about doing the same thing better day in day out. R&D have to think outside the box, do things slightly differently. You have to push people to be more innovative so that's a challenge where they [senior management] like the 3,000 people to do everything the same. R&D want to do things differently. That could be all the way down to not coming in first thing in the morning. I couldn't care less when the R&D engineers come in. You have to try to manage an R&D organisation in a different way... sometimes I have to run against the tide a bit."

(Product Development Director, C1)

Additionally, he expressed concerns that co-location presented an additional challenge as R&D resources were frequently called upon to solve manufacturing issues. This was a source of frustration for him and he perceived that senior management inevitably was: *"always willing to give up future revenues for revenues that's there today"* (Product Development Director, C1). The R&D Manager voiced similar concerns regarding a tension between championing and facilitating work. He explained that commercialised (incremental innovation) projects tended to be prioritised over phase zero (exploratory innovation) projects in financial and engineering resource budgetary

allocations. He commented that the rationale for such decisions related to the relative timeframe in yielding revenue:

"They [phase zero projects] are not bringing in the revenue... probably three to five years away from commercialisation... will take another twelve months to prove that it actually works and there's a market"

(R&D Manager, C1)

In a similar vein, the Product Development Director articulated the challenges around convincing the wider organisation of the importance of radical innovation. This problem was exacerbated by the reality *"that not everything will be a success but you experimented and got some outcomes"*. He commented that developing appropriate controls and metrics to convince people *"that innovation work is key even though it's further out"*.

Colleagues in manufacturing and project related areas also referred to conflicts between delivering on their day-to-day commitments while meeting innovation/improvement related outcomes. They also described the control processes in place to deal with such tensions. One example was the organisation escalation system whereby middle managers can refer upwards or obtain cross-functional support to address these types of issues. The Lean Sigma Manager explained that there is a weekly cross-functional team meeting to support managers in making these types of prioritisation calls. The Senior Engineering Manager explained that resources for implementation goals and innovation projects are instigated through the Annual Operating Plan and subsequently resourced through the budgeting process. Within his unit he separates his engineering and technician staff between innovation projects and day-to-day goals thus minimising conflicts.

In general, interviewees in C1 exhibited a complementary view of multiple agendas and recognised the importance of each. The following remark from the Senior HR Manager would be illustrative of those perspectives:

"If we're not bringing new products to the marketplace, we're going to lose our revenue. If we're not making that revenue, then we don't have the money to invest."

(Senior HR Manager, C2)

Evidence suggested that the organisational mission statement was instrumental in fostering the 'both' agenda by continually focusing attention onto the patient agenda and positioning the patient as at the very core of all work. Through the mission statement, interviewees were very aware that innovation held the potential to transform patients' lives, and similarly not adhering to quality standards could kill patients. The strong commitment to patient needs appeared to be a mechanism that individuals drew on to navigate tensions.

"We had a round table discussion and everybody had different perspectives and then we asked, what's best for the customer [patient] and that helped to bring everyone then to the same place. We probably think of the mission. We probably think what would our mission say about that?"

(Lean Sigma Manager, C2)

The evidence pointed strongly to the existence of a complementary mindset among interviewees. Other than the mission statement, this was proactively fostered in other ways, for example one initiative undertaken by R&D was to bring all non-R&D employees on a tour of the R&D facilities. The purpose of this was to emphasise the importance and value of R&D in response to a perceived lack of understanding across the wider organisation. It was also directed at helping Manufacturing based employees recognise inevitable

distinctions between the functions:

"We walked two and a half thousand [employees] through to explain what we do with customers and the connection into R&D. To see how we bring a product right through from an idea, a need, through to commercialisation and the benefit of that... we made a conscious effort to say how do we sell what we're doing and explain to people on site the benefit of it. The R&D engineers gave the tours they were able to tell the story of what we do in R&D. And for the operators it was really important. So they don't see this fancy building up on the hill that they're not allowed into. You bring them in."

(Product Development Director, C1)

5.4.2 Case 2

In the context of Case 2, organisational culture and historical tendency associated with innovation are very relevant when examining tensions between role expectations. Interviewees described tensions manifesting in a number of ways but they particularly emphasised the influence of the ongoing strategic reorientation. There was consensus amongst interviewees that innovation and engineering had a long tradition within the firm *"always been an engineering organisation"* (Product Line Manager, C2); *"historically C2 has very much been an engineering company"* (Finance Manager, C2); *"our brand is highly innovative"* (Manufacturing Manager, C2) and *"technical ability is valued very, very highly"* (Product Manager Applications, C2). On site observations made by the researcher supported this perspective: images depicting technological breakthroughs achieved by the firm down over decades; schematics of products were displayed in communal areas. Consequently, very little restraint was imposed on creative endeavours: *"we thought we had infinite resources and you just kept pushing it"* (Director of Quality, C2). The following quote highlights how this deeply embedded culture was lately recognised as

a cause of concern:

"If you threw down twenty different problems on the table and you said right we can only do five, they might pick five, but they would be still be working on the side on all the other fifteen. They don't want to let them go because they think, I can solve that... it's endemic in how our engineering population think."
(Finance Manager, C2)

The use of the word 'endemic' is interesting and conveys the scale of the issue. Solving complex technical issue was highly valued internally, unfortunately the marketplace response did not necessarily align:

"Some customers are satisfied with the performance levels of our current generation, you might end up with the problem where depending on where the market is, they might not value your higher performing products."
(Marketing Manager, C2)

The Manufacturing Operations Director explained the organisation's nemesis was balancing the drive for technical perfection with "*deliver what was decided*". He labeled the tension between the two as "*our Achilles heel for years*". The use of a metaphor for vulnerability is once again an insightful use of language.

Interviewees explained that business and commercial concerns (section 5.2.2) were becoming far more prominent: "*business side is the more dominant piece today*" (Director of Quality, C2). Considered in the context of an engineering-centric organisation, this represented a significant shift in mindset; challenges had arisen and differences in perspectives were evident. Some interviewees expressed frustrations; for example, the Technical Leader referred to a recent project where he perceived that the technical solution was constrained due to

commercial realities imposed by tight use of project management systems to ensure project completed on time. The IP Group manager explained how he had to balance a limited pool of resources across both margin improvement projects on existing products (implementing) and new product development (championing). The Marketing Manager was extremely vocal on how the organisation appeared, directed by strategic boundaries (section 5.3.2) of KSC and margins, to prioritise shorter-term customer solution type innovations in preference to longer-term standard product R&D.

Underpinning the strategic reorientation was the CEO credo of 'clearer, bolder, faster' (section 5.3.2) repeatedly referred to by interviewees. Through this credo, the CEO cascaded responsibility for change as it captured the very genesis of the strategic reorientation. The credo emphasised multiple logics: clearer customer oriented; solution bold innovation; speed of execution and delivery; and so encapsulated the struggles that interviewees encountered. It was both provocative and confronting and thereby made organisational tensions highly salient at the individual level. Evidence suggested that interviewees, despite experiencing tensions, were aligning their behaviours with agendas espoused in the credo (section 5.3.2).

5.4.3 Case 3

The findings reveal that interviewees experienced tensions between competing agendas in C3. There was consensus amongst interviewees that they frequently made trade-off decisions "*it's constant and that's part of management*" (Director of Process Development, C3). Tensions between long and short-term objectives emerged strongly in the

findings. The Director of Commercial Capabilities perceived that issues tended to be addressed with short-term resolutions. He recognised that this type of response had adverse consequences over the longer-term:

"I'm a process person, I'm not reactive ... but the trade off definitely in a sales and marketing environment, you've got to be able to counteract with shorter term thinking, reacting and sometimes you do stuff that in the short term might be okay but in the longer term it may not be the right thing to do."

(Director of Commercial Capabilities, C3)

Findings suggested conflict existed between early exploratory (championing) and commercially approved products (facilitating) which crystallised through the budgetary process. As one interviewee put it: "[senior management] *want me to grow my top line, but won't give me any money to spend*" (Director of Programme Management). A number of interviewees were critical of the emphasis on monthly metrics, which appeared to encourage a short-term orientation. They perceived that this impeded more robust and sustainable activities. The following quote illustrates this point:

"We are measured by results every month... I find that a conflict, I struggle with that myself directly. Personally I find it quite difficult because I'm not [short term], my natural tendency is to think robust solution, put something together that's sustainable, that's concrete that will be better in the longer term."

(Director of Commercial Capabilities, C3)

One interviewee commented that the performance measurement system caused dysfunctional behaviour by incentivising functional objectives over business objectives *"sometimes hitting a metric locally in [local site] is not the best thing for the organisation, but their bonus is linked to that metric"* (Director of Programme Management). To elaborate, he provided the following example, which highlights

tendencies towards operational metrics:

"Quality will want zero non-conformance in audits for a year. That costs a fortune but the Quality Director is adamant he demands that. So six weeks before an audit, shut down everything, projects shut down, all hands on deck to make sure we are clean. That's not the right thing to do."

(Director of Programme Management, C3)

The above quote describes a willingness to forego or postpone project work (facilitating adaptability/championing) to meet a short-term quality (implementing) agenda. The Director of Programme Management provided a further example of dysfunctional behaviour in response to metrics. He explained that the emphasis on revenue growth "*top line growth is the priority*" encouraged sales without due regard for the average selling price. Another interviewee remarked that focusing on short-term issues was more valued:

"When you focus on the tactical issues and resolve them the business are very happy, it looks like your performance is even better because it's a here and now problem."

(Data Manager, C3)

This is a thought-provoking observation in the context of middle management; this interviewee perceived that achievement of visible and measurable metrics could demonstrate competence more clearly than tackling longer-term issues. This suggests that middle managers may be potentially pulled towards these types of measures in such circumstances.

Given the strong metric/results focused culture, it was difficult to establish clear justification for longer-term projects. The Business Solutions and Support Manager noted that the outcomes of projects he

worked out resulted in time saving or easier analysis. He contrasted these outcomes with more tangible results in an operations environment: *"They appreciate it, but it's hard to put savings on it, the way you can with operations"*. The Process Development Director raised similar concerns:

"How we measure our efficiencies, not just putting in a number. It's putting an actual variable on that because it's very hard to measure. I find in new product development to measure something to put a number around how you achieved that."

(Process Development Director, C3)

The Business and Solutions Managers acknowledged that despite the fact that innovation and creativity were promoted, he believed that the achievement of more traditional metric-related goals were given priority.

"I would say that efficiency, speed and intensity probably comes before innovation. I think we talk about innovation, like every multi-national company...you do need to be innovative and creative. But somebody who is very innovative and very creative but always very late wouldn't be valued as much as somebody who delivers."

(Business Solutions Manager, C3)

There was also some evidence of a complementary view of predictable goal achievement and innovation. According to the Director of Strategic Business Support, in order to bring about change initially there is greater focus on innovation but *"then you start driving efficiencies from there"*. The Project Leader concurred and stressed the importance of efficiency in incremental product development projects *"efficiency is probably critical"*. While delivering successful new product increments was the overall aim, he highlighted that budgets imposed commercial reality.

5.4.4 Case 4

"Middle managers have to deal with the mucky stuff, resolve between the blue sky and just keeping the show on the road. Certainly in our organisation, that middle manager position is quite challenging. I remember years ago saying to my manager, you've asked me to do three or four things that are all conflicting. He said well any fool can manage one variable, get on with it."

(Director Cloud Services Division, C4)

This quote succinctly captures the dilemma one interviewee perceived confronted him. For the Account Executive, conflict arose because he was accountable for generating revenues from older existing systems, (sold to customers on long-term contract basis) when other divisions of the firm offered newer technologies. The expectation was that C4 would recoup the development costs of existing systems over the life of those contracts. However, significant advancement in C4's technology has now rendered these systems as unattractive: *"the customer doesn't want it anymore, they are trying to wheedle their way out"*. He described the newer product offerings as *"totally at odds"* with the requirement to meet revenue targets from older products established by the budgetary process.

"That's the tension between really new innovative products versus these cash cows that you still need to milk really hard."

(Account Executive, C4)

Other interviewees were experiencing similar challenges albeit from a slightly different perspective, that of systems maintenance and development. Allocation of resources between newer (championing) and existing (implementing) systems was contentious: *"there's a tension between maintaining the old and jettisoning it for accelerating the all the time"* (Director of R&D, C4). According to the Global Service Deliver Manager, C4's strategy prioritised resources for development

work and consequently, there was a backlog of improvements to existing systems.

When asked how they manage trade-off decisions, interviewees referenced their individual level metrics: *"you have to produce your metrics"* (Director CS Innovation Centre, C4).

"There's three things you've got to do: impact customer satisfaction, impact revenue growth and impact cost management. So question everything you do on those three things...if it's not doing any of those things then don't do it, stop it. That's your simple mantra to live by everyday."

(Business Development Manager, C4)

The Finance Manager noted that in his experience, senior management tended to direct their attention to improvement and initiatives type projects rather than routine areas: *"operational stuff is a given, you have to deliver on that"*. A weekly update on all improvement projects is given to senior managers. He perceived that this underpinned the importance of avoiding *"the natural inclination to get caught up in the day-to-day"* and balance both agendas. Distinct goals related to progress on initiatives appeared to effectively focus minds:

"As well as doing our day jobs we managed to do X, Y and Z [initiatives], there's a very strong cadence with senior management, keeping the focus on the things we said we'd do".

(Finance Manager, C4)

In general, middle managers recognised that both innovation and achievement of pre-set goals were critical for organisational success. Interviewees perceived a strategic shift in emphasis with greater tendencies towards innovation under the current CEO. This was in response to a loss of relevance in the marketplace in prior years *"where everything became focused completely on meeting your*

number ... at the time an awful lot was cut back in R&D” (Global Service Delivery Manager, C4).

5.5 Summary and Conclusion

This chapter presented the findings from the semi-structured interviewees under the headings of each of the three research questions. The chapter reports on a systematic investigation of the interaction between middle manager strategic influence roles and each of the LOC. In doing so it provides a far more detailed account of how management control systems operate and drive activities at middle management level than currently exists within the literature.

The study finds that implementing deliberate strategy is the most prevalent role at middle manager level (section 5.2). Regarding controls, DCS is the most salient form of control at middle management level. This trend was followed across case and role categories. DCS is very strongly associated with implementation of deliberate strategy at this level. In addition, beliefs systems are also found to guide middle managers' implementation efforts. With regard to championing roles, boundary systems were the most dominant type of control. Some between case and functional role difference emerged in the data. A strong interplay was found between middle managers' synthesising activities and ICS (section 5.3.3). The study also reports on tensions that emerge at middle manager level within each of the case organisations. Overall, the findings suggest that the complexities of the context in which middle managers operate has not been fully captured in previous studies. The implications of these findings are discussed in the light of prior literature in the next chapter.

Discussion

6.1 Introduction

Building on the findings presented in chapter five, this chapter presents a discussion to advance knowledge relating to the role of MCS in guiding middle management activities. To avoid a repetition of findings, this chapter looks laterally across the thesis to synthesise the key issues and insights emerging from the study that provide distinct contributions to knowledge. This discussion is informed by the literature review, the methodology and the empirical findings which taken together, highlight perspectives to advance knowledge in the field.

The chapter argues that MCS are critical in advancing a diverse range of middle management actions. Section 6.2 explores the LOC from the perspective of middle managers. It highlights how the operation of the LOC is different when compared to senior manager level, it also draws attention to between role and case variations. The continuum between DCS and ICS is discussed with particular reference to empirical insights in these styles of use emerging from the study. Section 6.4 discusses middle managers attitudes towards each of the levers. How the LOC works in combination is discussed in section 6.5. The interplay between the LOC and sub cultures is discussed in section 6.6. Section 6.8 proposes a model to conceptualise the interactions between the LOC and middle managers strategic influence. The types of tensions that manifest at middle management level are discussed in section 6.9 together with a discussion on how the LOC manages such tensions. Observations on differences between data collection methods are

discussed in section 6.10. A brief summary brings the chapter to a conclusion.

6.2 LOC from the Perspective of Middle Managers

In contrast to most prior LOC research (Martyn et al., 2016), this study focuses on the middle management level. Drawing on key findings from the study, the following sections provides theoretical and empirical insights, and situates them in the context of existing knowledge to extend our understanding of how the LOC operates in contemporary organisations.

6.2.1 Variation in LOC Patterns Between Senior and Middle Managers

Malmi and Brown (2008) suggest differences in MCS across hierarchical levels. While the way in which the LOC operates at senior manager level is well documented (Bisbe & Malagueno, 2009; Widener, 2007), far less is known about the middle manager level. Based on my in-depth examination of the LOC at middle manager level, this section identifies important differences in the operation of LOC between the two hierarchical levels, and this is illustrated in figure 6.2.1-1.

Evidence regarding the operation of DCS and ICS provide empirical verification for Malmi and Brown's (2008) claim that there will be differences in MCS emphasis across hierarchical levels in multi-layered organisations. This study finds a reversal in the extent of emphasis of the DCS and ICS levers between senior and middle management levels. In the case of middle managers, DCS are the most ostensible form of control, with considerably less emphasis on ICS. As discussed in

section 5.1, ICS is the least prominent of the four LOC at middle management level. Moreover, the evidence clearly suggests that middle managers are not regularly involved in ICS; rather their involvement could generally be typified as occasional when their area of responsibility became the subject of a strategic uncertainty. ICS involvement at the middle manager level can be described as more temporal in nature. This is in marked contrast to senior management level who continually engage with ICS (Simons, 1994; 1995; Tuomela, 2005; Bisbe and Malagueno, 2009). While this finding has not been previously articulated in the literature, it is not unexpected given the difference in span of accountability between senior and middle managers (section 3.2).

DCS largely related to the implementation of deliberate strategy. This finding is consistent with the middle management literature, which acknowledges that the main thrust of middle managers' responsibilities relates to implementing deliberate strategy (Floyd and Wooldridge, 1992; 1997; Mantere, 2008). Extending this, my study finds that DCS are closely matched with the task of implementing deliberate strategy (section 3.7.3) and accordingly the heavy reliance on middle management to manage CSFs through DCS suggested by Simons (1995) was empirically borne out in this study. The findings reveal that traditional management accounting techniques such as budgeting systems, key performance indicators and activity planning systems are widely used. One point of interest to emerge was that these systems were not always referred to using traditional terms. In the case of C1 interviewees spoke about the C1 strategy deployment system, while in C2 frequent reference was made to the benchmark plan. In practice such systems were in fact budgeting systems as they were used to

allocate resources and plan activity. As highlighted in section 2.6 prior research has been critical of budgeting systems (Jensen, 2001; Wallender, 1999). Consistent with Libby and Lindsay (2010) this study finds that budgeting practices are being adapted rather than abandoned.

With regard to ICS, differences in timing of involvement between senior and middle managers in the operation of ICS were found. In common with Kastberg and Siverbo's (2013), my findings suggest that ICS discussions would incorporate the delegation of responsibility for issue resolution. Findings suggest that responsibility for the execution of the strategic response formulated during the ICS process would often rest at the middle management level, while in contrast input from senior managers would be reduced at this point. Indeed, the formulation of strategic responses by middle management in collaboration with senior managers appeared to signal only the instigation point of a prolonged involvement of middle managers. This finding supports Malmi and Brown's (2008) contention that MCS may have a lagged effect at different hierarchical levels.

The extent of emphasis on a control system at different levels is arguably more applicable to ICS and DCS than to the other levers. With regard to beliefs systems, senior managements' role is articulation of firm purpose, direction and values (Simons, 1995; Mundy, 2010). The findings suggested that interviewees implicitly interpreted this information in the context of their own roles, which is in line with prior studies (Kuratko et al., 2001, Frow et al., 2010). Similarly, regarding boundary systems, findings indicated that senior managers established both business conduct and strategic boundaries.

In response, middle managers operated within, or devised ways to work within, these limits. Hence, rather than a difference in extent of emphasis as was found in the case of ICS and DCS, findings on beliefs and boundary systems suggest that there is clear demarcation between senior and middle management involvement in the articulation of beliefs and boundaries and implementation of same. This contribution to the literature in terms of the variations in patterns of use of LOC is set out in figure 6.2.1-1 (senior management perspective captured in the outer box while middle management perspective is presented in the inner box).

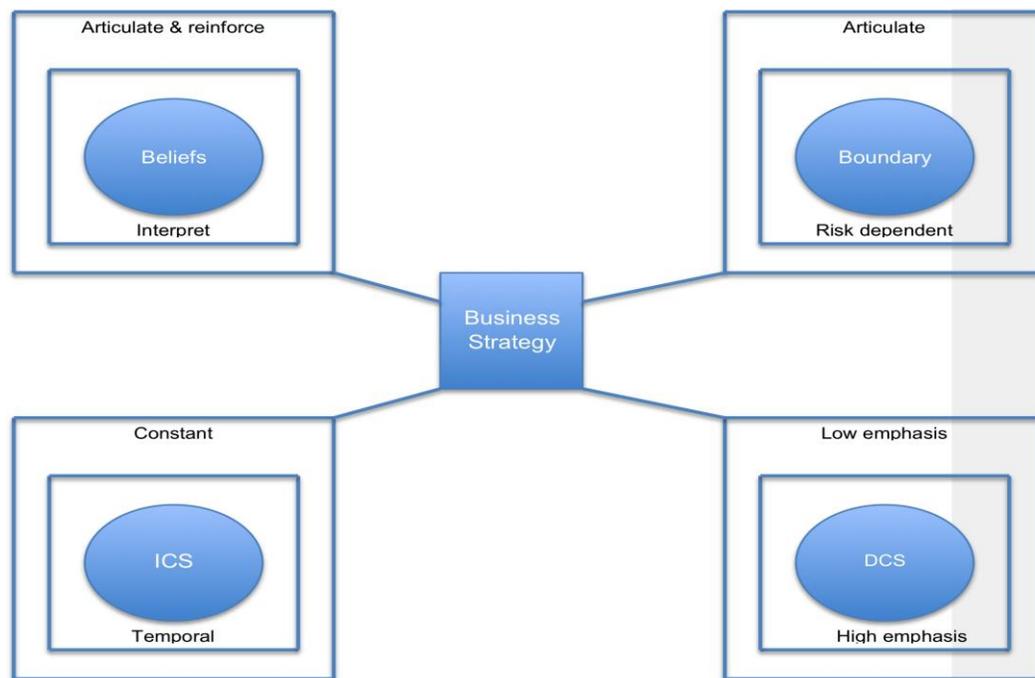


Figure 6.2.1-1 Differences in operation of LOC between senior and middle management level

6.2.2 Variations in LOC Patterns Across Cases

The specific constituents of management control are unique to each organisational setting and dynamic in nature. On that basis, one would anticipate between case differences in LOC and evidence to support this emerged in this study.

Regarding beliefs systems, variations between cases were set out in section 5.2.2 and this demonstrates how different mechanisms can be used to communicate core values. For example, in C1, the corporate mission statement was the central mechanism for articulating values and purpose to interviewees. While the other cases had formal mission statements, the majority of interviewees were only vaguely familiar with their contents. By contrast, C2 and C4 report extensive use of temporal CEO credos capturing the firms' respective short to medium term trajectories as a mechanism to communicate revised firm purpose and direction. This is consistent with findings from existing studies (Marginson, 2009; Curtis and Sweeney, 2017), which highlight the role of beliefs systems in the context of strategic change. It is interesting to observe the prominence of credos; this reflects their pliability, which makes them particularly suitable for the rapidly evolving environments in which firms operate today. In C3, mixed findings emerged with interviewees reporting the existence of a formal mission statement while others referred to the use of generic credos by senior managers. Little attention has been paid to beliefs systems in the literature (Martyn et al., 2016; Nixon and Burns, 2005; Collier, 2005), and this study expands our understanding about how they manifest in practice.

The extent of familiarity with organisation purpose, values and direction varied between cases. In parallel, the extent to which senior managers reinforced beliefs systems also differed between cases. This implies that the influence of beliefs systems that manifest at middle manager appears to vary as a direct corollary of senior managements' reinforcement efforts. For example, interviewees in C1 reported regular reinforcement of the mission statement (corporate and local town halls, symbolic reminders, 'live the mission' awards); it was strongly imbued, and thereby it could be considered the exemplar in this respect. Repeated referral to the mission statement highlighted its relevance and this transferred into daily work practice. One aspect of the control system, unique to C1, that might explain the more pronounced influence of beliefs systems relates to the fact that attendance at quarterly subsidiary-level town hall meetings was mandatory for all employees. The corollary of this was that C1 interviewees were regularly and systematically reminded of the mission statement and as a result were conversant with its contents. This finding elaborates on Chenhall et al.'s (2010, p. 738) description of an "*active use of belief system*" and Simons' (1995, p. 57) reference to transforming "static documents" into "living systems". At the other extreme, C3 was the weakest of the cases with regard to reinforcement of beliefs systems. This was further evidenced by the fact that the subsidiary was about to embark on a 'local consensus day' to establish local values to address the lack of connectedness to corporate values. This demonstrates how an absence of regular reinforcement relegates beliefs systems to mere static documents (Simons, 1995).

These findings emphasise the importance of reinforcement of firm values as stressed by Van Riel et al. (2009). This issue has largely been overlooked within existing LOC literature despite the fact that Simons' (1995) definition of beliefs systems includes the notion of 'systematic reinforcement' (section 2.7.2.1). This study provides empirical insights into how this happens, or does not, in practice. It also suggests the potential for beliefs systems to positively contribute to the establishment of an organisation-wide culture (evident in C1) that Ogbonna and Wilkinson (2003) claim is infeasible in practice.

Variations were also apparent across cases regarding boundary systems. The emphasis on quality was much more pronounced in C1 and C3 than the other two firms. This can be attributed to their industry, as both firms operate in medical device sector and thereby quality was fundamental to success. C1 and C3 interviewees also deemed maintaining compliance with external regulatory bodies as critical. This invoked strong emphasis on business conduct boundaries. This finding is consistent with Arjalies and Mundy (2013) as they argue that boundary systems will have increased importance when risks associated with reputational damage are high.

Findings from C2 reveal comparatively greater emphasis on strategic boundaries than that observed in the other cases. Specifically, it manifested in two ways: firstly, through intensive use of margins (Bruining et al., 2004; Mundy, 2010) and secondly, by emphasising the building of relationships with key strategic customers (Tuomela, 2005). This is consistent with the literature as Simons (1994) reports that in strategic turnaround situations, senior managers made much

more active use of boundary systems to demarcate the revised domain and unlearn past behaviours no longer deemed appropriate.

6.2.3 Variations Across Functional Role Areas

Functionally differentiated departments are called upon to perform particular tasks to achieve organisational outcomes (Subramaniam and Mia, 2003) and for that reason, one would expect that the MCS configuration and style of use will vary across functional areas. Evidence gathered in the current study supports this argument. As explained in section 4.8, interviewees were categorised by functional area to facilitate analysis and to allow the researcher to draw distinctions in MCS across different role types.

This study finds that DCS are the primary mode of control in the Operations category. This is to be expected as the nature of the work satisfies the three criteria which Simons (1995) uses to define DCS (see section 3.7.3). A similar pattern emerged in both the Customer Service and Project-Related categories with both functional areas employing pre-set metrics to measure performance. Somewhat surprisingly, the evidence indicated that benchmarking is an important form of control in Operations. This most likely reflects the highly complex nature of the manufacturing processes that the participating firms were engaged in, particularly C1, C2 and C3. Technological advancements in manufacturing design can give competitive advantage and therefore contemporary organisations must ensure appropriate controls are in place to monitor the competitive environment.

Evidence demonstrating variation in degree of tightness of control, conceptualised according to Merchant and Van der Stede's (2003) tight and loose distinctions, was also found across functional areas. Interviewees described tight forms of DCS whereby budgeted volumes could be dismantled from quarterly to weekly to daily to hourly distinct specifications. The measurable nature of outputs in Operations facilitates this style of use and such a description echoes Merchant and Van der Stede's (2003) extremely detailed planning characteristic of tight control. This contrasted sharply with the description provided by an R&D interviewee of blue-sky project milestones as "woolly and open". This appeared to be deliberate as it increased the probability of further funding being made available as objectives were considered to be easy to achieve. It also reflected that these types of projects were "*complete unknowns*" and thus outcomes were by their nature unpredictable. Despite being in the same organisation (C1), the latter account of an extremely loose form of control is juxtaposed with the style of use evident in Operations. This suggests that differences in style of use of DCS exist at middle management level reflecting functional distinctions. Existing literature (Simons, 1995; Tessier and Otley, 2012) tends to distinguish style of use of feedback and measurement systems using only DCS-ICS categorisation. This study adds to that literature by providing insight into how variations in style of use of DCS may be observed across functional areas.

There was evidence to support a variation in emphasis on boundary systems between functional roles. Interviewees in R&D and Project related roles (in C1 and C3) were responsible for developing collaborative relationships with key opinion leaders. Collaborations ensured that organisational innovation efforts were aligned with expert

thinking. Such relationships posed significant risks for the organisations and accordingly stringent conditions and constraints were applied (section 5.3.2.1) to control individuals' behaviour in these circumstances. This illustrates an intensive use of strategic boundaries at the individual level to mitigate against potential risks. Previous studies (Widener, 2007; Kruis et al., 2016) have found that the greater the perceived strategic risks and uncertainties faced by the organisation, the more emphasis firms will place on boundary systems. Evidence from this study extends prior findings by demonstrating that the increased emphasis on strategic boundaries permeates to the individual middle manager level.

In relation to ICS, the findings reveal a greater involvement in ICS for interviewees in Sales roles (section 5.3.2) compared to colleagues in other functional areas. Interviewees from Sales stressed the importance of maintaining a high degree of connectivity with the business environment. Evidence highlighted that this cohort engaged regularly with external parties such as suppliers and customers (Floyd and Woodridge, 1997; Glaser, 2017; Gupta et al., 2015). Heyden et al. (2017) stress the importance of external interactions, as they are key to initiating change internally. Such externally focused interactions reflect the 'information-node' function instrumental to the ICS process that Simons (1995) suggests is fulfilled by middle managers. Current findings support his claim, but add further refinement by highlighting that ICS involvement is experienced more frequently in specific middle manager role domains.

6.3 Exploring the DCS – ICS Continuum

Prior studies examining Simons' (1994; 1995) classification of feedback and measurement systems as either ICS or DCS, have reported mixed results (section 2.7.4.3.3). To provide greater insight, this study explores what falls between either extreme: management of strategic uncertainties and management of CSFs.

In the current study, the task of coding narratives in which interviewees discussed senior manager involvement in their area was challenging. Consistent with Mundy (2010), some empirical scenarios showed characteristics associated with both styles of use or indeed could be described as positioned between the two extremes. In an effort to provide further elucidation, interviewees' descriptions of their interactions with senior managers were tabularised. Each interaction was assessed against a number of criteria: whether internal or external issue; timeframe; underlying control system; type of instance surveillance or crisis situation; and consequences. Each observation was assigned a rating (between 1 and 5) based on intensity of engagement with senior management. This process represents a mapping of the empirical manifestations of the DCS-ICS continuum. Sample scenarios are presented in appendix T.

This analysis reveals that the majority of interactions relate to issues associated with the implementation of current strategy. Within this category, most observations relate to senior managers' routine review of metrics managed through DCS (section 5.2.1). However, instances emerged whereby metrics normally managed through DCS escalated prompting a far higher level of senior management attention. Scenarios A and B (Appendix T) are illustrative. With regard to

scenario A, intense levels of senior manager attention arose due to a quality infringement crisis; in the context of C1 (Med-Tech Sector) any quality related concerns induce rapid senior manager interest as they can have potentially serious consequences. Scenario B represents an example of a crisis issue whereby senior management attention incrementally built, as attempts to resolve the underlying production issue were unsuccessful.

These 'crisis' examples provide interesting examples of 'ICS style' of use of a quality system and production management system related to internal issues and current strategy, which are normally managed through DCS. The findings are somewhat surprising given that prior research has associated ICS style of use with opportunity seeking and formulation of emergent strategy (Simons, 1994; 1995; Bisbe and Otley, 2004; Tuomela, 2005; Arjalies and Mundy, 2013). Some characteristics of ICS style of use (section 2.7.2.4) were evident in these scenarios: frequent and regular attention demanded from all levels of management, and outputs were discussed and information was used as the basis to formulate an action plan. However, the issues would be more appropriately described as temporal (rather than recurring per Simons' definition) and intense for a short duration. These findings underline the importance of dynamic performance measures which reflect "*how business performance is created*" (Jakobsen, Norreklit and Mitchell, 2010, p. 274).

These findings raise the question whether issues related to current strategy (and typically managed through DCS) can be escalated to such an extent that they trigger an ICS style of use. Indeed, van Veen-Dirks and Wijn (2002) highlight that ICS uses information from MCS

that relates to strategy implementation. An important factor in whether this different style of use of a feedback and measurement system can be defined as ICS relates to what constitutes a strategic uncertainty (the underlying variable to be managed in ICS). Simons' defines strategic uncertainties as: "*uncertainties and contingencies that could threaten or invalidate the current strategy of the business*" (Simons, 1995, p. 94). Each of the two scenarios presented would appear to fulfill the criteria to be considered a strategic uncertainty (and most of the characteristics of ICS as noted earlier). However, ICS is generally depicted as being associated with future or emergent rather than current strategy, for instance both Naranjo-Gil and Hartmann (2007) and Janke, Mahlendorf and Weber (2014) refer to ICS as a forward looking use of MCS. This raises the question as to whether other forms of feedback and measurement systems need to be recognised within the LOC framework to capture issues related to current/intended strategy that pose a significant enough threat to warrant attention through ICS.

Scenario C also represents an example of an ICS style of use applied to an internal issue being managed through a project management system. The clear motivation behind senior managers' involvement was signalling (McMullen et al., 2009) the need for increased project engagement. This is consistent with Simons' (1995) description of ICS as a mechanism to influence attention and create momentum. Each of the remaining scenarios (D to G) draw on information gathered by interviewees related to the external environment (McMullen et al., 2009), either feedback received from clients (Scenario E) or through the general surveillance of the competitive landscape (Scenarios F and G). In these examples, the information node (Simons, 1995) and

synthesiser role (Floyd and Wooldridge, 1992; Floyd and Lane, 2000) of middle managers was very evident. One point of interest is that in each of these cases, middle managers were the ones bringing the information to the attention of senior managers thereby instigating the ICS process. My findings suggest that middle managers frequently are the first to detect a strategic uncertainty and thereby play an 'instigator' (Wooldridge and Floyd, 1990; Mom et al., 2007) rather than the 'follower' role portrayed by Simons (1995).

In presenting these sample styles of use that manifest in practice, my study highlights conceptual ambiguities that remain within the LOC that require further attention. The scenarios presented that exist across the continuum contain various forms of feedback and measurement system and my study provides detailed insights into the forms these can take. One particular form is escalation of DCS issues, to provide greater clarity, I propose a label 'setback control systems' for issues that relate to current strategy but are given attention by senior management.

6.4 Middle Managements' Attitudes to the LOC

My study responds to Tessier and Otley's (2012) call to give greater consideration to employees' attitudes towards MCS. Findings reveal an emotional response to beliefs systems in C1. This was evidenced during interviews in a number of ways: reference to the genesis of the mission statement, remarks pertaining to the longevity of the mission statement, the deep connection with the founder, and narratives alluding to the high importance the founder places on ensuring all employees are connected to the mission statement. Interviewees

displayed a strong sense of pride in, identity with and emotional connection to the firm mission statement and the founder whose mission they continue to advance. The perceived strong association between the mission statement and the founder echoes, to some extent, the description of how an owner-manager communicated his vision through a series of social controls in a study conducted by Collier (2005).

C1 holds an annual Medallion Ceremony at which new hires are presented with a medal inscribed with the mission. This symbolically places the advancement of the mission in employees' hands. Senior managers reinforced this positive attitude with habitual reference to the mission statement at town hall meetings, patient and clinician videos demonstrating how C1's therapies transforms patients' lives. This highlighted the worthy nature of work, created a highly valued sense of organisational purpose among interviewees, and inspired them to strive towards the shared purpose. The suggestion of a higher calling (Kuratko et al., 2001) and willingness to serve collective goals (Adler and Chen, 2011) was tangible within C1 and contributed to the 'cultural glue' that manifest. This finding corresponds with the idea that beliefs systems can effectively bond employees in pursuit of a common goal (Chenhall et al., 2010). Consistent with Boedker and Chua (2013), this study finds that controls exert an affect on individuals through emotions, and beliefs systems represent a powerful mechanism to mobilise individual level affect. If beliefs systems can be harnessed in this way they reflect the notion of living systems alluded to by Simons (1995).

Parallels may be drawn with forms of social controls (Hopwood, 1974) discussed in section 2.4 such as clan control (Ouchi, 1979) and personnel control (Emmanuel et al., 1990) whereby senior managers leverage traditions, norms and value to appeal to employees own values and beliefs to ensure alignment with firm purpose and goals. Notably, a similarly strong emotional connection to beliefs system was not evident in C3 despite the fact that it also operates in the medical device sector and could plausibly appeal on an analogous level; this suggests an unrealised potential to leverage an emotional affect. This finding highlights the potential for firms to apply their values and purpose in a contextualised and arguably more impactful way. My finding builds on the work of Kraus, Kennergren and von Unge (2017), who propose ideology as a valuable dimension of management control, by identifying the capacity of beliefs systems to amplify this mode of influence at the middle management level.

Further examples of appealing on an emotional level emerged in C1 in relation to DCS concerning quality standards and cost rationalisation programmes. Interviewees referred to the fact that products would be going 'into peoples bodies'. This was further emphasised by one interviewee who explained that he contextualises the importance of adhering to quality standards for subordinates by continually reminding them that products could potentially be used on family members '*it could be your mother, it could be your father*'. This 'personalising' of a control issue infers a high level of responsibility and very effectively reinforces the compelling need to adhere to standard practices. Similarly, intensive cost rationalisation programmes were framed against a backdrop of the need to enable poorer populations access to life saving and transforming therapies. This subtly implied

that access to therapies was contingent on achievement of cost-down targets and thereby appealed on an emotional level. In a further example, realising production budgets ensured no patient was deprived a life saving therapy due to inventory shortages. In these ways DCS persuasively placed the patient at the centre of multiple logics in C1 thereby lending support to prior research which recognises the importance of contextual factors or 'situational cues' in organisations which experience multiple logics (Amans, Mazar-Chapelon and Villeseque-Dubus, 2015; DiMaggio, 1997). Boedker and Chua (2013) posit that accounting, with appropriate management such as setting of ambitious targets, can be an affective technology by taking advantage of individual-level passions and emotions. They contend this enables individuals to envisage and commit to future outcomes. In a recent study Carlsson-Wall, Kraus and Messner (2016) draw on this affective dimension of accounting to explain managers' emotional response to rankings of sporting results in a case study conducted in a football organisation. My study extends these exploratory findings by demonstrating how both DCS and beliefs systems can become vehicles through which individual middle managers' affective state may be shaped and managed.

Interviewees could generally be characterised as having a positive attitude towards DCS. Evidence of this is apparent in the frequency of reference to the clarity offered by CSFs and their relatively unambiguous nature. These results resonate with Maier's (2017, p. 85) description of budgets as "*a beacon of clarity*". Despite being described as very challenging, these types of metrics established very clear expectations for individuals thereby providing structure around their day-to-day work. This evidence supports the findings from previous

empirical studies in the area (Marginson, 1999; Marginson and Ogden, 2005; Ogden et al., 2006; He et al., 2008). Interviewees appeared to feel the natural pull towards the visible measures (Marginson and Ogden, 2005) and the potential DCS offers in validating individual-level competence (Van der Stede, 2000) with important career consequences. The implication here is that the well-defined characteristics of DCS metrics are instrumental in focusing middle managers' efforts and provide a means to meaningfully regulate (Marginson, 1999) and legitimise work on a daily basis.

Business conduct boundaries were evident in all cases and despite the depiction of these as a negative or ying force (Simons, 1991; Plesner Rossing, 2013), interviewees generally did not raise any concerns or express dissatisfaction with expectations to comply. Interviewees used descriptors such as "*it's just good practice*", "*it's second nature*" which suggest a positive attitude. In addition, interviewees were highly attuned to the fact that inappropriate behaviours could be very damaging for both the individual and the organisation. From this perspective, interviewees perceived codes of behaviour as "*a tool and an enabler*" to draw on if needed and interviewees appeared to value both the clarity and assurance this presented. As discussed in section 6.2.3, stricter standards of behaviour were applied to specific role categories and interviewees acknowledged that this was necessary given the increased risk of reputational damage (Simons, 1995; Arjalies and Mundy, 2013; Kruis et al., 2016). These findings corroborate the ideas of Adler and Chen (2011), who suggests that boundary systems may be perceived as enabling by employees if "*seen as appropriate to the tasks of the organization*" (p. 75).

Mixed findings regarding interviewees' attitudes towards strategic boundaries emerged. Some interviewees had a neutral and pragmatic attitude, particularly those interviewees who were more removed from strategic issues. Interviewees with responsibility for constructing business cases to support strategic initiatives expressed some frustrations with constraints imposed by strategic boundaries believing that "*they* [senior managers] *are constrained by what they can see already*". This may possibly be explained by the fact that individual middle managers have a certain domain expertise (Pache and Santos, 2010; Sharma and Good, 2013) that is unlikely to be shared by senior managers. From a middle management perspective, this issue may be further compounded when evaluation of initiatives is based primarily on financial grounds (such as margins and rates of return as reported in this study) as these metrics innately fail to fully capture the 'vision' that middle managers may have.

Others, particularly in C4, referred to the process of seeking funding from senior managers in a very negative manner. As a result interviewees often sought out ways of progressing initiatives with support from peer level colleagues, outside of the formal routes and this had traditionally been successful in the past (C2 and C4).

Evidence also indicated that individuals exercise discretion regarding compliance or non-compliance with strategic boundaries; in the main, findings suggest that interviewees generally comply. A small number of interviewees discussed projects where they had intentionally ignored or pushed boundary limits but this appeared to be a personal choice.

It appears that middle managers purposely weigh up the options: adhere to boundaries but this might compromise potential; or risk pushing boundaries to explore full potential. Contrary to Simons (1995), no evidence of punitive sanctions emerged. One explanation for this might be the geographical separation (Yang et al., 2010) between subsidiary and corporate, which enable such practices to happen. The findings suggest that adherence to strategic boundaries may to some extent be at the discretion of the individual or subsidiary regardless of organisational-level policies. Interviewees expressed the view that in these cases, while they might be contravening firm policy, they believed they were acting in the interests of the organisation. Potentially, completely rigid strategic boundaries may be detrimental in the long run, as it would prohibit middle managers initiative taking (Floyd and Wooldridge, 1992; Mantere, 2008; Ren and Guo, 2011).

This study provides empirical evidence of "*important personal consequences*" (Simons, 1995) arising from involvement with ICS, resulting in mixed attitudes amongst interviewees. The study finds that middle managers are key in the ICS process as senior management rely on their ability to supply contextual information (section 5.3.3.1) but this was onerous and time-consuming. Interviewees expressed concern about the increase in workload resulting from ICS using terms such as "*noise burden*", "*increased stress levels*", "*instability*", "*burden*", and "*disruptive*" thereby providing many parallels with Mundy's (2010) findings.

Interviewees reported feeling compelled to prioritise issues pertaining to ICS, thereby diverting attention from their normal workload that imposed an individual level cost. This corresponds with Mundy's (2010)

observation that ICS can have a destabilising effect for those involved. Participation in ICS was intense and challenging with senior management often exerting significant pressure on middle managers: "*a lot of focus to deliver and perform*" (Manufacturing Operations Director, C2). Parallels can be drawn with Anthony and Govindarajam's (1998) description of tight controls and also accords with Van der Stede's (2001, p. 135) finding that ICS "*leaves little leeway for subordinates to have their business out of control without being noticed*". Importantly, the findings suggested that ICS may create an implicit incentive against sharing information in order to avoid subsequent work as interviewees reported once you raise it, you own it. As key 'information nodes' (Simons, 1995) in contemporary organisation, this potentially dysfunctional consequence at middle management level is concerning.

The findings also reveal positive attitudes regarding ICS; the intensity of such situations facilitated learning, teamwork and collaboration. Interviewees also alluded to the positivity and trust from senior managers that were apparent in ICS scenarios: "*they really wanted you to succeed*" (R&D Manager, C1); "*huge positivity in that it's all shoulders to the wheel*" (Manufacturing Operations Director, C2). This created positive momentum to resolve issues or formulate strategic response. Interviewees associated career progression with constructive input to the ICS process. Consistent with previous research (Vavio, 1999; Tuomela, 2005), ICS was found to increase individual's visibility. However, contrary to Tuomela's findings, interviewees regarded this heightened visibility as presenting opportunities to impress with important career consequences.

6.5 LOC Working in Combination

The central line of argument underpinning the LOC is that senior managers use four levers of control in combination, thereby forming a system or package of controls (Grabner and Moers, 2013; Bedford and Malmi, 2015; Bedford et al., 2016). Integral to this is the notion of interplay between the levers, which can be best, illustrated by examining C2, taking that as an exemplar.

As previously discussed (section 4.6.3), C2 was in the midst of a strategic turnaround under the guidance of a recently appointed CEO who was focused on maintaining C2's strong industry leadership position combined with placing greater emphasis on the relevance and commerciality of such endeavours. The rationale that prevailed is reminiscent of Davila et al.'s (2012) observation that creativity without the ability to translate it into profits while fun is unsustainable. Dismantling the long-standing tendency towards scattered energy and lack of focus was central in the strategic turnaround. The revised set of organisational values combined multiple logics and were concisely captured in the CEO credo 'clearer, bolder, faster' which constituted the main focus of the beliefs system. In tandem, these values were translated to CSFs operationalised through DCS, specifically the project management systems (ensuring delivery to commitments) and benchmarking systems (drive efficiencies). By doing this, beliefs were mobilised into action. Strategic boundary systems were evidenced through extensive use of margins (ensuring commerciality thresholds were achieved) and emphasis placed on key customers (fostering relationship with key strategic clients to develop solution-based products).

Evidence suggests that at middle management level, the beliefs system is mobilised in a practical sense through DCS. This finding supports Widener's (2007) argument that from an organisational perspective, efficient use of senior management attention is facilitated through DCS and beliefs systems. Additionally it is in line with Rao and Sutton (2008) who argue that motivating people into action requires a blend of lofty aspirations (to be attained in the distant future) and concrete goals (to be accomplished in the near term) – effectively the alignment of short and long term goals. The key implication is the strength of the connection between beliefs system and DCS and their collective effect on guiding behaviours. This enhanced understanding of the interaction between the systems is important given the salience of DCS to the delivery of organisational outcomes at middle manager level. Prioritised courses of action highlighted in the credo were further accentuated by strategic boundaries leading to an aligning of interviewees' efforts. The shaping of middle managers behaviours could be characterised as a 'double imperative': implicitly through beliefs systems and explicitly through visible metrics imposed by DCS and the enforcement of strict policies through strategic boundary systems.

6.6 Interplay Between the LOC and Organisational Subcultures

In this study, the evidence points to the existence of discrete subcultures within the case organisations (Dent, 1991; Clegg, Kornberger and Pitsis, 2005; Robbins, 1995). These subcultures reflected functional distinct area (Subramaniam and Mia, 2003; Malmi and Brown, 2008). Of particular significance is the finding that the LOC, specifically beliefs systems, were influential in their development. Interviewees from the Operations function in C1 referred extensively

to a credo establishing operational priorities: "*quality, service and cost*". Further analysis of interview data reveals 19 specific references to the credo. The credo served to set values and establish priorities: quality first, then service followed by cost. Interviewees recounted how it was regularly referred to, served as a key focus, clarified and frequently expedited difficult decisions. Viewed in this light, the credo comprises part of the beliefs system particular to Operations and it appears to function effectively as a mechanism to control behaviours by providing guidance on priority decisions (Simons, 1994; Simons, 1995) faced by middle managers. Interviewees also alluded to a similar credo in C3 but there were comparatively less (total of eight) references. Overall, the subculture was more evident in C1 than C3.

In parallel, another subculture of a divergent nature was also evident in C1. The Product Development Director explicitly referred to the need for a sub-culture within his R&D unit; drawing a distinction between R&D and Operations, he made the following observation: "*Operations is about doing the same thing better day in day out, R&D have to think outside the box, do things slightly differently*". To gain more widespread acceptance for this perspective, a novel initiative whereby all 2,500 (non R&D) employees were brought on a tour of R&D facility to explain how a product progresses from idea to commercialisation and "*tell the story of what we do in R&D*". In doing so, it served to articulate the purpose and values within the R&D function. Whilst it was a subtle means to lend support to the R&D subculture it also formed part of the beliefs system as it articulated the values, purpose and direction (Simons, 1995; Scheytt and Soin, 2005) relevant to that subset of the organisation.

Symbolic reminders further reinforced distinctions between the two subcultures in C1. The reception area of the R&D building made extensive reference to innovation (expressed in multiple languages); the R&D visitor centre lab was visible through a large window and the corridor area named the 'innovation walk' displayed patents plaques attained by the Irish subsidiary. These visible expressions (Schein, 1997) of the unit's subculture were evocative of symbol-based controls. In contrast, the Operations building use of symbolic expressions were confined to articulating the C1 mission statement. The existence of two concurrent subcultures observed in C1 empirically corroborates Langfield-Smith's (1995) claim that subcultures may be inconsistent when viewed in an organisational context but valid from a functional perspective. It reflected the practical reality that different rationalities co-exist in contemporary organisations. These findings raise the possibility that effectual beliefs systems work on multiple levels, principally at a firm level in an overarching manner but complemented by distinct beliefs systems operating at a unit level.

6.7 Interplay between Subsidiary Mandates, Local Practices and the LOC

This study did not set out to examine the issue of subsidiary mandate specifically. However the design of the study (interviews with middle managers from a global perspective who in parallel occupy senior roles at a subsidiary level) is such that disentangling issues is difficult and interesting interconnections between the LOC and subsidiary mandates have emerged.

All interviewees were highly attuned to corporate expectations of their respective subsidiaries. DCS was a fundamental constituent of

establishing these expectations particularly evidenced in budgetary and project management systems. As documented in section 5.2, interviewees were steadfast in their efforts to deliver on corporate commitments. An uncompromising mind-set was very evident: “*We always hit them* [quarterly production metrics]” (Manufacturing Manager, C2). The importance of meeting commitments was further accentuated through the beliefs systems in some cases. For example, in C1 and C2 subsidiary level performance metrics for the previous quarter were always reviewed at the quarterly local/subsidiary town-hall meeting. This created a sense of ‘mutual accountabilities’ highlighted in the work of Marginson (1999). Failure to meet these targets was considered unacceptable, as this was perceived as potentially detrimental to corporate assessment of subsidiary competence. Interviewees made pointed connections between successful attainment of local metrics, the subsidiary reputation (Dorrenbacher and Gammelgaard, 2016), subsidiary sustainability and by connotation local level job security (Birkinshaw et al., 1998). This study extends prior research by highlighting CSFs managed through DCS as a critical mode for middle management to validate subsidiary performance to corporate.

A further related issue of relevance emerged from the findings. A number of interviewees expressed dual concerns, one related to the performance of the overall organisation and the other associated with the performance of the Irish subsidiary. MCS were implicated in managing these concerns. The description of the emergence of an informal ‘*spiders web*’ (C4) to allow innovative ideas to incubate is one such example (section 5.3.2). In that case, interviewees deliberately circumvented strategic boundaries set by corporate and in

collaboration with their peers, located resources to nurture specific projects creating a coalition of purpose. Clearly this behaviour could be perceived as subversive by corporate; nonetheless it was intentional on the part of middle managers. It was motivated by firstly the need to ensure the subsidiary remained a hotbed of innovation for its survival and secondly to avoid confronting the challenges associated with the formal route of corporate approval. This finding suggests that middle managers adapt and 'localise' MCS, in this case strategic boundaries, to ensure they are practicable from their own or the subsidiary perspective. Interpretation of how the LOC influences the middle management level must be cognisant of the effect of such informal and local practices.

Interviewees also discussed local practices directed at galvanising energies behind beliefs systems. They acknowledged that it was important that their subordinates understand broad organisation values but they also recognised this process could potentially be difficult for subordinates. To alleviate this, a number of interviewees (in Case 2, Case 3 and Case 4) held follow-up local department level meetings immediately following corporate town-hall meetings. The aim was to reinforce, interpret and localise key messages communicated by senior managers. Interviewees asserted that this resulted in greater connectivity and participation as it enabled subordinates to contextualise organisational values within their own departments and roles. The absence of similar efforts in C1, may be due to the fact that the mission statement was deeply embedded and these types of localised efforts simply were not necessary.

This finding helps us to understand the key process of translating beliefs systems from vague (Simons, 1995) to tangible in the eyes of organisational participants and this has not been addressed in prior studies. Furthermore, these findings indicate that middle managers can play a significant role in reinforcing beliefs, which in turn facilitates the cascade of organisational values and purpose down through firm hierarchies. This description is evocative of the linking pin (Floyd and Wooldridge, 1992; 1997) effect of middle management. Considered in the context of prior research, which reports that lower level employees are more amenable to middle manager influence rather than senior management influence (Caughron and Mumford, 2012; Chun et al., 2009; Schaubroeck et al., 2007), this finding underscores the importance of middle managers' intermediary efforts in mobilising beliefs systems at a local level. Without an effective local cascade system or reinforcement mechanism, beliefs systems may be ineffective. These findings raise intriguing questions regarding the theoretical level on which beliefs systems operate. Existing literature (Simons, 1995; Plesner and Rossing, 2013; Rodrigue et al., 2013) suggests that beliefs systems function at the firm level predominantly through the efforts of senior managers. Findings emerging from the current study challenge this somewhat, as they suggest that a departmental/functional facet may be needed to effectively leverage enactment. Moreover, the results of this study show that middle managers are instrumental in the operation of beliefs systems, this point has not been previously articulated in the literature.

6.8 Developing a Framework to Explicate the Interplay between the LOC and Middle Management Activities

Section 2.7.4 outlined some of the criticisms of the LOC, including its relative inattention to employees below senior manager level (Tessier and Otley, 2012; Martyn et al., 2016). This study contributes to addressing this by drawing on the findings to conceptualise the link between each of the levers and middle manager strategic role expectations identified in section 3.4.4. Of course, association between middle manager roles and specific levers does not confirm causation or the extent of influence. However, analysis of empirical findings from this study considered in the context of prior literature informs the discussion of why the observed associations may be present.

The empirical findings (5.1) show that DCS is the most dominant form of control at middle manager level and plays a key role in guiding action. Findings reveal how DCS is strongly associated with the 'implementing deliberate strategy' role. This pattern persisted uniformly across all four cases. Intended strategy cascades to middle managers through an array of traditional control systems used in a diagnostic way including budgeting systems, operation planning systems, strategy deployment systems and performance management systems. Without exception, all interviewees had responsibility for critical performance variables and consequently they allocated a substantial amount of their time to implementation activities and, by implication DCS. Comparison of measurable outputs to pre-set standards of performance through DCS provided visibility and transparency on goals and validated progress against those goals. Furthermore, DCS allowed middle managers to very quickly identify any problem areas or difficulties and direct attention accordingly. In

this way DCS embodied the efficiency paradigm concept described by Davila (2010). Findings show that the clarity afforded by DCS actively facilitates the effective pursuit of implementation-related activities. The quantifiable nature of CSFs (typically measured in terms of volume, time and monetary value) contributed to creating a strong sense of urgency regarding tasks amongst middle managers. These descriptions are in line with prior research, that highlights how traditional management accounting practices support efficiency, effectiveness and enhanced performance (Otley, 1978; Abernethy and Brownell, 1999; Davila, 2010; Amans et al., 2015).

Evidence reveals that CSFs were very much front and centre in the minds of interviewees. Successful realisation of these metrics demanded daily attention involving significant interaction and communication with operational level colleagues. Findings highlight the significant personal efforts on the part of middle managers in driving implementation-related goals. This is consistent with Maier (2017) who observes, that meeting CSFs represents no trivial accomplishment. Interviewees described complex micro-practices associated with achievement of CSFs requiring them to navigate many obstacles. One possible explanation for this could be the complex characteristics of both products and processes in the Medical Device and IT sectors. Consistent with Floyd and Wooldridge (1994), findings reveal that implementation does not merely constitute a mechanical process but is far more complex in reality.

One unanticipated finding relating to DCS emerged from the study. According to Simons (1995), one of the defining characteristics of DCS is that it must be possible to define quantities and types of output. He

argues that it would be challenging to exercise control through DCS in an R&D setting in the absence of measurable outputs. Contrary to expectations, the results of this study suggested otherwise, evidenced by a reasonably strong interconnectedness between DCS and championing activities of interviewees in R&D roles (see Appendix P). Perhaps this can be attributed to more sophisticated project evaluation systems and project-planning systems utilised in contemporary organisations suited to a diagnostic style of use compared to when Simons first developed the LOC framework in the early 1990s. There was ample evidence suggesting that 'innovation-related' activities were translated to a form of time-bound CSFs such as project milestones, deliverables and associated budgets.

Prior literature suggests that diagnostic style of use will act as a deterrent to innovation by focusing efforts on intended strategy (Simons, 1995; Adler and Chen, 2011), indeed Henri (2006) finds empirical support for this view. In the context of this study, while DCS limited resources available for championing endeavours, middle managers generally appeared to be adept at coping with this challenge. This rather contradictory finding may be explained by the fact that in these situations, diagnostic controls were applied in a less coercive form (Adler and Chen, 2011) than is typically depicted in the literature or was found in Manufacturing/Operations functional areas in this study. This finding suggests that DCS can be adapted and applied in a purposeful way to support middle managers championing activities. Thus it contributes to existing literature, which highlights the positive influence that MCS exerts on creative innovation (Davila, 2000; Ahrens and Chapman, 2004; Davila Foster and Li, 2009).

Table 5.2.1-1 summarised the co-occurrence between beliefs systems and each of the middle manager strategic roles and the following C-ratios emerged: implementing 0.12; facilitating 0.11; championing 0.09; and synthesising 0.04. This indicates a slightly stronger interplay between beliefs system and the implementation role compared to the other roles identified in the Floyd and Wooldridge's typology. As this pattern was consistent across the four cases, this suggest that in all cases, championing, facilitating and implementing are addressed by beliefs systems, albeit in different ways and with varying effects. For example, the mission statement in Case 1 places equal emphasis on the need for innovation and targeted goal achievement. In Case 2, the CEO credo stresses the importance of finding solutions to customer problems while also promoting bold innovations. The beliefs system in Case 4 emphasises innovation but sales revenue and growth were also encouraged.

Existing literature (Simons, 1995; Bruining et al., 2004; Marginson and Bui, 2009; Plessner Rossing, 2013) generally portrays belief systems as a positive or a 'yang' force inspiring and promoting opportunity seeking and innovation, and therefore one would expect to find a strong interaction between beliefs systems and middle managers' championing role. However, of particular importance is that findings in this study challenge this; beliefs systems correspond consistently to implementing, championing and facilitating roles. This highlights that, in practice, beliefs systems are not exclusively associated with opportunity seeking and innovation. Arjalies at Mundy (2013) hint at this as they suggest that, in the context of communicating Corporate Social Responsibility values, beliefs systems may incorporate conflicting values reflecting those of diverse external

groups. In a similar vein, Heinicke et al.'s (2016) quantitative study of top managers suggests that firms emphasising a flexible culture will place greater emphasis on beliefs systems. This suggests that beliefs system potentially have a more expansive role in motivating activities at middle manager level than prior literature would suggest. My study reports the intertwining of logics within beliefs systems. It is recognised that beliefs systems inspire ways of creating value (Simons, 1994; 1995) but this finding suggest that firms use them to advocate multiple routes to value creation thereby diverse logics are connected by beliefs systems. One possible reason for this might relate to the localisation of beliefs systems (discussed in greater detail in section 6.6) reflecting the multiple agendas that a subsidiary is expected to fulfil.

Synthesising information represents a central task for middle managers (Floyd and Wooldridge, 1992; McMullen et al., 2009; Schneier, 2006). The description of this role (section 3.4.4) has many parallels with the information node role Simons (1995) attributes to middle managers within the ICS process (section 3.7.4). Findings (section 5.3.3.1) show a strong interconnection between ICS and the synthesising function evidenced by a C-ratio of 0.37. Section 5.3.3.1 notes the variation in co-occurrence between functional areas, with greatest prominence in sales and customer service roles. This finding complements Henri's (2006) finding, which showed a positive association between market orientation (emphasis on customers current and future needs) and senior managements' use of performance measurement systems in an interactive manner.

Findings suggest there are three distinct phases to the interconnection between ICS and synthesising. First is the process of external surveillance to gather domain relevant information (section 5.3.3.1). A number of control mechanisms facilitated this: bench marking systems, customer feedback systems, industry conferences and market surveillance systems. Consistent with existing middle management literature (Shepherd et al., 2007; Schneier, 2006; Mom et al., 2007), interviewees played an active role in this data-gathering phase "*everyone is expected to pick up intelligence*" (Director of Quality, C2). This view is consistent with Abernethy et al. (2010) who report that the task of acquiring external information is frequently delegated to below top management level thereby creating information asymmetry between senior and middle managers. Once gathered, findings indicate that the process of filtering and interpreting the data commenced, a necessary step prior to bringing information to the attention of senior management. Interviewees reported needing to communicate a 'sense of scale', 'key trends' and 'likely impact' to senior managers. In this role, middle managers draw on their domain of expertise and exercise judgement. This echoes Floyd and Wooldridges' (1992) description of the evaluation, advice and interpretation that middle managers provide. Parallels can also be drawn with Simons' (1995) description of middle managers as 'key nodes of information' or Nyland and Pettersen's (2004) observation that front line managers reveal strategic uncertainties in the course of their interactions with senior managers. In the third phase, interviewees report intensive debate and discussion between middle and senior managers, characteristic of Simons' (1994, 1995) description of ICS. One interviewee described regular interaction with top management driven by a competitor analysis systems 'red flag chart' which geographically maps the firm's

new product launches to compare against competitor plans identified through surveillance. Through such practices the information asymmetry between senior and middle managers identified by Abernethy et al. (2010) is rebalanced. Findings suggest that information provided by interviewees formed the basis of these discussions and was instrumental in formulating a response to the perceived opportunity or threat. The resulting collaboration between senior and middle management, concentrating on information supplied by middle managers, is consistent with previous research on ICS (Osborn, 1998; Vaivio, 1999).

Prior studies have noted the importance of ICS in stimulating emergent strategy and opportunity seeking (Bisbe & Otley, 2004; Tuomela, 2005; Henri, 2006). Within the middle management literature, the contribution of middle managers to such endeavours is well recognised (Canales, 2015; Brady and Davies, 2004). It was somewhat surprising that a weak (C-ratio of 0.07) interaction between ICS and championing was found in this study (section 5.3.2.4) contrary to prior findings. On further reflection, this can potentially be explained by the fact that middle management's primary role in the ICS process relates to the provision of environment surveillance information. Narratives pertaining to this function were coded to the synthesising information node.

In addition to ICS guiding synthesising activities, this study finds a reasonable inter-play between boundary systems and synthesising activities indicated by a C-ratio of 0.15 (section 5.3.3.2). Variations emerged across the data-set with significantly higher interconnection in C1 and C3, and within R&D and project roles. Collaboration with Key

Opinion Leader (section 5.3.3.2) was one of the main routes to collect critical data from the business environment industry. These collaborative relationships presented ethical challenges thereby creating a need to carefully manage risks through strategic and business conduct boundaries. Prior studies (Widener, 2007; Kruis et al., 2016) report greater emphasis on boundary systems when strategic risks and uncertainties are believed to be higher at firm level. This study suggests tighter boundaries are also applied to individuals occupying roles, which pose increased ethical risks.

Section 5.3.2.1 details the interconnection between interviewees' championing role and boundary systems. Case firms tended to have broad boundaries such as business-to-business or specific industry sectors. Any initiatives proposed had to fit with corporate strategy and have a strong business case. The use of metrics as a constraining force was very evident in C2. Interesting accounts of interviewees circumventing boundaries through local coalitions also emerged.

Figure 6.8-1 below summarises the key interconnections between middle manager strategic expectations and the LOC based on the findings emerging from this study. This provides a framework to conceptualise the relationship between the two frameworks helping to better understand how the LOC steers activities at middle manager level.

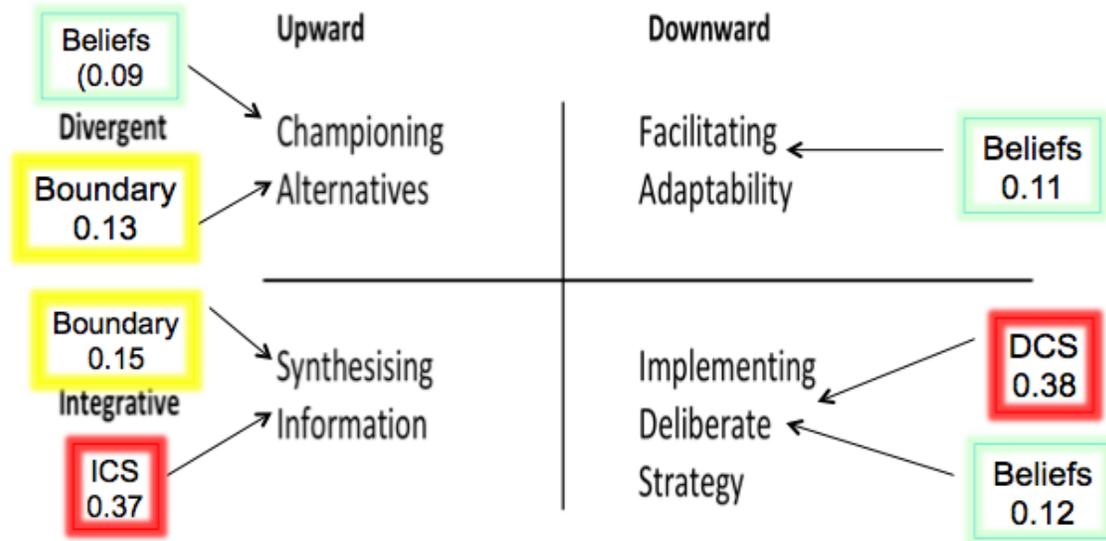


Figure 6.8-1 Framework depicting the interplay between middle managers' strategic roles and the LOC

6.9 Tensions

One of the objectives of this study is to examine how tensions between diverse goals manifest at middle manager level (section 4.2). More importantly, the study seeks to better understand how the LOC support middle managers in managing tensions that might arise. The following section situates the relevant findings in the context of prior literature.

6.9.1 Range of Tensions at Middle Management Level

Evidence from both the interviews and pre-interview survey shows that interviewees have multiple responsibilities. Analysis of the survey (Appendix K, reports the average mean score for each individual role classification ranges from 3.4 to 4.3. Although the implementation role is most salient (mean score of 4.3), each of the other three roles classifications closely follow (championing 3.6; synthesising 3.5; and

facilitating adaptability 3.4) indicating that each were considered significant by respondents. Table 5.2-1 summarising interview code frequencies also highlights that each of the four role categories were discussed at some length during interviews. There is somewhat more disparity between emphasis than was apparent in pre-interview survey findings (role narratives as a % of overall narratives: implementing 39%; facilitating adaptability 28%; championing 20%; and synthesising 13%). Section 5.4 outlined the types of tensions between role responsibilities that emerged for interviewees. Prior studies (for example Raes et al., 2008; Sharma and Good, 2013; Glaser et al., 2016) highlight the middle manager hierarchical positioning as inherently fraught with tension (section 3.5).

Over the course of the interviews, it became evident that some middle managers are confronted with diverse role expectations: own functional area of responsibility, their self-interests in terms of their own career; the Irish subsidiary perspective; the business unit perspective within the global organisation and the overall organisational perspective. In their attempts to effectively discharge each category of responsibility, competing obligations lead to internal struggles.

Using the example of one interviewee, the Director Manufacturing Operations C2, helps to explicate this argument further. His hierarchical position placed him as functional leader of manufacturing operations within the Irish subsidiary, part of the Irish subsidiary senior leadership team and reporting to Vice President of Manufacturing at a global level. He succinctly described his broad scoping remit: *"Every single day, I have people focused in*

manufacturing, in engineering, in process and I have groups focused on improving, changing and going to the next level". This single quote depicts a role incorporating the complete span of middle management responsibilities encapsulated in Floyd and Wooldridge's (1992; 1997) typology. Tensions between role expectations emerged as a logical consequence: novel innovations halted because it did not have sufficient 'customer pull', between customer-oriented solutions (facilitating) versus standard generic product innovations (championing); balancing the available physical and human resources between championing and implementation activities; and between a deep rooted engineering-centric culture (championing) and a more commercially aware innovation culture (more towards adaptability).

Findings from this study suggest that at the individual level of middle managers, tensions are more nuanced than at the firm level. Evidence also accords with the argument advanced in section 3.7.5 that the tensions characterised in the LOC framework (section 2.7) differs from what middle managers experience in practice. Specifically, innovation and predictable goal achievement (Simons, 1994; 1995; 2010) each represent clearly distinct outcomes capturing challenges that apply at an organisational level. However, at the middle manager level this dichotomy or dual challenge (Adler and Chen, 2011) is less applicable, with tensions manifesting between more closely related tasks rather than the dichotomous extremes predicted in the MCS literature. As the findings indicate, tensions frequently emerged between different forms of innovation; radical (championing) versus incremental (adaptability) as well as between implementing and championing activities suggested in the MCS literature. A possible explanation for this is the reality that

a balance of innovation types is necessary for organisational success (Cao et al., 2009; Lin et al., 2013).

Within the MCS literature the relationship between predictable goal achievement and creative innovation is described as presenting a significant dilemma (Simons, 1995; Henri, 2006; Davila et al., 2012; Marginson and Bui, 2009; Adler and Chen, 2011). However, interestingly the findings to emerge in this study offer a somewhat different perspective. A number of interviewees perceived the nature of the relationship between pre-set goals and being innovative as complementary rather than that of 'countervailing forces' (Simons, 1995; Marginson and Bui, 2009) typically characterised in MCS research. This finding indicates that innovation and predictable goal achievement may not always be at odds, especially in the context of the middle management level. These findings challenge the prevailing dualism described within existing literature, the reality is more complex and nuanced.

A possible explanation for this finding may lie in the inadequate teasing out of the term 'innovation' as it applies in the LOC framework. On a practical level, innovation exists on a continuum from process improvements right through to blue-sky breakthroughs. Where individuals place themselves along this continuum reflects their own personal interpretation and is therefore subjective. In the context of this study, most of the interviewees were focused on implementing existing strategy. The pressures to be innovative that they experienced related to executing strategy more effectively. For example, ambitious cost-down targets had to be achieved and they discussed these expectations in the context of needing to be

innovative to deliver these targets. The evidence clearly indicated that creativity was not confined to R&D units. Expectations for innovation at this level are likely to be different from expectations at senior management level where the emphasis on emergent strategy is greater. There are similarities between how interviewees in this study conceptualised the requirement to be innovative and those described in a recent study by Curtis and Sweeney (2017). My findings suggest that a broader more nuanced conceptualisation of what is meant by innovation expectations at different levels of management may enhance our understanding of how MCS are used to manage expectations for innovation across different hierarchical levels.

6.9.2 How LOC Manage Tensions at Middle Management Level

Section 2.6 explained how the MCS (Simons, 1995; 2000; Otley, 2003; Davila et al., 2012) and the ambidexterity (Gibson and Birkinshaw, 2004) literatures recognise that tensions will naturally occur between creative innovation and predictable goal achievement. Notably both bodies of literature emphasise the importance of appropriately harnessing such tensions so they can be translated into profitable growth (Simons, 1995) to provide long-term sustainability (Andriopoulos and Lewis, 2009).

The findings from C1 (and to a lesser extent in C2) reveal the significant potential for beliefs systems to contribute towards the development of paradoxical cognition or mental templates (Oblak, Licen and Slapnicar, 2018) to cope with such tensions at middle manager level. Through the beliefs systems in C1, senior managers strongly promoted a 'both' agenda and this manifested in a number of ways. Firstly, the broad scope mission statement reflects the desire to

deliver across multiple agendas: focused growth, innovating with purpose, making healthcare more cost effective and thus accessible, product reliability and quality, respect for each employee, and making a reasonable profit. Parallels can be drawn with Chenhall et al., (2010) who find, in the context of a Non Government Organisation, that beliefs systems can simultaneously reflect the values of both an organisation and it's employees (case workers). Secondly, each of these agendas is habitually raised at the corporate level and local level town-hall meetings the acrobat slide stresses the importance of meeting financial targets, while patient and clinicians videos serve to reinforce the transformative effect of firm innovations, and the significance of quality. These organisation gatherings positively reinforced the importance of each measure of success and positioned C1 as sufficiently agile to concurrently deliver them all. In this way senior managers explicitly identified and continually reminded interviewees of the distinct goals that the organisation as a whole was working towards.

This illustrates how concurrent visibility (Chenhall et al., 2013) between combined logics is created in practice. Similarly in C2, the CEO's credo was challenging historical tendencies within the firm, by provoking employees to attend to specific agendas. This process of pointedly calling out each agenda was clearly conveying expectations. Consistent with Smith and Tushman (2005), this was a key dimension that enabled individuals to manage competing agendas. These overt mechanisms triggered individuals (Smith and Lewis, 2011) to think about these tensions, recognise their significance (Sharma and Good, 2013) and enable productive debate between agendas (Chenhall et al., 2013). Evidence of the resultant cognitive frames emerged with the

following quote being representative: *"I see selling at a fair price, I see reliability and quality, growing the market through innovation, they're complementary and definitely one cannot happen without the other"*. Interviewees perceived that multiple agendas were simultaneously achievable at an individual level; they 'hosted' the tension that was made explicit through the vibrancy of the beliefs systems. These findings contribute by extending our understanding about how concurrent visibility can be created in the face of multiple logics (Chenhall et al., 2013). Moreover my findings are especially useful in the context of middle managers who frequently navigate between competing logics (Sharma and Good, 2013; Raes et al., 2008).

6.10 Differences Between Interview and Pre-Interview Survey Findings

The design of this study is quite novel; data collected from interviewees in two ways (pre-interview survey and semi-structured interviewees) provides a rich matched data set (with the exception of two interviewees). Each method gathered data on role expectations; in the pre-interview survey, this was through the application of the Floyd and Wooldridge (1992; 1997) middle manager strategic influence survey. Role expectations were also discussed during the interviews. Consequently, this approach uniquely lends itself to a comparison of findings on role expectations emerging from each research instrument. Specifically, analysis explored whether the accounts emerging from each instrument appeared consistent or corresponded at an individual participant level. In the majority of cases, there was general accord between the role expectations emerging from both sources. However, there were a small number of intriguing exceptions.

The Finance Manager C1 attached the highest rating to championing activities in the pre interview survey, indicating that this was his most frequent role. Analysis of his interview transcript would suggest that he is principally concerned with implementation. Interestingly, the three interviewees most closely associated with R&D function, namely Product Development Director (C1), R&D Manager (C1) and Leader Project RR (C3) each attributed a relatively low score to the championing measures on the pre-interview survey. As a result championing activities are assigned third or fourth priority within the four middle management roles. Further analysis of interview code frequencies reveals a quite different overview of their role. In the case of the Product Development Director (C1), 67 (72%), of a total of 93 narratives coded against the four middle management roles, related to championing. Moreover only 6 (6%) of the 93 narratives were coded to implementing. These misalignments are intriguing; one possible explanation is that survey respondents may have prioritised issues based on their salience rather than frequency. Conceivably, the Finance Manager perceived that the championing activities that he was involved in were of high importance and possibly for this reason he assigned a high frequency rating. The divergence of findings highlights the importance of construct validity (Berry and Otley, 2008; Saunders et al., 2012).

Each of the methods (survey and interviews) has inherent limitations (discussed in chapter 4). With regard to surveys, examining perception-based phenomena is challenging (Lillis and Mundy, 2005). Wording is crucially important in a survey and perhaps the Floyd and Wooldridge (1992, 1997) instrument does not accurately reflect the range of activities undertaken by middle managers in contemporary

organisations given that it was developed over three decades ago. For instance, the wording of the implementation measures: translates goals into individual objectives, implement action plans to meet objectives. In contemporary organisations, innovation is typically managed through project management systems and hence these descriptors are arguably also very applicable to championing tasks. Furthermore, Smith (2015, p.120) identifies construct validity, "*the extent to which abstract constructs are successfully operationalised*" as an ongoing concern in survey type research. Brownell (1995), cited in Smith (2015), also raises concerns about the ability of existing survey instruments within any body of literature to capture constructs in a reliable way. However, he concludes that this trade off is preferable to the alternative, which involves developing an entirely new and untested instrument. Regarding interview-based data, the issue of reliability is also relevant. For instance, Otley (2001, p. 248) argues that field observations are inevitably subject to: "*perceptions, attitudes and personal characteristics of participants and researchers at that particular time and place*".

Within any body of literature researchers will employ a range of data collection instruments; this is the case within the LOC literature (Martyn et al., 2016), but current findings do raise questions about the challenges of integrating findings from qualitative and quantitative studies. As Lillis and Mundy (2005, p. 126) identify "*theory-defined variables are difficult to document in surveys and difficult to generalise from individual case studies*". This may have contributed to the lack of coherence of the body of work discussed in section 2.7.4.

6.11 Conclusion

Chapter 6 discussed the empirical evidence in light of existing literature to advance our understanding as to how LOC steers middle managers diverse activities in contemporary organisations. Many of the findings were supported in both the interviews and the pre-interview survey; this enhances the validity of the study and the reliability of results.

Among the key findings to emerge is the complexity of the interplay between the LOC and middle managers strategic roles in contemporary organisations. The study finds a reversal in emphasis between ICS and DCS at middle manager level when compared to senior manager level. Empirical insights highlight how the ICS and DCS labels do not accurately capture the dynamics of style of use at middle management level. The potential emotional affect of the LOC was identified, which has important implications for influencing behaviours. The study advances knowledge of how beliefs systems operate. In particular, it highlights a more expansive role that is reflected in current literature and its potential importance in managing tensions between different logics at middle manager level. The final next chapter discusses the contributions of the study, strengths and weakness and identifies areas for future research.

Conclusion

7.1 Introduction

This final chapter, chapter seven, presents the contributions of the study to the research community (section 7.2.1) and to practitioners (section 7.2.2). Section 7.3 outlines the key strengths and notable limitations of the study. Based on the findings of this study, section 7.4 identifies potential opportunities for future research. Section 7.5 provides a summary of the chapter.

7.2 Contribution to Research and Practice

The study's principal aim was to contribute to the knowledge base by examining how the levers of control operate at middle management level, in particular how they guide the different roles undertaken by middle managers and manage tensions at this level. Chapter six situated the study's key findings in the context of existing literature. The contributions and implications of the study are summarised in this section. Contributions to research are both theoretical and empirical. In addition, the implications for practice are highlighted.

7.2.1 Contributions to Research

This study represents the first attempt to systematically explore the interconnections between middle management activities as set out in the Floyd and Wooldridge's (1992; 1997) framework, and Simons' (1992, 1995) LOC framework. It thus provides a comprehensive

account of how the LOC channels middle management actions within contemporary organisations. In doing so, this study links two previously important, but discrete, streams of literature thereby representing a significant contribution to knowledge. By empirically teasing out the key interactions between the two frameworks, the study explicates the fit between the two and provides a theoretical contribution by developing a model, which integrates both frameworks (figure 6.8-1). Considered against the background that both streams of literature stress the potential to exert significant influence on discrete organisational outcomes and overall firm performance, this study represents a valuable contribution to knowledge within both bodies of literature.

One of the criticisms of the LOC is that it focuses solely on the senior management perspective. Notably, prior literature suggests that organisational performance is actually more reliant on the actions of middle managers than those of senior managers (Ouakoak, Oedraoga and Mbengue, 2014; Currie and Proctor, 2005). Pursuing this research view, I provide the first in-depth insights into the operation of the LOC at middle management level across multiple case sites. As a result, I extend the applicability of the LOC to middle manager level and make a number of theoretical contributions in that regard. Firstly, my findings show a reversal of prominence between ICS and DCS at middle management level when compared to senior managers. This provides empirical support for Malmi and Brown's (2008) claim that emphasis placed on a particular control system will differ across hierarchical levels. At middle manager level, ICS were found to be temporal in nature. Secondly, middle management do not constitute a homogenous grouping, this study reflects the complexities that exist at

this level by capturing variations in emphasis given to particular levers across distinct functional groups. Boundary systems were shown to be more prominent in R&D focused roles; this reflected the risks posed by external collaborative relationships with which this cohort were found to regularly engage. Within Sales focused roles, greater prominence was given to ICS demonstrating the enactment of middle managers' 'information node' role described by Simons (1995). Divergences in degree of tightness (Van der Stede, 2003) in the operation of DCS were identified between Operations and Sales and R&D focused roles. Thirdly, the study design permitted between case comparisons; substantial differences emerged in how beliefs systems manifested across the cases and this was reflected in the interviewees' understanding of, and connection with, organisational core values. In addition, the study identified variations in boundary systems between cases (and industry) as maintaining compliance with external regulations represented a key concern in C1 and C3. Fourthly, my findings reveal that middle managers' individual level tensions tend to be more proximal in nature, contrary to the characteristics of tensions that Simons (1994; 1995; 2010) describes. This expanded perspective demonstrates that a sole focus on tensions between creative innovation and predictable goal achievement represents an oversimplifying assumption at middle management level. Fifthly, this study contributes to our understanding of how the levers work in combination at this pivotal hierarchical positioning. Specifically, the findings suggest that middle managers' actions are guided implicitly through beliefs systems and mobilised explicitly through visible metrics managed by DCS (Rao and Sutton, 2008) and the constraining influence of strategic boundary systems.

This study adds to the limited insights that exist within prior literature into the operation of beliefs systems in contemporary organisations (Martyn et al., 2016; Ahrens and Chapman, 2004; Tessier and Otley; 2012, Davila, 2010). The significance of beliefs systems extends beyond communication of core values as they establish the context and frame within which all other forms of management control operate. Therefore, a greater understanding of micro-practices around their operation provided in this study represents a valuable contribution. Firstly, the manifestation of the beliefs systems in each of the case organisations ranged from static documents to living systems (Simons, 1995). More specifically, my findings highlighted how beliefs systems, through regular reinforcement practices, became living systems. Secondly, organisations are generally perceived as having a homogenous dominant culture (Gordon, 1991) aligned with senior management perspective, whereas in practice, many organisations have diverse subcultures (Robbins, 1995; Clegg, Kornberger and Pitsis, 2005). This reality has been overlooked in the LOC literature, which implies a single set of organisational-wide values. This study found some interesting variations in values resulting in distinct sub-cultures across functional areas of the case organisations studied. Of relevance, the study identifies that disparities in localised practices relating to beliefs systems contributed to the development of these sub-cultures. Thirdly, my study demonstrates that beliefs systems can, under appropriate conditions, mobilise the development of paradoxical cognitive frames amongst middle managers. This enables individuals to successfully juxtaposition multiple logics and cultivates concurrent visibility (Chenhall et al., 2013). This represents an important contribution as Smith and Tushman (2005) contend that paradoxical framing at the individual level leads to improved firm performance.

Within the LOC framework, two styles of use of feedback and measurement systems are identified: ICS and DCS. Simons (1995) acknowledges that each of these labels represents either end of a continuum. While existing literature recognises conceptual difficulties with these terms, particularly with ICS, it is silent on the forms that feedback and measurement systems that lie between might take. This study advances existing theoretical descriptions, by explicating the continuum through the presentation of empirically derived scenarios depicting various styles of use. I find that escalation of DCS issues, in particular, does not correspond well with existing concepts and I propose an additional label 'setback control systems' for issues that relate to current strategy but are given attention by senior management.

Middle managers are the focal point of this study, but as explained in section 4.6.4, participants in this study tended to be senior managers in the context of subsidiary units of the larger multi-national firms. Consequently, the findings from the study offer insights into the interactions between corporate and subsidiary as they manifest through the LOC. Firstly, achievement of CSFs monitored by DCS legitimises the subsidiary mandate. Secondly, evidence pointed to the localising of strategic boundary systems to ensure they were workable from the subsidiary perspective.

It is well established that researchers draw on empirical findings to refine and build on existing theory and thus contribute to knowledge. In this study, findings revealed that an analysis of an individual participant's interview transcript compared to their pre-interview

questionnaire, led in some cases to quite divergent interpretations of their role expectations being formed. This suggests that the way in which individuals portray their role may vary depending on the research tool employed. The corollary of this is that researchers may draw varied conclusions depending on the data collection tools employed. This study points to the importance of data collection through a variety of tools to build a robust set of findings on the LOC and the importance of giving consideration to the research tool employed in integrating and interpreting findings.

My study responds to Tessier and Otley's (2012) call for greater attention to be given to employees' attitudes to MCS and some interesting insights emerged from this. Overall, attitudes towards beliefs systems were mixed. In C1, evidence suggested that beliefs systems exerted an emotional affect (Bodeer and Chua, 2013) and demonstrated the ability to unite individuals around organisational goals. This appeared to be possible as the firm contextualised their values on an ideological level (Kraus et al., 2017). With regard to DCS, findings reveal positive attitudes towards these forms of control as a means to validate individual-level competence (Van der Stede, 2000; Marginson and Ogden, 2005; Maier, 2017). Interestingly, a similar emotional affect regarding specific CSFs was evident in C1; this highlights the potential for DCS to mobilise 'situational cues' (Amans et al., 2015).

7.2.2 Contributions to Practice

Scapens (2006) calls for management accounting researchers to consider the practical applications of theories and to advance useful

recommendations to practice. Similarly, Baldvinsdottir, Mitchell and Norreklit (2010) stress that guidance for practice must represent a key aim of the management accounting research agenda. This research recognises and contributes to the practitioner audience (Mitchell, 2002) as follows:

This study provides insights for practitioners on how the LOC activates a range of middle manager roles. It also illustrates how this differs across functional areas, which is helpful as middle managers are not a homogenous group. Moreover, existing research (Yang et al., 2010) suggests that middle managers have a strong influence on subordinate-level behaviours. This implies that the influence of middle management actions stretch beyond their own accomplishments rendering them a significant determinant of firm performance. For this reason, it is imperative that senior managers have an in-depth understanding of how they can steer middle managers' efforts in appropriate ways.

The study also highlights the importance of internal consistency between the levers to successfully exploit potential influence on employees. Findings in this study show that the combined effect of beliefs systems and DCS appear to be very influential at middle manager level. This suggests that visions and strategies if actively conveyed by beliefs systems can then be very effectively mobilised into action through DCS.

Diversities in practices between cases regarding the force of, and emphasis on, beliefs systems were highlighted in this study. Findings reveal that the influence beliefs systems exert at the individual level is

contingent on the efforts of senior managers in continually reinforcing organisational purpose, direction and core values. This highlights the importance of senior managers' prioritising beliefs systems as a central form of management control. The study exemplifies how beliefs systems are potentially impactful as they are transformed into living systems (Simons, 1995) and by contrast how they can be perceived as trivial and irrelevant and remain as static documents (Simons, 1995). By consistently referencing key organisational goals, beliefs systems can contribute to the development of paradoxical cognition frames to support middle managers as they navigate their way through diverse demands. Furthermore, beliefs systems can be used to advocate multiple routes to value creation.

The potential for MCS to unite individuals around specific goals appears to be amplified in certain situations. The evidence suggested this was facilitated by contextualising or providing 'situational cues' as reference points. This appeared to be an effective way of presenting multiple logics. In addition, personalising of control issues, also served to reinforce their importance in the eyes of middle managers.

The study reports that middle managers' involvement in ICS imposes mental and time challenges. Similar to the senior management level, time is a limited resource for middle managers. My study raises the question as to whether this may create an implicit incentive against sharing information within the ICS process in order to avoid subsequent work. This potentially means that crucial information on opportunities and threats may not be shared or be brought to senior managers' attention. Consideration must be given to how middle managers can balance their time between the ongoing demands imposed by DCS and the management of strategic uncertainties raised

through ICS; otherwise potentially dysfunctional consequences may arise.

7.3 Strengths and Limitations of the Study

This section draws attention to both the strengths and weaknesses of this study.

Strengths of the Study

The following key strengths of the study were identified:

- The study builds on and synthesises two streams of literature and thus it follows the recent trend in management accounting towards interdisciplinary-based empiricism (Baldvinsdottir et al., 2010). Streams of literature can develop in different fields on related issues but with little cross-pollination. By considering how the LOC steers the activities of middle managers, the study draws together literature from the management field on the roles of middle managers and literature from the accounting field on how controls influence behaviours, thus adding to both bodies of literatures.
- The particular research design adopted for the study responds well to the calls for more focus on 'real world' research on management control systems (Mitchell, 2002; Scapens, 1990; Otley and Berry, 1994; Smith, 2015). The study collects in-depth data from interviewees employed in four case study organisations across two key sectors of the Irish economy. Furthermore, it captures a broad array of perspectives as interviewees were purposefully drawn from a wide span of functional areas.

- In order to enhance the validity and reliability of the study's outputs, it was evident that rigorous fieldwork protocols were required. The researcher undertook extensive planning and preparation prior to entering the field to ensure that a comprehensive set of data collection and analysis tools were available to support the entire research process (chapter 4). Included in this were: interview protocol, pre-interview questionnaire, database to record observations and documentary evidence supplied by interviewees thereby creating converging lines of inquiry through data triangulation (Yin, 2009). Through the use of multiple data collection methods, findings in the study were robustly supported. This is important as it increases the reader's confidence in the reliability of findings emerging from the study (Mason, 2012). Furthermore, the case sites selected represented appropriate choices in the context of the research objectives. All four organisations must give due regard to emergent strategy to ensure they maintain relevance in their respective marketplaces, while also attending to pre-set goals associated with strategy implementation.
- The sufficiency of the research evidence collected is strong as 43 interviews were conducted. This was supported by multiple visits to each of the case organisations and plant tours providing opportunities for observations. In addition, the data analysis strategy adopted by the researcher was well matched to the objectives, as focus fell on the key interactions between the LOC and middle management strategic roles, which strengthen the internal validity of the study.

- The LOC literature has been critical of the tendency towards a reductionist approach often adopted in empirical studies (see section 2.7.5). While in-depth studies examining one or two levers are undoubtedly useful, they provide only a partial account of how control operates. Recent research has emphasised the importance of interdependencies between control systems (Grabner and Moers, 2013; Ferreria and Otley, 2009). This study considers all four levers of control and thus responds to the call (Grabner and Moers, 2013) for a more holistic perspective of MCS.

Limitations of the Study

The study reported here is not free from limitations and the findings and contribution of the study must be interpreted in light of its limitations, which are identified and discussed in this section. Many of the limitations of this research are a product of the design of the study. This is a universal challenge all researchers face. One of the frustrations of conducting research is the number of decisions and trade-offs that must be made throughout the process.

- One such choice was whether to select a single case study or to study the phenomenon of interest across a number of organisations. A multiple case study approach was selected to achieve greater breadth in findings (Lillis and Mundy, 2005) and given that existing research was based on a small number of single case studies, (section 3.7) the potential insight offered by multiple case studies was justified. It is acknowledged that a single case would have provided greater depth. However, findings from the current study

extend and complement existing knowledge gained from previous single case studies.

- All four cases selected in this study are subsidiaries of multinational firms and no indigenous organisation was included. The operation of LOC may arguably manifest differently in a subsidiary compared to an indigenous firm.
- Many frameworks of management control exist (section 2.4) and the LOC framework was selected in this study to conceptualise MCS. Other frameworks may have offered alternative insights into management controls at middle management level.
- This study was limited to an examination of the views of middle managers; this was deliberate on the part of the researcher to bound the study. Consequently this study did not consider the views of senior or operational levels of management. Senior managers' expectations of middle managers were solely derived from the accounts of middle managers and the study did not gather data from senior managers.
- The conclusions reached in this study are confined to study participants. One limitation noted by the researcher was that the number of interviewees across functional areas was not consistent. For instance, it was not possible to arrange an interview with sales (C1) or quality related personnel in (C4). This means that functional-related findings, while valid, do not necessarily reflect views from all four case organisations.

- In the course of conducting the interviews the researcher did not explore the issue of reward systems. However, it is acknowledged that reward systems may potentially impact on the influence and effectiveness of MCS at middle manager level.
- A number of characteristics detailed in the frameworks studied were similar and it was challenging to clearly distinguish between each characteristic as the literature provided a number of similar, but slightly different definitions for each characteristic. This presented a challenge when analysing the data as there was a certain degree of overlap between the different characteristics, which is acknowledged as a limitation of the research. For example, the demarcation between middle managers' facilitating adaptability role and championing alternatives role was not always obvious.
- The framework and typology used in this study consists of many different concepts. Due to the number of concepts and the reality of time restrictions for each interview, it was not possible to examine each concept in great depth.
- A key concern associated with case study research is the generalisability of findings as highlighted in section 4.4. The findings presented here are based on a limited number of participants within four organisations. The intention was not necessarily to seek generalisability but to learn from the richness and complexity of real organisational settings. This study employed a multiple-case approach collecting data from participants in four case organisations. While the limited number of cases may be regarded as a limitation, this number was considered adequate as a

point of 'theoretical saturation' (Saunders et al., 2012) was reached. Moreover, the study gathered data from two industry sectors and in so doing enhances the generalisability of the findings. Notwithstanding this, further empirical evidence will be required to explore the application in broader organisational and industry sectors.

- All data collection methods have weaknesses. The limitations of interviews were identified in section 4.5.1. The researcher acknowledges that interviewees may not always be forthcoming or candid in their responses and the potential for social desirability bias (Schlenker and Weingold, 1989, cited in Holbrook et al., 2003) exists, albeit that this is mitigated to some extent in face-to-face interviews. Measures taken by the researcher to avoid interviewer bias were outlined in section 4.5.1.
- In the normal course of conducting research, the boundaries of investigation imposed are inevitably artificial. The limitation of time meant that data was collected over a relatively short period and therefore this thesis provides an analysis related to that specific time. C2 had recently undergone significant restructuring and changes were in the process of bedding down, while a major split of businesses was in the process of being negotiated in C4 during data collection. These events may have impacted on findings.
- The challenges associated with objectively reporting data collected in the course of any qualitative study were documented in (section 4.8). Faced with selecting from many hours of tape recorded transcripts and field observations, it is inevitable that the

researcher's own interests and life experiences filter this process somewhat. To minimise this, great care was taken to follow the weight of the evidence during the analysis phase (section 4.8). Nonetheless the nature of interpretive work means that the possibility exists that another researcher, given the same data would produce a different narrative.

7.4 Recommendations for Future Research

It is clear that middle managers exert a critical influence on firm performance, yet relatively little attention has been devoted to what are a discrete group in contemporary organisational hierarchy. The roles middle managers fulfil, how MCS shape these roles, and the conflicts they invariably face, all remain interesting areas for future study. Arising from the results of this study, a number of avenues for further research have specifically emerged which are detailed below. Through these suggested avenues, an increased understanding of the phenomena of management control at middle manager level could be attained.

- Future research could test the validity of the model developed in this study, which integrates the middle management strategic contribution framework (Floyd and Wooldridge, 1992; 1997) and Simons' LOC (1994; 1995) framework through a wide-scale survey. This would enable the results to be generalised to broader populations.
- This study set out to explore the influence of MCS on middle managers in the Med-Tech and IT sectors. Additional case studies

should be conducted to determine if current findings are replicated across other cases in different industries. Such further research would necessitate the consideration of varying industry influences, which may also lead to a better understanding of the key factors for each industry sector.

- As noted earlier, while middle managers occupy a distinct hierarchical positioning in firms, they cannot be described as a homogeneous grouping. In this study, variations in manifestations and influence of MCS were highlighted as revealed by the data. However, this did not constitute one of the primary objectives of the study and so a more detailed investigation of intra-role similarities and differences might be a fruitful approach to gaining a more nuanced understanding of how MCS operate at middle management level.
- In the current study, each of the four cases was an Irish subsidiary of a US multinational. While not a focus on the study, nonetheless, the influences of subtle subsidiary mandates were evident. Future studies could consider whether similar findings would emerge in an indigenous setting. Indeed, further exploration regarding the role of the LOC in influencing the gain and loss of subsidiary mandates would be an interesting extension of this study.
- A natural extension would be a study focusing on how the LOC manifests and exerts influence on lower and operational level employees. How control cascades down through organisational levels and channels employee efforts and attentions remains

important, as people are responsible for the realisation of strategies and initiatives.

- This study has provided some valuable findings in relation to beliefs systems which to date remain relatively underexplored. As beliefs systems deal with rather ambiguous concepts and exert a comparatively implicit effect, future more in-depth research could aim to provide further refinement.
- An interesting extension of this work would be to examine the possible impact of reward systems in the functioning of the LOC at this hierarchical level. Previous research (for example Pfister and Lukka (2018)) has pointed to the importance of reward systems in aligning individual-level behaviours with firm goals. This aspect, while outside of the scope of this study, is worthy of further consideration.

7.5 Summary

The objective of any piece of research is to make a useful contribution to knowledge. Section 7.2 reviewed the main contributions emerging from this study, which are beneficial to both theory and practice. The major contribution to theory of MCS within the context of the LOC relates to elucidation of fit between middle management roles as characterised in Floyd and Wooldridges' (1992, 1997) typology of middle management strategic influence and Simons' (1994; 1995) LOC framework. The purpose of management control is to influence and shape behaviours to increase the likelihood that an organisation will

achieve its objectives (Merchant and Van der Stede, 2007) and thus a greater understanding of how each mode of control activates different roles is useful.

The major contributions to practice relate to the operation of beliefs systems. To promote effective beliefs systems, senior managers should focus on continual reinforcement of organisation purpose, values and direction. Beliefs systems can influence the way individual conceptualise competing agendas, and the study points out that beliefs may help foster paradoxical framing.

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Appendices

Appendix A: Simons' empirical studies reproduced from Martyn et al. (2016)

Study	Objectives	Method and sample size	Relevant findings
Simons (1987b) AOS	Differences in MCS design depending on a firm's strategy (Prospector/Defender).	Questionnaire responses from 76 CEOs of manufacturing firms and 12 interviews with same group.	Firms following different strategic directions use accounting controls in different ways. Prospector firms attach a greater degree of importance to forecast data, setting tight budgetary controls and monitoring of actual results. Cost control is de-emphasised; reporting is frequent and is modified when necessary. Defender firms use control system less intensively but emphasise bonus remuneration based on achievement of budgetary targets.
Simons (1990) AOS	Differences in MCS among firms with diverse strategic positions.	Case study of 2 companies with over 30,000 employees (interviews with top management).	Introduced ICS concept and explained what makes MCS interactive. Despite two companies operating in the same industry, the strategic uncertainties facing each of them differed and thus management selected different MCS to use interactively (programme reviews and long term planning). Interactive controls contribute to emergent strategies by focusing organisational attention towards opportunities and threats rather than what the firm is good at.
Simons (1991) SMJ	Examines when newly appointed managers use specific control systems to focus energies on strategic uncertainties and guide new strategic initiatives.	Field study of 16 US health care products firms (30 business units) that were competitors of Johnson and Johnson. Conducted an average of 5 interviews with top managers and their subordinates in each firm.	Revealed that managers use MCS in different ways. DCS systems are focused on the implementation of past and current strategies through the monitoring of critical success factors and are given little attention by top managers. The selection of ICS often seem counterintuitive (e.g. top management of low cost producers do not tend to concentrate their attention on costs and efficiencies) as they are oriented to what the firm is not good at, i.e. weaknesses rather than competencies. Through their choice of which MCS to use interactively, management signal what is to be emphasised and de-emphasised. All systems cannot be interactive as this would send ambiguous signals through the organisation. Top management vision necessary for ICS to be used effectively.

Simons (1994) SMJ	<p>Gain an understanding of how and why newly appointed managers use formal control systems to implement strategy. All four levers studied.</p>	<p>Longitudinal case study. 10 newly appointed top managers. Range of industries. Turnover ranged from \$350m to \$6,000m. Interviews every 4 months over 18 month period.</p>	<p>Introduced concepts of belief and boundary systems. This study finds that formal MCS are important levers of change used by newly-appointed managers. Within each of the clusters, managers used the levers in a consistent manner despite each manager being faced with different challenges. In each cluster there was evidence of distinct stages. In strategic turnaround cluster – boundary systems used to unlearn past behaviours, then belief systems to inspire. In the strategic evolution cluster, demanding DCS were enforced followed by ICS to generate organisational learning. Support for change will only be forthcoming from organisational participants if they perceive manager has a “personal and deep commitment to the strategic changes that are being advocated”. Through personal involvement they signal their beliefs and engage with key aspects of all 4 LOCs.</p>
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Appendix B: Qualitative empirical studies using Simons' LOC framework reproduced from Martyn et al. (2016)

Study	LOC	Industry	MCS	Method and sample size	Major findings on LOC	Extent of use of Simons
Arjalies and Mundy (2013) MAR	All 4	Various	Non specific	Open and closed questionnaire responses from Head of CSR departments of CAC 40 group of PLCs in France, secondary data and 1 interview with director of an agency advising on socially responsible investment	Shows how corporate social responsibility (CRS) is managed using levers of control. Levers communicate the vision and purpose of CSR, combine intended and emergent strategy, prescribe acceptable CRS activities and manage CSR performance.	Simons' LOC informed study design and used to interpret findings.
Kastberg and Siverbo (2013) FAM	ICS DCS	Health care	Horizontal MAS	Two case studies in Sweden (one large teaching hospital and one provincial hospital). 17 interviews and 5 meetings observed at large hospital and 15 interviews and 6 meetings observed at small hospital.	Horizontal management accounting system (MAS) used to a limited extent diagnostically in large hospital. Main use in both hospitals was interactive. Interactive use did not penetrate the organisations as mainly used by persons connected to the processes.	Simons' LOC informed study design and used to interpret findings.
Plesner Rossing (2013) MAR	All 4	High tech manufacturer	General	Longitudinal case study of multinational. 26 interviews with 11 employees from different functions and at different levels of management.	Functional tax strategy for transfer pricing influences all 4 levers of control. Beliefs system and ICS used in an inspiring way to reinforce the values upon which the tax strategy is based and to stimulate learning about the tax environment. Boundary systems and DCS used prescriptively to constrain and guide accepted behaviour in the tax dept and at business unit level. Also used to monitor business unit's profit margins in context of transfer pricing.	Simons' LOC informed study design and used to interpret findings.
Rodrigue, Magnan & Boulianne (2013) MAR	ICS DCS Beliefs	Natural resources	Environmental performance indicators (EPI)	Case study of large company with sales of \$20-25bn. 6 semi structured interviews	EPI are used both as diagnostic and interactive levers of control. Stakeholders can influence EPI through these diagnostic and interactive levers of control. Beliefs system explains why stakeholders	Simons' LOC informed study design and used to interpret findings.

					have influence over EPI.	
Kominis & Dudau (2012) MAR	ICS DCS	Public sector safeguarding children board	Non specific	Case study of UK local public sector body. 27 interviews and participant and non participant observation.	Findings suggest that the balance between diagnostic and interactive use of control systems is affected by the perceived level of uncertainty with increased reliance on ICS in more uncertain environments. Use of common diagnostic measures for a number of organisations led to increased interaction between organisations. This is argued to make the new system more interactive than diagnostic.	Simons' LOC informed study design and used to interpret findings.
Adler (2011) BAR	ICS	Various	Strategic planning and control	9 case studies in US and Australasia, spanning six industries (medium to large size firms). Interviews with two to nine senior-level managers in each firm.	Concluded that firms rely on interactive strategic planning and control systems for their confrontation strategies (firms that operate in market spaces characterised by cut-throat competition). Interactive meetings used to assess the potential impact environmental factors could have on their financial performance and strategy.	Simons' ICS concept used to interpret findings.
Chenhall, Hall & Smith (2010) AOS	All 4	NGO	Non specific	Case study of Australian NGO with 120 staff. 16 in-depth interviews and regular contact with 4 staff.	Active use of beliefs systems helps to manage and maintain employees' identification with core values and leads to strong bonding in the organisation but can inhibit openness to developing bridging with other organisations. Dominant beliefs system circumvented need for boundary systems in form of code of conduct. Interactive use of formal controls can be compatible with customary organic processes if they have enabling characteristics. Contrast interactive use of programme management system used in an enabling way with interactive use of budgeting system	Simons' LOC informed study design and used to interpret findings.

Frow, Marginson & Ogden (2010) AOS	All 4	Technology	Budgets (set in context of other MCS)	Case study of large multinational. Interviews with 6 senior mgrs, 25 middle managers and 1 director.	used in coercive ways. Illustrates how continuous budgeting can be used in both diagnostic and interactive manner to achieve both flexibility and predictable goal achievement. Continuous budgeting takes place in the context of other control systems which are used as beliefs and boundary levers. Responsibility for the overall picture considered part of the beliefs system. This encompassed an understanding that trade-offs were needed to displace any negative budget variances arising in any one area.	Simons' LOC informed study design and used to interpret findings.
Mundy (2010) AOS	All 4	Financial services	Non specific	Case study of European multinational firm (sales £15.9bn, 80,000 employees). Interviews with 16 employees at strategic level in 2 divisions and 8 employees at operational (informant) level of mgt.	A number of factors found to affect firm's ability to balance the different uses of MCS (Internal consistency, Logical Progression, Dominance, Suppression). Interactive processes are critical as they can release the potential of the other levers. Illustrates the creation of dynamic tension through the combination of use of the levers.	Simons' LOC informed study design and used to interpret findings.
Batac & Carassus (2009) MAR	ICS	Public sector	Non specific	Case study of French municipality /council employing > 1000. Interviews with senior position holders involved in decision making.	Control systems which produce, mobilise and distribute knowledge do not necessarily lead to learning if not accepted by decision makers. Some control systems produce no learning and others adaptive or generative (higher level) learning. Operational and political systems when used jointly with other control systems produce generative learning (a reshaping of principles underlying practice to correct the cause of problems and to discover solutions). These systems described as comparable to interactive systems.	Simons' concept of ICS used to interpret findings.

Marginson (2009) JAOC	Belief	Telecomm	Value systems	Mixed method longitudinal study in UK based organisation, interviews and survey of managers across functional and hierarchical levels.	Political logic can prevent control system from generating change. Senior management used the belief system as a mechanism for effecting organisational change by communicating a revised set of values such as initiative, integrity and accessibility. While the 'engineered' programme did improve value congruence the study did point to some negative outcomes including an increase in social tensions.	Simons' concept of belief systems informed study design and used to interpret findings.
Marginson & Bui (2009) BRIA	Belief	Telecomm	Budget goal attainment	Mixed methods but LOC examined through interviews with 4 top-level executives and 26 middle managers of large international company	The beliefs system was used to create a general climate of value-adding innovation, which permeated throughout the organisation. Managers could use their own discretion to seek new ventures while remaining conscious of financial restraints. Cost consciousness was intended to be controlled primarily through social norms rather than budgets, though in practice budgets were expected to be met.	Simons' concept of belief systems used to interpret interview findings
Mikes (2009) MAR	DCS ICS	Banking	Risk management	Case study of 2 large banks. 75 interviews with senior finance, lending, strategy, controlling and risk management staff	Evidence of risk management system used diagnostically in one organisation and interactively in the other. Even when used diagnostically, there was evidence that risk controls were strategically significant and influenced the budgeting process. Risk control became an integral part of the PM process.	Simons' concepts of ICS and DCS used to interpret findings.
Ostergren (2009) FAM	ICS DCS	State health sectors	Budgets	Case study of 2 Norwegian health regions (budgets €1.8m and €3m). Questionnaires from 41 clinicians. Interviews with 12 directors and managers.	Managers in the two health regions each used MCS differently: one in an interactive way and the other in a diagnostic manner. Managers using MCS in an interactive manner lacked knowledge on strategy and interpreted the signals from top management as ambiguous.	Simons' LOC informed study design and used to interpret findings.

Revellino and Mouritsen (2009) EAR	All 4	Automatic toll	Project management	Case study of Italian firm. 45 semi-structured interviews with intermediate managers, managerial staff, employees and general managers.	Managers using MCS in a diagnostic way failed to balance their budgets. Examined radical innovation and concluded that controls were part of the innovation rather than external to it. All levers required to realise the innovation and not possible to specify at the outset which levers are necessary at different points. Found that the levers are interconnected and mobilised as necessary.	Simons' concepts used to interpret findings.
Kober, Ng and Paul (2007) MAR	ICS	Public sector pathology service provider	Non specific	Mixed methods. Australian firm moving from reactor to prospector. 9 interviews with senior mgrs, 64 questionnaires from staff with managerial responsibilities.	Found that interactive use of MCS helps to facilitate a change in strategy. Also found that MCS mechanisms change to match a change in strategy. Support for the view that the strategy-MCS relationship is a two-way relationship.	Simons' LOC informed study design and used to interpret findings.
Pettersen & Solstad (2007) FAM	ICS	Third level education	Budgets and acc info	Case study of 2 Norwegian Universities (1200 and 4000 students). 144 questionnaires and 12 interviews with academic staff and mgt.	Found an absence of interactive based control systems in both institutions. Financial information was not used as a basis for dialogue and discussion and hence was not used in an interactive way.	Simons' concept of ICS used to interpret findings.
Collier (2005) MAR	All 4	Manu	Non specific	Longitudinal case study (10 years) of owner-managed Australian multinational with sales >AUS\$60m.	Little evidence of formal systems-based control or diagnostic control systems other than cash flow; owner constructed a relevant accounting spreadsheet focusing on market share, sales growth and cash flow (which reflected beliefs and intelligence gathered). Beliefs system reflected in the social controls exerted by owner. Boundary system evident through cash flow focus (ensure there was enough cash) and emphasis on market share (had to achieve critical mass). Interactive control evident in attention to R&D, exports and patent litigation. Concludes that Simons' framework does not adequately deal	Simons' concepts used to interpret findings.

					with informal controls.	
Granlund and Taipaleenmaki (2005) MAR	All 4	ICT, Biotech	Non specific	Case study of 9 new economy firms (NEFs) – (1 medium and 8 small)	Found a role for each of the levers of control in NEFs. Can be considerable clash between financial control systems and culture of innovativeness, flexibility, empowerment and freedom but this clash is alleviated as an organisation grows and learns meaning of financial fundamentals.	Simons' concepts used to interpret findings
Thomas, Kaminska-Labbe and McKelvet (2005) ASM	ICS	Cosmetics industry	Budgets	Case study over 12 years of Multinational	Illustrated how interactive use of budgeting and profit planning system can be used to bring about exploration in phase where company is oriented towards exploitation	Simons' concept used to interpret findings
Tuomela (2005) MAR	All 4	Power & automation technologies	PMS (scorecard)	Longitudinal Case study of ABB in Finland over 4 years. Active participation. Observation and interviews with profit centre mgrs, domestic sales mgr and commercial mgr of a customer company	Strategic PMS (scorecard) can be used both diagnostically and interactively. Used in a diagnostic manner for some measures which were reported on a monthly basis to facilitate detection of significant variances; Further discussion of particular measures and strategic uncertainties with groups & teams demonstrated an interactive use of the scorecard; Potential for interactive use to be viewed as threatening as greater visibility of actions and accountability to peers. Implementation of the scorecard caused additional workload through increased reporting requirements and time spent on the interactive discussion. Evidence of PMS reinforcing belief and boundary systems.	Simons' LOC informed study design and used to interpret findings.

Bruining, Bonnet and Wright (2004) MAR	All 4	Healthcare services; Equipment and food packaging sector	Non specific	Case study of 2 European firms post MBO. Interviews with CEO, COO, director of production, venture capital company. Group discussion with all employees.	Evidence of increased role of all 4 LOCs following MBO and increase in market orientation. Beliefs system and ICS initially emphasised in more entrepreneurial company and then diagnostic and boundary systems. In company where efficiency was more important, increased emphasis on diagnostic controls first followed by beliefs systems, clearer boundary controls and interactive control.	Simons' LOC informed study design and used to interpret findings.
Nyland & Pettersen (2004) FAM	ICS	Hospital	Budgets	Case study of large Norwegian hospital. Interviews with 11 key hospital decision makers and 13 physicians.	Control systems were frequently enacted via informal communications that demanded ongoing attention from managers. The interactions at lower management levels (front line) revealed strategic uncertainties that needed to be dealt with via face-to-face interactions and frequent informal dialogues. These informal communications offered compromise points for budget negotiations.	Simons' concept of ICS used to interpret findings.
Marginson (2002) SMJ	All 4	Telcomm	Non specific	Longitudinal case study of firm with sales > US\$4 bn employing 13,000. Interviews twice with 26 middle management.	Showed how MCS impacted on development of ideas and initiatives. A 'change programme' which involved redrafted mission statements and credos was used to stimulate organisational change and overcome inertia. This led to more entrepreneurial activity and less attention on routine work. Beliefs system found to have a key role in generation and filtering of ideas and guided the strategic agenda. Within PMS, some KPIs used strategically and some used diagnostically. Pressure to simultaneously achieve several KPIs can lead to bias towards some at the expense of others. Role of boundary systems not specified.	Simons' LOC informed study design and used to interpret findings.

Van Veen-Dirks and Wijn (2002) LRP	ICS DCS	Various	BSC CSFs	Longitudinal case studies of 15 companies in Netherlands	Develops a framework which in addition to ICS and DCS includes a category labelled 'strategic control'. They maintain that ICS uses information from formal systems that are designed for strategy implementation. In contrast, they assert that a strategic control system is aimed at reviewing and reformulating strategy and that BSC cannot be used as a strategic control system as it is about implementing strategy. They contend that BSC can be used both interactively and diagnostically.	Simons' LOC informed study design and used to interpret findings.
Emsley (2001) MAR	ICS DCS	Manu	Variance analysis	Case study and cross sectional interviews Australian plastics multinational company over 18 months. Following case, 47 interviews in 20 manu organisations	LOC is used to describe the problem solving techniques introduced. Interactive systems (daily, weekly and problem solving team meetings) interacted with DCS (formal variance analysis system).	Simons' concepts of ICS and DCS used to interpret findings of case.
deHaas & Kleingeld (1999) MAR	DCS ICS	Service	PMS	Illustrative case study based on previous case study of real life company.	Maintains that the process of designing (and applying) diagnostic controls enables the initiation of strategic dialogue. Design of diagnostic controls is not an end in itself but provides basis for interactive control. Diagnostic control systems should be coherent resulting in consistent strategic dialogue.	Simons' concepts of ICS and DCS used to inform development of normative framework for multilevel design of diagnostic controls.
Marginson (1999) MAR	Beliefs	Telecom	Non specific	Longitudinal Case study Of approx. 11,000 employees. Interviews with managers from 4 hierarchical levels	Found that Simons' LOC model does not explain role played by informal controls and social norms. The implementation of a cultural change programme by senior management represented the enactment of Simons' beliefs systems. Found that the informal control system was acting as a substitute at times for administrative controls.	Uses a number of different perspectives including Simons to explain MCS in the case company.

Vaivio (1999) MAR	ICS	Chemical	Non-financial	Case study of UK company (sales £70m and 750 employees). 42 interviews across several levels.	Non-financial measures were used in an interactive rather than a diagnostic way. The search for new knowledge, potential solutions and the development of initiatives and action-plans were facilitated through the dialogue about the non-financial measures between top and lower management levels. Suggests that non-financial measures are not limited to a diagnostic use focused on the implementation of an intended strategy. Rather, they have a more active role in strategy formulation.	Simons' concept of ICS used to inform design of study and explain findings.
Osborn (1998) JMS	ICS	Consumer goods	Non specific	Case study over 22 months of large US company Observation and attendance at business review meetings. 57 Interviews.	Profit planning systems used interactively during increased competitive activity. Contrasts performance when ICS supported/not supported by semi formal information systems and finds that support from semi formal information systems resulted in greater performance. Semi-formal information systems (new market analysis reports showing the impact of product promotions developed in an ad hoc manner and used as a free standing tool which then became formalised and integrated) formed the basis for supplying information that was shared and used in an interactive way resulting in collaboration and organisational learning.	Simons' concept of ICS used to inform design of study and explain findings.
Kloot (1997) MAR	ICS	Public sector	Non specific	Case study of 2 Australian local communities. 4 interviews in each organisation and informal contact.	Associated control systems with stages in organisational learning. Finds that numerous control systems enable higher level learning as generated by interactive control systems.	Simons' ICS concept used to interpret findings. Generative learning is considered akin to ICS

Appendix C: Quantitative empirical studies using Simons' LOC framework reproduced from Martyn et al. (2016)

Study	LOC	Industry	MCS	Method and sample size	Major findings on LOC
Su, Baird and Schoch (2015) MAR	ICS DCS	Manufacturing	Non specific	Questionnaire responses from 343 general managers in relation to one business unit of Australian companies (average BU size varied from 4 to 195 employees)	Examines relationship between organisational life cycle and use of ICS and DCS. ICS was positively (negatively) associated with organisational performance in the growth (revival) stage. DCS was positively (negatively) associated with organisational performance in the revival (maturity) stage.
Janke, Mahlendorf and Weber (2014) MAR	ICS	Various	Non specific	Longitudinal questionnaire survey in 2009 and 2010 in Germany. Total sample size of 332 (company size varied from less than 200 employees to over 2000 employees)	Perception of negative external crisis effects led to more interactive use of MCS. Findings also support a positive effect of the interactive use of MCS on senior managers' perceptions of negative external crisis effects. Findings support a time-delayed increase in use of ICS following external crisis.
Marginson, McAulay, Roush, and van Zijl (2014) MAR	ICS DCS	Telecom	PMS	Questionnaire responses from 98 senior and middle managers in large company (sales £2.6bn and 8600 employees)	A distinction between interactive and diagnostic use of performance measures only found for non financial measures. Found that role ambiguity is negatively related to both interactive and diagnostic use of non financial measures. Interactive use also positively related to psychological empowerment. Diagnostic use not significantly related to psychological empowerment.
Chong and Mahama (2014) MAR	ICS DCS	Biotech	Budgets	Questionnaire responses from 186 members of teams in US companies (companies sizes not specified)	Extends concepts of ICS and DCS to team level. Finds that interactive use of budgets has positive effect on team effectiveness and perceived collective efficacy. Perceived collective efficacy partially mediates the relationship between interactive use of budgets and team effectiveness. Diagnostic use of budgets not found to be significantly related to team effectiveness or perceived collective efficacy.
Abernethy, Bouwens, and van Lent (2010) MAR	ICS	Various	Planning and control systems (PCS)	Questionnaire responses from 128 profit centre managers in Dutch firms that have at least 3 profit centers.	Consideration and initiating structure (dimensions of leadership style) impact significantly on interactive use of PCS, although impact of initiating structure is less intensive. Delegation is significantly related to interactive use of PCS.

Marginson, McAuley, Rousch, and van Zijl (2010) ABR	ICS DCS	Telecom	PMS	Questionnaire responses from 100 senior divisional managers in a major firm	Financial measures are not associated with short-termism regardless of diagnostic or interactive use. Non-financial measures used in a diagnostic (interactive) manner are positively (negatively) associated with short-termism. An imbalance in the use of non-financial measures in favour of diagnostic use was associated with short-termism.
Bisbe and Malagueno (2009) EAR	ICS	Manu	BSC Budgets	Questionnaire responses from 57 CEOs of medium sized Spanish firms (turnover €18m - €180 m; 200 to 2,000 employees; and founded >10 years)	The selection of Management Accounting Control System (MACS) for interactive use is linked to Innovation Management Mode (IMM). Intuitive IMM tend to select BSC while strategic/expert IMM tend to select BSC or budgets. Low innovating firms in which the MACS selected for interactive use matches with the conceptually-derived fit for a given IMM have even lower levels of innovations than those firms without conceptual fit. Firms that select MACS for interactive use within a given IMM that correspond to the conceptually derived fit are likely to have higher levels of innovation than those without a fit.
Naranjo-Gill and Hartmann (2007) AOS	ICS	Hospitals	Mgmt Accting Systems (MAS)	Questionnaire responses from 103 complete top mgt teams (TMT) in Spanish public hospitals (size not given).	Heterogeneous TMT is positively linked with interactive use of MAS. The interactive use of MAS is positively associated with strategic change in firms moving towards a prospector stance but is not in firms moving towards defender position. There is a positive relationship between perceived usefulness of broad scope MAS and the interactive use of MAS. Concludes that MAS play a mediating role between TMT and strategic change.
Widener (2007) AOS	All 4	Various	PMS	Questionnaire responses from 122 CFOs in US firms (1,330 average employees and \$282m net sales).	Control systems are associated with a benefit (learning) and a cost (management attention) but overall have a positive effect on firm performance; Many of the controls in the LOC framework are inter-dependent and complementary; Strategic uncertainties and strategic risk are associated with use of the control system; internal (external) strategic factors are associated with diagnostic (interactive) use; Efficient use of management attention is driven by DCS and belief system; ICS consumes management attention (is a cost); Belief system influences all other LOCs; Interactive controls influence diagnostic and boundary controls; Both diagnostic and interactive controls are

					used to manage operational risk.
Henri (2006a) AOS pp 529-558	ICS DCS	Manu	PMS	Questionnaire responses from 1 member of TMT of 383 Canadian companies with sales > CA\$20m and > 150 employees.	PMS used interactively fosters capabilities of market orientation, entrepreneurship, innovativeness and organisational learning. A diagnostic use of PMS negatively affects capabilities; A balancing of ICS and DCS provide a dynamic tension which fosters organisational capabilities;
Naranjo-Gill & Hartmann (2006) JMAR	ICS DCS	Hospitals	MAS	Questionnaire responses from 92 complete TMT in Spanish hospitals (size not given)	As TMTs have a more professional (administrative) orientation, they make more interactive (diagnostic) use of MAS, and more use of nonfinancial (financial) information. Interactive use of MAS supported cost strategy implementation but no relationship between diagnostic use of MAS and cost strategy implementation.
Bisbe and Otley (2004) AOS	ICS	Manufacturing	Budgets, BSC, project management	Questionnaire responses from 58 CEOs of Spanish firms (sales €18m - €180m; 200 - 2,000 employees; and founded >10 years)	Did not find support for theory that an interactive use of MCS favours product innovation; May be the case in low-innovating firms but the opposite found to be the case in high-innovating firms. Found that the impact of product innovation on performance is moderated by the style of use of MCS
Van der Stede (2001) MAR	ICS	Various	Budgets	Questionnaire responses from 153 BU mgrs who report directly to corporate in diversified firms head-quartered in Belgium (average sales \$150m and 427 average employees).	Measure of tight budgetary control developed in study. Interactive control operationalised as the intensity of the information exchanges and found to be consistent with the concept of budget tightness.
Davila (2000) AOS	ICS DCS	Medical device and equip	Non specific	Mixed methods but only survey relevant for LOC 58 responses to questionnaires from project managers in Europe and US	The design of MCS measured using three characteristics (level of detail in the information, frequency of information updating and usage pattern of information (diagnostic or interactive)). No conclusions drawn around LOC.
Abernethy and Brownell (1999) AOS	ICS DCS	Hospitals	Budgets	Questionnaire responses from 63 CEOs of Australian hospitals (avg 383 beds and budgets of US\$52m). Interviews with 8 CEOs to develop measures. Data also from financial and medical directors.	Evidence that budget use moderates the relationship between strategic change and performance. Performance was found to be highest when strategic change was low (high) and budgets were used in a diagnostic (interactive) manner. Found that a mismatch between strategic position and style of budget use led to lowest performance.

Appendix D: Interview protocol

Section 1: Interviewee background and role

- Tell me about your role within the company
- Describe your areas of responsibility
- What are your unit's primary goals?
- How have these goals been established?
- Where are you positioned in the overall organisational hierarchy?
- Explain your reporting structure

Section 2: Expectations relating to innovation and predictable goal achievement

- How much emphasis is there on innovation in your role?
- How would you describe the type of innovation you are involved in?
- Describe some innovation-related projects you are currently working on?
- How have expectations for innovativeness been communicated to you?
- How much emphasis is there on efficiency in your role?
- Describe some efficiency-related projects/tasks you are currently working on?
- How have expectations for efficiency been communicated to you?

Section 3: Organisation culture, core values and belief systems

- How would you describe the culture of this organisation?
- What is valued in this organisation?
- How does senior management formally communicate this culture/core values?
- How do the core values impact on your day-to-day activities?
- How do you use/communicate core values during your interactions with your subordinates?
- How are core values used during interactions with senior management?
- To what extent are the core values consistent with each other?

Section 4: Boundary systems

- How would you describe the opportunities that this organisation is most interested in pursuing?
- How do you know what opportunities/strategies cannot be pursued?
- How would you describe the risks that this organisation wishes to avoid?
- How are these risks communicated to you?
- Does this organisation have a code of conduct/code of ethics that guides your behaviour?
- How do these limits affect you in your role?
- How do you reinforce these limits with your subordinates?

Section 5: Management control systems and control systems used in a diagnostic manner

- What are the main sources of information that you use to manage your unit?

- Where does this information come from?
- What factors are critical to the success of your unit?
- What level of attention is given to these factors/metrics in managing the unit?
- How is the achievement of these critical success factors/metrics monitored?
- To what extent do your unit's goals emphasise efficiency?
- To what extent do your unit's goals emphasise innovativeness?
- What are the consequences of having metrics that deal with both innovativeness and efficiency?
- How much of your time is consumed with managing your unit's key metrics?
- What is senior managements' involvement in your unit's critical success factors/metrics?

Section 6: Management control systems used in an interactive manner

- What type of changes could invalidate the strategy of your unit/company?
- What level of discussion takes place on these factors?
- What types of issues are typically discussed with senior management?
- What type of information is discussed?
- What challenges are there for managers when senior management are involved in issues relating to their unit?
- What benefits are there for managers when senior management are involved in issues relating to their unit?
- How do these interactions with senior management affect your unit's performance?

Section 7: Trade offs and tensions

- To what extent are trade-offs necessary between various demands placed on you?
- How frequently do you have to make judgements about what should be given priority?
- What helps guides such decisions?
- How challenging are trade-off decisions?
- How do trade-offs impact on your unit's performance?

Appendix E: Pre-interview survey

Listed below are a series of statements that represent work activities undertaken by middle managers. The activities listed are not intended to be a comprehensive description of managerial work.

Please read each of the statements carefully and place a tick () in the box which best describes the extent to which you are expected to perform each activity.

Some of the activities may not be applicable to your area and please indicate 'never' if this is the case.

	Never	Rarely	Sometimes	Often	Very frequently
Sell top management initiatives to subordinates.	<input type="checkbox"/>				
Gather information on the feasibility of new projects/ programmes.	<input type="checkbox"/>				
Evaluate the merits of new proposals.	<input type="checkbox"/>				
Translate goals into action plans.	<input type="checkbox"/>				
Communicate implications of new information.	<input type="checkbox"/>				
Implement action plans to meet objectives.	<input type="checkbox"/>				
Develop objectives and strategies for unofficial projects.	<input type="checkbox"/>				
Propose programmes/projects to senior managers.	<input type="checkbox"/>				
Assess changes in the external environment.	<input type="checkbox"/>				
Justify projects that have already been established.	<input type="checkbox"/>				
'Buy time' for experimental projects/programmes.	<input type="checkbox"/>				
Encourage informal discussion and information sharing.	<input type="checkbox"/>				
Relax regulations to get new projects started.	<input type="checkbox"/>				
Communicate the activities of competitors, suppliers, customers etc.	<input type="checkbox"/>				
Translate goals into individual objectives.	<input type="checkbox"/>				
Encourage multidisciplinary problem solving teams.	<input type="checkbox"/>				
Search for new opportunities.	<input type="checkbox"/>				
Locate and provide resources for trial projects.	<input type="checkbox"/>				
Provide a safe haven for experimental programmes.	<input type="checkbox"/>				
Monitor activities to support top management objectives.	<input type="checkbox"/>				
Justify and define new projects/programmes.	<input type="checkbox"/>				

Appendix F: Letter accompanying pre-interview questionnaire

10th April, 2015

Dear X,

Further to my correspondence with your colleague X, I will be meeting with you at 1 pm on Wednesday 16th April. Many thanks for agreeing to meet with me; I greatly appreciate your time.

In today's environment, it is important for organisations to be innovative while simultaneously meeting day-to-day operational targets. My study examines how middle managers achieve this in practice. I am interested to learn more about your experiences in meeting this challenge.

Confidentiality will be maintained at all times and responses are anonymous. The data collected will be used for academic purposes only.

In advance of our meeting, could I please ask you to complete the brief survey that is enclosed. I will collect it from you at our meeting.

I am looking forward to meeting with you on Wednesday.

Kind regards,

Patricia Martyn,
Lecturer in Accounting and Finance,
Cairnes School of Business and Economics

Appendix G: Sample of data coding

Interviewee quotation	Source	Coded to
<i>"As an organisation it would be very strong in relation to code of conduct and it would be very clear in relation to what the expectation is for employees"</i>	Quality Manager, C1	Boundary systems/business conduct boundaries/organisational code
<i>"number one getting there second or late you know you are going to have trouble"</i>	Product Line Manager (AP), C2	Boundary systems/strategic boundaries/use of metrics & Championing role
<i>"We are very sensitive to what physicians will think and say and do"</i>	R&D Manager, C1	Boundary systems/strategic boundaries/collaborations
<i>"With market intelligence, where do competitors come in. What type of new products have they coming in? And have we equivalent or better products that we think we can be successful in"</i>	Product Development Director, C1	ICS/identify opportunities & Synthesising role
<i>"We have a programme and portfolio management team, they will run a weekly meeting on project status. So projects are red, yellow, green and the key metrics are reported out against them"</i>	Director of Development R&D, C4	DCS/review process & Implementation role
<i>"In January my own boss called me in and said on the back of all the work you are doing and meeting every commit, you are getting one of these performance awards"</i>	Product Line Manager (IP), C2	DCS/recognition for on track & Implementation role
<i>"Cost and that's all about meeting your budget, so that basically means your manufacturing, you are meeting your standard cost that you had set for making every product and or hopefully surpassing it"</i>	Management Accountant, C3	DCS/Operations metrics & Implementation role
<i>"I wouldn't see them [predictable goal achievement and creative innovation] as being two different things...if you want to control costs, you've got to be innovative at how you do it"</i>	HR Manager, C1	Tensions/Paradoxical cognition

Appendix H: Characteristics of the LOC used to guide data coding

LOC	Characteristics
Beliefs systems	Explicit set of organisational beliefs defining basic values and purpose. Manifest through mission statements, vision statements, credos and statements of purpose.
Boundary systems	Formally stated rules, limits and proscriptions. Manifest through codes of business conduct, strategic planning systems, investment guidelines and operational guidelines.
Control systems used in a diagnostic manner	Feedback systems used to monitor organisational outcomes and correct any deviations from preset standards of performance. Manifest through quantified standards and measurement of output.
Control systems used in an interactive manner	Control systems which senior managers utilise to allow them become regularly and personally involved in the decision activities of subordinates. Manifest through: <ul style="list-style-type: none"> • data generated becomes an important and recurring agenda item in discussions with senior management • system is the focus of regular attention by all levels of managers • face-to-face meetings with senior management • continually challenge and debate data, assumptions and action plans

Source: Simons (1995, p. 178-180)

Appendix I: Characteristics of middle managers' strategic involvement used to guide data coding

Strategic Role	Characteristics
Championing	<ul style="list-style-type: none"> • advocate new business opportunities • communication of strategic options to senior management • sell entrepreneurial and strategic initiatives which can potentially shape future strategy
Facilitating adaptability	<ul style="list-style-type: none"> • alert to changing conditions • adaption of work practices to changing environment
Implementing deliberate strategy	<ul style="list-style-type: none"> • translate corporate strategy into action plans and individual objectives • adjusting activities in response to emergent events • consistent downward influence
Synthesising	<ul style="list-style-type: none"> • gather, interpret and report information to top management • interpretation and evaluation of information • filter information provided to senior management

Source: Floyd and Wooldridge 1992; 1994

Appendix J: Illustrative example of C-ratio process following Lillis et al. (2016) approach

- A code frequency table report was produced in nVivo indicating the frequency of coding to each dimension:

	C1	C2	C3	C4	Total
Facilitating	169	228	235	145	777
Implementing	242	216	291	322	1,071
Championing	169	218	69	97	553
Synthesising	<u>69</u>	<u>98</u>	<u>109</u>	<u>81</u>	<u>357</u>
Total role codes	649	760	704	645	2,758
Beliefs system	73	79	74	74	300
Boundary system	68	74	62	70	274
DCS	83	141	89	96	409
ICS	<u>58</u>	<u>98</u>	<u>57</u>	<u>75</u>	<u>288</u>
Total LOC codes	282	392	282	315	1,271

- Code co-occurrence reports were produced in nVivo in matrix format crossing middle manager strategic roles and LOC:

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	105	65	84	58
Implementing	145	89	404	101
Championing	67	96	55	53
Synthesising	14	83	14	173

- Co-occurrences were translated into C-ratios using the following formula: $(C_{12}=n_{12}/(n_1+n_2-n_{12}))$. The calculation of C-ratio between belief systems and facilitating role is calculated as follows:

$$105/(777+300-105) = 0.11$$

where 105 is the co-occurrence between beliefs systems and facilitating role, 777 is the frequency of coding narratives to

facilitating and 300 is the frequency of coding narratives to beliefs systems.

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.11	0.07	0.08	0.06
Implementing	0.12	0.07	0.38	0.08
Championing	0.09	0.13	0.06	0.07
Synthesising	0.02	0.15	0.02	0.37

Appendix K: Responses to pre-interview survey on middle manager strategic involvement

Interviewee		Championing		Facilitating		Synthesising		Implementing	
		Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Case 1									
Engineering Manager	Ops	4.2	2	3.86	3	3.75	4	4.6	1
HR Manager	Supp	4.2	2	3.43	4	3.5	3	4.8	1
Finance Manager	Ops	4.6	1	3.71	3	3.5	4	4	2
Quality Manager	Ops	3.6	2	2.71	4	3.5	3	5	1
Product Manufacturing Manager	Ops	2.8	4	3.43	3	3.5	2	4.8	1
Training & Development Manager	Supp	4.6	2	3.57	4	3.75	3	5	1
Lean Sigma Manager	Ops	4.4	2	4.14	3	4	4	4.6	1
Product Development Director	R&D	3.6	4	3.86	3	4.25	2	4.6	1
R&D Manager	R&D	3.8	3	4.43	1	3.5	4	4.2	2
Case 2									
Marketing Manager	Mkt	4	2	3.43	3	4.25	1	4	2
Finance Manager	Supp	2.6	3	1.86	4	3	2	3.4	1
Director of Quality	Ops	3.4	4	3.86	3	4	2	4.8	1
Director of Manufacturing Operations	Ops	4	3	3.57	4	4.25	2	4.6	1
Project Manager	Eng	2.8	4	3.43	2	3.25	3	4.6	1
Technical Leader	Eng	2.2	3	2.57	2	1.75	4	2.8	1
Product Group Manager	Eng	3.6	2	3.29	3	3.25	4	4.4	1
Manufacturing Manager	Ops	3.4	2	2.57	4	2.75	3	3.6	1
Case 3									
Project Leader	Prod Dev	3	3	3.71	1	2.5	4	3.6	2
Manufacturing Unit Manager	Ops	3.6	2	3.43	4	3.5	3	4	1

Director Strategic Business Support	Strat	3.4	1	3.00	3	3.25	2	2.6	4
Director of Programme Management	Strat	4.2	2	3.57	4	3.75	3	4.6	1
Marketing Manager for Europe	Mkt	3.8	4	3.86	3	4.75	2	5	1
Data Manager	Supp	3.6	2	3.57	3	3.5	4	4	1
Director Commercial Capabilities	Strat	3.6	3	3.00	4	4	2	4.8	1
Director of Process Development	Strat	3.6	3	3.71	2	3.25	4	4	1
Business Solutions and Support Manager	Strat	3.8	2	3.29	3	3	4	4.4	1
Process Development Director (in PD)	Eng	4	2	4.00	2	3.5	3	4.4	1
Finance Manager	Ops	2	2	1.86	3	2	2	3.4	1
Case 4									
Portfolio Manager	Eng	4.4	3	3.71	4	4.5	2	4.8	1
Director CS Innovation Centre	Eng	4.4	2	3.86	3	3.75	4	4.8	1
Director Development R&D and GM	Eng	3.2	3	3.14	4	3.5	2	4.6	1
Director CS Division	Eng	3.2	3	3.00	4	3.25	2	3.8	1
Account Executive	Mkt	4	2	3.00	4	3.75	3	4.4	1
Finance Manager	Supp	3	2	2.86	3	2.75	4	4.6	1
Business Development Manager	Ser	4.6	3	4.43	4	4.75	2	5	1
Global Service Delivery Manager	Ser	3.8	2	3.00	3	2.75	4	4.2	1
Project Manager	Eng	3.4	4	3.43	3	3.75	2	4.4	1
Senior Delivery Executive	Ops	3.6	2	3.29	3	2.75	4	3.8	1
Average mean score		3.6	2	3.4	4	3.5	3	4.3	1

Appendix L: Code co-occurrences across operations roles

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.12	0.04	0.11	0.06
Implementing	0.12	0.05	0.47	0.10
Championing	0.06	0.14	0.02	0.04
Synthesising	0.04	0.13	0.02	0.42

Table B-1: Code co-occurrences - all cases operations related only

(Consists of all interviewees listed in Tables B-2 to B-5)

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.08	0.04	0.14	0.03
Implementing	0.15	0.04	0.44	0.14
Championing	0.05	0.15	0.01	0.04
Synthesising	0.03	0.16	0.00	0.22

Table B-2: Code co-occurrences - Case 1 operations related only

(Consists of Lean Sigma Manager, Quality Manager, Product Line Manager, Senior Engineering Manager and Plant Finance Manager)

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.18	0.05	0.10	0.08
Implementing	0.11	0.05	0.46	0.07
Championing	0.06	0.16	0.02	0.06
Synthesising	0.06	0.14	0.04	0.64

Table B-3: Code co-occurrences - Case 2 operations related only

(Consists of Director of Quality, Manufacturing Manager, Manufacturing Operations Director and Finance Manager)

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.07	0.00	0.08	0.11
Implementing	0.06	0.08	0.50	0.10
Championing	0.12	0.08	0.04	0.00
Synthesising	0.00	0.10	0.00	0.27

Table B-4: Code co-occurrences - Case 3 operations related only

(Consists of Production Unit Manager and Plant Management Accountant)

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.05	0.17	0.09	0.04
Implementing	0.04	0.00	0.75	0.00
Championing	0.00	0.00	0.00	0.00
Synthesising	0.00	0.00	0.00	0.50

Table B-5: Code co-occurrences – Case 4 operations related only

(Consists of Senior Delivery Executive only)

Appendix M: Code co-occurrences across project-related roles

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.12	0.05	0.06	0.05
Implementing	0.08	0.10	0.38	0.09
Championing	0.08	0.12	0.07	0.08
Synthesising	0.00	0.19	0.02	0.29

Table C-1: Code co-occurrences - all cases project related only

(Consists of: All interviewees listed in Tables C-2 to C-4)

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.06	0.04	0.06	0.02
Implementing	0.07	0.08	0.43	0.07
Championing	0.08	0.16	0.06	0.18
Synthesising	0.00	0.02	0.04	0.27

Table C-2: Code co-occurrences - Case 2 project related only

(Consists of: Product Line Manager Applications, IP Group Manager, Technical Leader and Project Manager)

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.14	0.05	0.07	0.06
Implementing	0.08	0.13	0.41	0.07
Championing	0.06	0.09	0.07	0.05
Synthesising	0.00	0.32	0.02	0.37

Table C-3: Code co-occurrences - Case 3 project related only

(Consists of: Project Leader, Process Development Director in PD, Director Strategic Business Support, Director Process Development, Director Commercial Capabilities, Business Solutions Manager, Data Manager and Director of Programme Management)

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.15	0.06	0.02	0.09
Implementing	0.11	0.07	0.32	0.13
Championing	0.12	0.11	0.06	0.02
Synthesising	0.00	0.15	0.00	0.21

Table C-4: Code co-occurrences – Case 4 project related only

(Consists of: Director CS Division, Director CS Innovation Centre, Director Development R&D, Senior Development R&D Manager, and Project Manager)

Appendix N: Code co-occurrences across customer service related roles

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.03	0.25	0.07	0.10
Implementing	0.15	0.03	0.30	0.05
Championing	0.04	0.19	0.04	0.00
Synthesising	0.00	0.00	0.03	0.47

Table D-1: Code co-occurrences - all cases customer service related only

(Consists of: Business Development Manager SL C4 and Global Delivery Manager C4)

Inevitably some interviewees span roles and the basis for the role classification relates to the interviewee’s primary area of responsibility: operations, sales, project, customer service and R&D. For example, the Business Development Manager in C4 had responsibility for both customer service and sales and he was classified as customer service as this reflected the main focus of his activities.

Appendix O: Code co-occurrences across sales related roles

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.09	0.14	0.01	0.00
Implementing	0.20	0.05	0.23	0.00
Championing	0.08	0.06	0.06	0.10
Synthesising	0.03	0.04	0.01	0.62

Table E-1: Code co-occurrences - all cases sales only

(Consists of: Marketing Manager C2, Marketing Manager for Europe C3 and Account Executive C4)

Appendix P: Code co-occurrences across R&D related roles

Middle manager role	Levers of control			
	Belief systems	Boundary systems	DCS	ICS
Facilitating	0.04	0.00	0.04	0.24
Implementing	0.21	0.00	0.00	0.30
Championing	0.08	0.14	0.17	0.06
Synthesising	0.13	0.43	0.02	0.19

Table F-1: Code co-occurrences - all cases R&D only

(Consists of: Product Development Director C1 interview 1 &2 and R&D Manager C1)

Appendix Q: Summary of narratives concerning synthesising activities and ICS

Functional Area	Nature of system	Data type	Consequences
Sales	Competitor analysis (C2)	Intelligence on competitor activities through networks, field trips and from sales people	Formulate strategic response to competitor activities
	Market research (C2)	Intelligence on potential customer response to new products	Assess market response
	Technological competitor review (C2)	Review technological base of competitor	Quantify impact and risk
	Update of competitive position (C2)	Updated competitive position to SM as part of QBR	May revise strategy
	Currency movements (C3)	Review currency movements that impact on overseas trade	Inform pricing strategies
	Industry mergers and acquisitions (C3)	Gather intelligence	Assess impact of these collaborations
	Competitor analysis (C3)	Major medical device conferences are opportunity to assess competitor activity	Inform strategy
	Industry medical trial results (C3)	Review results of trials	Adverse results may have negative inferences across industry
	Collaboration with universities (C4)	Assess industry changes	Inform innovation direction
	Business to business networks (C4)	Using technology to identify and pursue leads	Potential sales opportunities
Customer Service	Field seller meeting (C4)	Market intelligence on customers and competitors	Transfer relevant opportunities to metric pot
	Review of field documentation (C4)	Customer requests and proposal	Reviewed and passed to portfolio innovation
	Market analyst reports (C4)	Industry research	Interpret and into metric pot
	Twice yearly review (C4)	Briefing and interpreting of market intelligence gathered during period	Decide on 3-5 projects to move to incubation
	Monthly sales meetings (C4)	Discussion of current issues focusing on forthcoming launches	Sales team informed about launch pipeline
	Weekly meeting with unit director (C4)	Review of current issues	Briefing of opportunities and risks
Operations	Business level SWOT analysis (C1)	Assessment of the market landscape	Briefing and areas focus areas
	Benchmarking of lean sigma function (C1)	Functional benchmarking	Identify improvement opportunities
	Regulatory changes (C1)	Inform on forthcoming changes	Identify changes and their impact
	Customer needs (C1)	Understand evolving customer needs	Identify needs and restructure to meet needs
	Culture of manufacturing influencing marketing (C2)	Cross-functional idea sharing	Collaboration, following ideas through product definitions
	Functional presentations (C2)	Forum for cross-functional input	Identify opportunities
	Market needs (C2)	Market needs identify through sales organization and field application engineers	Informs opportunities resulting in market requirement document

	Feedback from tenders (C2)	Focus on feedback from tender losses	Costs to high and cross- functional team established to address
	Competitor activities (C2)	Assess competitive responses to pricing decisions	Informs market and pricing strategies
	Customer feedback (C2)	Competitors' R&D activities	Divested project
	Functional benchmarking (C2)	Regular site visits focusing on efficiency	Update via innovation meeting
	Business leader focus group meetings (C2)	Focus on issues, challenges and feedback	Response and issues requiring further investigation
	Feedback from tenders (C2)	Focus on tender losses	Interpret information
	Comparative performance data versus competitors (C3)	Revenue, market share information	Interpret market positioning
	Analysis of competitors products and capabilities (C3)	Compare product performance	Informs decisions on new products
	Benchmark finance department against industry norms (C3)	Compare cost norm	Focus on cost reduction
	Due diligence intelligence gathering (C3)	Ass potential acquisitions	Inform acquisition decisions
	Intelligence on technological changes	Technology can facilitate change	Identify opportunities
Project	Benchmarking engineering systems (C2)	Compare performance against industry	Drive efficiency
	Marketing and applications engineers conduct competitor analysis (C2)	Key feature of competitor products	Influences direction and product design
	Benchmarking of project management function (C2)	Best practices	Identify process improvements
	Competitor activities (C3)	Reviewed at sales meeting	Interpret competitor activity and scale of threat
	Key opinion leaders (C3)	Attitudes towards products reviewed at sales meetings	Winning KOL influence
	Analysis of key accounts (C3)	Reviewed at sales meeting	Influence revenue
	Regional competitor activities (C3)	Particular country or pool of customers	Response to threat to particular market segment – accelerate certain technologies
	Changes in customer purchasing patterns (C3)	Move to collaborative purchasing	Assess and respond
	Corporate steering team meeting discuss market dynamics (C3)	Market changes, challenges and customer feedback	Formulate strategy
	Country management meetings (C3)	Country specific market issues	Formulate strategy
	Customer relationship management system benchmarking (C3)	Appraise solutions available	Select best solution
	Smoke the carpet sessions (C3)	How vision fits into current and future market dynamics	Reconcile vision with market dynamics
	Government grant opportunities (C3)	Prepare applications	Secure grants
	Industry summits (C4)	Networking and industry trends	Influence strategy
	Benchmarking of engineering processes (C4)	Improvement of engineering processes	Drive efficiency
Competitive analysis (C4)	Technological trends and marketplace direction	Influence strategy and product focus	

	Collaboration with universities (C4)	Market trends	Influence strategy
	Customer needs (C4)	Analysed through product backlog system	Guides new release strategy
R&D	Product pipeline comparison to competitors (C1)	Flag chart comparison	Influences strategy
	Innovation summit (C1)	Synthesis of information sources	Future direction
	Competitor analysis (C1)	Focus on competition's next generation products	Future direction
	Medical device conferences (C1)	Competitor activity and industry trends	Inform direction

Appendix R: Cascade, review and escalation of critical success factor through DCS - Operations related roles

Informant	Systems	CSFs cascaded through DCS	Review of CSFs	Prompt further attention
Case 1				
Product Line Manager	<ul style="list-style-type: none"> Annual operating plan (AOP) Build plan 	<ul style="list-style-type: none"> Targets set for: quality, service, cost, inventory levels, yield and labour burden and material costs People goals Headcount and overtime 	<ul style="list-style-type: none"> Live system tracks output metrics reviewed daily Weekly management gamba and meeting 	<ul style="list-style-type: none"> Exception basis Volume issue
Lean Sigma Manager	<ul style="list-style-type: none"> AOP 	<ul style="list-style-type: none"> Quality, service, cost, productivity, safety and inventory returns (S) 	<ul style="list-style-type: none"> Lean Sigma KPIs reviewed weekly Plant KPIs reviewed in weekly management meeting Monthly review of all plant KPIs 	<ul style="list-style-type: none"> Exception basis May require micromanagement to close gap
Engineering Manager	<ul style="list-style-type: none"> AOP 	<ul style="list-style-type: none"> Targets set for: yield, labour efficiencies, production efficiencies and material efficiencies 	<ul style="list-style-type: none"> Live system tracks output metrics – reviewed daily Financial reports generated daily Daily output and performance reports reviewed and compared against target from AOP 	<ul style="list-style-type: none"> Manage by exception and by achievement Not meeting output targets Not meeting demand targets
Finance Manager	<ul style="list-style-type: none"> Annual operating plan Budgets 	<ul style="list-style-type: none"> Targets set for: yields, output, costs of goods sold and scrap (S) Headcount and overtime spend (S) Capital spending budget Quality issues (S) Safety issues (S) 	<ul style="list-style-type: none"> Live system tracks output metrics Traffic light system at cell level Weekly site management meeting reviews performance and focuses on issues resolution 	<ul style="list-style-type: none"> Not hitting AOP focus on why?

			<ul style="list-style-type: none"> Financial metrics reviewed monthly focus on actual v AOP QBR 	
Quality Manager	<ul style="list-style-type: none"> Quality systems 	<ul style="list-style-type: none"> Non-conforming materials report Corrective and Preventative Actions Volume of complaints 	<ul style="list-style-type: none"> Monthly reporting of site quality metrics Feed into QBR 	<ul style="list-style-type: none"> All quality issues receive attention
Case 2				
Manufacturing Director	<ul style="list-style-type: none"> Benchmark plan Budgets 	<ul style="list-style-type: none"> Targets set for: product volume & yield, scrap, cost of manufacture, cost of supply of parts, cycle times and headcount. 	<ul style="list-style-type: none"> Live production metrics monitored continually Daily bunker meeting Weekly site factory management review meeting on exception basis Feeds into QBR 	<ul style="list-style-type: none"> By exception Issues dragging
Manufacturing Manager	<ul style="list-style-type: none"> Benchmark plan Budgets 	<ul style="list-style-type: none"> Targets set for each of the following: product volume, cycle times, yield, equipment utilisation based on moves, deliver to activity, deliver to floor, floor rates, supply loading, tool performance. Safety issues Manufacturing costs 	<ul style="list-style-type: none"> Live production metrics on dashboard monitored continually Weekly update to site GM on key KPI and issues from week Summery reporting to corporate monthly and feed into QBR 	<ul style="list-style-type: none"> Not hitting numbers Issues impacting customers
Director of Quality	<ul style="list-style-type: none"> Quality systems Budgets 	<ul style="list-style-type: none"> Volume of quality issues – parts per million Responsiveness to issues Unit headcount Capital budget for equipment 	<ul style="list-style-type: none"> Live quality metrics Weekly global quality review of quality metrics across all plants Feed into QBR 	<ul style="list-style-type: none"> Issue impacts on a customer
Finance Manager	<ul style="list-style-type: none"> Benchmark plan Budgets 	<ul style="list-style-type: none"> Targets set for revenue & revenue margins, costs and gross margins (S) Discretionary costs such as services and consulting 	<ul style="list-style-type: none"> Weekly and monthly reporting per business unit actual v benchmark plan QBR for corporate includes high level financial metrics on scorecard basis 	<ul style="list-style-type: none"> On exception basis if not meeting plan

Case 3				
Accountant	<ul style="list-style-type: none"> Quality systems 	<ul style="list-style-type: none"> Targets set for: scrap rates, cycle times, line fill, number of product builders on target and standard manufacturing costs (S) Quality - field actions and complaints per million (S) Service - inventory level at distribution centres and backorder levels (S) Safety - accidents reported (S) 	<ul style="list-style-type: none"> Continual tracking of live production metrics Daily performance meetings Weekly production unit performance review reviewing prior week Report metric, nine panel, monthly to corporate 	<ul style="list-style-type: none"> Off target but focusing on recovery plan
Production Unit Manager	<ul style="list-style-type: none"> Budgets 	<ul style="list-style-type: none"> Quality - defective parts per million, number of non-conforming events and customer complaints Service - inventory levels Targets set for: production spend, costs of goods sold, yield, labour costs and scrap levels 	<ul style="list-style-type: none"> Weekly review with site SLT to review metrics 	<ul style="list-style-type: none"> Issues adversely impacting on site metrics
Case 4				
Delivery Executive	<ul style="list-style-type: none"> Product release plans Service level agreements 	<ul style="list-style-type: none"> Targets set for: number of files, number of releases, number of submissions, shipments Quality Targets set for: productivity hours on site and products produced 	<ul style="list-style-type: none"> Weekly update report Monthly update report Feeds into site metrics 	<ul style="list-style-type: none"> By exception for issues off target

Appendix S: Cascade, review and escalation of critical success factor through DCS – Project related roles

Interviewee	Systems	CSFs cascaded through DCS	Review of CSFs	Prompt further senior management attention
Case 2				
IP Group Manager	<ul style="list-style-type: none"> Programme mgmt. Benchmark plan 	<ul style="list-style-type: none"> Delivery per time commitments Delivery per benchmark mark Reaction to project situations 	<ul style="list-style-type: none"> Monthly operational review meeting Monthly review meeting with SLT Feed into QBR 	<ul style="list-style-type: none"> Delivery dates pushed out
Product Line Manager	<ul style="list-style-type: none"> Programme mgmt. Benchmark plan 	<ul style="list-style-type: none"> Delivery per project plan Delivery per market release plan 	<ul style="list-style-type: none"> Weekly project team meetings Internal systems status updates Weekly operational meeting Weekly unit level review Feed into QBR 	<ul style="list-style-type: none"> Slippage on customer commitments
Project Manager	<ul style="list-style-type: none"> Programme mgmt. Benchmark plan 	<ul style="list-style-type: none"> Project commitments Deliver project milestones on time 	<ul style="list-style-type: none"> Weekly minuted updates Monthly projects reviews 	<ul style="list-style-type: none"> Slippage on commitments
Technical Leader	<ul style="list-style-type: none"> Programme mgmt. Benchmark plan 	<ul style="list-style-type: none"> On time delivery of project milestones 	<ul style="list-style-type: none"> Fortnightly meeting with unit head Monthly project reviews 	<ul style="list-style-type: none"> Slippage on commitments to customers Slippage in finalising specifications with customer
Case 3				
Business Solutions Manager	<ul style="list-style-type: none"> Programme mgmt 	<ul style="list-style-type: none"> Execution and delivery per plan 	<ul style="list-style-type: none"> Weekly team meeting Fortnightly project reviews at business unit level 	<ul style="list-style-type: none"> Slippage on timelines Issues working with internal clients
Director Commercial Capabilities	<ul style="list-style-type: none"> Programme mgmt 	<ul style="list-style-type: none"> Project milestones 	<ul style="list-style-type: none"> Monthly review at unit level Feed into QBR 	<ul style="list-style-type: none"> Project delays

Director of Process Development	<ul style="list-style-type: none"> • Programme mgmt 	<ul style="list-style-type: none"> • Number of projects • Delivery per project timelines 	<ul style="list-style-type: none"> • Monthly project reviews 	<ul style="list-style-type: none"> • Project off-track
Director Programme Management	<ul style="list-style-type: none"> • Programme mgmt. • Budgets 	<ul style="list-style-type: none"> • Project milestones and deliverables 	<ul style="list-style-type: none"> • Monthly review with SLT • Feeds into European QBR 	<ul style="list-style-type: none"> • Resource or budget constraints causing delays
Director Strategic Business Support	<ul style="list-style-type: none"> • Programme mgmt. 	<ul style="list-style-type: none"> • Target number of projects • Milestones per project plan 	<ul style="list-style-type: none"> • Weekly team meeting • Unit level review monthly and quarterly 	<ul style="list-style-type: none"> • Project off-track
Project Leader	<ul style="list-style-type: none"> • Programme mgmt. • Budgets 	<ul style="list-style-type: none"> • Delivery per timelines • Delivery within budget • Team performance 	<ul style="list-style-type: none"> • Monthly scorecard review of timelines and budget 	<ul style="list-style-type: none"> • Project off-track
Data Manager	<ul style="list-style-type: none"> • Programme mgmt. 	<ul style="list-style-type: none"> • Project deadlines 	<ul style="list-style-type: none"> • Weekly scorecard review with unit manager 	<ul style="list-style-type: none"> • Project off-track • Complaints
Case 4				
Director CS Division	<ul style="list-style-type: none"> • Programme mgmt. • Budgets 	<ul style="list-style-type: none"> • Execution to plan 	<ul style="list-style-type: none"> • Continual review of timelines • Monthly unit level review 	<ul style="list-style-type: none"> • Project off-track
Director CS Innovation Centre	<ul style="list-style-type: none"> • Programme mgmt. • Budgets 	<ul style="list-style-type: none"> • Execution to plan 		
Director Development R&D	<ul style="list-style-type: none"> • Programme mgmt. • Headcount budgets 	<ul style="list-style-type: none"> • Execution to plan 	<ul style="list-style-type: none"> • Weekly review with programme & portfolio team 	<ul style="list-style-type: none"> • Timeline slippages
Project Manager	<ul style="list-style-type: none"> • Programme mgmt. • Budgets 	<ul style="list-style-type: none"> • Delivery on time and within budget 	<ul style="list-style-type: none"> • Presentation to stakeholders • Stage reviews 	<ul style="list-style-type: none"> • Timeline slippages • Budgets running out
Development R&D Manager	<ul style="list-style-type: none"> • Programme mgmt. • Budgets 	<ul style="list-style-type: none"> • Delivery of business value proposition 	<ul style="list-style-type: none"> • Monthly unit level review 	<ul style="list-style-type: none"> • Timeline slippages • Budget excesses

Appendix T: Illustrative examples of ICS style of use that manifest at middle manager level

<p>Scenario A: Quality Manager C1 Crisis</p>	<p>Quality issues are potentially a major concern in Medical Device industry. The Quality Manager in C1 spoke of a particular quality infringement scenario resulting in a product recall. This provoked a high level of senior management attention <i>"that goes right up to CEO, he would have full visibility"</i>. A cross-functional team was formed to respond to the crisis.</p>
<p>Scenario B: R&D Manager C1 Crisis</p>	<p>R&D Manager in C1 was drafted in to resolve a production related crisis. This issue was attracting significant attention from senior managers as production of this particular product had ceased for a couple of months. He described a period of extended and intense communications with senior management. As project lead he was under pressure to prepare a formal project plan, however he resisted and justified his decision as follows <i>"it was a crisis, it's not a normal situation so I'm going to manage that crisis. I'm not going to do the things you normally see"</i>.</p>
<p>Scenario C: HR Manager C1 Attention focusing</p>	<p>HR Manager shared an account of a senior manager's involvement in a recent project. She explained how the project had been lagging and losing momentum. In response to this a senior manager attended project meetings <i>"All he did was spend his time listening to what people had to say, what their concerns are, how we move the needle of engagement and business opportunities"</i>. She perceived this as pivotal as it reinforced the importance of the project. As a result of senior management attention, the HR Manager described a <i>"sea change shift"</i> in the project which <i>"accelerates focus and accelerates activity...it keeps focus and action on it"</i>.</p>
<p>Scenario D: Project Leader R&D C3 Formulate strategic response</p>	<p>The Project Leader referred to regular meetings between R&D and Sales & Marketing, involving senior and middle management at a European level. One such meeting, approximately a year prior to data collection, concentrated on declining market share of C3 products <i>"we have been Kings of Europe forever and we are not going to be kings for much longer"</i>. He explained that difficulties centered on perceived slowness at innovating incremental products relative to competitors. As a consequence, key physicians redirected their attention towards more agile competitors <i>"once we lost the share of mind, we started losing the share of market"</i>. This provoked the formation of a team to address the issue; following further discussion and strategising, an internal lean start-up was formed to expedite incremental product development processes.</p>
<p>Scenario E: Finance Manager C2 Strategic response to market</p>	<p>Design losses provoke considerable senior management attention in C2 according to the Finance Manager. He described one situation where the company had tendered for business. They did not expect to win the contract as they were aware they had cost issues to resolve but felt the feedback would be useful to benchmark themselves against their competitors. During a customer visit, feedback was received which indicated that not</p>

feedback	alone was C2 not getting the business " <i>we were very far off getting business</i> ". Upon learning this senior management become actively engaged in discussions on relative competitiveness. A cross-functional team (headed by Finance Manager) was established to investigate further. Following review of initial findings, various teams were convened to consider specific ways to redesign products to be more cost competitive.
Scenario F: Marketing Manager C2 Strategic response to market feedback	Competitor activity is a key concern, which attracts senior management attention in C2 " <i>In general competitor activity gets their attention</i> ". The Marketing Manager referred to a recent example where the company had learnt that a competitor had leapfrogged their technology on certain performance factors where heretofore C2 held the market leader position " <i>this hurt and so that rippled down through the organisation that we need to have a response</i> ". He explained that middle managers were required to input information and were heavily involved in formulating a strategic response.
Scenario G: Marketing Manager C3 Strategic response to competitive environment	Medical Device Conferences present a natural trigger for review of current and future strategy and consequently draw keen engagement from senior management. The Marketing Manager in C3 explains how the process typically unfolds. Information on competitor activities and customer trends is intensively gathered. Immediately following each conference a comprehensive review ensues " <i>constant flow of information back to what we call a war room...constant updates...what was the key data of the day, what were the key competitive moves...key things from our own products that worked well or badly</i> ". This information forms the basis of review discussions and significant decisions are made " <i>the strategy can change after one conference, where there's new data or there's a new competitor</i> ".